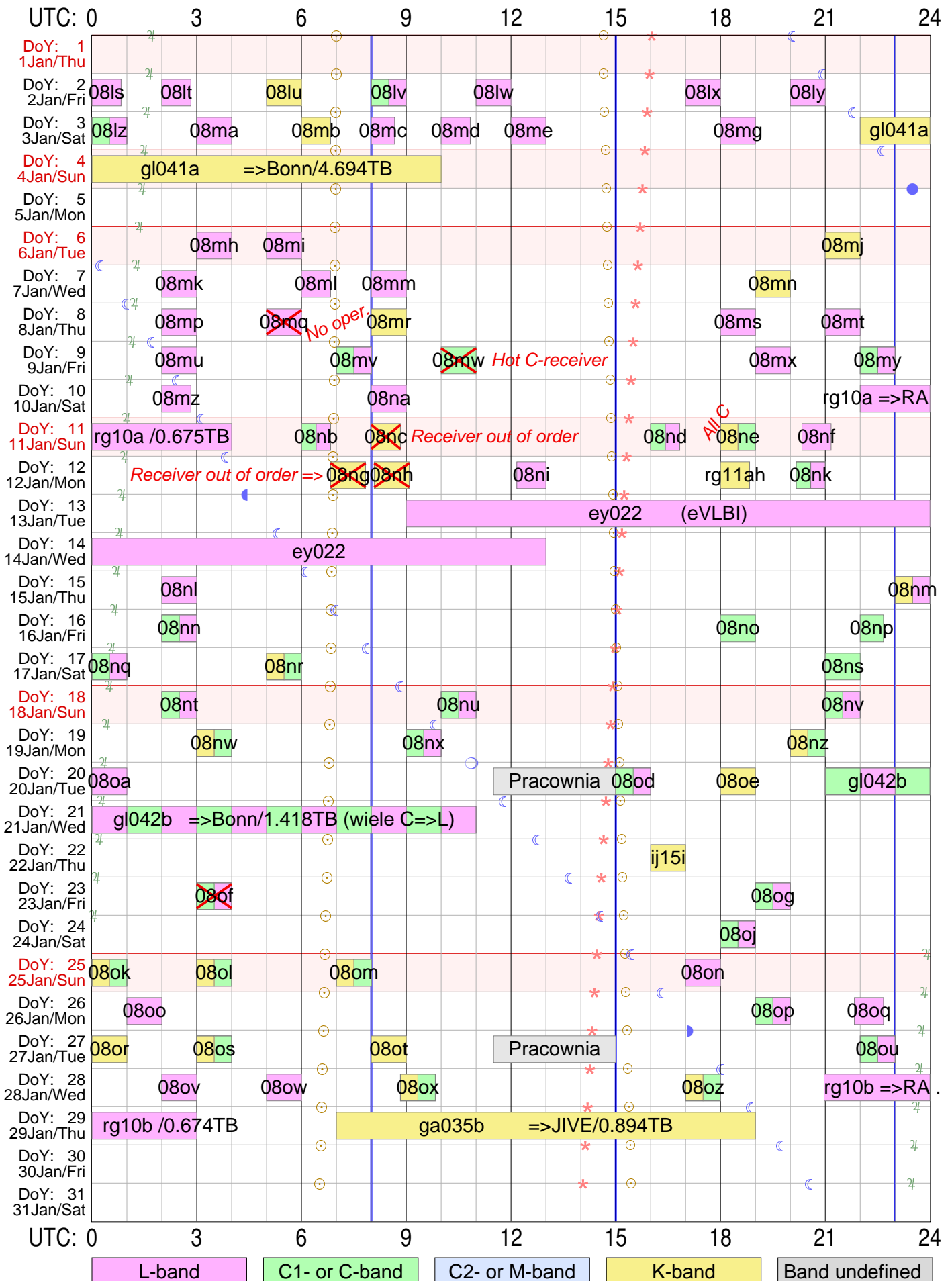


Tr VLBI plan for Jan 2015



Version: 2015.01.26

Sky events at Tr: ☉ Sunrise & sunset ☾☽ Transit of Moon ♃ Transit of Jupiter ★ Transit of Aries (0h ST)

Vertical lines in blue mark operator shift times at Tr

Total observing time: 154.0 hours in 85 experiments scheduled

Initial characters 'rk' are omitted from RA experiment names!

Strona zostawiona celowo pusta

RadioAstron & EVN Experiments

January 2015

Użytkownik i hasło ftp dla logów i schedulów RA: grt K0&th%

ftp://webinet.asc.rssi.ru

Przykład dla log files: cd GRT_log_files/2014_09/2014_09_01_raks08ak

Przykład dla sched files: cd schedule/grtsched/RAKS/rk08ak

DoY	DoM	WD	UT_Start	UT_Stop	Experiment	Band	Disk	Correlator
			h m	h m	name		space	
2	2	Pia	0 00	0 50	rk08ls	L	93 GB	
2	2	Pia	2 00	2 50	rk08lt	L	93 GB	
2	2	Pia	5 00	6 00	rk08lu	K	112 GB	
2	2	Pia	8 00	9 00	rk08lv	C->L	104 GB	
2	2	Pia	11 00	12 00	rk08lw	L	112 GB	
2	2	Pia	17 00	18 00	rk08lx	L	112 GB	
2	2	Pia	20 00	21 00	rk08ly	L	112 GB	
3	3	Sob	0 00	1 00	rk08lz	C->L	104 GB	
3	3	Sob	3 00	4 00	rk08ma	L	112 GB	
3	3	Sob	6 00	6 50	rk08mb	K	93 GB	
3	3	Sob	8 00	8 40	rk08mc	L	76 GB	
3	3	Sob	10 00	10 50	rk08md	L	93 GB	
3	3	Sob	12 00	13 00	rk08me	L	112 GB	
3	3	Sob	18 00	19 00	rk08mg	L	112 GB	
3	3	Sob	22 00	24+10 00	gl041a	K	4694 GB	=>Bonn
6	6	Wto	3 00	4 00	rk08mh	L	112 GB	
6	6	Wto	5 00	6 00	rk08mi	L	112 GB	
6	6	Wto	21 00	22 00	rk08mj	K	112 GB	
7	7	Sro	2 00	3 00	rk08mk	L	112 GB	
7	7	Sro	6 00	6 50	rk08ml	L	93 GB	
7	7	Sro	8 00	9 00	rk08mm	L	112 GB	
7	7	Sro	19 00	20 00	rk08mn	K	112 GB	
8	8	Czw	2 00	3 00	rk08mp	L	112 GB	
8	8	Czw	5 00	6 00	rk08mq	L	112 GB	
8	8	Czw	8 00	9 00	rk08mr	K	112 GB	
8	8	Czw	18 00	19 00	rk08ms	L	112 GB	
8	8	Czw	21 00	22 00	rk08mt	L	112 GB	
9	9	Pia	2 00	3 00	rk08mu	L	112 GB	
9	9	Pia	7 00	8 00	rk08mv	C->L	104 GB	
9	9	Pia	10 00	11 00	rk08mw	C	112 GB	
9	9	Pia	19 00	20 00	rk08mx	L	112 GB	
9	9	Pia	22 00	23 00	rk08my	C->L	104 GB	
10	10	Sob	2 00	2 50	rk08mz	L	93 GB	
10	10	Sob	8 00	9 00	rk08na	L	112 GB	
10	10	Sob	22 00	24+04 00	rg10a	L	675 GB	=>RA (gr038a)
11	11	Nie	6 00	6 50	rk08nb	C->L	84 GB	
11	11	Nie	8 00	8 50	rk08nc	K	93 GB	
11	11	Nie	16 00	16 50	rk08nd	C->L	84 GB	
11	11	Nie	18 00	19 00	rk08ne	K->C	104 GB	
11	11	Nie	20 20	21 10	rk08nf	L	93 GB	

12	12	Pon	6 50	7 50	rk08ng	K	112 GB	
12	12	Pon	8 05	9 05	rk08nh	K	112 GB	
12	12	Pon	12 10	13 00	rk08ni	L	93 GB	
12	12	Pon	18 00	18 50	rg11ah	K	105 GB	
12	12	Pon	20 10	21 00	rk08nk	C->L	84 GB	
12	13	Wto	9 0	113 0	ey022	L	-	eVLBI
15	15	Czw	2 00	3 00	rk08nl	L	112 GB	
15	15	Czw	23 00	24 00	rk08nm	K->L	104 GB	
16	16	Pia	2 00	3 00	rk08nn	C->L	104 GB	
16	16	Pia	18 00	19 00	rk08no	C	112 GB	
16	16	Pia	22 00	22 40	rk08np	C	76 GB	
17	17	Sob	0 00	1 00	rk08nq	C->L	104 GB	
17	17	Sob	5 00	6 00	rk08nr	K->C	104 GB	
17	17	Sob	21 00	22 00	rk08ns	C	112 GB	
18	18	Nie	2 00	3 00	rk08nt	C->L	104 GB	
18	18	Nie	10 00	11 00	rk08nu	C->L	104 GB	
18	18	Nie	21 00	22 00	rk08nv	C->L	104 GB	
19	19	Pon	3 00	4 00	rk08nw	K->C	104 GB	
19	19	Pon	9 00	10 00	rk08nx	C->L	104 GB	
19	19	Pon	20 00	21 00	rk08nz	K->C	104 GB	
20	20	Wto	0 00	1 00	rk08oa	L	112 GB	
20	20	Wto	15 00	16 00	rk08od	C->L	104 GB	
20	20	Wto	18 00	19 00	rk08oe	K	112 GB	
20	20	Wto	21 00	24+11 00	gl042b	C->L	1418 GB	=>Bonn
23	23	Pia	3 00	4 00	rk08of	C->L	104 GB	
23	23	Pia	19 00	20 00	rk08og	C->L	104 GB	
24	24	Sob	18 00	19 00	rk08oj	C->L	104 GB	
25	25	Nie	0 00	1 00	rk08ok	K->C	104 GB	
25	25	Nie	3 00	4 00	rk08ol	K->C	104 GB	
25	25	Nie	7 00	8 00	rk08om	K->C	104 GB	
25	25	Nie	17 00	18 00	rk08on	L	112 GB	
26	26	Pon	1 00	2 00	rk08oo	L	112 GB	
26	26	Pon	19 00	20 00	rk08op	C->L	104 GB	
26	26	Pon	21 50	22 40	rk08oq	L	93 GB	
27	27	Wto	0 00	1 00	rk08or	K	112 GB	
27	27	Wto	3 00	4 00	rk08os	K->C	104 GB	
27	27	Wto	8 00	9 00	rk08ot	K	112 GB	
27	27	Wto	22 00	23 00	rk08ou	C->L	104 GB	
28	28	Sro	2 00	3 00	rk08ov	L	112 GB	
28	28	Sro	5 00	6 00	rk08ow	L	112 GB	
28	28	Sro	8 50	9 50	rk08ox	K->C	104 GB	
28	28	Sro	17 00	18 00	rk08oz	K->C	104 GB	
28	28	Sro	20 58	24+03 00	rg10b	L	674 GB	=>RA (gr038b)
29	29	Czw	7 00	19 00	ga035b	K	894 GB	=>JIVE

Razem $[78+5]+1 = 84$ eksperymentow (125+28 = 153 godz.) dyski i eVLBI

Uaktualniany plik pdf tego dokumentu jest dostepny w sieci pod adresem:

<http://cosmo.astro.umk.pl/foswiki/pub/Main/KazB/VLBI2015Jan.pdf>

rk08lstr

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Fri 2 Jan 2015 Day 2 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00

Next BBC frequencies: 732.00 732.00 732.00 732.00

Next scan bandwidths: 16.00 16.00 16.00 16.00

00 00 00	0322+222	07 59 31	30.7	267.0	4.6	40.5	0	0	00 00 00
00 12 00	---	08 11 33	28.9	269.5	4.8	40.5	720	23	00 00 01
00 12 30	0322+222	08 12 03	28.9	269.6	4.8	40.5	24	23	00 12 30
00 24 30	---	08 24 05	27.0	272.0	5.0	40.5	720	46	00 12 31
00 25 00	0322+222	08 24 35	27.0	272.1	5.0	40.5	24	46	00 25 00
00 37 00	---	08 36 37	25.2	274.4	5.2	40.4	720	69	00 25 01
00 37 30	0322+222	08 37 07	25.1	274.5	5.2	40.4	24	69	00 37 30
00 50 00	---	08 49 39	23.2	276.9	5.4	40.2	750	93	00 37 31

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====
Setup file: ra18cm2.set

Setup group: 6	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  5  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00  732.00  732.00  732.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  5

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0322+222	03 22 41.745721	* 03 25 36.814357	03 26 30.912771	0.00
J0325+2224	22 13 30.30088	* 22 24 00.36553	22 27 05.64378	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
0322+222    133.5

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

```

1.6 GHz      45. deg
2.3 GHz      36. deg
5.0 GHz      23. deg
8.4 GHz      17. deg
15.0 GHz     12. deg
22.0 GHz     9. deg

```

rk08lttr

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Fri 2 Jan 2015 Day 2 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

02 00 00	0945+408	09 59 51	77.4	188.7	0.2		6.9	0	0	02 00 00
02 12 00	---	10 11 53	76.9	198.8	0.4		14.8	720	23	02 00 01
02 12 30	0945+408	10 12 23	76.9	199.2	0.4		15.1	23	23	02 12 30
02 24 30	---	10 24 25	76.2	208.5	0.6		22.2	720	46	02 12 31
02 25 00	0945+408	10 24 55	76.2	208.9	0.6		22.5	23	46	02 25 00
02 37 00	---	10 36 57	75.2	217.2	0.8		28.6	720	69	02 25 01
02 37 30	0945+408	10 37 27	75.1	217.6	0.8		28.8	23	69	02 37 30
02 50 00	---	10 49 59	73.9	225.2	1.0		34.1	750	93	02 37 31

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====
Setup file: ra18cm2.set

Setup group: 8	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

1st LO=	2400.00	2400.00	2400.00	2400.00
Net SB=	L	L	U	U
IF SB =	L	L	L	L
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	U	U	L	L
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 7 Setup file default. Used with PCAL = 1MHz
 LO sum= 1668.00 1668.00 1668.00 1668.00
 BBC fr= 732.00 732.00 732.00 732.00
 Bandwd= 16.00 16.00 16.00 16.00
 Matching frequency sets: 7

Track assignments are:
 track1= 2, 18, 3, 19
 barrel=roll_off

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 0945+408	09 45 50.078219	* 09 48 55.338151	09 49 51.888833	0.00
J0948+4039	40 53 43.38094	* 40 39 44.58693	40 35 13.52592	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
3C147	150.2
0945+408	138.3

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

rk08lutr

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: K-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Table with columns: Start UT, Source, Start / Stop (LST, EL, AZ, HA, UP), ParA, Early Dwell, Disk GBytes, TPStart SYNC. Includes scan data for 05:00:00 to 06:00:00.

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra1cm2.set

Matching groups in ./rk08lu_freq.dat: tr1cm

Setup group: 5 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO= 21500.00 21500.00 21500.00 21500.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  4  Setup file default.  Used with PCAL = 1MHz
LO sum=  22236.00 22236.00 22236.00 22236.00
BBC fr=   736.00  736.00  736.00  736.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  4

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0716+714	07 16 13.029739	* 07 21 53.448474	07 23 39.310617	0.00
J0721+7120	71 26 15.17406	* 71 20 36.36340	71 18 36.45120	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
3C286	93.0
0716+714	131.4

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{ deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

rk08lvtr

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

=====> Observing mode: C/L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Fri 2 Jan 2015 Day 2 ---

----- C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 736.00 736.00 736.00 736.00
Next scan bandwidths: 16.00 16.00 16.00 16.00
08 00 00 1123+264 16 00 50 33.3 270.1 4.6 42.0 0 0 08 00 00
08 14 30 --- 16 15 22 31.1 273.0 4.8 41.9 870 28 08 00 01
08 15 00 1123+264 16 15 52 31.0 273.1 4.8 41.9 24 28 08 15 00
08 25 00 --- 16 25 54 29.5 275.0 5.0 41.8 600 47 08 15 01

----- L-band VLBI scans -----

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00
08 30 00 1123+264 16 30 55 28.8 276.0 5.1 41.7 293 47 08 30 00
08 44 30 --- 16 45 27 26.6 278.7 5.3 41.4 870 75 08 30 01
08 45 00 1123+264 16 45 57 26.6 278.8 5.3 41.4 24 75 08 45 00
09 00 00 --- 17 01 00 24.3 281.6 5.6 40.9 900 104 08 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra6cm2.set

Setup group: 2 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  5  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00   736.00   736.00   736.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  5

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

==== Setup file: ra18cm2.set

```

Setup group:  7      Station: TORUN      Total bit rate:  256
Format: MKIV1:4      Bits per sample:  2      Sample rate: 32.000
Number of channels:  4  DBE type:      Speedup factor:  1.00

```

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  6  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00   732.00   732.00   732.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  6

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 1123+264	11 23 14.869304	* 11 25 53.711924	11 26 41.788885	0.00
J1125+2610	26 26 49.99096	* 26 10 19.97856	26 05 09.09083	0.00

rk08lwtr

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Table with columns: Start UT, Source, Start / Stop (LST, EL, AZ, HA, UP), ParA, Early Dwell, Disk GBytes, TPStart SYNC. Includes scan data for Jan 2 2015.

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra18cm2.set

Setup group: 5 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

1st LO=	2400.00	2400.00	2400.00	2400.00
Net SB=	L	L	U	U
IF SB =	L	L	L	L
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	U	U	L	L
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 4 Setup file default. Used with PCAL = 1MHz
 LO sum= 1668.00 1668.00 1668.00 1668.00
 BBC fr= 732.00 732.00 732.00 732.00
 Bandwd= 16.00 16.00 16.00 16.00
 Matching frequency sets: 4

Track assignments are:
 track1= 2, 18, 3, 19
 barrel=roll_off

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 1823+689	18 23 51.691232	* 18 23 32.853904	18 23 23.415689	0.00
J1823+6857	68 56 09.10322	* 68 57 52.61250	68 58 30.85696	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
3C286	93.3
1823+689	92.0

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

rk08lxtr

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Fri 2 Jan 2015 Day 2 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

Table with 11 columns: Start UT, Stop UT, Source, LST, EL, AZ, HA, UP, ParA, Dwell, GBytes, SYNC. It lists observation times and parameters for source 2351+456.

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra18cm2.set

Setup group: 8 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP      LCP      RCP      LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  7  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00  732.00  732.00  732.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  7

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 2351+456	23 51 49.972507	* 23 54 21.680217	23 55 07.881419	0.00
J2354+4553	45 36 22.77745	* 45 53 04.23639	45 58 20.42309	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
3C48	111.6
2351+456	97.0

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

rk08lytr

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Fri 2 Jan 2015 Day 2 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

20 00 00	0346-279	04 02 48	9.1	183.0	0.2		2.1	0	0	20 00 00
20 14 30	---	04 17 21	8.9	186.3	0.5		4.3	870	28	20 00 01
20 15 00	0346-279	04 17 51	8.9	186.4	0.5		4.3	24	28	20 15 00
20 29 30	---	04 32 23	8.6	189.6	0.7		6.5	870	56	20 15 01
20 30 00	0346-279	04 32 53	8.6	189.7	0.7		6.6	24	56	20 30 00
20 44 30	---	04 47 26	8.1	193.0	1.0		8.8	870	84	20 30 01
20 45 00	0346-279	04 47 56	8.1	193.1	1.0		8.8	24	84	20 45 00
21 00 00	---	05 02 58	7.5	196.4	1.2		11.0	900	112	20 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra18cm2.set

Setup group: 7	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

1st LO=	2400.00	2400.00	2400.00	2400.00
Net SB=	L	L	U	U
IF SB =	L	L	L	L
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	U	U	L	L
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 4 Setup file default. Used with PCAL = 1MHz

LO sum=	1668.00	1668.00	1668.00	1668.00
BBC fr=	732.00	732.00	732.00	732.00
Bandwd=	16.00	16.00	16.00	16.00

Matching frequency sets: 4

Track assignments are:
 track1= 2, 18, 3, 19
 barrel=roll_off

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* 0346-279	03 46 34.026315	* 03 48 38.144579	03 49 16.586793	0.00
J0348-2749	-27 58 20.96624	*-27 49 13.56570	-27 46 46.06648	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
3C48	111.5
0346-279	112.7

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

rk08lztr

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

=====> Observing mode: C/L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2
RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Sat 3 Jan 2015 Day 3 ---

----- C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 736.00 736.00 736.00 736.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

00 00 00 0945+408 08 03 28 68.1 114.1 -1.8 -46.2 0 0 00 00 00
00 14 30 --- 08 18 00 70.1 119.6 -1.5 -43.4 870 28 00 00 01
00 15 00 0945+408 08 18 30 70.1 119.8 -1.5 -43.3 24 28 00 15 00
00 25 00 --- 08 28 32 71.4 124.1 -1.4 -40.9 600 47 00 15 01

----- L-band VLBI scans -----

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00

00 30 00 0945+408 08 33 33 72.0 126.4 -1.3 -39.5 292 47 00 30 00
00 44 30 --- 08 48 05 73.7 133.9 -1.0 -34.7 870 75 00 30 01
00 45 00 0945+408 08 48 35 73.8 134.2 -1.0 -34.5 23 75 00 45 00
01 00 00 --- 09 03 37 75.2 143.3 -0.8 -28.2 900 104 00 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra6cm2.set

Setup group: 2 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  4  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00   736.00   736.00   736.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  4

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

==== Setup file: ra18cm2.set

```

Setup group:   6          Station: TORUN          Total bit rate:  256
Format: MKIV1:4          Bits per sample:  2       Sample rate: 32.000
Number of channels:  4   DBE type:                Speedup factor:  1.00

```

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  5  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00   732.00   732.00   732.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  5

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0945+408	09 45 50.078219	* 09 48 55.338151	09 49 51.922856	0.00
J0948+4039	40 53 43.38094	* 40 39 44.58693	40 35 13.49077	0.00

rk08matr

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Sat 3 Jan 2015 Day 3 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

03 00 00	0716+714	11 03 57	60.2	-31.9	3.7	98.0	0	0	03 00 00
03 14 30	---	11 18 30	59.0	-32.1	3.9	94.4	870	28	03 00 01
03 15 00	0716+714	11 19 00	59.0	-32.2	3.9	94.2	24	28	03 15 00
03 29 30	---	11 33 32	57.8	-32.2	4.2	90.7	870	56	03 15 01
03 30 00	0716+714	11 34 02	57.8	-32.3	4.2	90.6	24	56	03 30 00
03 44 30	---	11 48 34	56.6	-32.2	4.4	87.2	870	84	03 30 01
03 45 00	0716+714	11 49 05	56.6	-32.2	4.4	87.1	24	84	03 45 00
04 00 00	---	12 04 07	55.4	-32.0	4.7	83.7	900	112	03 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====
Setup file: ra18cm2.set

Setup group: 5	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  4  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00   732.00   732.00   732.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  4

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 0716+714	07 16 13.029739	* 07 21 53.448474	07 23 39.347445	0.00
J0721+7120	71 26 15.17406	* 71 20 36.36340	71 18 36.65496	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
3C147	149.7
0716+714	131.4

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

rk08mbtr

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
 Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
 Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: K-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
 Early: Seconds between end of slew and start. Dwell: On source seconds.
 Disk: GBytes recorded to this point.
 TPStart: Recording start time. Frequencies are LO sum (band edge).
 SYNC: Time correlator is expected to sync up.

```
-----
Start UT  Source                Start / Stop                Early  Disk  TPStart
Stop UT   LST      EL    AZ    HA  UP    ParA Dwell  GBytes  SYNC
-----
```

--- Sat 3 Jan 2015 Day 3 ---

Next scan frequencies: 22236.00 22236.00 22236.00 22236.00
 Next BBC frequencies: 736.00 736.00 736.00 736.00
 Next scan bandwidths: 16.00 16.00 16.00 16.00

06 00 00	0925+504	14 04 27	49.0	-65.4	4.6		58.4	0	0	06 00 00
06 12 00	---	14 16 29	47.4	-63.8	4.8		57.2	720	23	06 00 01
06 12 30	0925+504	14 16 59	47.3	-63.8	4.8		57.2	24	23	06 12 30
06 24 30	---	14 29 01	45.7	-62.2	5.0		56.0	720	46	06 12 31
06 25 00	0925+504	14 29 31	45.6	-62.1	5.0		56.0	24	46	06 25 00
06 37 00	---	14 41 33	44.0	-60.6	5.2		54.7	720	69	06 25 01
06 37 30	0925+504	14 42 03	44.0	-60.5	5.2		54.7	24	69	06 37 30
06 50 00	---	14 54 35	42.3	-58.9	5.4		53.4	750	93	06 37 31

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====
Setup file: ra1cm2.set

Matching groups in ./rk08mb_freq.dat: tr1cm

Setup group: 5 Station: TORUN Total bit rate: 256
 Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
 Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO=  21500.00  21500.00  21500.00  21500.00
Net SB=           L           L           U           U
IF SB =           U           U           U           U
Pol.  =           RCP          LCP          RCP          LCP
BBC   =           1           2           1           2
BBC SB=           L           L           U           U
IF    =           C           A           C           A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  3  Setup file default.  Used with PCAL = 1MHz
LO sum=  22236.00  22236.00  22236.00  22236.00
BBC fr=   736.00   736.00   736.00   736.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  3

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 0925+504	09 25 51.973728	* 09 29 15.440209	09 30 17.669478	0.00
J0929+5013	50 26 44.31059	* 50 13 35.98961	50 09 18.56552	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
3C286	93.9
0925+504	139.2

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

rk08mctr

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Sat 3 Jan 2015 Day 3 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

08 00 00	1123+264	16 04 46	32.7	270.9	4.6		42.0	0	0	08 00 00
08 19 30	---	16 24 20	29.8	274.7	5.0		41.8	1170	37	08 00 01
08 20 00	1123+264	16 24 50	29.7	274.8	5.0		41.8	24	37	08 20 00
08 40 00	---	16 44 53	26.7	278.6	5.3		41.4	1200	76	08 20 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====
Setup file: ra18cm2.set

Setup group: 5	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  4  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00  732.00  732.00  732.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  4

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 1123+264	11 23 14.869304	* 11 25 53.711924	11 26 41.826716	0.00
J1125+2610	26 26 49.99096	* 26 10 19.97856	26 05 08.92267	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
3C286	94.0
1123+264	118.8

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

rk08mdtr

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
 Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
 Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
 Early: Seconds between end of slew and start. Dwell: On source seconds.
 Disk: GBytes recorded to this point.
 TPStart: Recording start time. Frequencies are LO sum (band edge).
 SYNC: Time correlator is expected to sync up.

```
-----
Start UT  Source                Start / Stop                Early  Disk  TPStart
Stop UT   LST      EL    AZ    HA  UP    ParA Dwell  GBytes  SYNC
-----
```

--- Sat 3 Jan 2015 Day 3 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
 Next BBC frequencies: 732.00 732.00 732.00 732.00
 Next scan bandwidths: 16.00 16.00 16.00 16.00

10 00 00	1222+216	18 05 06	19.9	279.3	5.7	39.5	0	0	10 00 00
10 12 00	---	18 17 08	18.1	281.6	5.9	39.2	720	23	10 00 01
10 12 30	1222+216	18 17 38	18.1	281.6	5.9	39.1	24	23	10 12 30
10 24 30	---	18 29 40	16.3	283.9	6.1	38.7	720	46	10 12 31
10 25 00	1222+216	18 30 10	16.2	284.0	6.1	38.7	24	46	10 25 00
10 37 00	---	18 42 12	14.5	286.3	6.3	38.2	720	69	10 25 01
10 37 30	1222+216	18 42 42	14.4	286.4	6.3	38.2	24	69	10 37 30
10 50 00	---	18 55 14	12.6	288.8	6.5	37.6	750	93	10 37 31

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra18cm2.set

Setup group: 5 Station: TORUN Total bit rate: 256
 Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
 Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO= 2400.00 2400.00 2400.00 2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set: 4 Setup file default. Used with PCAL = 1MHz
LO sum= 1668.00 1668.00 1668.00 1668.00
BBC fr= 732.00 732.00 732.00 732.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 4

```

```

Track assignments are:
track1= 2, 18, 3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 1222+216	12 22 23.408709	* 12 24 54.458394	12 25 39.928568	0.00
J1224+2122	21 39 23.03696	* 21 22 46.38857	21 17 37.36308	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
3C286	94.0
1222+216	104.6

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

rk08metr

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC

---	Sat	3 Jan 2015	Day	3	---					
Next scan frequencies: 1668.00 1668.00 1668.00 1668.00										
Next BBC frequencies: 732.00 732.00 732.00 732.00										
Next scan bandwidths: 16.00 16.00 16.00 16.00										
12 00 00	2351+456	20 05 26	53.1	77.2	-3.8		-57.4	0	0	12 00 00
12 14 30	---	20 19 58	55.2	79.5	-3.6		-58.2	870	28	12 00 01
12 15 00	2351+456	20 20 28	55.3	79.6	-3.6		-58.2	24	28	12 15 00
12 29 30	---	20 35 01	57.5	82.0	-3.3		-58.8	870	56	12 15 01
12 30 00	2351+456	20 35 31	57.5	82.1	-3.3		-58.8	24	56	12 30 00
12 44 30	---	20 50 03	59.7	84.6	-3.1		-59.3	870	84	12 30 01
12 45 00	2351+456	20 50 33	59.8	84.7	-3.1		-59.3	24	84	12 45 00
13 00 00	---	21 05 36	62.0	87.4	-2.8		-59.7	900	112	12 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

===== Setup file: ra18cm2.set

Setup group: 5	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  4  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00  732.00  732.00  732.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  4

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 2351+456	23 51 49.972507	* 23 54 21.680217	23 55 07.868896	0.00
J2354+4553	45 36 22.77745	* 45 53 04.23639	45 58 20.37378	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
3C286	94.1
2351+456	96.4

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

rk08mgtr

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are L0 sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Sat 3 Jan 2015 Day 3 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

18 00 00	0346-279	02 06 25	6.1	157.3	-1.7		-15.2	0	0	18 00 00
18 14 30	---	02 20 57	6.9	160.4	-1.5		-13.1	870	28	18 00 01
18 15 00	0346-279	02 21 27	6.9	160.5	-1.5		-13.1	24	28	18 15 00
18 29 30	---	02 36 00	7.6	163.7	-1.2		-11.0	870	56	18 15 01
18 30 00	0346-279	02 36 30	7.6	163.8	-1.2		-10.9	24	56	18 30 00
18 44 30	---	02 51 02	8.1	167.0	-1.0		-8.8	870	84	18 30 01
18 45 00	0346-279	02 51 32	8.2	167.1	-1.0		-8.7	24	84	18 45 00
19 00 00	---	03 06 35	8.6	170.5	-0.7		-6.5	900	112	18 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====
Setup file: ra18cm2.set

Setup group: 7	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

1st LO=	2400.00	2400.00	2400.00	2400.00
Net SB=	L	L	U	U
IF SB =	L	L	L	L
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	U	U	L	L
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 4 Setup file default. Used with PCAL = 1MHz
 LO sum= 1668.00 1668.00 1668.00 1668.00
 BBC fr= 732.00 732.00 732.00 732.00
 Bandwd= 16.00 16.00 16.00 16.00
 Matching frequency sets: 4

Track assignments are:
 track1= 2, 18, 3, 19
 barrel=roll_off

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* 0346-279	03 46 34.026315	* 03 48 38.144579	03 49 16.581052	0.00
J0348-2749	-27 58 20.96624	*-27 49 13.56570	-27 46 46.23233	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
3C48	110.6
0346-279	112.2

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

RADIOASTRON AGN IMAGING

PI: *Andrei Lobanov*

Address: MPIfR Auf dem Huegel 69 53121 Bonn, Germany
 Phone: +7-903-6614865 EMAIL: kirx@kirx.net, alobanov@mpifr-bonn.mpg.de
 Phone during observation: +7-903-6614865

Observing mode: K-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN imaging

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
 Early: Seconds between end of slew and start. Dwell: On source seconds.
 Disk: GBytes recorded to this point.
 TPStart: Recording start time. Frequencies are LO sum (band edge).
 SYNC: Time correlator is expected to sync up.

```
-----
Start UT  Source          Start / Stop          Early  Disk  TPStart
Stop UT   LST      EL  AZ  HA  UP  ParA Dwell  GBytes SYNC
-----
```

--- Sat 3 Jan 2015 Day 3 ---

----- Space segment 01: K-band VLBI scans -----

```
Next scan frequencies: 22236.00 22236.00 22236.00 22236.00 22268.00 22268.00 22268.00 22268.00
                       22300.00 22300.00 22300.00 22300.00 22332.00 22332.00 22332.00 22332.00
Next BBC frequencies:  736.00   736.00   736.00   736.00   768.00   768.00   768.00   768.00
                       800.00   800.00   800.00   800.00   832.00   832.00   832.00   832.00
Next scan bandwidths:  16.00   16.00   16.00   16.00   16.00   16.00   16.00   16.00
                       16.00   16.00   16.00   16.00   16.00   16.00   16.00   16.00
```

```
22 00 00 0716+714    06 07 04 69.9 17.8 -1.3   -145.0    0      0    22 00 00
22 09 30 ---          06 16 36 70.3 15.9 -1.1   -149.0   570    73    22 00 01

22 10 00 0716+714    06 17 06 70.4 15.8 -1.1   -149.2    24     73    22 10 00
22 19 30 ---          06 26 38 70.7 13.8 -1.0   -153.4   570   146    22 10 01

22 20 00 0716+714    06 27 08 70.7 13.7 -0.9   -153.6    24    146    22 20 00
22 29 30 ---          06 36 39 71.1 11.6 -0.8   -157.9   570   219    22 20 01

22 30 00 0716+714    06 37 09 71.1 11.5 -0.8   -158.1    24    219    22 30 00
22 39 30 ---          06 46 41 71.3  9.3 -0.6   -162.5   570   292    22 30 01

22 40 00 0716+714    06 47 11 71.3  9.1 -0.6   -162.7    24    292    22 40 00
22 49 30 ---          06 56 43 71.5  6.8 -0.4   -167.1   570   365    22 40 01

22 50 00 0716+714    06 57 13 71.6  6.7 -0.4   -167.4    24    365    22 50 00
22 59 30 ---          07 06 44 71.7  4.3 -0.3   -171.9   570   438    22 50 01

23 00 00 0716+714    07 07 14 71.7  4.2 -0.3   -172.1    24    438    23 00 00
23 09 30 ---          07 16 46 71.8  1.8 -0.1   -176.7   570   512    23 00 01

23 10 00 0716+714    07 17 16 71.8  1.6 -0.1   -176.9    24    512    23 10 00
23 19 30 ---          07 26 48 71.8 -0.8  0.1    178.5   570   585    23 10 01
```

Schedule for TORUN (Code Tr)

Page 3

RadioAstron AGN imaging

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Sun 4 Jan 2015 Day 4 ---										
23 20 00	0716+714	07 27 18	71.8	-0.9	0.1		178.3	24	585	23 20 00
23 29 30	---	07 36 49	71.7	-3.4	0.2		173.7	570	658	23 20 01
23 30 00	0716+714	07 37 19	71.7	-3.5	0.2		173.4	24	658	23 30 00
23 39 30	---	07 46 51	71.6	-5.9	0.4		168.9	570	731	23 30 01
23 40 00	0716+714	07 47 21	71.6	-6.0	0.4		168.7	24	731	23 40 00
23 49 30	---	07 56 52	71.4	-8.4	0.6		164.2	570	804	23 40 01
23 50 00	0716+714	07 57 23	71.4	-8.5	0.6		164.0	24	804	23 50 00
23 59 30	---	08 06 54	71.2	-10.7	0.7		159.6	570	877	23 50 01
00 00 00	0716+714	08 07 24	71.2	-10.8	0.7		159.3	24	877	00 00 00
00 09 30	---	08 16 56	70.9	-13.0	0.9		155.0	570	950	00 00 01
00 10 00	0716+714	08 17 26	70.8	-13.1	0.9		154.8	24	950	00 10 00
00 19 30	---	08 26 57	70.5	-15.2	1.1		150.6	570	1023	00 10 01
00 20 00	0716+714	08 27 27	70.5	-15.3	1.1		150.4	24	1023	00 20 00
00 29 30	---	08 36 59	70.1	-17.2	1.2		146.3	570	1096	00 20 01
00 30 00	0716+714	08 37 29	70.1	-17.3	1.2		146.1	24	1096	00 30 00
00 40 00	---	08 47 31	69.6	-19.2	1.4		142.0	600	1173	00 30 01
00 46 20	4C39.25	08 53 52	74.7	154.1	-0.6		-19.8	19	1173	00 46 20
00 50 20	---	08 57 52	75.0	156.9	-0.5		-17.7	240	1204	00 46 21
00 50 50	4C39.25	08 58 23	75.0	157.2	-0.5		-17.4	23	1204	00 50 50
00 56 30	---	09 04 03	75.3	161.4	-0.4		-14.3	340	1247	00 50 51
01 04 30	0716+714	09 12 05	68.2	336.8	1.8		132.4	114	1247	01 04 30
01 09 00	---	09 16 36	68.0	336.2	1.9		130.8	270	1282	01 04 31
01 10 30	0716+714	09 18 06	67.9	336.0	1.9		130.2	84	1282	01 10 30
01 15 00	---	09 22 36	67.6	335.3	2.0		128.6	270	1317	01 10 31
01 15 31	0716+714	09 23 08	67.6	335.3	2.0		128.4	25	1317	01 15 31
01 20 01	---	09 27 38	67.3	334.7	2.1		126.8	270	1351	01 15 32
01 20 31	0716+714	09 28 08	67.2	334.6	2.1		126.6	24	1351	01 20 31
01 25 01	---	09 32 39	67.0	334.1	2.1		125.1	270	1386	01 20 32
01 26 30	0836+710	09 34 08	71.4	346.9	0.9		155.4	48	1386	01 26 30
01 30 00	---	09 37 39	71.2	346.0	0.9		153.8	210	1413	01 26 31
01 30 31	0836+710	09 38 10	71.2	345.9	0.9		153.6	25	1413	01 30 31
01 35 01	---	09 42 41	71.0	344.9	1.0		151.6	270	1447	01 30 32

Schedule for TORUN (Code Tr)

Page 4

RadioAstron AGN imaging

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop				Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Sun 4 Jan 2015 Day 4 ---										
01 35 31	0836+710	09 43 11	71.0	344.8	1.0		151.3	24	1447	01 35 31
01 40 01	---	09 47 42	70.8	343.8	1.1		149.3	270	1482	01 35 32
01 41 30	0716+714	09 49 11	65.8	332.3	2.4		119.5	51	1482	01 41 30
01 45 00	---	09 52 41	65.6	332.0	2.5		118.4	210	1509	01 41 31
01 45 31	0716+714	09 53 13	65.6	332.0	2.5		118.2	25	1509	01 45 31
01 50 01	---	09 57 43	65.2	331.6	2.6		116.8	270	1544	01 45 32
01 50 31	0716+714	09 58 13	65.2	331.5	2.6		116.6	24	1544	01 50 31
01 55 01	---	10 02 44	64.9	331.1	2.7		115.2	270	1578	01 50 32
01 56 30	0836+710	10 04 13	70.1	340.5	1.4		142.3	55	1578	01 56 30
02 00 00	---	10 07 44	69.9	339.8	1.4		140.8	210	1605	01 56 31
02 00 31	0836+710	10 08 15	69.9	339.7	1.4		140.6	25	1605	02 00 31
02 05 01	---	10 12 46	69.6	338.9	1.5		138.8	270	1640	02 00 32
02 05 31	0836+710	10 13 16	69.6	338.8	1.5		138.6	24	1640	02 05 31
02 10 01	---	10 17 47	69.4	338.0	1.6		136.8	270	1674	02 05 32
02 12 30	0716+714	10 20 16	63.6	329.9	2.9		110.0	114	1674	02 12 30
02 16 00	---	10 23 47	63.3	329.7	3.0		108.9	210	1701	02 12 31
02 16 31	0716+714	10 24 18	63.3	329.7	3.0		108.8	25	1701	02 16 31
02 21 01	---	10 28 48	62.9	329.4	3.1		107.5	270	1736	02 16 32
02 21 31	0716+714	10 29 18	62.9	329.4	3.1		107.4	24	1736	02 21 31
02 26 01	---	10 33 49	62.5	329.2	3.2		106.1	270	1771	02 21 32
02 27 30	0836+710	10 35 18	68.3	335.3	1.9		130.1	53	1771	02 27 30
02 31 00	---	10 38 49	68.1	334.8	1.9		128.8	210	1797	02 27 31
02 31 31	0836+710	10 39 20	68.1	334.7	1.9		128.6	25	1797	02 31 31
02 36 01	---	10 43 51	67.8	334.1	2.0		127.0	270	1832	02 31 32
02 36 31	0836+710	10 44 21	67.7	334.0	2.0		126.8	24	1832	02 36 31
02 41 01	---	10 48 52	67.4	333.5	2.1		125.2	270	1867	02 36 32
02 42 30	0716+714	10 50 21	61.3	328.5	3.4		101.6	52	1867	02 42 30
02 46 00	---	10 53 51	61.0	328.4	3.5		100.6	210	1894	02 42 31
02 46 31	0716+714	10 54 23	60.9	328.4	3.5		100.5	25	1894	02 46 31
02 51 01	---	10 58 53	60.6	328.2	3.6		99.3	270	1928	02 46 32

Schedule for TORUN (Code Tr)

Page 5

RadioAstron AGN imaging

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Sun 4 Jan 2015 Day 4 ---										
02 51 31	0716+714	10 59 23	60.5	328.2	3.6		99.2	24	1928	02 51 31
02 55 31	---	11 03 24	60.2	328.1	3.7		98.2	240	1959	02 51 32
02 56 01	0716+714	11 03 54	60.2	328.1	3.7		98.0	24	1959	02 56 01
03 04 01	---	11 11 55	59.6	327.9	3.8		96.0	480	2021	02 56 02
----- Space segment 02: K-band VLBI scans -----										
03 05 00	0716+714	11 12 55	59.5	327.9	3.8		95.8	53	2021	03 05 00
03 14 30	---	11 22 26	58.7	327.8	4.0		93.4	570	2094	03 05 01
03 15 00	0716+714	11 22 56	58.7	327.8	4.0		93.3	24	2094	03 15 00
03 24 30	---	11 32 28	57.9	327.8	4.1		91.0	570	2167	03 15 01
03 25 00	0716+714	11 32 58	57.9	327.8	4.2		90.9	24	2167	03 25 00
03 34 30	---	11 42 29	57.1	327.8	4.3		88.6	570	2240	03 25 01
03 35 00	0716+714	11 42 59	57.1	327.8	4.3		88.5	24	2240	03 35 00
03 45 00	---	11 53 01	56.3	327.8	4.5		86.2	600	2317	03 35 01
----- Ground segment 02: Q/K/U-band VLBI scans -----										
03 45 30	0716+714	11 53 31	56.2	327.8	4.5		86.1	24	2317	03 45 30
03 49 00	---	11 57 02	55.9	327.9	4.6		85.3	210	2344	03 45 31
03 49 31	0716+714	11 57 33	55.9	327.9	4.6		85.1	25	2344	03 49 31
03 54 01	---	12 02 04	55.5	327.9	4.6		84.1	270	2378	03 49 32
03 54 31	0716+714	12 02 34	55.5	327.9	4.6		84.0	24	2378	03 54 31
03 59 01	---	12 07 04	55.1	328.0	4.7		83.0	270	2413	03 54 32
04 00 00	0836+710	12 08 04	61.5	327.6	3.4		101.1	21	2413	04 00 00
04 04 00	---	12 12 04	61.2	327.4	3.5		100.1	240	2444	04 00 01
04 04 31	0836+710	12 12 35	61.1	327.4	3.5		100.0	25	2444	04 04 31
04 09 01	---	12 17 06	60.7	327.3	3.6		98.8	270	2478	04 04 32
04 09 31	0836+710	12 17 36	60.7	327.3	3.6		98.7	24	2478	04 09 31
04 14 01	---	12 22 07	60.3	327.2	3.7		97.5	270	2513	04 09 32
04 15 00	0716+714	12 23 06	53.9	328.4	5.0		79.5	21	2513	04 15 00
04 19 00	---	12 27 07	53.6	328.5	5.1		78.6	240	2544	04 15 01
04 19 31	0716+714	12 27 38	53.5	328.5	5.1		78.5	25	2544	04 19 31
04 24 01	---	12 32 09	53.2	328.6	5.1		77.5	270	2578	04 19 32

Schedule for TORUN (Code Tr)

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RadioAstron AGN imaging

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Sun 4 Jan 2015 Day 4 ---										
----- Space segment 03: K-band VLBI scans -----										
04 24 31	0716+714	12 32 39	53.1	328.6	5.1		77.4	24	2578	04 24 31
04 29 01	---	12 37 09	52.8	328.7	5.2		76.5	270	2613	04 24 32
04 30 00	0716+714	12 38 09	52.7	328.8	5.2		76.3	53	2613	04 30 00
04 39 30	---	12 47 40	52.0	329.1	5.4		74.2	570	2686	04 30 01
04 40 00	0716+714	12 48 10	51.9	329.1	5.4		74.1	24	2686	04 40 00
04 49 30	---	12 57 42	51.2	329.5	5.6		72.2	570	2759	04 40 01
04 50 00	0716+714	12 58 12	51.2	329.5	5.6		72.1	24	2759	04 50 00
05 00 00	---	13 08 13	50.4	329.9	5.7		70.0	600	2836	04 50 01
----- Ground segment 03: Q/K/U-band VLBI scans -----										
05 00 30	0716+714	13 08 44	50.4	329.9	5.8		69.9	24	2836	05 00 30
05 05 00	---	13 13 14	50.0	330.1	5.8		69.0	270	2871	05 00 31
05 05 31	0716+714	13 13 45	50.0	330.1	5.8		68.9	25	2871	05 05 31
05 10 01	---	13 18 16	49.6	330.4	5.9		68.0	270	2905	05 05 32
05 10 31	0716+714	13 18 46	49.6	330.4	5.9		67.9	24	2905	05 10 31
05 15 01	---	13 23 17	49.3	330.6	6.0		67.0	270	2940	05 10 32
05 16 00	0836+710	13 24 16	55.3	327.2	4.7		82.8	23	2940	05 16 00
05 20 30	---	13 28 47	54.9	327.2	4.8		81.8	270	2974	05 16 01
05 21 01	0836+710	13 29 18	54.8	327.3	4.8		81.7	25	2974	05 21 01
05 26 01	---	13 34 19	54.4	327.4	4.9		80.6	300	3013	05 21 02
05 26 31	0836+710	13 34 49	54.4	327.4	4.9		80.5	24	3013	05 26 31
05 31 01	---	13 39 20	54.0	327.5	4.9		79.5	270	3047	05 26 32
05 37 00	4C39.25	13 45 20	44.8	278.8	4.3		49.8	245	3047	05 37 00
05 41 00	---	13 49 20	44.2	279.5	4.4		49.6	240	3078	05 37 01
05 41 31	4C39.25	13 49 51	44.2	279.6	4.4		49.6	25	3078	05 41 31
05 45 31	---	13 53 52	43.6	280.3	4.4		49.5	240	3109	05 41 32
05 46 01	4C39.25	13 54 22	43.5	280.4	4.4		49.4	24	3109	05 46 01
05 50 01	---	13 58 23	42.9	281.1	4.5		49.3	240	3140	05 46 02
05 53 30	0716+714	14 01 52	46.5	332.7	6.6		59.4	91	3140	05 53 30
05 58 30	---	14 06 53	46.2	333.0	6.7		58.4	300	3178	05 53 31
05 59 00	0716+714	14 07 23	46.1	333.0	6.7		58.3	24	3178	05 59 00
06 04 00	---	14 12 24	45.8	333.3	6.8		57.3	300	3217	05 59 01

Schedule for TORUN (Code Tr)

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RadioAstron AGN imaging

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

```

-----
Start UT  Source          Start / Stop          Early  Disk  TPStart
Stop UT   LST      EL  AZ  HA  UP  ParA  Dwell  GBytes  SYNC
-----
--- Sun   4 Jan 2015   Day   4 ---

----- Space segment 04: K-band VLBI scans -----

06 05 00  0716+714    14 13 24  45.7 333.4  6.8      57.1   54   3217  06 05 00
06 14 30  ---          14 22 56  45.1 334.0  7.0      55.3  570   3290  06 05 01

06 15 00  0716+714    14 23 26  45.1 334.0  7.0      55.2   24   3290  06 15 00
06 24 30  ---          14 32 57  44.4 334.6  7.2      53.4  570   3363  06 15 01

06 25 00  0716+714    14 33 27  44.4 334.7  7.2      53.3   24   3363  06 25 00
06 35 00  ---          14 43 29  43.8 335.3  7.3      51.4  600   3440  06 25 01

----- Ground segment 04: Q/K/U-band VLBI scans -----

06 35 30  0716+714    14 43 59  43.7 335.4  7.3      51.3   24   3440  06 35 30
06 40 00  ---          14 48 30  43.5 335.7  7.4      50.5  270   3474  06 35 31

06 40 31  0716+714    14 49 01  43.4 335.7  7.4      50.4   25   3474  06 40 31
06 45 01  ---          14 53 32  43.2 336.1  7.5      49.5  270   3509  06 40 32

06 45 31  0716+714    14 54 02  43.1 336.1  7.5      49.4   24   3509  06 45 31
06 50 01  ---          14 58 33  42.8 336.4  7.6      48.6  270   3544  06 45 32

06 51 00  0836+710    14 59 32  47.8 330.8  6.3      63.1   26   3544  06 51 00
06 55 30  ---          15 04 02  47.5 331.1  6.4      62.2  270   3578  06 51 01

06 56 31  0836+710    15 05 04  47.4 331.1  6.4      62.1   55   3578  06 56 31
07 01 31  ---          15 10 04  47.1 331.4  6.5      61.1  300   3617  06 56 32

07 02 01  0836+710    15 10 35  47.0 331.4  6.5      61.0   24   3617  07 02 01
07 06 31  ---          15 15 05  46.7 331.7  6.5      60.1  270   3651  07 02 02

07 11 30  4C39.25     15 20 05  31.3 294.6  5.9      44.6  209   3651  07 11 30
07 15 30  ---          15 24 06  30.7 295.3  5.9      44.3  240   3682  07 11 31

07 16 01  4C39.25     15 24 37  30.7 295.4  5.9      44.3   25   3682  07 16 01
07 20 31  ---          15 29 08  30.0 296.1  6.0      43.9  270   3717  07 16 02

07 21 01  4C39.25     15 29 38  30.0 296.2  6.0      43.9   24   3717  07 21 01
07 25 31  ---          15 34 08  29.4 296.9  6.1      43.5  270   3751  07 21 02

07 30 30  0716+714    15 39 08  40.6 339.5  8.3      41.0  199   3751  07 30 30
07 35 00  ---          15 43 39  40.3 339.9  8.3      40.2  270   3786  07 30 31

07 35 31  0716+714    15 44 10  40.3 339.9  8.3      40.1   26   3786  07 35 31
07 39 31  ---          15 48 11  40.1 340.2  8.4      39.3  240   3817  07 35 32

```

Schedule for TORUN (Code Tr)

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RadioAstron AGN imaging

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Sun 4 Jan 2015 Day 4 ---										
07 40 01	0716+714	15 48 41	40.1	340.3	8.4		39.3	25	3817	07 40 01
07 44 01	---	15 52 41	39.9	340.6	8.5		38.5	240	3847	07 40 02
----- Space segment 05: K-band VLBI scans -----										
07 45 00	0716+714	15 53 41	39.8	340.7	8.5		38.3	53	3847	07 45 00
07 54 30	---	16 03 12	39.4	341.5	8.7		36.6	570	3920	07 45 01
07 55 00	0716+714	16 03 42	39.3	341.5	8.7		36.5	25	3920	07 55 00
08 04 30	---	16 13 14	38.9	342.3	8.8		34.7	570	3994	07 55 01
08 05 00	0716+714	16 13 44	38.9	342.3	8.8		34.6	25	3994	08 05 00
08 15 00	---	16 23 45	38.4	343.2	9.0		32.8	600	4070	08 05 01
----- Ground segment 05: Q/K/U-band VLBI scans -----										
08 15 30	0716+714	16 24 16	38.4	343.2	9.0		32.7	25	4070	08 15 30
08 20 00	---	16 28 46	38.2	343.6	9.1		31.9	270	4105	08 15 31
08 20 31	0716+714	16 29 17	38.2	343.7	9.1		31.8	26	4105	08 20 31
08 25 01	---	16 33 48	38.0	344.1	9.2		31.0	270	4140	08 20 32
08 25 31	0716+714	16 34 18	38.0	344.1	9.2		30.9	25	4140	08 25 31
08 30 01	---	16 38 49	37.8	344.5	9.3		30.0	270	4174	08 25 32
08 31 00	0836+710	16 39 48	41.2	337.6	7.9		44.2	30	4174	08 31 00
08 35 30	---	16 44 19	41.0	338.0	8.0		43.3	270	4209	08 31 01
08 36 31	0836+710	16 45 20	40.9	338.0	8.0		43.2	55	4209	08 36 31
08 41 31	---	16 50 21	40.6	338.4	8.1		42.2	300	4247	08 36 32
08 42 01	0836+710	16 50 51	40.6	338.5	8.1		42.1	25	4247	08 42 01
08 46 31	---	16 55 22	40.4	338.8	8.2		41.3	270	4282	08 42 02
08 50 30	4C39.25	16 59 21	18.8	310.8	7.5		35.8	145	4282	08 50 30
08 54 30	---	17 03 22	18.3	311.5	7.6		35.3	240	4313	08 50 31
08 55 01	4C39.25	17 03 53	18.3	311.6	7.6		35.3	25	4313	08 55 01
08 59 01	---	17 07 54	17.8	312.2	7.7		34.9	240	4344	08 55 02
08 59 31	4C39.25	17 08 24	17.7	312.3	7.7		34.8	24	4344	08 59 31
09 03 31	---	17 12 24	17.3	313.0	7.7		34.4	240	4374	08 59 32
09 07 00	0716+714	17 15 54	36.5	347.8	9.9		23.3	123	4374	09 07 00
09 11 30	---	17 20 25	36.3	348.2	9.9		22.4	270	4409	09 07 01

Schedule for TORUN (Code Tr)

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RadioAstron AGN imaging

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

```
-----
Start UT  Source          Start / Stop          Early  Disk  TPStart
Stop UT          LST      EL    AZ    HA  UP    ParA  Dwell  GBytes  SYNC
-----
```

--- Sun 4 Jan 2015 Day 4 ---

```
09 12 01 0716+714      17 20 56 36.3 348.3 10.0      22.3  26   4409 09 12 01
09 16 01 ---          17 24 57 36.2 348.7 10.0      21.6 240   4440 09 12 02

09 16 31 0716+714      17 25 27 36.2 348.7 10.0      21.5  25   4440 09 16 31
09 20 31 ---          17 29 27 36.0 349.1 10.1      20.8 240   4470 09 16 32
```

----- Space segment 06: K-band VLBI scans -----

```
09 30 00 0716+714      17 38 58 35.8 350.0 10.3      19.1 563   4470 09 30 00
09 39 30 ---          17 48 29 35.5 350.9 10.4      17.3 570   4544 09 30 01

09 40 00 0716+714      17 48 59 35.5 350.9 10.4      17.2  25   4544 09 40 00
09 49 30 ---          17 58 31 35.3 351.8 10.6      15.5 570   4617 09 40 01

09 50 00 0716+714      17 59 01 35.3 351.9 10.6      15.4  25   4617 09 50 00
10 00 00 ---          18 09 03 35.1 352.8 10.8      13.6 600   4694 09 50 01
```

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra1cm2.set

```
Setup group: 17          Station: TORUN          Total bit rate: 1024
Format: MARK5B          Bits per sample: 2      Sample rate: 32.000
Number of channels: 16  DBE type: DBBC_DDC      Speedup factor: 1.00
```

Disk used to record data.

```
1st LO= 21500.00 21500.00 21500.00 21500.00 21500.00 21500.00 21500.00 21500.00
        21500.00 21500.00 21500.00 21500.00 21500.00 21500.00 21500.00 21500.00
Net SB=   U       U       L       L       U       U       L       L
         U       U       L       L       U       U       L       L
IF SB =   U       U       U       U       U       U       U       U
         U       U       U       U       U       U       U       U
Pol.  =   RCP    LCP    RCP    LCP    RCP    LCP    RCP    LCP
         RCP    LCP    RCP    LCP    RCP    LCP    RCP    LCP
BBC   =     1     5     1     5     2     6     2     6
         3     7     3     7     4     8     4     8
BBC SB=   U       U       L       L       U       U       L       L
         U       U       L       L       U       U       L       L
IF    =   A1    B1    A1    B1    A1    B1    A1    B1
         A1    B1    A1    B1    A1    B1    A1    B1
```


The following frequency sets based on these setups were used.

```

Frequency Set: 5 Setup file default. Used with PCAL = 1MHz
LO sum= 22236.00 22236.00 22236.00 22236.00 22268.00 22268.00 22268.00 22268.00
        22300.00 22300.00 22300.00 22300.00 22332.00 22332.00 22332.00 22332.00
BBC fr= 736.00 736.00 736.00 736.00 768.00 768.00 768.00 768.00
        800.00 800.00 800.00 800.00 832.00 832.00 832.00 832.00
Bandwd= 16.00 16.00 16.00 16.00 16.00 16.00 16.00 16.00
        16.00 16.00 16.00 16.00 16.00 16.00 16.00 16.00
Matching frequency sets: 5

```

Track assignments are:

```

track1= 2, 10, 18, 26, 4, 12, 20, 28, 6, 14, 22, 30, 8, 16, 24, 32
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 0716+714	07 16 13.029739	* 07 21 53.448474	07 23 39.380491	0.00
J0721+7120	71 26 15.17406	* 71 20 36.36340	71 18 36.84378	0.00
* 0836+710	08 36 21.556646	* 08 41 24.365284	08 42 57.540347	0.00
J0841+7053	71 04 22.42740	* 70 53 42.17302	70 50 08.09899	0.00
0923+392	09 23 55.319218	* 09 27 03.013939	09 28 00.522059	0.00
* 4C39.25	39 15 23.56637	* 39 02 20.85177	38 58 06.90453	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
0716+714	131.3
0836+710	129.6
4C39.25	144.4

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{ deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

rk08mhtr

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Tue 6 Jan 2015 Day 6 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

Table with 11 columns: Start UT, Stop UT, Source, LST, EL, AZ, HA, UP, ParA, Dwell, GBytes, SYNC. It lists scan times and parameters for source 0716+714.

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra18cm2.set

Setup group: 6 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

1st LO=	2400.00	2400.00	2400.00	2400.00
Net SB=	L	L	U	U
IF SB =	L	L	L	L
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	U	U	L	L
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 5 Setup file default. Used with PCAL = 1MHz
 LO sum= 1668.00 1668.00 1668.00 1668.00
 BBC fr= 732.00 732.00 732.00 732.00
 Bandwd= 16.00 16.00 16.00 16.00
 Matching frequency sets: 5

Track assignments are:
 track1= 2, 18, 3, 19
 barrel=roll_off

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* 0716+714	07 16 13.029739	* 07 21 53.448474	07 23 39.466208	0.00
J0721+7120	71 26 15.17406	* 71 20 36.36340	71 18 37.42099	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
0716+714	131.2

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

rk08mitr

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Tue 6 Jan 2015 Day 6 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

05 00 00	1206-202	13 16 07	14.9	196.0	1.1	10.2	0	0	05 00 00
05 14 30	---	13 30 39	14.2	199.4	1.3	12.3	870	28	05 00 01
05 15 00	1206-202	13 31 09	14.2	199.5	1.4	12.4	24	28	05 15 00
05 29 30	---	13 45 41	13.4	203.0	1.6	14.5	870	56	05 15 01
05 30 00	1206-202	13 46 11	13.4	203.1	1.6	14.6	24	56	05 30 00
05 44 30	---	14 00 44	12.5	206.4	1.8	16.6	870	84	05 30 01
05 45 00	1206-202	14 01 14	12.4	206.6	1.9	16.7	24	84	05 45 00
06 00 00	---	14 16 16	11.4	210.0	2.1	18.7	900	112	05 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====
Setup file: ra18cm2.set

Setup group: 7	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

1st LO=	2400.00	2400.00	2400.00	2400.00
Net SB=	L	L	U	U
IF SB =	L	L	L	L
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	U	U	L	L
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 4 Setup file default. Used with PCAL = 1MHz
 LO sum= 1668.00 1668.00 1668.00 1668.00
 BBC fr= 732.00 732.00 732.00 732.00
 Bandwd= 16.00 16.00 16.00 16.00
 Matching frequency sets: 4

Track assignments are:
 track1= 2, 18, 3, 19
 barrel=roll_off

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(Date)	Error (mas)	
* 1206-202	12 06 39.987273	* 12 09 14.610990	12 10 01.958479	0.00
J1209-2032	-20 15 57.37361	*-20 32 38.99053	-20 37 36.22928	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
3C286	96.3
1206-202	94.6

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

rk08mjtr

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: K-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Tue 6 Jan 2015 Day 6 ---

Next scan frequencies: 22236.00 22236.00 22236.00 22236.00
Next BBC frequencies: 736.00 736.00 736.00 736.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

21 00 00	0716+714	05 18 44	67.2	25.4	-2.1		-126.5	0	0	21 00 00
21 14 30	---	05 33 17	68.1	23.5	-1.8		-131.7	870	28	21 00 01
21 15 00	0716+714	05 33 47	68.2	23.4	-1.8		-131.9	24	28	21 15 00
21 29 30	---	05 48 19	69.0	21.2	-1.6		-137.4	870	56	21 15 01
21 30 00	0716+714	05 48 49	69.0	21.1	-1.6		-137.6	24	56	21 30 00
21 44 30	---	06 03 22	69.8	18.5	-1.3		-143.4	870	84	21 30 01
21 45 00	0716+714	06 03 52	69.8	18.4	-1.3		-143.7	24	84	21 45 00
22 00 00	---	06 18 54	70.4	15.5	-1.1		-150.0	900	112	21 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====
Setup file: ra1cm2.set
Matching groups in ./rk08mj_freq.dat: tr1cm

Setup group: 4	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

```

1st LO= 21500.00 21500.00 21500.00 21500.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  4  Setup file default.  Used with PCAL = 1MHz
LO sum=  22236.00 22236.00 22236.00 22236.00
BBC fr=   736.00  736.00  736.00  736.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  4

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0716+714	07 16 13.029739	* 07 21 53.448474	07 23 39.490363	0.00
J0721+7120	71 26 15.17406	* 71 20 36.36340	71 18 37.62842	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
3C147	147.7
0716+714	131.1

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{ deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

rk08mkr

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
 Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
 Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
 Early: Seconds between end of slew and start. Dwell: On source seconds.
 Disk: GBytes recorded to this point.
 TPStart: Recording start time. Frequencies are LO sum (band edge).
 SYNC: Time correlator is expected to sync up.

```
-----
Start UT  Source                Start / Stop                Early  Disk  TPStart
Stop UT   LST      EL    AZ    HA  UP    ParA Dwell  GBytes  SYNC
-----
```

--- Wed 7 Jan 2015 Day 7 ---

```
Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies:  732.00  732.00  732.00  732.00
Next scan bandwidths:  16.00  16.00  16.00  16.00
```

02 00 00	1206-202	10 19 34	12.5	153.6	-1.8	-16.6	0	0	02 00 00
02 14 30	---	10 34 06	13.4	157.0	-1.6	-14.5	870	28	02 00 01
02 15 00	1206-202	10 34 36	13.4	157.1	-1.6	-14.5	24	28	02 15 00
02 29 30	---	10 49 08	14.2	160.5	-1.3	-12.4	870	56	02 15 01
02 30 00	1206-202	10 49 38	14.2	160.6	-1.3	-12.3	24	56	02 30 00
02 44 30	---	11 04 11	14.9	164.1	-1.1	-10.1	870	84	02 30 01
02 45 00	1206-202	11 04 41	14.9	164.2	-1.1	-10.1	24	84	02 45 00
03 00 00	---	11 19 43	15.5	167.8	-0.8	-7.8	900	112	02 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra18cm2.set

```
Setup group:      8           Station: TORUN           Total bit rate:   256
Format: MKIV1:4   Bits per sample: 2     Sample rate: 32.000
Number of channels: 4   DBE type:              Speedup factor:   1.00
```

Disk used to record data.


```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  5  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00  732.00  732.00  732.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  5

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 1206-202	12 06 39.987273	* 12 09 14.610990	12 10 01.988380	0.00
J1209-2032	-20 15 57.37361	*-20 32 38.99053	-20 37 36.43932	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
1206-202    95.4

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

```

1.6 GHz      45. deg
2.3 GHz      36. deg
5.0 GHz      23. deg
8.4 GHz      17. deg
15.0 GHz     12. deg
22.0 GHz     9. deg

```

rk08mltr

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Wed 7 Jan 2015 Day 7 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

06 00 00	0953+254	14 20 13	34.4	267.0	4.4		41.5	0	0	06 00 00
06 12 00	---	14 32 15	32.6	269.4	4.6		41.6	720	23	06 00 01
06 12 30	0953+254	14 32 45	32.5	269.5	4.6		41.6	24	23	06 12 30
06 24 30	---	14 44 47	30.7	271.9	4.8		41.5	720	46	06 12 31
06 25 00	0953+254	14 45 17	30.6	272.0	4.8		41.5	24	46	06 25 00
06 37 00	---	14 57 19	28.8	274.4	5.0		41.4	720	69	06 25 01
06 37 30	0953+254	14 57 49	28.7	274.5	5.0		41.4	24	69	06 37 30
06 50 00	---	15 10 21	26.9	276.9	5.2		41.2	750	93	06 37 31

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====
Setup file: ra18cm2.set

Setup group: 6	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

1st LO=	2400.00	2400.00	2400.00	2400.00
Net SB=	L	L	U	U
IF SB =	L	L	L	L
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	U	U	L	L
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 5 Setup file default. Used with PCAL = 1MHz
 LO sum= 1668.00 1668.00 1668.00 1668.00
 BBC fr= 732.00 732.00 732.00 732.00
 Bandwd= 16.00 16.00 16.00 16.00
 Matching frequency sets: 5

Track assignments are:
 track1= 2, 18, 3, 19
 barrel=roll_off

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 0953+254	09 53 59.738485	* 09 56 49.875379	09 57 42.069142	0.00
J0956+2515	25 29 33.58568	* 25 15 16.04978	25 10 42.31134	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
0953+254	142.2

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

rk08mmtr

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Wed 7 Jan 2015 Day 7 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

08 00 00	1040+244	16 20 33	22.5	-79.4	5.6		40.3	0	0	08 00 00
08 14 30	---	16 35 05	20.3	-76.7	5.9		39.8	870	28	08 00 01
08 15 00	1040+244	16 35 35	20.2	-76.6	5.9		39.8	24	28	08 15 00
08 29 30	---	16 50 08	18.1	-73.8	6.1		39.2	870	56	08 15 01
08 30 00	1040+244	16 50 38	18.1	-73.8	6.1		39.2	24	56	08 30 00
08 44 30	---	17 05 10	16.0	-71.0	6.4		38.5	870	84	08 30 01
08 45 00	1040+244	17 05 40	15.9	-71.0	6.4		38.4	24	84	08 45 00
09 00 00	---	17 20 43	13.8	-68.2	6.6		37.6	900	112	08 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====
Setup file: ra18cm2.set

Setup group: 7	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP      LCP      RCP      LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  4  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00  732.00  732.00  732.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  4

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 1040+244	10 40 25.199377	* 10 43 09.035778	10 43 59.081501	0.00
J1043+2408	24 24 19.59847	* 24 08 35.40933	24 03 36.80970	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
1040+244	131.7

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

rk08mnr

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: K-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC

---	Wed	7	Jan	2015	Day	7	---			
Next scan frequencies: 22236.00 22236.00 22236.00 22236.00										
Next BBC frequencies: 736.00 736.00 736.00 736.00										
Next scan bandwidths: 16.00 16.00 16.00 16.00										
19 00 00	0716+714	03 22 21	58.5	32.2	-4.0		-92.8	0	0	19 00 00
19 14 30	---	03 36 53	59.7	32.0	-3.8		-96.4	870	28	19 00 01
19 15 00	0716+714	03 37 24	59.7	32.0	-3.8		-96.5	24	28	19 15 00
19 29 30	---	03 51 56	60.9	31.7	-3.5		-100.2	870	56	19 15 01
19 30 00	0716+714	03 52 26	60.9	31.7	-3.5		-100.4	24	56	19 30 00
19 44 30	---	04 06 58	62.0	31.1	-3.3		-104.3	870	84	19 30 01
19 45 00	0716+714	04 07 29	62.1	31.1	-3.3		-104.4	24	84	19 45 00
20 00 00	---	04 22 31	63.2	30.4	-3.0		-108.6	900	112	19 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====
Setup file: ra1cm2.set

Matching groups in ./rk08mn_freq.dat: tr1cm

Setup group: 5 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO= 21500.00 21500.00 21500.00 21500.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set: 3 Setup file default. Used with PCAL = 1MHz
LO sum= 22236.00 22236.00 22236.00 22236.00
BBC fr= 736.00 736.00 736.00 736.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 3

```

Track assignments are:

```

track1= 2, 18, 3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0716+714	07 16 13.029739	* 07 21 53.448474	07 23 39.516172	0.00
J0721+7120	71 26 15.17406	* 71 20 36.36340	71 18 37.89250	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
3C147	147.2
0716+714	131.0

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

rk08mptr

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Thu 8 Jan 2015 Day 8 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

02 00 00	0446+112	10 23 30	13.0	271.7	5.6		37.8	0	0	02 00 00
02 14 30	---	10 38 02	10.9	274.5	5.8		37.6	870	28	02 00 01
02 15 00	0446+112	10 38 33	10.8	274.6	5.8		37.6	24	28	02 15 00
02 29 30	---	10 53 05	8.6	277.5	6.1		37.4	870	56	02 15 01
02 30 00	0446+112	10 53 35	8.5	277.6	6.1		37.4	24	56	02 30 00
02 44 30	---	11 08 07	6.4	280.5	6.3		37.0	870	84	02 30 01
02 45 00	0446+112	11 08 38	6.3	280.6	6.3		37.0	24	84	02 45 00
03 00 00	---	11 23 40	4.1	283.5	6.6		36.6	900	112	02 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra18cm2.set

Setup group: 2	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.


```

1st LO= 2400.00 2400.00 2400.00 2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set: 1 Setup file default. Used with PCAL = 1MHz
LO sum= 1668.00 1668.00 1668.00 1668.00
BBC fr= 732.00 732.00 732.00 732.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 1

```

Track assignments are:

```

track1= 2, 18, 3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0446+112	04 46 21.217284	* 04 49 07.671104	04 49 59.263883	0.00
J0449+1121	11 16 17.84556	* 11 21 28.59635	11 22 51.12367	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
0446+112    143.6

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

```

1.6 GHz      45. deg
2.3 GHz      36. deg
5.0 GHz      23. deg
8.4 GHz      17. deg
15.0 GHz     12. deg
22.0 GHz     9. deg

```

rk08mqr

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
 Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
 Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
 Early: Seconds between end of slew and start. Dwell: On source seconds.
 Disk: GBytes recorded to this point.
 TPStart: Recording start time. Frequencies are L0 sum (band edge).
 SYNC: Time correlator is expected to sync up.

```
-----
```

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC

```
-----
```

--- Thu 8 Jan 2015 Day 8 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
 Next BBC frequencies: 732.00 732.00 732.00 732.00
 Next scan bandwidths: 16.00 16.00 16.00 16.00

05 00 00	1508+572	13 24 00	74.4	65.0	-1.8		-93.1	0	0	05 00 00
05 14 30	---	13 38 32	76.4	64.3	-1.5		-96.8	870	28	05 00 01
05 15 00	1508+572	13 39 02	76.4	64.3	-1.5		-96.9	24	28	05 15 00
05 29 30	---	13 53 35	78.4	62.8	-1.3		-101.4	870	56	05 15 01
05 30 00	1508+572	13 54 05	78.4	62.7	-1.3		-101.6	24	56	05 30 00
05 44 30	---	14 08 37	80.4	60.1	-1.0		-107.2	870	84	05 30 01
05 45 00	1508+572	14 09 07	80.4	59.9	-1.0		-107.5	24	84	05 45 00
06 00 00	---	14 24 10	82.3	54.9	-0.8		-115.6	900	112	05 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra18cm2.set

Setup group: 6	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  5  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00  732.00  732.00  732.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  5

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 1508+572	15 08 45.204538	* 15 10 02.922371	15 10 24.476280	0.00
J1510+5702	57 14 02.08966	* 57 02 43.37583	56 59 09.66646	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
1508+572    94.4

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

```

1.6 GHz      45. deg
2.3 GHz      36. deg
5.0 GHz      23. deg
8.4 GHz      17. deg
15.0 GHz     12. deg
22.0 GHz     9. deg

```

rk08mrtr

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: K-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Thu 8 Jan 2015 Day 8 ---

Next scan frequencies: 22236.00 22236.00 22236.00 22236.00
Next BBC frequencies: 736.00 736.00 736.00 736.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

08 00 00	0716+714	16 24 29	38.4	-16.7	9.0		32.7	0	0	08 00 00
08 14 30	---	16 39 02	37.8	-15.5	9.3		30.0	870	28	08 00 01
08 15 00	0716+714	16 39 32	37.8	-15.4	9.3		29.9	25	28	08 15 00
08 29 30	---	16 54 04	37.2	-14.1	9.5		27.2	870	56	08 15 01
08 30 00	0716+714	16 54 34	37.2	-14.1	9.5		27.2	25	56	08 30 00
08 44 30	---	17 09 07	36.7	-12.8	9.8		24.5	870	84	08 30 01
08 45 00	0716+714	17 09 37	36.7	-12.7	9.8		24.4	25	84	08 45 00
09 00 00	---	17 24 39	36.2	-11.4	10.0		21.7	900	112	08 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====
Setup file: ra1cm2.set

Matching groups in ./rk08mr_freq.dat: tr1cm

Setup group: 6	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

```

1st LO= 21500.00 21500.00 21500.00 21500.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set: 5 Setup file default. Used with PCAL = 1MHz
LO sum= 22236.00 22236.00 22236.00 22236.00
BBC fr= 736.00 736.00 736.00 736.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 5

```

Track assignments are:

```

track1= 2, 18, 3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 0716+714	07 16 13.029739	* 07 21 53.448474	07 23 39.529437	0.00
J0721+7120	71 26 15.17406	* 71 20 36.36340	71 18 38.05429	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
0716+714    130.9

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

```

1.6 GHz      45. deg
2.3 GHz      36. deg
5.0 GHz      23. deg
8.4 GHz      17. deg
15.0 GHz     12. deg
22.0 GHz     9. deg

```

rk08mstr

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Thu 8 Jan 2015 Day 8 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

18 00 00	0307+380	02 26 08	73.2	147.4	-0.8		-24.4	0	0	18 00 00
18 14 30	---	02 40 40	74.3	156.9	-0.5		-17.5	870	28	18 00 01
18 15 00	0307+380	02 41 10	74.3	157.3	-0.5		-17.2	23	28	18 15 00
18 29 30	---	02 55 43	75.0	167.7	-0.3		-9.4	870	56	18 15 01
18 30 00	0307+380	02 56 13	75.0	168.1	-0.3		-9.1	23	56	18 30 00
18 44 30	---	03 10 45	75.2	179.2	-0.0		-0.6	870	84	18 30 01
18 45 00	0307+380	03 11 15	75.2	179.6	-0.0		-0.3	23	84	18 45 00
19 00 00	---	03 26 18	75.0	191.0	0.2		8.4	900	112	18 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====
Setup file: ra18cm2.set

Setup group: 9	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

1st LO=	2400.00	2400.00	2400.00	2400.00
Net SB=	L	L	U	U
IF SB =	L	L	L	L
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	U	U	L	L
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 6 Setup file default. Used with PCAL = 1MHz
 LO sum= 1668.00 1668.00 1668.00 1668.00
 BBC fr= 732.00 732.00 732.00 732.00
 Bandwd= 16.00 16.00 16.00 16.00
 Matching frequency sets: 6

Track assignments are:
 track1= 2, 18, 3, 19
 barrel=roll_off

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 0307+380	03 07 37.554068	* 03 10 49.879926	03 11 49.459382	0.00
J0310+3814	38 03 34.47086	* 38 14 53.83785	38 18 19.28256	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
3C48	105.9
0307+380	125.4

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

rk08mttr

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Thu 8 Jan 2015 Day 8 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

21 00 00	2351+456	05 26 37	38.8	-62.3	5.5		49.9	0	0	21 00 00
21 14 30	---	05 41 10	36.9	-60.2	5.8		48.5	870	28	21 00 01
21 15 00	2351+456	05 41 40	36.8	-60.1	5.8		48.5	24	28	21 15 00
21 29 30	---	05 56 12	35.0	-58.0	6.0		47.1	870	56	21 15 01
21 30 00	2351+456	05 56 42	34.9	-57.9	6.0		47.1	24	56	21 30 00
21 44 30	---	06 11 15	33.1	-55.8	6.3		45.6	870	84	21 30 01
21 45 00	2351+456	06 11 45	33.0	-55.7	6.3		45.6	24	84	21 45 00
22 00 00	---	06 26 47	31.2	-53.6	6.5		44.0	900	112	21 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====
Setup file: ra18cm2.set

Setup group: 5	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

1st LO=	2400.00	2400.00	2400.00	2400.00
Net SB=	L	L	U	U
IF SB =	L	L	L	L
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	U	U	L	L
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 4 Setup file default. Used with PCAL = 1MHz
 LO sum= 1668.00 1668.00 1668.00 1668.00
 BBC fr= 732.00 732.00 732.00 732.00
 Bandwd= 16.00 16.00 16.00 16.00
 Matching frequency sets: 4

Track assignments are:
 track1= 2, 18, 3, 19
 barrel=roll_off

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* 2351+456	23 51 49.972507	* 23 54 21.680217	23 55 07.756028	0.00
J2354+4553	45 36 22.77745	* 45 53 04.23639	45 58 19.86182	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
3C48	105.8
2351+456	92.3

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

rk08mutr

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
 Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
 Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
 Early: Seconds between end of slew and start. Dwell: On source seconds.
 Disk: GBytes recorded to this point.
 TPStart: Recording start time. Frequencies are LO sum (band edge).
 SYNC: Time correlator is expected to sync up.

```
-----
Start UT  Source          Start / Stop          Early  Disk  TPStart
Stop UT   LST      EL    AZ    HA  UP    ParA  Dwell  GBytes  SYNC
-----
```

--- Fri 9 Jan 2015 Day 9 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
 Next BBC frequencies: 732.00 732.00 732.00 732.00
 Next scan bandwidths: 16.00 16.00 16.00 16.00

02 00 00	0925+504	10 27 27	80.7	257.4	1.0	66.1	0	0	02 00 00
02 14 30	---	10 41 59	78.5	262.4	1.2	68.3	870	28	02 00 01
02 15 00	0925+504	10 42 29	78.5	262.5	1.2	68.3	24	28	02 15 00
02 29 30	---	10 57 02	76.3	266.4	1.4	69.3	870	56	02 15 01
02 30 00	0925+504	10 57 32	76.2	266.5	1.5	69.3	24	56	02 30 00
02 44 30	---	11 12 04	74.0	269.7	1.7	69.6	870	84	02 30 01
02 45 00	0925+504	11 12 34	73.9	269.8	1.7	69.6	24	84	02 45 00
03 00 00	---	11 27 37	71.7	272.6	2.0	69.4	900	112	02 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra18cm2.set

Setup group: 7 Station: TORUN Total bit rate: 256
 Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
 Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  5  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00  732.00  732.00  732.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  5

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 0925+504	09 25 51.973728	* 09 29 15.440209	09 30 17.889445	0.00
J0929+5013	50 26 44.31059	* 50 13 35.98961	50 09 19.01275	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
0925+504    142.2

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

```

1.6 GHz      45. deg
2.3 GHz      36. deg
5.0 GHz      23. deg
8.4 GHz      17. deg
15.0 GHz     12. deg
22.0 GHz     9. deg

```

rk08mvtr

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

=====> Observing mode: C/L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Fri 9 Jan 2015 Day 9 ---

----- C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 736.00 736.00 736.00 736.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

07 00 00	0945+408	15 28 16	34.3	-66.2	5.6		46.3	0	0	07 00 00
07 14 30	---	15 42 48	32.3	-63.9	5.9		45.2	870	28	07 00 01
07 15 00	0945+408	15 43 18	32.2	-63.8	5.9		45.2	24	28	07 15 00
07 25 00	---	15 53 20	30.9	-62.2	6.1		44.4	600	47	07 15 01

----- L-band VLBI scans -----

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00

07 30 00	0945+408	15 58 21	30.2	-61.4	6.1		44.0	293	47	07 30 00
07 44 30	---	16 12 53	28.3	-59.1	6.4		42.7	870	75	07 30 01
07 45 00	0945+408	16 13 23	28.3	-59.1	6.4		42.7	24	75	07 45 00
08 00 00	---	16 28 26	26.4	-56.7	6.6		41.3	900	104	07 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====
Setup file: ra6cm2.set

Setup group: 2	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  3  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00  736.00  736.00  736.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  3

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

==== Setup file: ra18cm2.set

```

Setup group:  4          Station: TORUN          Total bit rate:  256
Format: MKIV1:4          Bits per sample:  2          Sample rate: 32.000
Number of channels:  4   DBE type:              Speedup factor:  1.00

```

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  4  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00  732.00  732.00  732.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  4

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0945+408	09 45 50.078219	* 09 48 55.338151	09 49 52.140610	0.00
J0948+4039	40 53 43.38094	* 40 39 44.58693	40 35 13.55651	0.00

rk08mwtr

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: C-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Fri 9 Jan 2015 Day 9 ---

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 736.00 736.00 736.00 736.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

Table with 11 columns: Start UT, Source, LST, EL, AZ, HA, UP, ParA, Dwell, GBytes, SYNC. It contains scan schedule data for January 9, 2015, including source 1222+216 and various time slots.

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra6cm2.set

Setup group: 2 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  1  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00   736.00   736.00   736.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  1

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 1222+216	12 22 23.408709	* 12 24 54.458394	12 25 40.141906	0.00
J1224+2122	21 39 23.03696	* 21 22 46.38857	21 17 36.25696	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
1222+216    110.2

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

```

1.6 GHz      45. deg
2.3 GHz      36. deg
5.0 GHz      23. deg
8.4 GHz      17. deg
15.0 GHz     12. deg
22.0 GHz     9. deg

```

rk08mxtr

RADIOASTRON AGN SURVEYPI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC

--- Fri 9 Jan 2015 Day 9 ---										
Next scan frequencies: 1668.00 1668.00 1668.00 1668.00										
Next BBC frequencies: 732.00 732.00 732.00 732.00										
Next scan bandwidths: 16.00 16.00 16.00 16.00										
19 00 00	0346-279	03 30 14	9.0	175.7	-0.3		-2.9	0	0	19 00 00
19 14 30	---	03 44 47	9.1	179.0	-0.1		-0.7	870	28	19 00 01
19 15 00	0346-279	03 45 17	9.1	179.1	-0.1		-0.6	24	28	19 15 00
19 29 30	---	03 59 49	9.1	182.4	0.2		1.6	870	56	19 15 01
19 30 00	0346-279	04 00 19	9.1	182.5	0.2		1.7	24	56	19 30 00
19 44 30	---	04 14 52	8.9	185.7	0.4		3.9	870	84	19 30 01
19 45 00	0346-279	04 15 22	8.9	185.8	0.4		4.0	24	84	19 45 00
20 00 00	---	04 30 24	8.6	189.2	0.7		6.2	900	112	19 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra18cm2.set

Setup group: 7	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

1st LO=	2400.00	2400.00	2400.00	2400.00
Net SB=	L	L	U	U
IF SB =	L	L	L	L
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	U	U	L	L
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 4 Setup file default. Used with PCAL = 1MHz
 LO sum= 1668.00 1668.00 1668.00 1668.00
 BBC fr= 732.00 732.00 732.00 732.00
 Bandwd= 16.00 16.00 16.00 16.00
 Matching frequency sets: 4

Track assignments are:
 track1= 2, 18, 3, 19
 barrel=roll_off

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 0346-279	03 46 34.026315	* 03 48 38.144579	03 49 16.520309	0.00
J0348-2749	-27 58 20.96624	*-27 49 13.56570	-27 46 47.18979	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
3C48	104.9
0346-279	108.2

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

rk08mytr

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

=====> Observing mode: C/L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2
RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Fri 9 Jan 2015 Day 9 ---

----- C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 736.00 736.00 736.00 736.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

22 00 00 0149+218 06 30 44 29.8 267.8 4.6 40.4 0 0 22 00 00
22 14 30 --- 06 45 16 27.7 270.7 4.9 40.4 870 28 22 00 01
22 15 00 0149+218 06 45 46 27.6 270.8 4.9 40.4 24 28 22 15 00
22 25 00 --- 06 55 48 26.1 272.8 5.0 40.4 600 47 22 15 01

----- L-band VLBI scans -----

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00

22 30 00 0149+218 07 00 49 25.3 273.8 5.1 40.3 293 47 22 30 00
22 44 30 --- 07 15 21 23.2 276.6 5.4 40.1 870 75 22 30 01
22 45 00 0149+218 07 15 51 23.1 276.7 5.4 40.1 24 75 22 45 00
23 00 00 --- 07 30 54 20.9 279.5 5.6 39.8 900 104 22 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra6cm2.set

Setup group: 4 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  6  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00  736.00  736.00  736.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  6

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

==== Setup file: ra18cm2.set

```

Setup group:  9      Station: TORUN      Total bit rate:  256
Format: MKIV1:4      Bits per sample: 2      Sample rate: 32.000
Number of channels:  4  DBE type:      Speedup factor:  1.00

```

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  8  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00  732.00  732.00  732.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  8

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0149+218	01 49 31.744133	* 01 52 18.059044	01 53 08.965343	0.00
J0152+2207	21 52 20.74786	* 22 07 07.69974	22 11 35.65680	0.00

rk08mztr

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Sat 10 Jan 2015 Day 10 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

02 00 00	1015+359	10 31 23	72.4	188.3	0.2		6.1	0	0	02 00 00
02 12 00	---	10 43 25	72.0	196.2	0.4		11.9	720	23	02 00 01
02 12 30	1015+359	10 43 55	72.0	196.5	0.4		12.1	23	23	02 12 30
02 24 30	---	10 55 57	71.4	204.1	0.6		17.5	720	46	02 12 31
02 25 00	1015+359	10 56 27	71.3	204.4	0.6		17.7	23	46	02 25 00
02 37 00	---	11 08 29	70.5	211.4	0.8		22.6	720	69	02 25 01
02 37 30	1015+359	11 08 59	70.5	211.7	0.8		22.8	23	69	02 37 30
02 50 00	---	11 21 31	69.4	218.4	1.0		27.3	750	93	02 37 31

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====
Setup file: ra18cm2.set

Setup group: 3	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  1  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00  732.00  732.00  732.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  1

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 1015+359	10 15 16.226760	* 10 18 10.988103	10 19 04.472577	0.00
J1018+3542	35 57 41.35603	* 35 42 39.44084	35 37 50.39736	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
1015+359    139.8

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

```

1.6 GHz      45. deg
2.3 GHz      36. deg
5.0 GHz      23. deg
8.4 GHz      17. deg
15.0 GHz     12. deg
22.0 GHz     9. deg

```

rk08natr

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Sat 10 Jan 2015 Day 10 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

Table with 11 columns: Start UT, Source, LST, EL, AZ, HA, UP, ParA, Dwell, GBytes, SYNC. It lists observation times and parameters for 1040+244 and other sources.

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra18cm2.set

Setup group: 5 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO= 2400.00 2400.00 2400.00 2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set: 2 Setup file default. Used with PCAL = 1MHz
LO sum= 1668.00 1668.00 1668.00 1668.00
BBC fr= 732.00 732.00 732.00 732.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 2

```

```

Track assignments are:
track1= 2, 18, 3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 1040+244	10 40 25.199377	* 10 43 09.035778	10 43 59.164752	0.00
J1043+2408	24 24 19.59847	* 24 08 35.40933	24 03 36.59304	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
1040+244    134.5

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

```

1.6 GHz      45. deg
2.3 GHz      36. deg
5.0 GHz      23. deg
8.4 GHz      17. deg
15.0 GHz     12. deg
22.0 GHz     9. deg

```

rg10atr

RADIOASTRON GP PULSAR OBSERVATIONS

PI: *Alexey Rudnitskiy*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron GP pulsar observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are L0 sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Sat 10 Jan 2015 Day 10 ---

----- This is a 1min calibration scan with auto-level (AGC) ON -----

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

21 58 00 CRAB 06 32 40 57.1 204.9 1.0 15.8 0 0 Stopped
21 59 00 --- 06 33 40 57.0 205.3 1.0 16.1 60 0

----- Please make sure Pcal, noise diode (Tsyes) and auto-level (AGC) are OFF now -----

22 00 00 CRAB 06 34 40 56.9 205.7 1.0 16.3 53 0 22 00 00
22 19 30 --- 06 54 14 55.5 213.4 1.3 20.9 1170 37 22 00 01

22 20 00 CRAB 06 54 44 55.4 213.6 1.3 21.0 24 37 22 20 00
22 39 30 --- 07 14 17 53.7 220.8 1.6 25.1 1170 75 22 20 01

22 40 00 CRAB 07 14 47 53.6 221.0 1.7 25.2 24 75 22 40 00
22 59 30 --- 07 34 20 51.6 227.7 2.0 28.6 1170 112 22 40 01

23 00 00 CRAB 07 34 50 51.5 227.8 2.0 28.7 24 112 23 00 00
23 19 30 --- 07 54 23 49.2 234.0 2.3 31.6 1170 150 23 00 01

23 20 00 CRAB 07 54 53 49.2 234.1 2.3 31.7 24 150 23 20 00
23 39 30 --- 08 14 27 46.7 239.8 2.6 34.0 1170 187 23 20 01

23 40 00 CRAB 08 14 57 46.6 240.0 2.7 34.1 24 187 23 40 00
23 59 30 --- 08 34 30 44.0 245.2 3.0 36.0 1170 225 23 40 01

--- Sun 11 Jan 2015 Day 11 ---

00 00 00 CRAB 08 35 00 44.0 245.4 3.0 36.1 24 225 00 00 00
00 19 30 --- 08 54 33 41.2 250.3 3.3 37.6 1170 262 00 00 01

00 20 00 CRAB 08 55 03 41.2 250.4 3.3 37.6 24 262 00 20 00
00 39 30 --- 09 14 37 38.4 255.0 3.7 38.7 1170 300 00 20 01

Schedule for TORUN (Code Tr)

Page 3

RadioAstron GP pulsar observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

```

-----
Start UT  Source          Start / Stop          Early  Disk  TPStart
Stop UT          LST      EL  AZ  HA  UP  ParA  Dwell  GBytes  SYNC
-----
--- Sun 11 Jan 2015  Day 11 ---

00 40 00  CRAB          09 15 07  38.3 255.2  3.7      38.8   24   300  00 40 00
00 59 30  ---          09 34 40  35.4 259.6  4.0      39.6  1170   337  00 40 01

01 00 00  CRAB          09 35 10  35.4 259.7  4.0      39.6   24   337  01 00 00
01 19 30  ---          09 54 43  32.5 263.9  4.3      40.1  1170   374  01 00 01

01 20 00  CRAB          09 55 13  32.4 264.0  4.3      40.1   24   374  01 20 00
01 39 30  ---          10 14 46  29.5 268.0  4.7      40.3  1170   412  01 20 01

01 40 00  CRAB          10 15 16  29.4 268.1  4.7      40.3   24   412  01 40 00
01 59 30  ---          10 34 50  26.4 272.0  5.0      40.3  1170   449  01 40 01

02 00 00  CRAB          10 35 20  26.4 272.1  5.0      40.3   24   449  02 00 00
02 19 30  ---          10 54 53  23.4 275.9  5.3      40.1  1170   487  02 00 01

02 20 00  CRAB          10 55 23  23.4 276.0  5.3      40.1   24   487  02 20 00
02 39 30  ---          11 14 56  20.5 279.8  5.7      39.7  1170   524  02 20 01

02 40 00  CRAB          11 15 26  20.4 279.9  5.7      39.7   24   524  02 40 00
02 59 30  ---          11 35 00  17.5 283.6  6.0      39.0  1170   562  02 40 01

03 00 00  CRAB          11 35 30  17.4 283.7  6.0      39.0   24   562  03 00 00
03 19 30  ---          11 55 03  14.6 287.3  6.3      38.2  1170   599  03 00 01

03 20 00  CRAB          11 55 33  14.5 287.4  6.3      38.2   24   599  03 20 00
03 39 30  ---          12 15 06  11.8 291.1  6.7      37.2  1170   636  03 20 01

03 40 00  CRAB          12 15 36  11.7 291.2  6.7      37.1   24   636  03 40 00
04 00 00  ---          12 35 39   8.9 295.0  7.0      35.9  1200   675  03 40 01

```

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra18cm2_autolevel.set

```

Setup group:   10          Station: TORUN          Total bit rate: 256
Format: MKIV1:4        Bits per sample: 2      Sample rate: 32.000
Number of channels: 4    DBE type:

```

Disk used to record data.

Setup not used for recording data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  8  Setup file default.  Used with PCAL = off
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00  732.00  732.00  732.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  8

```

==== Setup file: ra18cm2.set

```

Setup group:  20      Station: TORUM      Total bit rate:  256
Format: MKIV1:4      Bits per sample:  2      Sample rate: 32.000
Number of channels:  4  DBE type:          Speedup factor:  1.00

```

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  17  Setup file default.  Used with PCAL = off
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00  732.00  732.00  732.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  17

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* CRAB	05 31 31.427725	* 05 34 31.973000	05 35 27.999856	0.00
J0534+2200	21 58 54.40670	* 22 00 52.06000	22 01 16.35922	0.00

rk08nbtr

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

=====> Observing mode: C/L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Sun 11 Jan 2015 Day 11 ---

----- C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 736.00 736.00 736.00 736.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

06 00 00 1040+244 14 35 59 38.1 259.6 3.9 40.3 0 0 06 00 00
06 12 00 --- 14 48 01 36.3 262.2 4.1 40.7 720 23 06 00 01
06 12 30 1040+244 14 48 31 36.2 262.3 4.1 40.7 24 23 06 12 30
06 20 00 --- 14 56 02 35.1 263.9 4.2 40.8 450 37 06 12 31

----- L-band VLBI scans -----

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00

06 25 00 1040+244 15 01 03 34.3 265.0 4.3 40.9 293 37 06 25 00
06 37 00 --- 15 13 05 32.5 267.5 4.5 41.1 720 60 06 25 01
06 37 30 1040+244 15 13 35 32.5 267.6 4.5 41.1 24 60 06 37 30
06 50 00 --- 15 26 07 30.6 270.1 4.7 41.1 750 84 06 37 31

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====> Setup file: ra6cm2.set

Setup group: 3 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  5  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00   736.00   736.00   736.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  5

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

==== Setup file: ra18cm2.set

```

Setup group:  7      Station: TORUN      Total bit rate:  256
Format: MKIV1:4      Bits per sample:  2      Sample rate: 32.000
Number of channels:  4  DBE type:      Speedup factor:  1.00

```

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  6  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00   732.00   732.00   732.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  6

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 1040+244	10 40 25.199377	* 10 43 09.035778	10 43 59.186663	0.00
J1043+2408	24 24 19.59847	* 24 08 35.40933	24 03 36.54099	0.00

rk08nctr

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: K-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC

--- Sun 11 Jan 2015 Day 11 ---										
Next scan frequencies: 22236.00 22236.00 22236.00 22236.00										
Next BBC frequencies: 736.00 736.00 736.00 736.00										
Next scan bandwidths: 16.00 16.00 16.00 16.00										
08 00 00	1156+295	16 36 19	35.3	273.0	4.6		43.4	0	0	08 00 00
08 12 00	---	16 48 21	33.5	275.3	4.8		43.2	720	23	08 00 01
08 12 30	1156+295	16 48 51	33.4	275.4	4.8		43.2	24	23	08 12 30
08 24 30	---	17 00 53	31.6	277.7	5.0		43.0	720	46	08 12 31
08 25 00	1156+295	17 01 23	31.5	277.8	5.0		42.9	24	46	08 25 00
08 37 00	---	17 13 25	29.7	280.0	5.2		42.6	720	69	08 25 01
08 37 30	1156+295	17 13 55	29.7	280.1	5.2		42.6	24	69	08 37 30
08 50 00	---	17 26 27	27.8	282.4	5.4		42.2	750	93	08 37 31

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====
Setup file: ra1cm2.set

Matching groups in ./rk08nc_freq.dat: tr1cm

Setup group: 4 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO= 21500.00 21500.00 21500.00 21500.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  4  Setup file default.  Used with PCAL = 1MHz
LO sum=  22236.00 22236.00 22236.00 22236.00
BBC fr=   736.00  736.00  736.00  736.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  4

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 1156+295	11 56 57.786212	* 11 59 31.833913	12 00 18.528709	0.00
J1159+2914	29 31 25.73868	* 29 14 43.82678	29 09 28.54223	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
3C286	100.5
1156+295	119.3

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

rk08ndtr

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

=====> Observing mode: C/L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2
RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Sun 11 Jan 2015 Day 11 ---

----- C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 736.00 736.00 736.00 736.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

16 00 00 0945+408 00 37 38 10.4 31.1 -9.2 -24.1 0 0 16 00 00
16 12 00 --- 00 49 40 11.4 33.2 -9.0 -25.6 720 23 16 00 01
16 12 30 0945+408 00 50 10 11.4 33.3 -9.0 -25.7 24 23 16 12 30
16 20 00 --- 00 57 41 12.1 34.6 -8.9 -26.7 450 37 16 12 31

----- L-band VLBI scans -----

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00

16 25 00 0945+408 01 02 42 12.5 35.4 -8.8 -27.3 294 37 16 25 00
16 37 00 --- 01 14 44 13.6 37.5 -8.6 -28.8 720 60 16 25 01
16 37 30 0945+408 01 15 14 13.6 37.6 -8.6 -28.8 24 60 16 37 30
16 50 00 --- 01 27 46 14.8 39.7 -8.4 -30.4 750 84 16 37 31

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra6cm2.set

Setup group: 3 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  5  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00   736.00   736.00   736.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  5

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

==== Setup file: ra18cm2.set

```

Setup group:  7      Station: TORUN      Total bit rate:  256
Format: MKIV1:4      Bits per sample:  2      Sample rate: 32.000
Number of channels:  4  DBE type:      Speedup factor:  1.00

```

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  6  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00   732.00   732.00   732.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  6

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0945+408	09 45 50.078219	* 09 48 55.338151	09 49 52.198935	0.00
J0948+4039	40 53 43.38094	* 40 39 44.58693	40 35 13.69344	0.00

rk08netr

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

=====> Observing mode: C/K-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Sun 11 Jan 2015 Day 11 ---

----- K-band VLBI scans -----

Next scan frequencies: 22236.00 22236.00 22236.00 22236.00
Next BBC frequencies: 736.00 736.00 736.00 736.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

18 00 00	0716+714	02 37 57	55.0	31.9	-4.8		-82.5	0	0	18 00 00
18 14 30	---	02 52 30	56.1	32.2	-4.5		-85.8	870	28	18 00 01
18 15 00	0716+714	02 53 00	56.2	32.2	-4.5		-85.9	24	28	18 15 00
18 25 00	---	03 03 02	57.0	32.2	-4.3		-88.2	600	47	18 15 01

----- C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 736.00 736.00 736.00 736.00

18 30 00	0716+714	03 08 02	57.4	32.2	-4.3		-89.4	294	47	18 30 00
18 44 30	---	03 22 35	58.5	32.2	-4.0		-92.8	870	75	18 30 01
18 45 00	0716+714	03 23 05	58.6	32.2	-4.0		-93.0	24	75	18 45 00
19 00 00	---	03 38 07	59.8	32.0	-3.8		-96.7	900	104	18 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra1cm2.set

Matching groups in ./rk08ne_freq.dat: tr1cm

Setup group: 7	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

```

1st LO= 21500.00 21500.00 21500.00 21500.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set: 5 Setup file default. Used with PCAL = 1MHz
LO sum= 22236.00 22236.00 22236.00 22236.00
BBC fr= 736.00 736.00 736.00 736.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 5

```

```

Track assignments are:
track1= 2, 18, 3, 19
barrel=roll_off

```

==== Setup file: ra6cm2.set

```

Setup group: 4 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

```

Disk used to record data.

```

1st LO= 4100.00 4100.00 4100.00 4100.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set: 7 Setup file default. Used with PCAL = 1MHz
LO sum= 4836.00 4836.00 4836.00 4836.00
BBC fr= 736.00 736.00 736.00 736.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 7

```

```

Track assignments are:
track1= 2, 18, 3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0716+714	07 16 13.029739	* 07 21 53.448474	07 23 39.577888	0.00
J0721+7120	71 26 15.17406	* 71 20 36.36340	71 18 39.03063	0.00

rk08nfr

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Table with columns: Start UT, Source, Start / Stop (LST, EL, AZ, HA, UP), ParA, Early Dwell, Disk GBytes, TPStart SYNC. Includes scan data for Sun 11 Jan 2015.

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra18cm2.set

Setup group: 7 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

1st LO=	2400.00	2400.00	2400.00	2400.00
Net SB=	L	L	U	U
IF SB =	L	L	L	L
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	U	U	L	L
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 4 Setup file default. Used with PCAL = 1MHz
 LO sum= 1668.00 1668.00 1668.00 1668.00
 BBC fr= 732.00 732.00 732.00 732.00
 Bandwd= 16.00 16.00 16.00 16.00
 Matching frequency sets: 4

Track assignments are:
 track1= 2, 18, 3, 19
 barrel=roll_off

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 0307+380	03 07 37.554068	* 03 10 49.879926	03 11 49.398407	0.00
J0310+3814	38 03 34.47086	* 38 14 53.83785	38 18 19.36979	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
3C48	103.0
0307+380	122.5

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

rk08ngtr

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: K-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Mon 12 Jan 2015 Day 12 ---

Next scan frequencies: 22236.00 22236.00 22236.00 22236.00
Next BBC frequencies: 736.00 736.00 736.00 736.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

Table with 11 columns: Start UT, Stop UT, Source, LST, EL, AZ, HA, UP, ParA, Dwell, GBytes, TPStart, SYNC. It lists observation times and parameters for multiple scans.

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra1cm2.set
Matching groups in ./rk08ng_freq.dat: tr1cm

Setup group: 5 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO= 21500.00 21500.00 21500.00 21500.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  2  Setup file default.  Used with PCAL = 1MHz
LO sum= 22236.00 22236.00 22236.00 22236.00
BBC fr=  736.00  736.00  736.00  736.00
Bandwd=  16.00  16.00  16.00  16.00
Matching frequency sets:  2

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 1226+023	12 26 33.245835	* 12 29 06.699731	12 29 53.416179	0.00
J1229+0203	02 19 43.30547	* 02 03 08.59797	01 58 05.31197	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
1226+023    105.6

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{ deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

```

1.6 GHz      45. deg
2.3 GHz      36. deg
5.0 GHz      23. deg
8.4 GHz      17. deg
15.0 GHz     12. deg
22.0 GHz      9. deg

```

rk08nhtr

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: K-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Mon 12 Jan 2015 Day 12 ---

Next scan frequencies: 22236.00 22236.00 22236.00 22236.00
Next BBC frequencies: 736.00 736.00 736.00 736.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

08 05 00	1253-055	16 45 16	14.1	239.4	3.8		31.3	0	0	08 05 00
08 19 30	---	16 59 49	12.1	242.6	4.0		32.4	870	28	08 05 01
08 20 00	1253-055	17 00 19	12.1	242.7	4.1		32.4	24	28	08 20 00
08 34 30	---	17 14 51	10.1	245.8	4.3		33.4	870	56	08 20 01
08 35 00	1253-055	17 15 21	10.0	245.9	4.3		33.4	24	56	08 35 00
08 49 30	---	17 29 54	8.0	248.9	4.5		34.3	870	84	08 35 01
08 50 00	1253-055	17 30 24	8.0	249.0	4.6		34.3	24	84	08 50 00
09 05 00	---	17 45 26	5.8	252.1	4.8		35.1	900	112	08 50 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====
Setup file: ra1cm2.set

Matching groups in ./rk08nh_freq.dat: tr1cm

Setup group: 6	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

```

1st LO= 21500.00 21500.00 21500.00 21500.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set: 3 Setup file default. Used with PCAL = 1MHz
LO sum= 22236.00 22236.00 22236.00 22236.00
BBC fr= 736.00 736.00 736.00 736.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 3

```

Track assignments are:

```

track1= 2, 18, 3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 1253-055	12 53 35.831289	* 12 56 11.166557	12 56 58.403484	0.00
J1256-0547	-05 31 07.99603	*-05 47 21.52489	-05 52 14.24364	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
3C286	101.3
1253-055	96.4

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

rk08nitr

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Mon 12 Jan 2015 Day 12 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

Table with 11 columns: Start UT, Stop UT, Source, LST, EL, AZ, HA, UP, ParA, Dwell, GBytes, SYNC. It lists observation times and parameters for scans on 0307+380.

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra18cm2.set

Setup group: 5 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  3  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00  732.00  732.00  732.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  3

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 0307+380	03 07 37.554068	* 03 10 49.879926	03 11 49.384757	0.00
J0310+3814	38 03 34.47086	* 38 14 53.83785	38 18 19.37273	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
0307+380    121.9

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

```

1.6 GHz      45. deg
2.3 GHz      36. deg
5.0 GHz      23. deg
8.4 GHz      17. deg
15.0 GHz     12. deg
22.0 GHz      9. deg

```

rg11ahtr

RADIOASTRON MASER OBSERVATIONS

PI: *Alexei Alakoz*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: K-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron Maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are L0 sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Mon 12 Jan 2015 Day 12 ---

----- This is a fringe finder/clock offset calibrator 9.1 deg. from W30H_H20 -----

Next scan frequencies: 22228.00 22228.00 22228.00 22228.00
Next BBC frequencies: 728.00 728.00 728.00 728.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

17 50 00 0106+612 02 31 52 76.2 -43.7 1.4 119.1 0 0 17 50 00
17 55 00 --- 02 36 53 75.7 -44.9 1.4 116.9 300 10 17 50 01

----- Please, make sure PCAL is OFF for W30H_H20 maser observations. -----

18 00 00 W30H_H20 02 41 54 81.0 -10.3 0.2 166.9 210 10 18 00 00
18 24 30 --- 03 06 28 79.8 -26.1 0.6 145.8 1470 57 18 00 01

18 25 00 W30H_H20 03 06 58 79.8 -26.4 0.6 145.4 23 57 18 25 00
18 50 00 --- 03 32 02 77.8 -37.5 1.1 129.0 1500 105 18 25 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====
Setup file: ra1cm2.set
Matching groups in ./rg11ah_freq.dat: tr1cm

Setup group: 1 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO= 21500.00 21500.00 21500.00 21500.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  4  Setup file default.  Used with PCAL = off
LO sum= 22228.00 22228.00 22228.00 22228.00
BBC fr=  728.00  728.00  728.00  728.00
Bandwd=  16.00  16.00  16.00  16.00
Matching frequency sets:  4

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* W30H_H20	02 23 17.452954	* 02 27 04.836200	02 28 15.895383	0.00
	61 38 57.17958	* 61 52 24.60700	61 56 37.40170	0.00
* 0106+612	01 06 36.621798	* 01 09 46.344314	01 10 45.129815	0.00
J0109+6133	61 17 32.64124	* 61 33 30.45573	61 38 33.39200	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
W30H_H20	115.1
0106+612	106.0

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{ deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

rk08nktr

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
 Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
 Fax: +7-495-3332378 Phone during observation: +7-915-1546281

=====> Observing mode: C/L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC

--- Mon 12 Jan 2015 Day 12 ---

----- C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00										
Next BBC frequencies: 736.00 736.00 736.00 736.00										
Next scan bandwidths: 16.00 16.00 16.00 16.00										
20 10 00	1508+572	04 52 15	22.0	14.6-10.3			-16.2	0	0	20 10 00
20 22 00	---	05 04 17	22.5	16.3-10.1			-18.1	720	23	20 10 01
20 22 30	1508+572	05 04 47	22.5	16.4-10.1			-18.1	24	23	20 22 30
20 30 00	---	05 12 19	22.9	17.5-10.0			-19.3	450	37	20 22 31

----- L-band VLBI scans -----

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00										
Next BBC frequencies: 732.00 732.00 732.00 732.00										
20 35 00	1508+572	05 17 19	23.1	18.1 -9.9			-20.1	294	37	20 35 00
20 47 00	---	05 29 21	23.7	19.8 -9.7			-21.9	720	60	20 35 01
20 47 30	1508+572	05 29 52	23.7	19.9 -9.7			-22.0	24	60	20 47 30
21 00 00	---	05 42 24	24.4	21.6 -9.5			-23.9	750	84	20 47 31

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====
 Setup file: ra6cm2.set

Setup group: 2	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  3  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00   736.00   736.00   736.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  3

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

==== Setup file: ra18cm2.set

```

Setup group:    5          Station: TORUN          Total bit rate:  256
Format: MKIV1:4          Bits per sample:  2          Sample rate: 32.000
Number of channels:  4    DBE type:                Speedup factor:  1.00

```

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  4  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00   732.00   732.00   732.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  4

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 1508+572	15 08 45.204538	* 15 10 02.922371	15 10 24.666455	0.00
J1510+5702	57 14 02.08966	* 57 02 43.37583	56 59 08.56467	0.00

Address: JIVE Oude Hoogeveensedijk 4 Dwingeloo Netherlands
Phone: +31 521 596 536 EMAIL: zparagi@jive.nl
Fax: +31 521 596 539 Phone during observation: +31 521 596 530

Observing mode: realtime e-vlbi

Schedule for TORUN (Code Tr) Page 2
e-EVN: te116, ey022, ec053

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are L0 sum (band edge).
SYNC: Time correlator is expected to sync up.

Table with columns: Start UT, Source, Start / Stop (LST, EL, AZ, HA, UP), ParA, Early Dwell, Disk GBytes, TPStart SYNC. Includes a date separator '--- Tue 13 Jan 2015 Day 13 ---' and a list of scan frequencies and bandwidths.

Schedule for TORUN (Code Tr)

Page 3

e-EVN: tel16, ey022, ec053

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Tue 13 Jan 2015 Day 13 ---										
11 30 40	3C454.3	20 15 27	41.8	124.5	-2.7		-31.0	34	1090	11 30 40
11 45 00	---	20 29 49	43.5	128.5	-2.4		-29.3	860	1200	11 30 41
11 45 40	3C454.3	20 30 29	43.6	128.7	-2.4		-29.2	34	1200	11 45 40
12 00 00	---	20 44 51	45.2	133.0	-2.2		-27.2	860	1310	11 45 41
12 00 40	3C454.3	20 45 32	45.3	133.2	-2.2		-27.1	34	1310	12 00 40
12 15 00	---	20 59 54	46.8	137.6	-1.9		-24.9	860	1421	12 00 41
12 15 40	3C454.3	21 00 34	46.9	137.9	-1.9		-24.8	34	1421	12 15 40
12 30 00	---	21 14 56	48.3	142.5	-1.7		-22.4	860	1531	12 15 41
12 30 40	3C454.3	21 15 36	48.3	142.8	-1.7		-22.2	34	1531	12 30 40
12 45 00	---	21 29 59	49.6	147.7	-1.4		-19.5	860	1641	12 30 41
12 45 40	3C454.3	21 30 39	49.6	147.9	-1.4		-19.4	34	1641	12 45 40
13 00 00	---	21 45 01	50.7	153.0	-1.2		-16.5	860	1751	12 45 41
13 03 00	0235+164	21 48 02	23.5	93.3	-4.9		-38.7	45	1751	13 03 00
13 15 00	---	22 00 04	25.3	95.8	-4.7		-38.6	720	1844	13 03 01
13 15 40	0235+164	22 00 44	25.4	95.9	-4.6		-38.6	34	1844	13 15 40
13 30 00	---	22 15 06	27.6	99.0	-4.4		-38.3	860	1954	13 15 41
13 30 40	0235+164	22 15 46	27.7	99.1	-4.4		-38.2	34	1954	13 30 40
13 45 00	---	22 30 09	29.8	102.2	-4.2		-37.8	860	2064	13 30 41
13 45 40	0235+164	22 30 49	29.9	102.3	-4.1		-37.8	34	2064	13 45 40
14 00 00	---	22 45 11	32.0	105.5	-3.9		-37.2	860	2174	13 45 41
14 02 00	J0216-0118	22 47 11	20.4	122.3	-3.5		-30.5	62	2174	14 02 00
14 05 00	=0213-015	22 50 12	20.8	123.0	-3.4		-30.3	180	2197	14 02 01
14 05 00	MRK590	22 50 12	21.5	123.0	-3.4		-30.2	-14	2197	No stop
14 08 30	---	22 53 43	21.9	123.9	-3.4		-29.9	196	2224	14 05 01
14 08 30	J0216-0118	22 53 43	21.2	123.8	-3.4		-29.9	-14	2224	No stop
14 09 30	=0213-015	22 54 43	21.4	124.0	-3.4		-29.9	46	2232	14 08 31
14 09 30	MRK590	22 54 43	22.0	124.1	-3.3		-29.8	-14	2232	No stop
14 13 00	---	22 58 13	22.5	124.9	-3.3		-29.5	196	2259	14 09 31
14 13 30	J0216-0118	22 58 43	21.9	125.0	-3.3		-29.5	16	2259	14 13 30
14 14 00	=0213-015	22 59 13	21.9	125.1	-3.3		-29.4	30	2263	14 13 31
14 14 00	MRK590	22 59 13	22.6	125.2	-3.3		-29.4	-14	2263	No stop
14 17 30	---	23 02 44	23.0	126.0	-3.2		-29.1	196	2290	14 14 01

Schedule for TORUN (Code Tr)

Page 4

e-EVN: tel16, ey022, ec053

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Tue 13 Jan 2015 Day 13 ---										
14 17 30	J0216-0118	23 02 44	22.4	125.9	-3.2		-29.1	-14	2290	No stop
14 18 30	=0213-015	23 03 44	22.5	126.1	-3.2		-29.0	46	2297	14 17 31
14 18 30	MRK590	23 03 44	23.1	126.2	-3.2		-29.0	-14	2297	No stop
14 22 00	---	23 07 15	23.6	127.1	-3.1		-28.6	196	2324	14 18 31
14 22 30	J0216-0118	23 07 45	23.0	127.1	-3.2		-28.6	16	2324	14 22 30
14 23 00	=0213-015	23 08 15	23.0	127.2	-3.1		-28.6	30	2328	14 22 31
14 23 00	MRK590	23 08 15	23.7	127.3	-3.1		-28.5	-14	2328	No stop
14 26 30	---	23 11 46	24.1	128.1	-3.1		-28.2	196	2355	14 23 01
14 26 30	J0216-0118	23 11 46	23.4	128.0	-3.1		-28.2	-14	2355	No stop
14 27 30	=0213-015	23 12 46	23.6	128.3	-3.1		-28.1	46	2363	14 26 31
14 27 30	MRK590	23 12 46	24.2	128.4	-3.0		-28.1	-14	2363	No stop
14 31 00	---	23 16 16	24.6	129.2	-3.0		-27.7	196	2390	14 27 31
14 31 00	J0216-0118	23 16 16	24.0	129.1	-3.0		-27.8	-14	2390	No stop
14 32 00	=0213-015	23 17 16	24.1	129.4	-3.0		-27.7	46	2397	14 31 01
14 32 40	J0216-0105	23 17 57	24.3	129.4	-3.0		-27.6	30	2397	14 32 40
14 34 00	=0213-013	23 19 17	24.5	129.7	-3.0		-27.5	80	2408	14 32 41
14 34 00	J0216-0118	23 19 17	24.3	129.9	-3.0		-27.5	-10	2408	No stop
14 35 00	=0213-015	23 20 17	24.4	130.1	-2.9		-27.3	50	2415	14 34 01
14 35 00	MRK590	23 20 17	25.1	130.2	-2.9		-27.3	-14	2415	No stop
14 38 30	---	23 23 47	25.5	131.1	-2.9		-26.9	196	2442	14 35 01
14 38 30	J0216-0118	23 23 47	24.8	131.0	-2.9		-27.0	-14	2442	No stop
14 39 30	=0213-015	23 24 48	24.9	131.2	-2.9		-26.9	46	2450	14 38 31
14 39 30	MRK590	23 24 48	25.6	131.3	-2.8		-26.8	-14	2450	No stop
14 43 00	---	23 28 18	26.0	132.2	-2.8		-26.4	196	2477	14 39 31
14 43 30	J0216-0118	23 28 48	25.4	132.2	-2.8		-26.4	16	2477	14 43 30
14 44 00	=0213-015	23 29 18	25.4	132.3	-2.8		-26.4	30	2481	14 43 31
14 44 00	MRK590	23 29 18	26.1	132.4	-2.8		-26.3	-14	2481	No stop
14 47 30	---	23 32 49	26.5	133.3	-2.7		-25.9	196	2508	14 44 01
14 47 30	J0216-0118	23 32 49	25.8	133.2	-2.7		-26.0	-14	2508	No stop
14 48 30	=0213-015	23 33 49	25.9	133.5	-2.7		-25.8	46	2515	14 47 31
14 48 30	MRK590	23 33 49	26.6	133.6	-2.7		-25.8	-14	2515	No stop
14 52 00	---	23 37 20	27.0	134.5	-2.6		-25.4	196	2542	14 48 31

Schedule for TORUN (Code Tr)

Page 5

e-EVN: tel16, ey022, ec053

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Tue 13 Jan 2015 Day 13 ---										
14 52 30	J0216-0118	23 37 50	26.4	134.5	-2.7		-25.4	16	2542	14 52 30
14 53 00	=0213-015	23 38 20	26.4	134.6	-2.6		-25.3	30	2546	14 52 31
14 53 00	MRK590	23 38 20	27.1	134.7	-2.6		-25.3	-14	2546	No stop
14 56 30	---	23 41 50	27.4	135.6	-2.6		-24.8	196	2573	14 53 01
14 56 30	J0216-0118	23 41 50	26.8	135.5	-2.6		-24.9	-14	2573	No stop
14 57 30	=0213-015	23 42 51	26.9	135.7	-2.6		-24.8	46	2581	14 56 31
14 57 30	MRK590	23 42 51	27.6	135.9	-2.5		-24.7	-14	2581	No stop
15 01 00	---	23 46 21	27.9	136.8	-2.5		-24.3	196	2608	14 57 31
15 01 00	J0216-0118	23 46 21	27.3	136.6	-2.5		-24.4	-14	2608	No stop
15 02 00	=0213-015	23 47 21	27.4	136.9	-2.5		-24.2	46	2615	15 01 01
15 02 40	J0216-0105	23 48 01	27.6	136.9	-2.5		-24.2	30	2615	15 02 40
15 04 00	=0213-013	23 49 22	27.8	137.3	-2.5		-24.0	80	2626	15 02 41
15 04 00	J0216-0118	23 49 22	27.6	137.4	-2.5		-24.0	-10	2626	No stop
15 05 00	=0213-015	23 50 22	27.7	137.7	-2.4		-23.9	50	2633	15 04 01
15 05 00	MRK590	23 50 22	28.3	137.8	-2.4		-23.8	-14	2633	No stop
15 08 30	---	23 53 52	28.7	138.7	-2.4		-23.3	196	2660	15 05 01
15 08 30	J0216-0118	23 53 52	28.0	138.6	-2.4		-23.4	-14	2660	No stop
15 09 30	=0213-015	23 54 53	28.1	138.8	-2.4		-23.3	46	2668	15 08 31
15 09 30	MRK590	23 54 53	28.8	139.0	-2.3		-23.2	-14	2668	No stop
15 13 00	---	23 58 23	29.1	139.9	-2.3		-22.8	196	2695	15 09 31
15 13 30	J0216-0118	23 58 53	28.5	139.9	-2.3		-22.8	16	2695	15 13 30
15 14 00	=0213-015	23 59 23	28.6	140.0	-2.3		-22.7	30	2699	15 13 31
15 14 00	MRK590	23 59 23	29.2	140.2	-2.3		-22.6	-14	2699	No stop
15 17 30	---	00 02 54	29.6	141.1	-2.2		-22.2	196	2726	15 14 01
15 17 30	J0216-0118	00 02 54	28.9	140.9	-2.2		-22.2	-14	2726	No stop
15 18 30	=0213-015	00 03 54	29.0	141.2	-2.2		-22.1	46	2733	15 17 31
15 18 30	MRK590	00 03 54	29.6	141.4	-2.2		-22.0	-14	2733	No stop
15 22 00	---	00 07 25	30.0	142.3	-2.1		-21.5	196	2760	15 18 31
15 22 30	J0216-0118	00 07 55	29.4	142.3	-2.1		-21.6	16	2760	15 22 30
15 23 00	=0213-015	00 08 25	29.4	142.4	-2.1		-21.5	30	2764	15 22 31
15 23 00	MRK590	00 08 25	30.1	142.6	-2.1		-21.4	-14	2764	No stop
15 26 30	---	00 11 55	30.4	143.5	-2.1		-20.9	196	2791	15 23 01

Schedule for TORUN (Code Tr)

Page 6

e-EVN: tel16, ey022, ec053

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

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TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Tue 13 Jan 2015 Day 13 ---										
15 26 30	J0216-0118	00 11 55	29.7	143.3	-2.1		-21.0	-14	2791	No stop
15 27 30	=0213-015	00 12 56	29.8	143.6	-2.1		-20.9	46	2799	15 26 31
15 27 30	MRK590	00 12 56	30.5	143.8	-2.0		-20.8	-14	2799	No stop
15 31 00	---	00 16 26	30.8	144.8	-2.0		-20.3	196	2826	15 27 31
15 31 00	J0216-0118	00 16 26	30.1	144.6	-2.0		-20.4	-14	2826	No stop
15 32 00	=0213-015	00 17 26	30.2	144.8	-2.0		-20.2	46	2833	15 31 01
15 32 40	J0216-0105	00 18 06	30.5	144.9	-2.0		-20.2	30	2833	15 32 40
15 34 00	=0213-013	00 19 27	30.6	145.3	-2.0		-20.0	80	2844	15 32 41
15 34 00	J0216-0118	00 19 27	30.4	145.4	-2.0		-20.0	-10	2844	No stop
15 35 00	=0213-015	00 20 27	30.5	145.6	-1.9		-19.8	50	2851	15 34 01
15 35 00	MRK590	00 20 27	31.1	145.9	-1.9		-19.7	-14	2851	No stop
15 38 30	---	00 23 57	31.4	146.8	-1.9		-19.2	196	2878	15 35 01
15 38 30	J0216-0118	00 23 57	30.8	146.6	-1.9		-19.3	-14	2878	No stop
15 39 30	=0213-015	00 24 58	30.9	146.9	-1.9		-19.2	46	2886	15 38 31
15 39 30	MRK590	00 24 58	31.5	147.1	-1.8		-19.0	-14	2886	No stop
15 43 00	---	00 28 28	31.8	148.1	-1.8		-18.5	196	2913	15 39 31
15 43 30	J0216-0118	00 28 58	31.2	148.0	-1.8		-18.6	16	2913	15 43 30
15 44 00	=0213-015	00 29 28	31.2	148.1	-1.8		-18.5	30	2917	15 43 31
15 44 00	MRK590	00 29 28	31.9	148.4	-1.8		-18.4	-14	2917	No stop
15 47 30	---	00 32 59	32.1	149.3	-1.7		-17.8	196	2944	15 44 01
15 47 30	J0216-0118	00 32 59	31.5	149.1	-1.7		-18.0	-14	2944	No stop
15 48 30	=0213-015	00 33 59	31.6	149.4	-1.7		-17.8	46	2951	15 47 31
15 48 30	MRK590	00 33 59	32.2	149.6	-1.7		-17.7	-14	2951	No stop
15 52 00	---	00 37 30	32.5	150.6	-1.6		-17.1	196	2978	15 48 31
15 52 30	J0216-0118	00 38 00	31.9	150.5	-1.6		-17.2	16	2978	15 52 30
15 53 00	=0213-015	00 38 30	31.9	150.6	-1.6		-17.1	30	2982	15 52 31
15 53 00	MRK590	00 38 30	32.5	150.9	-1.6		-17.0	-14	2982	No stop
15 56 30	---	00 42 00	32.8	151.9	-1.6		-16.4	196	3009	15 53 01
15 56 30	J0216-0118	00 42 00	32.2	151.6	-1.6		-16.6	-14	3009	No stop
15 57 30	=0213-015	00 43 00	32.2	151.9	-1.6		-16.4	46	3017	15 56 31

Schedule for TORUN (Code Tr)

Page 7

e-EVN: tel16, ey022, ec053

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

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Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Tue 13 Jan 2015 Day 13 ---										
15 57 30	MRK590	00 43 00	32.9	152.2	-1.5		-16.3	-14	3017	No stop
16 01 00	---	00 46 31	33.1	153.2	-1.5		-15.7	196	3044	15 57 31
16 01 00	J0216-0118	00 46 31	32.5	152.9	-1.5		-15.9	-14	3044	No stop
16 02 00	=0213-015	00 47 31	32.6	153.2	-1.5		-15.7	46	3051	16 01 01
16 02 40	J0216-0105	00 48 11	32.8	153.3	-1.5		-15.7	30	3051	16 02 40
16 04 00	=0213-013	00 49 32	32.9	153.7	-1.5		-15.4	80	3062	16 02 41
16 04 00	J0216-0118	00 49 32	32.7	153.8	-1.5		-15.4	-10	3062	No stop
16 05 00	=0213-015	00 50 32	32.8	154.1	-1.4		-15.2	50	3069	16 04 01
16 08 00	0528+134	00 53 32	23.0	98.2	-4.6		-37.7	53	3069	16 08 00
16 14 00	---	00 59 33	23.9	99.4	-4.5		-37.5	360	3115	16 08 01
16 17 00	J0216-0118	01 02 34	33.5	157.5	-1.2		-13.3	49	3115	16 17 00
16 20 00	=0213-015	01 05 34	33.7	158.4	-1.2		-12.8	180	3138	16 17 01
16 20 00	MRK590	01 05 34	34.3	158.7	-1.2		-12.6	-14	3138	No stop
16 23 30	---	01 09 05	34.5	159.8	-1.1		-12.0	196	3165	16 20 01
16 23 30	J0216-0118	01 09 05	33.9	159.5	-1.1		-12.2	-14	3165	No stop
16 24 30	=0213-015	01 10 05	33.9	159.8	-1.1		-12.0	46	3173	16 23 31
16 24 30	MRK590	01 10 05	34.5	160.1	-1.1		-11.8	-14	3173	No stop
16 28 00	---	01 13 35	34.7	161.1	-1.0		-11.2	196	3200	16 24 31
16 28 30	J0216-0118	01 14 06	34.1	160.9	-1.0		-11.3	16	3200	16 28 30
16 29 00	=0213-015	01 14 36	34.1	161.1	-1.0		-11.2	30	3204	16 28 31
16 29 00	MRK590	01 14 36	34.7	161.4	-1.0		-11.0	-14	3204	No stop
16 32 30	---	01 18 06	34.9	162.5	-1.0		-10.4	196	3231	16 29 01
16 32 30	J0216-0118	01 18 06	34.3	162.1	-1.0		-10.6	-14	3231	No stop
16 33 30	=0213-015	01 19 06	34.3	162.4	-1.0		-10.4	46	3238	16 32 31
16 33 30	MRK590	01 19 06	34.9	162.8	-0.9		-10.2	-14	3238	No stop
16 37 00	---	01 22 37	35.1	163.8	-0.9		-9.6	196	3265	16 33 31
16 37 30	J0216-0118	01 23 07	34.5	163.6	-0.9		-9.8	16	3265	16 37 30
16 38 00	=0213-015	01 23 37	34.5	163.8	-0.9		-9.7	30	3269	16 37 31
16 38 00	MRK590	01 23 37	35.1	164.1	-0.9		-9.5	-14	3269	No stop
16 41 30	---	01 27 08	35.3	165.2	-0.8		-8.8	196	3296	16 38 01

Schedule for TORUN (Code Tr)

Page 8

e-EVN: tel16, ey022, ec053

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Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop				Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Tue 13 Jan 2015 Day 13 ---										
16 41 30	J0216-0118	01 27 08	34.7	164.8	-0.8		-9.0	-14	3296	No stop
16 42 30	=0213-015	01 28 08	34.7	165.1	-0.8		-8.9	46	3304	16 41 31
16 42 30	MRK590	01 28 08	35.3	165.5	-0.8		-8.7	-14	3304	No stop
16 46 00	---	01 31 38	35.4	166.6	-0.7		-8.0	196	3331	16 42 31
16 46 00	J0216-0118	01 31 38	34.9	166.2	-0.8		-8.2	-14	3331	No stop
16 47 00	=0213-015	01 32 39	34.9	166.5	-0.7		-8.1	46	3338	16 46 01
16 47 40	J0216-0105	01 33 19	35.1	166.6	-0.7		-8.0	30	3338	16 47 40
16 49 00	=0213-013	01 34 39	35.2	167.0	-0.7		-7.8	80	3349	16 47 41
16 49 00	J0216-0118	01 34 39	35.0	167.1	-0.7		-7.7	-10	3349	No stop
16 50 00	=0213-015	01 35 39	35.0	167.4	-0.7		-7.5	50	3356	16 49 01
16 50 00	MRK590	01 35 39	35.6	167.8	-0.7		-7.3	-14	3356	No stop
16 53 30	---	01 39 10	35.7	168.8	-0.6		-6.7	196	3383	16 50 01
16 53 30	J0216-0118	01 39 10	35.1	168.5	-0.6		-6.9	-14	3383	No stop
16 54 30	=0213-015	01 40 10	35.1	168.8	-0.6		-6.7	46	3391	16 53 31
16 54 30	MRK590	01 40 10	35.7	169.1	-0.6		-6.5	-14	3391	No stop
16 58 00	---	01 43 40	35.8	170.2	-0.5		-5.9	196	3418	16 54 31
16 58 30	J0216-0118	01 44 10	35.2	170.0	-0.5		-6.0	16	3418	16 58 30
16 59 00	=0213-015	01 44 41	35.3	170.1	-0.5		-5.9	30	3422	16 58 31
16 59 00	MRK590	01 44 41	35.8	170.5	-0.5		-5.7	-14	3422	No stop
17 02 30	---	01 48 11	35.9	171.6	-0.5		-5.0	196	3449	16 59 01
17 02 30	J0216-0118	01 48 11	35.3	171.2	-0.5		-5.3	-14	3449	No stop
17 03 30	=0213-015	01 49 11	35.4	171.5	-0.5		-5.1	46	3456	17 02 31
17 03 30	MRK590	01 49 11	35.9	171.9	-0.4		-4.8	-14	3456	No stop
17 07 00	---	01 52 42	36.0	173.0	-0.4		-4.2	196	3483	17 03 31
17 07 30	J0216-0118	01 53 12	35.4	172.7	-0.4		-4.4	16	3483	17 07 30
17 08 00	=0213-015	01 53 42	35.5	172.9	-0.4		-4.3	30	3487	17 07 31
17 08 00	MRK590	01 53 42	36.0	173.3	-0.4		-4.0	-14	3487	No stop
17 11 30	---	01 57 13	36.1	174.4	-0.3		-3.4	196	3514	17 08 01
17 11 30	J0216-0118	01 57 13	35.5	174.0	-0.3		-3.6	-14	3514	No stop
17 12 30	=0213-015	01 58 13	35.5	174.3	-0.3		-3.4	46	3522	17 11 31

Schedule for TORUN (Code Tr)

Page 9

e-EVN: tel16, ey022, ec053

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Tue 13 Jan 2015 Day 13 ---										
17 12 30	MRK590	01 58 13	36.1	174.7	-0.3		-3.2	-14	3522	No stop
17 16 00	---	02 01 43	36.1	175.8	-0.2		-2.5	196	3549	17 12 31
17 16 00	J0216-0118	02 01 43	35.6	175.3	-0.3		-2.8	-14	3549	No stop
17 17 00	=0213-015	02 02 44	35.6	175.7	-0.2		-2.6	46	3556	17 16 01
17 17 40	J0216-0105	02 03 24	35.8	175.8	-0.2		-2.5	30	3556	17 17 40
17 19 00	=0213-013	02 04 44	35.8	176.2	-0.2		-2.3	80	3567	17 17 41
17 19 00	J0216-0118	02 04 44	35.6	176.3	-0.2		-2.2	-10	3567	No stop
17 20 00	=0213-015	02 05 44	35.6	176.6	-0.2		-2.1	50	3574	17 19 01
17 20 00	MRK590	02 05 44	36.2	177.0	-0.2		-1.8	-14	3574	No stop
17 23 30	---	02 09 15	36.2	178.1	-0.1		-1.1	196	3601	17 20 01
17 23 30	J0216-0118	02 09 15	35.6	177.7	-0.1		-1.4	-14	3601	No stop
17 24 30	=0213-015	02 10 15	35.7	178.0	-0.1		-1.2	46	3609	17 23 31
17 24 30	MRK590	02 10 15	36.2	178.4	-0.1		-0.9	-14	3609	No stop
17 28 00	---	02 13 45	36.2	179.5	-0.0		-0.3	196	3636	17 24 31
17 28 30	J0216-0118	02 14 15	35.7	179.2	-0.0		-0.5	17	3636	17 28 30
17 29 00	=0213-015	02 14 45	35.7	179.4	-0.0		-0.4	30	3640	17 28 31
17 29 00	MRK590	02 14 45	36.2	179.8	-0.0		-0.1	-13	3640	No stop
17 32 30	---	02 18 16	36.2	180.9	0.0		0.5	197	3667	17 29 01
17 32 30	J0216-0118	02 18 16	35.7	180.4	0.0		0.3	-13	3667	No stop
17 33 30	=0213-015	02 19 16	35.7	180.7	0.0		0.4	47	3674	17 32 31
17 33 30	MRK590	02 19 16	36.2	181.2	0.1		0.7	-13	3674	No stop
17 37 00	---	02 22 47	36.2	182.3	0.1		1.4	197	3701	17 33 31
17 37 30	J0216-0118	02 23 17	35.7	182.0	0.1		1.2	17	3701	17 37 30
17 38 00	=0213-015	02 23 47	35.7	182.1	0.1		1.3	30	3705	17 37 31
17 38 00	MRK590	02 23 47	36.2	182.6	0.1		1.6	-13	3705	No stop
17 41 30	---	02 27 18	36.1	183.7	0.2		2.2	197	3732	17 38 01
17 41 30	J0216-0118	02 27 18	35.6	183.2	0.2		1.9	-13	3732	No stop
17 42 30	=0213-015	02 28 18	35.6	183.5	0.2		2.1	47	3740	17 41 31
17 42 30	MRK590	02 28 18	36.1	184.0	0.2		2.4	-13	3740	No stop
17 46 00	---	02 31 48	36.1	185.1	0.3		3.1	197	3767	17 42 31

Schedule for TORUN (Code Tr)

Page 10

e-EVN: tel16, ey022, ec053

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop				Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Tue 13 Jan 2015 Day 13 ---										
17 46 00	J0216-0118	02 31 48	35.6	184.6	0.2		2.8	-13	3767	No stop
17 47 00	=0213-015	02 32 48	35.6	184.9	0.3		2.9	47	3774	17 46 01
17 47 40	J0216-0105	02 33 29	35.8	185.1	0.3		3.1	30	3774	17 47 40
17 49 00	=0213-013	02 34 49	35.8	185.5	0.3		3.3	80	3785	17 47 41
17 49 00	J0216-0118	02 34 49	35.5	185.5	0.3		3.3	-10	3785	No stop
17 50 00	=0213-015	02 35 49	35.5	185.8	0.3		3.5	50	3792	17 49 01
17 50 00	MRK590	02 35 49	36.0	186.3	0.3		3.8	-13	3792	No stop
17 53 30	---	02 39 20	36.0	187.4	0.4		4.4	197	3819	17 50 01
17 53 30	J0216-0118	02 39 20	35.5	186.9	0.4		4.1	-13	3819	No stop
17 54 30	=0213-015	02 40 20	35.4	187.2	0.4		4.3	47	3827	17 53 31
17 54 30	MRK590	02 40 20	36.0	187.7	0.4		4.6	-13	3827	No stop
17 58 00	---	02 43 50	35.9	188.8	0.5		5.3	197	3854	17 54 31
17 58 30	J0216-0118	02 44 20	35.4	188.4	0.5		5.1	17	3854	17 58 30
17 59 00	=0213-015	02 44 50	35.4	188.6	0.5		5.1	30	3858	17 58 31
17 59 00	MRK590	02 44 50	35.9	189.1	0.5		5.5	-13	3858	No stop
18 02 30	---	02 48 21	35.8	190.2	0.6		6.1	197	3885	17 59 01
18 02 30	J0216-0118	02 48 21	35.3	189.7	0.5		5.8	-13	3885	No stop
18 03 30	=0213-015	02 49 21	35.2	190.0	0.5		6.0	47	3892	18 02 31
18 03 30	MRK590	02 49 21	35.7	190.5	0.6		6.3	-13	3892	No stop
18 07 00	---	02 52 52	35.6	191.6	0.6		6.9	197	3919	18 03 31
18 07 30	J0216-0118	02 53 22	35.1	191.2	0.6		6.7	17	3919	18 07 30
18 08 00	=0213-015	02 53 52	35.1	191.3	0.6		6.8	30	3923	18 07 31
18 08 00	MRK590	02 53 52	35.6	191.9	0.6		7.1	-13	3923	No stop
18 11 30	---	02 57 22	35.5	192.9	0.7		7.7	197	3950	18 08 01
18 11 30	J0216-0118	02 57 22	35.0	192.4	0.7		7.4	-13	3950	No stop
18 12 30	=0213-015	02 58 23	35.0	192.7	0.7		7.6	47	3958	18 11 31
18 12 30	MRK590	02 58 23	35.5	193.2	0.7		7.9	-13	3958	No stop
18 16 00	---	03 01 53	35.3	194.3	0.8		8.5	197	3985	18 12 31
18 16 00	J0216-0118	03 01 53	34.9	193.8	0.8		8.2	-13	3985	No stop
18 17 00	=0213-015	03 02 53	34.8	194.1	0.8		8.4	47	3992	18 16 01

Schedule for TORUN (Code Tr)

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e-EVN: tel16, ey022, ec053

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

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TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop				Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Tue 13 Jan 2015 Day 13 ---										
18 17 40	J0216-0105	03 03 33	35.0	194.3	0.8		8.5	30	3992	18 17 40
18 19 00	=0213-013	03 04 54	35.0	194.7	0.8		8.7	80	4003	18 17 41
18 19 00	J0216-0118	03 04 54	34.7	194.7	0.8		8.7	-10	4003	No stop
18 20 00	=0213-015	03 05 54	34.7	195.0	0.8		8.9	50	4010	18 19 01
18 20 00	MRK590	03 05 54	35.2	195.5	0.8		9.3	-13	4010	No stop
18 23 30	---	03 09 24	35.0	196.6	0.9		9.9	197	4037	18 20 01
18 23 30	J0216-0118	03 09 24	34.6	196.0	0.9		9.5	-13	4037	No stop
18 24 30	=0213-015	03 10 25	34.5	196.3	0.9		9.7	47	4045	18 23 31
18 24 30	MRK590	03 10 25	35.0	196.9	0.9		10.0	-13	4045	No stop
18 28 00	---	03 13 55	34.8	197.9	1.0		10.7	197	4072	18 24 31
18 28 30	J0216-0118	03 14 25	34.4	197.5	1.0		10.4	17	4072	18 28 30
18 29 00	=0213-015	03 14 55	34.3	197.7	1.0		10.5	30	4076	18 28 31
18 29 00	MRK590	03 14 55	34.8	198.2	1.0		10.8	-13	4076	No stop
18 32 30	---	03 18 26	34.6	199.3	1.1		11.4	197	4103	18 29 01
18 32 30	J0216-0118	03 18 26	34.2	198.7	1.0		11.1	-13	4103	No stop
18 33 30	=0213-015	03 19 26	34.1	199.0	1.0		11.3	47	4110	18 32 31
18 33 30	MRK590	03 19 26	34.6	199.6	1.1		11.6	-13	4110	No stop
18 37 00	---	03 22 57	34.4	200.6	1.1		12.2	197	4137	18 33 31
18 37 30	J0216-0118	03 23 27	33.9	200.2	1.1		12.0	17	4137	18 37 30
18 38 00	=0213-015	03 23 57	33.9	200.3	1.1		12.0	30	4141	18 37 31
18 38 00	MRK590	03 23 57	34.3	200.9	1.1		12.4	-13	4141	No stop
18 41 30	---	03 27 27	34.1	202.0	1.2		13.0	197	4168	18 38 01
18 41 30	J0216-0118	03 27 27	33.7	201.4	1.2		12.6	-13	4168	No stop
18 42 30	=0213-015	03 28 28	33.6	201.7	1.2		12.8	47	4176	18 41 31
18 42 30	MRK590	03 28 28	34.1	202.3	1.2		13.1	-13	4176	No stop
18 46 00	---	03 31 58	33.9	203.3	1.3		13.7	197	4203	18 42 31
18 46 00	J0216-0118	03 31 58	33.4	202.7	1.3		13.4	-13	4203	No stop
18 47 00	=0213-015	03 32 58	33.4	203.0	1.3		13.6	47	4210	18 46 01
18 47 40	J0216-0105	03 33 38	33.6	203.2	1.3		13.7	30	4210	18 47 40
18 49 00	=0213-013	03 34 59	33.5	203.6	1.3		13.9	80	4221	18 47 41

Schedule for TORUN (Code Tr)

Page 12

e-EVN: tel16, ey022, ec053

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SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop				Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Tue 13 Jan 2015 Day 13 ---										
18 49 00	J0216-0118	03 34 59	33.3	203.6	1.3		13.9	-10	4221	No stop
18 50 00	=0213-015	03 35 59	33.2	203.8	1.3		14.1	50	4228	18 49 01
18 50 00	MRK590	03 35 59	33.6	204.5	1.3		14.4	-12	4228	No stop
18 53 30	---	03 39 29	33.4	205.5	1.4		15.0	198	4255	18 50 01
18 53 30	J0216-0118	03 39 29	33.0	204.9	1.4		14.6	-13	4255	No stop
18 54 30	=0213-015	03 40 30	32.9	205.2	1.4		14.8	47	4263	18 53 31
18 54 30	MRK590	03 40 30	33.3	205.8	1.4		15.1	-12	4263	No stop
18 58 00	---	03 44 00	33.1	206.8	1.5		15.7	198	4290	18 54 31
18 58 30	J0216-0118	03 44 30	32.7	206.3	1.5		15.4	18	4290	18 58 30
18 59 00	=0213-015	03 45 00	32.6	206.4	1.5		15.5	30	4294	18 58 31
18 59 00	MRK590	03 45 00	33.0	207.1	1.5		15.9	-12	4294	No stop
19 02 30	---	03 48 31	32.8	208.1	1.6		16.4	198	4321	18 59 01
19 02 30	J0216-0118	03 48 31	32.4	207.4	1.5		16.1	-12	4321	No stop
19 03 30	=0213-015	03 49 31	32.3	207.7	1.5		16.2	48	4328	19 02 31
19 03 30	MRK590	03 49 31	32.7	208.3	1.6		16.6	-12	4328	No stop
19 07 00	---	03 53 02	32.5	209.3	1.6		17.1	198	4355	19 03 31
19 07 30	J0216-0118	03 53 32	32.0	208.9	1.6		16.9	18	4355	19 07 30
19 08 00	=0213-015	03 54 02	32.0	209.0	1.6		16.9	30	4359	19 07 31
19 08 00	MRK590	03 54 02	32.4	209.6	1.6		17.3	-12	4359	No stop
19 11 30	---	03 57 32	32.1	210.6	1.7		17.8	198	4386	19 08 01
19 11 30	J0216-0118	03 57 32	31.7	210.0	1.7		17.5	-12	4386	No stop
19 12 30	=0213-015	03 58 32	31.7	210.3	1.7		17.6	48	4394	19 11 31
19 12 30	MRK590	03 58 32	32.1	210.9	1.7		18.0	-12	4394	No stop
19 16 00	---	04 02 03	31.8	211.9	1.8		18.5	198	4421	19 12 31
19 16 00	J0216-0118	04 02 03	31.4	211.3	1.8		18.2	-12	4421	No stop
19 17 00	=0213-015	04 03 03	31.3	211.5	1.8		18.3	48	4428	19 16 01
19 17 40	J0216-0105	04 03 43	31.5	211.8	1.8		18.4	30	4428	19 17 40
19 19 00	=0213-013	04 05 04	31.4	212.1	1.8		18.6	80	4438	19 17 41
19 19 00	J0216-0118	04 05 04	31.2	212.1	1.8		18.6	-10	4438	No stop
19 20 00	=0213-015	04 06 04	31.1	212.4	1.8		18.8	50	4446	19 19 01

Schedule for TORUN (Code Tr)

Page 13

e-EVN: tel16, ey022, ec053

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SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop				Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Tue 13 Jan 2015 Day 13 ---										
19 20 00	MRK590	04 06 04	31.5	213.0	1.8		19.1	-12	4446	No stop
19 23 30	---	04 09 34	31.2	214.0	1.9		19.6	198	4473	19 20 01
19 23 30	J0216-0118	04 09 34	30.8	213.3	1.9		19.3	-12	4473	No stop
19 24 30	=0213-015	04 10 34	30.7	213.6	1.9		19.4	48	4481	19 23 31
19 24 30	MRK590	04 10 34	31.1	214.2	1.9		19.7	-12	4481	No stop
19 28 00	---	04 14 05	30.8	215.2	2.0		20.3	198	4508	19 24 31
19 28 30	J0216-0118	04 14 35	30.4	214.7	2.0		20.0	18	4508	19 28 30
19 29 00	=0213-015	04 15 05	30.3	214.8	2.0		20.1	30	4512	19 28 31
19 29 00	MRK590	04 15 05	30.7	215.5	2.0		20.4	-12	4512	No stop
19 32 30	---	04 18 36	30.4	216.4	2.1		20.9	198	4538	19 29 01
19 32 30	J0216-0118	04 18 36	30.0	215.8	2.0		20.6	-12	4538	No stop
19 33 30	=0213-015	04 19 36	29.9	216.1	2.0		20.7	48	4546	19 32 31
19 33 30	MRK590	04 19 36	30.3	216.7	2.1		21.0	-12	4546	No stop
19 37 00	---	04 23 07	30.0	217.6	2.1		21.5	198	4573	19 33 31
19 37 30	J0216-0118	04 23 37	29.6	217.1	2.1		21.3	18	4573	19 37 30
19 38 00	=0213-015	04 24 07	29.5	217.3	2.1		21.3	30	4577	19 37 31
19 38 00	MRK590	04 24 07	29.9	217.9	2.1		21.7	-12	4577	No stop
19 41 30	---	04 27 37	29.6	218.9	2.2		22.1	198	4604	19 38 01
19 41 30	J0216-0118	04 27 37	29.2	218.2	2.2		21.8	-12	4604	No stop
19 42 30	=0213-015	04 28 37	29.1	218.5	2.2		21.9	48	4612	19 41 31
19 42 30	MRK590	04 28 37	29.5	219.1	2.2		22.3	-12	4612	No stop
19 46 00	---	04 32 08	29.1	220.0	2.3		22.7	198	4638	19 42 31
19 46 00	J0216-0118	04 32 08	28.8	219.4	2.3		22.4	-12	4638	No stop
19 47 00	=0213-015	04 33 08	28.7	219.7	2.3		22.5	48	4646	19 46 01
19 47 40	J0216-0105	04 33 48	28.8	219.9	2.3		22.7	30	4646	19 47 40
19 49 00	=0213-013	04 35 08	28.7	220.3	2.3		22.8	80	4656	19 47 41
19 49 00	J0216-0118	04 35 08	28.5	220.2	2.3		22.8	-10	4656	No stop
19 50 00	=0213-015	04 36 09	28.4	220.5	2.3		22.9	50	4664	19 49 01
19 50 00	MRK590	04 36 09	28.7	221.1	2.3		23.3	-12	4664	No stop
19 53 30	---	04 39 39	28.4	222.0	2.4		23.7	198	4691	19 50 01

Schedule for TORUN (Code Tr)

Page 14

e-EVN: tel16, ey022, ec053

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TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop				Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Tue 13 Jan 2015 Day 13 ---										
19 53 30	J0216-0118	04 39 39	28.1	221.4	2.4		23.4	-12	4691	No stop
19 54 30	=0213-015	04 40 39	28.0	221.6	2.4		23.5	48	4699	19 53 31
19 54 30	MRK590	04 40 39	28.3	222.3	2.4		23.8	-12	4699	No stop
19 58 00	---	04 44 10	27.9	223.2	2.5		24.3	198	4726	19 54 31
19 58 30	J0216-0118	04 44 40	27.6	222.7	2.5		24.0	18	4726	19 58 30
19 59 00	=0213-015	04 45 10	27.5	222.8	2.5		24.1	30	4729	19 58 31
19 59 00	MRK590	04 45 10	27.8	223.4	2.5		24.4	-12	4729	No stop
20 02 30	---	04 48 41	27.5	224.3	2.6		24.8	198	4756	19 59 01
20 02 30	J0216-0118	04 48 41	27.1	223.7	2.5		24.5	-12	4756	No stop
20 03 30	=0213-015	04 49 41	27.0	224.0	2.5		24.6	48	4764	20 02 31
20 03 30	MRK590	04 49 41	27.4	224.6	2.6		24.9	-12	4764	No stop
20 07 00	---	04 53 11	27.0	225.5	2.6		25.4	198	4791	20 03 31
20 07 30	J0216-0118	04 53 42	26.6	225.0	2.6		25.1	18	4791	20 07 30
20 08 00	=0213-015	04 54 12	26.6	225.1	2.6		25.2	30	4795	20 07 31
20 08 00	MRK590	04 54 12	26.9	225.8	2.6		25.5	-12	4795	No stop
20 11 30	---	04 57 42	26.5	226.6	2.7		25.9	198	4822	20 08 01
20 11 30	J0216-0118	04 57 42	26.2	226.0	2.7		25.6	-12	4822	No stop
20 12 30	=0213-015	04 58 42	26.1	226.2	2.7		25.7	48	4829	20 11 31
20 12 30	MRK590	04 58 42	26.4	226.9	2.7		26.0	-12	4829	No stop
20 16 00	---	05 02 13	26.0	227.8	2.8		26.4	198	4856	20 12 31
20 16 00	J0216-0118	05 02 13	25.7	227.1	2.8		26.1	-12	4856	No stop
20 17 00	=0213-015	05 03 13	25.6	227.4	2.8		26.2	48	4864	20 16 01
20 17 40	J0216-0105	05 03 53	25.7	227.6	2.8		26.3	30	4864	20 17 40
20 19 00	=0213-013	05 05 13	25.6	227.9	2.8		26.5	80	4874	20 17 41
20 19 00	J0216-0118	05 05 13	25.4	227.9	2.8		26.4	-10	4874	No stop
20 20 00	=0213-015	05 06 14	25.2	228.1	2.8		26.6	50	4882	20 19 01
20 20 00	MRK590	05 06 14	25.6	228.8	2.8		26.8	-12	4882	No stop
20 23 30	---	05 09 44	25.2	229.6	2.9		27.2	198	4909	20 20 01
20 23 30	J0216-0118	05 09 44	24.9	229.0	2.9		26.9	-12	4909	No stop
20 24 30	=0213-015	05 10 44	24.7	229.2	2.9		27.1	48	4917	20 23 31

Schedule for TORUN (Code Tr)

Page 15

e-EVN: tel16, ey022, ec053

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Tue 13 Jan 2015 Day 13 ---										
20 24 30	MRK590	05 10 44	25.0	229.9	2.9		27.3	-12	4917	No stop
20 28 00	---	05 14 15	24.6	230.7	3.0		27.7	198	4944	20 24 31
20 28 30	J0216-0118	05 14 45	24.3	230.2	3.0		27.5	18	4944	20 28 30
20 29 00	=0213-015	05 15 15	24.2	230.3	3.0		27.5	30	4947	20 28 31
20 29 00	MRK590	05 15 15	24.5	231.0	3.0		27.8	-12	4947	No stop
20 32 30	---	05 18 46	24.1	231.8	3.1		28.2	198	4974	20 29 01
20 32 30	J0216-0118	05 18 46	23.8	231.2	3.0		27.9	-12	4974	No stop
20 33 30	=0213-015	05 19 46	23.7	231.4	3.0		28.0	48	4982	20 32 31
20 33 30	MRK590	05 19 46	24.0	232.1	3.1		28.3	-12	4982	No stop
20 37 00	---	05 23 16	23.6	232.9	3.1		28.6	198	5009	20 33 31
20 37 30	J0216-0118	05 23 46	23.2	232.4	3.1		28.4	18	5009	20 37 30
20 38 00	=0213-015	05 24 17	23.2	232.5	3.1		28.5	30	5013	20 37 31
20 38 00	MRK590	05 24 17	23.4	233.1	3.1		28.7	-12	5013	No stop
20 41 30	---	05 27 47	23.0	234.0	3.2		29.1	198	5040	20 38 01
20 41 30	J0216-0118	05 27 47	22.7	233.3	3.2		28.8	-12	5040	No stop
20 42 30	=0213-015	05 28 47	22.6	233.6	3.2		28.9	48	5047	20 41 31
20 42 30	MRK590	05 28 47	22.9	234.2	3.2		29.2	-12	5047	No stop
20 46 00	---	05 32 18	22.5	235.0	3.3		29.5	198	5074	20 42 31
20 46 00	J0216-0118	05 32 18	22.2	234.4	3.3		29.2	-12	5074	No stop
20 47 00	=0213-015	05 33 18	22.1	234.6	3.3		29.3	48	5082	20 46 01
20 47 40	J0216-0105	05 33 58	22.2	234.9	3.3		29.4	30	5082	20 47 40
20 49 00	=0213-013	05 35 18	22.0	235.2	3.3		29.5	80	5092	20 47 41
20 49 00	J0216-0118	05 35 18	21.8	235.1	3.3		29.5	-10	5092	No stop
20 50 00	=0213-015	05 36 19	21.7	235.3	3.3		29.6	50	5100	20 49 01
20 54 00	0528+134	05 40 19	50.4	183.2	0.1		2.0	118	5100	20 54 00
21 00 00	---	05 46 20	50.3	185.5	0.2		3.4	360	5146	20 54 01
21 03 00	4C39.25	05 49 21	50.6	88.4	-3.6		-50.5	-29	5146	21 03 00
21 15 00	---	06 01 23	52.4	90.8	-3.4		-50.6	691	5238	21 03 01
21 15 40	4C39.25	06 02 03	52.5	90.9	-3.4		-50.6	34	5238	21 15 40
21 30 00	---	06 16 25	54.7	93.9	-3.2		-50.4	860	5349	21 15 41

Schedule for TORUN (Code Tr)

Page 16

e-EVN: tel116, ey022, ec053

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Tue 13 Jan 2015 Day 13 ---										
21 30 40	4C39.25	06 17 05	54.8	94.0	-3.2		-50.4	34	5349	21 30 40
21 45 00	---	06 31 28	56.9	97.2	-2.9		-50.0	860	5459	21 30 41
21 45 40	4C39.25	06 32 08	57.0	97.4	-2.9		-50.0	34	5459	21 45 40
22 00 00	---	06 46 30	59.2	100.8	-2.7		-49.3	860	5569	21 45 41
22 00 40	4C39.25	06 47 10	59.3	101.0	-2.7		-49.3	34	5569	22 00 40
22 15 00	---	07 01 32	61.4	104.7	-2.4		-48.3	860	5679	22 00 41
22 15 40	4C39.25	07 02 13	61.5	104.8	-2.4		-48.3	34	5679	22 15 40
22 30 00	---	07 16 35	63.5	108.9	-2.2		-46.9	860	5790	22 15 41
22 30 40	4C39.25	07 17 15	63.6	109.1	-2.2		-46.9	34	5790	22 30 40
22 45 00	---	07 31 37	65.6	113.7	-1.9		-45.0	860	5900	22 30 41
22 45 40	4C39.25	07 32 18	65.7	113.9	-1.9		-44.9	34	5900	22 45 40
23 00 00	---	07 46 40	67.6	119.0	-1.7		-42.5	860	6010	22 45 41
23 00 40	4C39.25	07 47 20	67.7	119.2	-1.7		-42.4	33	6010	23 00 40
23 15 00	---	08 01 42	69.6	125.0	-1.4		-39.2	860	6121	23 00 41
23 15 40	4C39.25	08 02 22	69.6	125.3	-1.4		-39.1	33	6121	23 15 40
23 30 00	---	08 16 45	71.3	132.0	-1.2		-35.0	860	6231	23 15 41
23 30 40	4C39.25	08 17 25	71.4	132.3	-1.2		-34.8	33	6231	23 30 40
23 45 00	---	08 31 47	72.9	140.1	-0.9		-29.7	860	6341	23 30 41
23 45 40	4C39.25	08 32 27	73.0	140.4	-0.9		-29.5	33	6341	23 45 40
23 59 59	---	08 46 50	74.2	149.3	-0.7		-23.2	859	6451	23 45 41
--- Wed 14 Jan 2015 Day 14 ---										
00 04 00	0Q208	08 50 50	28.6	79.9	-5.3		-42.2	55	6451	00 04 00
00 07 00	---	08 53 51	29.1	80.5	-5.2		-42.3	180	6474	00 04 01
00 08 00	J1430+3649	08 54 51	31.9	69.8	-5.6		-44.7	23	6474	00 08 00
00 11 00	=1428+370	08 57 52	32.3	70.3	-5.6		-44.9	180	6497	00 08 01
00 11 00	J143329	08 57 52	31.2	70.6	-5.6		-44.3	-17	6497	No stop
00 14 30	---	09 01 22	31.7	71.2	-5.5		-44.5	193	6524	00 11 01
00 14 30	J1430+3649	09 01 22	32.8	70.9	-5.5		-45.1	-17	6524	No stop
00 16 00	=1428+370	09 02 52	33.0	71.1	-5.5		-45.2	73	6536	00 14 31

Schedule for TORUN (Code Tr)

Page 17

e-EVN: tel16, ey022, ec053

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Wed 14 Jan 2015 Day 14 ---										
00 16 00	J143055	09 02 52	31.8	72.5	-5.5		-44.4	-18	6536	No stop
00 19 30	---	09 06 23	32.3	73.1	-5.4		-44.6	192	6563	00 16 01
00 20 00	J1430+3649	09 06 53	33.6	71.8	-5.4		-45.4	12	6563	00 20 00
00 21 00	=1428+370	09 07 53	33.7	72.0	-5.4		-45.5	60	6571	00 20 01
00 21 00	J142904	09 07 53	33.2	73.2	-5.4		-45.0	-15	6571	No stop
00 24 30	---	09 11 24	33.7	73.8	-5.3		-45.2	195	6597	00 21 01
00 24 30	J1430+3649	09 11 24	34.2	72.6	-5.3		-45.6	-15	6597	No stop
00 26 00	=1428+370	09 12 54	34.4	72.8	-5.3		-45.7	75	6609	00 24 31
00 26 00	J142904	09 12 54	33.9	74.0	-5.3		-45.3	-15	6609	No stop
00 29 30	---	09 16 25	34.4	74.6	-5.2		-45.5	195	6636	00 26 01
00 30 00	J1430+3649	09 16 55	35.0	73.5	-5.2		-45.9	15	6636	00 30 00
00 31 00	=1428+370	09 17 55	35.1	73.7	-5.2		-46.0	60	6644	00 30 01
00 31 00	J143042	09 17 55	34.0	75.1	-5.2		-45.2	-17	6644	No stop
00 34 30	---	09 21 25	34.5	75.7	-5.2		-45.4	193	6671	00 31 01
00 34 30	J1430+3649	09 21 25	35.7	74.3	-5.2		-46.2	-17	6671	No stop
00 36 00	=1428+370	09 22 56	35.9	74.5	-5.1		-46.2	73	6682	00 34 31
00 36 00	J143042	09 22 56	34.7	75.9	-5.1		-45.4	-17	6682	No stop
00 39 30	---	09 26 26	35.3	76.6	-5.1		-45.6	193	6709	00 36 01
00 40 00	J1430+3649	09 26 56	36.5	75.2	-5.1		-46.4	13	6709	00 40 00
00 41 00	=1428+370	09 27 56	36.6	75.4	-5.1		-46.5	60	6717	00 40 01
00 41 00	J143042	09 27 56	35.5	76.8	-5.1		-45.6	-17	6717	No stop
00 44 30	---	09 31 27	36.0	77.4	-5.0		-45.8	193	6744	00 41 01
00 44 30	J1430+3649	09 31 27	37.1	76.0	-5.0		-46.6	-17	6744	No stop
00 46 00	=1428+370	09 32 57	37.3	76.3	-5.0		-46.7	73	6755	00 44 31
00 47 00	J1422+3223	09 33 57	35.6	81.8	-4.8		-44.7	34	6755	00 47 00
00 48 00	=1420+326	09 34 58	35.7	82.0	-4.8		-44.7	60	6763	00 47 01
00 48 00	J142917	09 34 58	35.5	79.9	-4.9		-45.1	-18	6763	No stop
00 51 30	---	09 38 28	36.0	80.5	-4.9		-45.2	192	6790	00 48 01
00 51 30	J1422+3223	09 38 28	36.2	82.7	-4.7		-44.8	-18	6790	No stop
00 53 00	=1420+326	09 39 58	36.5	83.0	-4.7		-44.8	72	6801	00 51 31

Schedule for TORUN (Code Tr)

Page 18

e-EVN: tel16, ey022, ec053

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Wed 14 Jan 2015 Day 14 ---										
00 54 00	J1430+3649	09 40 59	38.5	77.6	-4.8		-47.1	34	6801	00 54 00
00 55 00	=1428+370	09 41 59	38.6	77.8	-4.8		-47.1	60	6809	00 54 01
00 55 00	J143329	09 41 59	37.6	78.2	-4.9		-46.4	-17	6809	No stop
00 58 30	---	09 45 29	38.1	78.8	-4.8		-46.6	193	6836	00 55 01
00 58 30	J1430+3649	09 45 29	39.2	78.4	-4.8		-47.2	-17	6836	No stop
01 00 00	=1428+370	09 47 00	39.4	78.7	-4.7		-47.3	73	6847	00 58 31
01 00 00	J143055	09 47 00	38.2	80.2	-4.7		-46.3	-17	6847	No stop
01 03 30	---	09 50 30	38.7	80.9	-4.7		-46.4	193	6874	01 00 01
01 04 00	J1430+3649	09 51 00	40.0	79.4	-4.7		-47.4	12	6874	01 04 00
01 05 00	=1428+370	09 52 00	40.1	79.6	-4.7		-47.5	60	6882	01 04 01
01 05 00	J142904	09 52 00	39.6	80.9	-4.6		-46.9	-15	6882	No stop
01 08 30	---	09 55 31	40.1	81.5	-4.6		-47.0	195	6909	01 05 01
01 08 30	J1430+3649	09 55 31	40.6	80.2	-4.6		-47.6	-15	6909	No stop
01 10 00	=1428+370	09 57 01	40.9	80.5	-4.6		-47.7	75	6921	01 08 31
01 10 00	J142904	09 57 01	40.4	81.8	-4.5		-47.0	-15	6921	No stop
01 13 30	---	10 00 32	40.9	82.4	-4.5		-47.1	195	6947	01 10 01
01 14 00	J1430+3649	10 01 02	41.5	81.2	-4.5		-47.8	15	6947	01 14 00
01 15 00	=1428+370	10 02 02	41.6	81.4	-4.5		-47.8	60	6955	01 14 01
01 15 00	J143042	10 02 02	40.5	82.9	-4.5		-46.8	-17	6955	No stop
01 18 30	---	10 05 33	41.0	83.6	-4.4		-46.9	193	6982	01 15 01
01 18 30	J1430+3649	10 05 33	42.1	82.0	-4.4		-47.9	-17	6982	No stop
01 20 00	=1428+370	10 07 03	42.4	82.3	-4.4		-48.0	73	6994	01 18 31
01 20 00	J143042	10 07 03	41.3	83.9	-4.4		-46.9	-17	6994	No stop
01 23 30	---	10 10 33	41.8	84.5	-4.3		-47.0	193	7021	01 20 01
01 24 00	J1430+3649	10 11 04	42.9	83.0	-4.3		-48.1	13	7021	01 24 00
01 25 00	=1428+370	10 12 04	43.1	83.2	-4.3		-48.1	60	7028	01 24 01
01 25 00	J143042	10 12 04	42.0	84.8	-4.3		-47.0	-17	7028	No stop
01 28 30	---	10 15 34	42.5	85.5	-4.3		-47.1	193	7055	01 25 01
01 28 30	J1430+3649	10 15 34	43.6	83.8	-4.3		-48.2	-17	7055	No stop
01 30 00	=1428+370	10 17 05	43.8	84.1	-4.2		-48.2	73	7067	01 28 31

Schedule for TORUN (Code Tr)

Page 19

e-EVN: tel16, ey022, ec053

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Wed 14 Jan 2015 Day 14 ---										
01 31 00	J1422+3223	10 18 05	42.2	90.3	-4.1		-45.3	33	7067	01 31 00
01 32 00	=1420+326	10 19 05	42.3	90.5	-4.1		-45.3	60	7074	01 31 01
01 32 00	J142917	10 19 05	42.1	88.1	-4.2		-45.9	-19	7074	No stop
01 35 30	---	10 22 35	42.6	88.8	-4.1		-46.0	191	7101	01 32 01
01 35 30	J1422+3223	10 22 35	42.9	91.2	-4.0		-45.3	-19	7101	No stop
01 37 00	=1420+326	10 24 06	43.1	91.5	-4.0		-45.3	71	7113	01 35 31
01 38 00	J1430+3649	10 25 06	45.0	85.6	-4.1		-48.4	33	7113	01 38 00
01 39 00	=1428+370	10 26 06	45.2	85.8	-4.1		-48.4	60	7121	01 38 01
01 39 00	J143329	10 26 06	44.1	86.3	-4.1		-47.6	-17	7121	No stop
01 42 30	---	10 29 37	44.6	87.0	-4.1		-47.7	193	7147	01 39 01
01 42 30	J1430+3649	10 29 37	45.7	86.5	-4.0		-48.4	-17	7147	No stop
01 44 00	=1428+370	10 31 07	45.9	86.8	-4.0		-48.4	73	7159	01 42 31
01 44 00	J143055	10 31 07	44.8	88.5	-4.0		-47.2	-17	7159	No stop
01 47 30	---	10 34 37	45.3	89.2	-3.9		-47.2	193	7186	01 44 01
01 48 00	J1430+3649	10 35 07	46.5	87.5	-3.9		-48.5	12	7186	01 48 00
01 49 00	=1428+370	10 36 08	46.7	87.7	-3.9		-48.5	60	7194	01 48 01
01 49 00	J142904	10 36 08	46.2	89.2	-3.9		-47.7	-16	7194	No stop
01 52 30	---	10 39 38	46.7	89.9	-3.8		-47.7	194	7221	01 49 01
01 52 30	J1430+3649	10 39 38	47.2	88.4	-3.9		-48.5	-16	7221	No stop
01 54 00	=1428+370	10 41 08	47.5	88.7	-3.8		-48.5	74	7232	01 52 31
01 54 00	J142904	10 41 08	47.0	90.2	-3.8		-47.7	-16	7232	No stop
01 57 30	---	10 44 39	47.5	90.9	-3.8		-47.7	194	7259	01 54 01
01 58 00	J1430+3649	10 45 09	48.1	89.5	-3.8		-48.5	14	7259	01 58 00
01 59 00	=1428+370	10 46 09	48.2	89.7	-3.8		-48.5	60	7267	01 58 01
01 59 00	J143042	10 46 09	47.1	91.5	-3.8		-47.2	-17	7267	No stop
02 02 30	---	10 49 40	47.6	92.2	-3.7		-47.2	193	7294	01 59 01
02 02 30	J1430+3649	10 49 40	48.7	90.4	-3.7		-48.5	-17	7294	No stop
02 04 00	=1428+370	10 51 10	49.0	90.7	-3.7		-48.5	73	7305	02 02 31
02 04 00	J143042	10 51 10	47.9	92.5	-3.7		-47.2	-17	7305	No stop
02 07 30	---	10 54 41	48.4	93.2	-3.6		-47.2	193	7332	02 04 01

Schedule for TORUN (Code Tr)

Page 20

e-EVN: tel16, ey022, ec053

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Wed 14 Jan 2015 Day 14 ---										
02 08 00	J1430+3649	10 55 11	49.6	91.5	-3.6		-48.5	13	7332	02 08 00
02 09 00	=1428+370	10 56 11	49.7	91.7	-3.6		-48.5	60	7340	02 08 01
02 09 00	J143042	10 56 11	48.6	93.5	-3.6		-47.1	-17	7340	No stop
02 12 30	---	10 59 41	49.1	94.3	-3.5		-47.1	193	7367	02 09 01
02 12 30	J1430+3649	10 59 41	50.2	92.4	-3.5		-48.5	-17	7367	No stop
02 14 00	=1428+370	11 01 12	50.5	92.8	-3.5		-48.5	73	7378	02 12 31
02 15 00	J1422+3223	11 02 12	48.8	99.7	-3.3		-44.5	31	7378	02 15 00
02 16 00	=1420+326	11 03 12	48.9	99.9	-3.3		-44.4	60	7386	02 15 01
02 16 00	J142917	11 03 12	48.7	97.3	-3.4		-45.5	-19	7386	No stop
02 19 30	---	11 06 43	49.2	98.1	-3.4		-45.4	191	7413	02 16 01
02 19 30	J1422+3223	11 06 43	49.4	100.8	-3.3		-44.3	-20	7413	No stop
02 21 00	=1420+326	11 08 13	49.7	101.1	-3.2		-44.2	70	7424	02 19 31
02 22 00	J1430+3649	11 09 13	51.7	94.5	-3.4		-48.3	31	7424	02 22 00
02 23 00	=1428+370	11 10 13	51.8	94.7	-3.4		-48.3	60	7432	02 22 01
02 23 00	J143329	11 10 13	50.7	95.2	-3.4		-47.5	-17	7432	No stop
02 26 30	---	11 13 44	51.3	96.0	-3.3		-47.4	193	7459	02 23 01
02 26 30	J1430+3649	11 13 44	52.3	95.4	-3.3		-48.3	-17	7459	No stop
02 28 00	=1428+370	11 15 14	52.6	95.8	-3.3		-48.2	73	7471	02 26 31
02 28 00	J143055	11 15 14	51.4	97.7	-3.3		-46.6	-18	7471	No stop
02 31 30	---	11 18 45	51.9	98.5	-3.2		-46.5	192	7497	02 28 01
02 32 00	J1430+3649	11 19 15	53.2	96.6	-3.2		-48.1	12	7497	02 32 00
02 33 00	=1428+370	11 20 15	53.3	96.9	-3.2		-48.1	60	7505	02 32 01
02 33 00	J142904	11 20 15	52.8	98.6	-3.2		-47.0	-17	7505	No stop
02 36 30	---	11 23 45	53.3	99.4	-3.1		-46.8	193	7532	02 33 01
02 36 30	J1430+3649	11 23 45	53.8	97.7	-3.1		-48.0	-17	7532	No stop
02 38 00	=1428+370	11 25 16	54.1	98.0	-3.1		-47.9	73	7544	02 36 31
02 38 00	J142904	11 25 16	53.6	99.7	-3.1		-46.8	-17	7544	No stop
02 41 30	---	11 28 46	54.1	100.5	-3.0		-46.6	193	7571	02 38 01
02 42 00	J1430+3649	11 29 16	54.7	98.9	-3.0		-47.8	13	7571	02 42 00
02 43 00	=1428+370	11 30 17	54.8	99.2	-3.0		-47.7	60	7578	02 42 01

Schedule for TORUN (Code Tr)

Page 21

e-EVN: tel16, ey022, ec053

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Wed 14 Jan 2015 Day 14 ---										
02 43 00	J143042	11 30 17	53.7	101.2	-3.0		-46.1	-18	7578	No stop
02 46 30	---	11 33 47	54.2	102.0	-3.0		-45.9	192	7605	02 43 01
02 46 30	J1430+3649	11 33 47	55.3	100.0	-3.0		-47.6	-18	7605	No stop
02 48 00	=1428+370	11 35 17	55.5	100.3	-2.9		-47.5	72	7617	02 46 31
02 48 00	J143042	11 35 17	54.4	102.4	-2.9		-45.8	-18	7617	No stop
02 51 30	---	11 38 48	54.9	103.2	-2.9		-45.6	192	7644	02 48 01
02 52 00	J1430+3649	11 39 18	56.1	101.3	-2.9		-47.3	12	7644	02 52 00
02 53 00	=1428+370	11 40 18	56.3	101.6	-2.8		-47.2	60	7651	02 52 01
02 53 00	J143042	11 40 18	55.2	103.6	-2.9		-45.5	-18	7651	No stop
02 56 30	---	11 43 49	55.7	104.5	-2.8		-45.3	192	7678	02 53 01
02 56 30	J1430+3649	11 43 49	56.8	102.4	-2.8		-47.0	-18	7678	No stop
02 58 00	=1428+370	11 45 19	57.0	102.8	-2.8		-47.0	72	7690	02 56 31
02 59 00	J1422+3223	11 46 19	55.2	110.8	-2.6		-41.6	29	7690	02 59 00
03 00 00	=1420+326	11 47 19	55.3	111.1	-2.6		-41.5	60	7697	02 59 01
03 00 00	J142917	11 47 19	55.1	108.0	-2.7		-43.2	-21	7697	No stop
03 03 30	---	11 50 50	55.6	108.9	-2.7		-42.9	189	7724	03 00 01
03 03 30	J1422+3223	11 50 50	55.8	112.0	-2.5		-41.2	-21	7724	No stop
03 05 00	=1420+326	11 52 20	56.0	112.5	-2.5		-41.0	69	7736	03 03 31
03 06 00	J1430+3649	11 53 20	58.2	104.9	-2.6		-46.4	29	7736	03 06 00
03 07 00	=1428+370	11 54 20	58.3	105.1	-2.6		-46.3	60	7744	03 06 01
03 07 00	J143329	11 54 20	57.2	105.7	-2.7		-45.4	-17	7744	No stop
03 10 30	---	11 57 51	57.8	106.6	-2.6		-45.2	193	7771	03 07 01
03 10 30	J1430+3649	11 57 51	58.8	106.1	-2.6		-46.1	-17	7771	No stop
03 12 00	=1428+370	11 59 21	59.1	106.5	-2.5		-45.9	73	7782	03 10 31
03 12 00	J143055	11 59 21	57.8	108.7	-2.5		-44.0	-18	7782	No stop
03 15 30	---	12 02 52	58.3	109.6	-2.5		-43.7	192	7809	03 12 01
03 16 00	J1430+3649	12 03 22	59.6	107.6	-2.5		-45.6	12	7809	03 16 00
03 17 00	=1428+370	12 04 22	59.8	107.8	-2.4		-45.5	60	7817	03 16 01
03 17 00	J142904	12 04 22	59.2	109.8	-2.4		-44.1	-18	7817	No stop
03 20 30	---	12 07 53	59.7	110.8	-2.4		-43.7	192	7844	03 17 01

Schedule for TORUN (Code Tr)

Page 22

e-EVN: tel16, ey022, ec053

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

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Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Wed 14 Jan 2015 Day 14 ---										
03 20 30	J1430+3649	12 07 53	60.3	108.8	-2.4		-45.2	-17	7844	No stop
03 22 00	=1428+370	12 09 23	60.5	109.3	-2.4		-45.0	73	7855	03 20 31
03 22 00	J142904	12 09 23	59.9	111.2	-2.3		-43.5	-18	7855	No stop
03 25 30	---	12 12 53	60.4	112.3	-2.3		-43.2	192	7882	03 22 01
03 26 00	J1430+3649	12 13 24	61.1	110.4	-2.3		-44.6	13	7882	03 26 00
03 27 00	=1428+370	12 14 24	61.2	110.7	-2.3		-44.5	60	7890	03 26 01
03 27 00	J143042	12 14 24	60.0	113.0	-2.3		-42.5	-19	7890	No stop
03 30 30	---	12 17 54	60.5	114.0	-2.2		-42.1	191	7917	03 27 01
03 30 30	J1430+3649	12 17 54	61.7	111.8	-2.2		-44.1	-18	7917	No stop
03 32 00	=1428+370	12 19 25	61.9	112.2	-2.2		-43.9	72	7928	03 30 31
03 32 00	J143042	12 19 25	60.7	114.5	-2.2		-41.9	-19	7928	No stop
03 35 30	---	12 22 55	61.2	115.6	-2.1		-41.5	191	7955	03 32 01
03 36 00	J1430+3649	12 23 25	62.5	113.5	-2.1		-43.4	12	7955	03 36 00
03 37 00	=1428+370	12 24 25	62.6	113.8	-2.1		-43.3	60	7963	03 36 01
03 37 00	J143042	12 24 25	61.4	116.1	-2.1		-41.3	-19	7963	No stop
03 40 30	---	12 27 56	61.9	117.2	-2.1		-40.8	191	7990	03 37 01
03 40 30	J1430+3649	12 27 56	63.1	114.9	-2.1		-42.8	-18	7990	No stop
03 42 00	=1428+370	12 29 26	63.3	115.4	-2.0		-42.6	72	8001	03 40 31
03 43 00	J1422+3223	12 30 26	61.0	124.5	-1.9		-35.8	27	8001	03 43 00
03 44 00	=1420+326	12 31 27	61.1	124.9	-1.9		-35.6	60	8009	03 43 01
03 44 00	J142917	12 31 27	61.1	121.2	-2.0		-37.9	-22	8009	No stop
03 47 30	---	12 34 57	61.6	122.4	-1.9		-37.4	188	8036	03 44 01
03 47 30	J1422+3223	12 34 57	61.6	126.2	-1.8		-35.0	-22	8036	No stop
03 49 00	=1420+326	12 36 27	61.8	126.7	-1.8		-34.7	68	8047	03 47 31
03 50 00	J1430+3649	12 37 28	64.3	118.1	-1.9		-41.4	27	8047	03 50 00
03 51 00	=1428+370	12 38 28	64.5	118.5	-1.9		-41.2	60	8055	03 50 01
03 51 00	J143329	12 38 28	63.4	118.9	-1.9		-40.4	-17	8055	No stop
03 54 30	---	12 41 58	63.8	120.2	-1.9		-39.8	193	8082	03 51 01
03 54 30	J1430+3649	12 41 58	64.9	119.7	-1.8		-40.6	-17	8082	No stop
03 56 00	=1428+370	12 43 28	65.1	120.3	-1.8		-40.3	73	8094	03 54 31

Schedule for TORUN (Code Tr)

Page 23

e-EVN: tel16, ey022, ec053

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

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Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Wed 14 Jan 2015 Day 14 ---										
03 56 00	J143055	12 43 28	63.8	122.6	-1.8		-38.2	-19	8094	No stop
03 59 30	---	12 46 59	64.3	123.9	-1.7		-37.5	191	8121	03 56 01
04 00 00	J1430+3649	12 47 29	65.7	121.7	-1.7		-39.6	11	8121	04 00 00
04 01 00	=1428+370	12 48 29	65.8	122.1	-1.7		-39.4	60	8128	04 00 01
04 01 00	J142904	12 48 29	65.1	124.3	-1.7		-37.6	-19	8128	No stop
04 04 30	---	12 52 00	65.6	125.7	-1.6		-36.9	191	8155	04 01 01
04 04 30	J1430+3649	12 52 00	66.2	123.5	-1.7		-38.7	-18	8155	No stop
04 06 00	=1428+370	12 53 30	66.4	124.0	-1.6		-38.4	72	8167	04 04 31
04 06 00	J142904	12 53 30	65.8	126.3	-1.6		-36.6	-19	8167	No stop
04 09 30	---	12 57 01	66.2	127.7	-1.5		-35.8	191	8194	04 06 01
04 10 00	J1430+3649	12 57 31	66.9	125.6	-1.6		-37.5	12	8194	04 10 00
04 11 00	=1428+370	12 58 31	67.0	126.0	-1.5		-37.3	60	8201	04 10 01
04 11 00	J143042	12 58 31	65.7	128.4	-1.5		-35.1	-19	8201	No stop
04 14 30	---	13 02 02	66.1	129.8	-1.5		-34.3	191	8228	04 11 01
04 14 30	J1430+3649	13 02 02	67.4	127.5	-1.5		-36.5	-18	8228	No stop
04 16 00	=1428+370	13 03 32	67.6	128.1	-1.5		-36.1	72	8240	04 14 31
04 16 00	J143042	13 03 32	66.3	130.5	-1.5		-34.0	-19	8240	No stop
04 19 30	---	13 07 02	66.7	132.0	-1.4		-33.1	191	8267	04 16 01
04 20 00	J1430+3649	13 07 32	68.1	129.9	-1.4		-35.1	12	8267	04 20 00
04 21 00	=1428+370	13 08 33	68.2	130.3	-1.4		-34.9	60	8274	04 20 01
04 21 00	J143042	13 08 33	66.9	132.6	-1.4		-32.7	-19	8274	No stop
04 24 30	---	13 12 03	67.3	134.2	-1.3		-31.8	191	8301	04 21 01
04 24 30	J1430+3649	13 12 03	68.6	131.9	-1.3		-33.9	-19	8301	No stop
04 26 00	=1428+370	13 13 33	68.8	132.6	-1.3		-33.5	71	8313	04 24 31
04 27 00	J1422+3223	13 14 34	65.8	142.5	-1.1		-25.6	26	8313	04 27 00
04 28 00	=1420+326	13 15 34	65.9	143.0	-1.1		-25.3	60	8321	04 27 01
04 28 00	J142917	13 15 34	66.2	138.7	-1.2		-28.4	-23	8321	No stop
04 31 30	---	13 19 04	66.6	140.3	-1.2		-27.4	187	8347	04 28 01
04 31 30	J1422+3223	13 19 04	66.2	144.6	-1.1		-24.3	-24	8347	No stop
04 33 00	=1420+326	13 20 35	66.4	145.4	-1.0		-23.8	66	8359	04 31 31

Schedule for TORUN (Code Tr)

Page 24

e-EVN: tel16, ey022, ec053

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SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Wed 14 Jan 2015 Day 14 ---										
04 34 00	J1430+3649	13 21 35	69.6	136.4	-1.2		-31.1	27	8359	04 34 00
04 35 00	=1428+370	13 22 35	69.7	136.9	-1.1		-30.8	60	8367	04 34 01
04 35 00	J143329	13 22 35	68.6	136.9	-1.2		-30.4	-17	8367	No stop
04 38 30	---	13 26 05	69.0	138.6	-1.1		-29.3	193	8394	04 35 01
04 38 30	J1430+3649	13 26 05	70.1	138.7	-1.1		-29.7	-17	8394	No stop
04 40 00	=1428+370	13 27 36	70.2	139.4	-1.1		-29.2	73	8405	04 38 31
04 40 00	J143055	13 27 36	68.7	141.6	-1.1		-27.1	-19	8405	No stop
04 43 30	---	13 31 06	69.1	143.4	-1.0		-26.0	191	8432	04 40 01
04 44 00	J1430+3649	13 31 36	70.6	141.6	-1.0		-27.8	11	8432	04 44 00
04 45 00	=1428+370	13 32 37	70.7	142.1	-1.0		-27.4	60	8440	04 44 01
04 45 00	J142904	13 32 37	69.9	144.4	-1.0		-25.5	-19	8440	No stop
04 48 30	---	13 36 07	70.2	146.3	-0.9		-24.2	191	8467	04 45 01
04 48 30	J1430+3649	13 36 07	71.0	144.0	-0.9		-26.1	-18	8467	No stop
04 50 00	=1428+370	13 37 37	71.2	144.8	-0.9		-25.6	72	8478	04 48 31
04 50 00	J142904	13 37 37	70.3	147.1	-0.9		-23.7	-19	8478	No stop
04 53 30	---	13 41 08	70.6	149.1	-0.8		-22.3	191	8505	04 50 01
04 54 00	J1430+3649	13 41 38	71.5	147.1	-0.8		-24.0	12	8505	04 54 00
04 55 00	=1428+370	13 42 38	71.6	147.7	-0.8		-23.6	60	8513	04 54 01
04 55 00	J143042	13 42 38	70.1	149.6	-0.8		-21.8	-19	8513	No stop
04 58 30	---	13 46 09	70.4	151.5	-0.8		-20.5	191	8540	04 55 01
04 58 30	J1430+3649	13 46 09	71.9	149.8	-0.8		-22.2	-19	8540	No stop
05 00 00	=1428+370	13 47 39	72.0	150.7	-0.7		-21.5	71	8551	04 58 31
05 00 00	J143042	13 47 39	70.5	152.4	-0.7		-19.9	-19	8551	No stop
05 03 30	---	13 51 10	70.7	154.4	-0.7		-18.5	191	8578	05 00 01
05 04 00	J1430+3649	13 51 40	72.3	153.1	-0.7		-19.8	11	8578	05 04 00
05 05 00	=1428+370	13 52 40	72.3	153.7	-0.6		-19.4	60	8586	05 04 01
05 05 00	J143042	13 52 40	70.8	155.3	-0.6		-17.8	-19	8586	No stop
05 08 30	---	13 56 10	71.0	157.4	-0.6		-16.4	191	8613	05 05 01
05 08 30	J1430+3649	13 56 10	72.5	155.9	-0.6		-17.8	-19	8613	No stop
05 10 00	=1428+370	13 57 41	72.6	156.9	-0.6		-17.1	71	8624	05 08 31

Schedule for TORUN (Code Tr)

Page 25

e-EVN: tel16, ey022, ec053

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SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Wed 14 Jan 2015 Day 14 ---										
05 11 00	J1422+3223	13 58 41	68.8	165.6	-0.4		-10.2	28	8624	05 11 00
05 12 00	=1420+326	13 59 41	68.8	166.2	-0.4		-9.8	60	8632	05 11 01
05 12 00	J142917	13 59 41	69.5	161.7	-0.5		-13.1	-24	8632	No stop
05 15 30	---	14 03 12	69.7	163.7	-0.4		-11.6	186	8659	05 12 01
05 15 30	J1422+3223	14 03 12	68.9	168.2	-0.3		-8.3	-24	8659	No stop
05 17 00	=1420+326	14 04 42	69.0	169.1	-0.3		-7.7	66	8670	05 15 31
05 18 00	J1430+3649	14 05 42	73.1	162.2	-0.4		-13.3	30	8670	05 18 00
05 19 00	=1428+370	14 06 42	73.1	162.8	-0.4		-12.8	60	8678	05 18 01
05 22 00	3C345	14 09 43	60.8	101.5	-2.6		-50.0	42	8678	05 22 00
05 25 00	---	14 12 43	61.3	102.3	-2.5		-49.8	180	8701	05 22 01
05 28 00	J1430+3649	14 15 44	73.4	169.0	-0.3		-8.2	32	8701	05 28 00
05 31 00	=1428+370	14 18 44	73.5	171.1	-0.2		-6.6	180	8724	05 28 01
05 31 00	J143329	14 18 44	72.5	169.6	-0.3		-7.7	-17	8724	No stop
05 34 30	---	14 22 15	72.6	172.0	-0.2		-5.9	193	8751	05 31 01
05 34 30	J1430+3649	14 22 15	73.6	173.6	-0.2		-4.8	-17	8751	No stop
05 36 00	=1428+370	14 23 45	73.6	174.6	-0.1		-4.0	73	8763	05 34 31
05 36 00	J143055	14 23 45	71.9	174.9	-0.1		-3.8	-20	8763	No stop
05 39 30	---	14 27 15	72.0	177.2	-0.1		-2.1	190	8790	05 36 01
05 40 00	J1430+3649	14 27 46	73.6	177.5	-0.1		-1.9	10	8790	05 40 00
05 41 00	=1428+370	14 28 46	73.6	178.2	-0.0		-1.3	60	8797	05 40 01
05 41 00	J142904	14 28 46	72.6	179.4	-0.0		-0.5	-17	8797	No stop
05 44 30	---	14 32 16	72.6	181.7	0.0		1.3	193	8824	05 41 01
05 44 30	J1430+3649	14 32 16	73.7	180.7	0.0		0.5	-17	8824	No stop
05 46 00	=1428+370	14 33 47	73.6	181.8	0.0		1.3	73	8836	05 44 31
05 46 00	J142904	14 33 47	72.6	182.8	0.1		2.0	-17	8836	No stop
05 49 30	---	14 37 17	72.5	185.1	0.1		3.8	193	8863	05 46 01
05 50 00	J1430+3649	14 37 47	73.6	184.6	0.1		3.5	13	8863	05 50 00
05 51 00	=1428+370	14 38 47	73.6	185.3	0.1		4.0	60	8870	05 50 01
05 51 00	J143042	14 38 47	72.0	184.9	0.1		3.6	-20	8870	No stop
05 54 30	---	14 42 18	71.9	187.3	0.2		5.3	190	8897	05 51 01

Schedule for TORUN (Code Tr)

Page 26

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SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop				Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Wed 14 Jan 2015 Day 14 ---										
05 54 30	J1430+3649	14 42 18	73.5	187.8	0.2		5.8	-20	8897	No stop
05 56 00	=1428+370	14 43 48	73.5	188.9	0.2		6.6	70	8909	05 54 31
05 56 00	J143042	14 43 48	71.9	188.2	0.2		6.0	-20	8909	No stop
05 59 30	---	14 47 19	71.8	190.5	0.3		7.7	190	8936	05 56 01
06 00 00	J1430+3649	14 47 49	73.4	191.7	0.3		8.7	10	8936	06 00 00
06 01 00	=1428+370	14 48 49	73.4	192.4	0.3		9.2	60	8944	06 00 01
06 01 00	J143042	14 48 49	71.8	191.5	0.3		8.4	-20	8944	No stop
06 04 30	---	14 52 20	71.7	193.8	0.4		10.1	190	8970	06 01 01
06 04 30	J1430+3649	14 52 20	73.2	194.8	0.4		11.0	-19	8970	No stop
06 06 00	=1428+370	14 53 50	73.2	195.8	0.4		11.8	71	8982	06 04 31
06 07 00	J1422+3223	14 54 50	68.5	198.5	0.5		13.0	28	8982	06 07 00
06 08 00	=1420+326	14 55 50	68.4	199.1	0.5		13.4	60	8990	06 07 01
06 08 00	J142917	14 55 50	69.7	195.8	0.4		11.3	-21	8990	No stop
06 11 30	---	14 59 21	69.6	197.9	0.5		12.7	189	9017	06 08 01
06 11 30	J1422+3223	14 59 21	68.2	201.0	0.6		14.7	-21	9017	No stop
06 13 00	=1420+326	15 00 51	68.1	201.8	0.6		15.3	69	9028	06 11 31
06 14 00	J1430+3649	15 01 51	72.8	201.1	0.5		15.7	29	9028	06 14 00
06 15 00	=1428+370	15 02 51	72.7	201.8	0.5		16.1	60	9036	06 14 01
06 15 00	J143329	15 02 51	72.0	199.1	0.5		14.0	-19	9036	No stop
06 18 30	---	15 06 22	71.8	201.3	0.5		15.6	191	9063	06 15 01
06 18 30	J1430+3649	15 06 22	72.5	204.0	0.6		17.8	-20	9063	No stop
06 20 00	=1428+370	15 07 52	72.5	205.0	0.6		18.5	70	9074	06 18 31
06 20 00	J143055	15 07 52	70.9	203.2	0.6		16.8	-20	9074	No stop
06 23 30	---	15 11 23	70.7	205.3	0.7		18.3	190	9101	06 20 01
06 24 00	J1430+3649	15 11 53	72.2	207.5	0.7		20.2	11	9101	06 24 00
06 25 00	=1428+370	15 12 53	72.1	208.1	0.7		20.7	60	9109	06 24 01
06 25 00	J142904	15 12 53	71.0	207.9	0.7		20.2	-17	9109	No stop
06 28 30	---	15 16 24	70.7	209.9	0.8		21.6	193	9136	06 25 01
06 28 30	J1430+3649	15 16 24	71.9	210.2	0.8		22.2	-17	9136	No stop
06 30 00	=1428+370	15 17 54	71.7	211.1	0.8		22.8	73	9147	06 28 31

Schedule for TORUN (Code Tr)

Page 27

e-EVN: tel16, ey022, ec053

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop				Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Wed 14 Jan 2015 Day 14 ---										
06 30 00	J142904	15 17 54	70.6	210.7	0.8		22.2	-17	9147	No stop
06 33 30	---	15 21 24	70.3	212.7	0.9		23.5	193	9174	06 30 01
06 34 00	J1430+3649	15 21 54	71.4	213.4	0.8		24.4	13	9174	06 34 00
06 35 00	=1428+370	15 22 55	71.3	214.0	0.9		24.8	60	9182	06 34 01
06 35 00	J143042	15 22 55	69.9	212.0	0.9		22.9	-19	9182	No stop
06 38 30	---	15 26 25	69.6	213.9	0.9		24.2	191	9209	06 35 01
06 38 30	J1430+3649	15 26 25	71.0	216.0	0.9		26.1	-19	9209	No stop
06 40 00	=1428+370	15 27 55	70.9	216.8	0.9		26.7	71	9220	06 38 31
06 40 00	J143042	15 27 55	69.5	214.7	0.9		24.7	-19	9220	No stop
06 43 30	---	15 31 26	69.2	216.6	1.0		25.9	191	9247	06 40 01
06 44 00	J1430+3649	15 31 56	70.5	219.0	1.0		28.1	11	9247	06 44 00
06 45 00	=1428+370	15 32 56	70.4	219.5	1.0		28.5	60	9255	06 44 01
06 45 00	J143042	15 32 56	69.0	217.3	1.0		26.4	-19	9255	No stop
06 48 30	---	15 36 27	68.7	219.1	1.1		27.6	191	9282	06 45 01
06 48 30	J1430+3649	15 36 27	70.1	221.3	1.1		29.7	-19	9282	No stop
06 50 00	=1428+370	15 37 57	69.9	222.1	1.1		30.1	71	9294	06 48 31
06 51 00	J1422+3223	15 38 57	65.2	220.8	1.3		27.7	28	9294	06 51 00
06 52 00	=1420+326	15 39 57	65.1	221.2	1.3		27.9	60	9301	06 51 01
06 52 00	J142917	15 39 57	66.6	219.3	1.2		27.1	-19	9301	No stop
06 55 30	---	15 43 28	66.3	221.0	1.2		28.1	191	9328	06 52 01
06 55 30	J1422+3223	15 43 28	64.7	222.8	1.3		28.8	-20	9328	No stop
06 57 00	=1420+326	15 44 58	64.5	223.4	1.4		29.2	70	9340	06 55 31
06 58 00	J1430+3649	15 45 58	69.1	226.0	1.2		32.6	29	9340	06 58 00
06 59 00	=1428+370	15 46 59	69.0	226.5	1.3		32.9	60	9347	06 58 01
06 59 00	J143329	15 46 59	68.5	223.7	1.2		30.8	-20	9347	No stop
07 02 30	---	15 50 29	68.1	225.4	1.3		31.8	190	9374	06 59 01
07 02 30	J1430+3649	15 50 29	68.6	228.1	1.3		33.9	-20	9374	No stop
07 04 00	=1428+370	15 51 59	68.4	228.8	1.3		34.3	70	9386	07 02 31
07 04 00	J143055	15 51 59	67.1	226.3	1.3		32.0	-19	9386	No stop
07 07 30	---	15 55 30	66.7	227.8	1.4		32.9	191	9413	07 04 01

Schedule for TORUN (Code Tr)

Page 28

e-EVN: tel16, ey022, ec053

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop				Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Wed 14 Jan 2015 Day 14 ---										
07 08 00	J1430+3649	15 56 00	68.0	230.6	1.4		35.4	10	9413	07 08 00
07 09 00	=1428+370	15 57 00	67.9	231.0	1.4		35.6	60	9420	07 08 01
07 09 00	J142904	15 57 00	66.8	230.1	1.5		34.5	-17	9420	No stop
07 12 30	---	16 00 31	66.4	231.5	1.5		35.4	193	9447	07 09 01
07 12 30	J1430+3649	16 00 31	67.5	232.5	1.5		36.5	-17	9447	No stop
07 14 00	=1428+370	16 02 01	67.3	233.1	1.5		36.8	73	9459	07 12 31
07 14 00	J142904	16 02 01	66.2	232.2	1.5		35.7	-17	9459	No stop
07 17 30	---	16 05 32	65.8	233.6	1.6		36.5	193	9486	07 14 01
07 18 00	J1430+3649	16 06 02	66.8	234.8	1.6		37.7	13	9486	07 18 00
07 19 00	=1428+370	16 07 02	66.7	235.2	1.6		38.0	60	9494	07 18 01
07 19 00	J143042	16 07 02	65.4	232.8	1.6		35.8	-19	9494	No stop
07 22 30	---	16 10 32	65.0	234.1	1.7		36.5	191	9520	07 19 01
07 22 30	J1430+3649	16 10 32	66.2	236.5	1.7		38.7	-19	9520	No stop
07 24 00	=1428+370	16 12 03	66.0	237.1	1.7		39.0	71	9532	07 22 31
07 24 00	J143042	16 12 03	64.8	234.7	1.7		36.8	-19	9532	No stop
07 27 30	---	16 15 33	64.3	236.1	1.7		37.5	191	9559	07 24 01
07 28 00	J1430+3649	16 16 03	65.5	238.6	1.7		39.8	11	9559	07 28 00
07 29 00	=1428+370	16 17 03	65.4	239.0	1.8		40.0	60	9567	07 28 01
07 29 00	J143042	16 17 03	64.2	236.6	1.8		37.8	-19	9567	No stop
07 32 30	---	16 20 34	63.7	237.9	1.8		38.5	191	9594	07 29 01
07 32 30	J1430+3649	16 20 34	64.9	240.3	1.8		40.6	-19	9594	No stop
07 34 00	=1428+370	16 22 04	64.7	240.8	1.8		40.9	71	9605	07 32 31
07 35 00	J1422+3223	16 23 04	60.1	238.0	2.0		37.0	29	9605	07 35 00
07 36 00	=1420+326	16 24 05	60.0	238.3	2.0		37.2	60	9613	07 35 01
07 36 00	J142917	16 24 05	61.7	237.3	1.9		37.2	-20	9613	No stop
07 39 30	---	16 27 35	61.2	238.5	2.0		37.8	190	9640	07 36 01
07 39 30	J1422+3223	16 27 35	59.5	239.5	2.1		37.7	-20	9640	No stop
07 41 00	=1420+326	16 29 05	59.3	240.0	2.1		38.0	70	9651	07 39 31
07 42 00	J1430+3649	16 30 06	63.7	243.6	2.0		42.2	30	9651	07 42 00
07 43 00	=1428+370	16 31 06	63.5	243.9	2.0		42.3	60	9659	07 42 01

Schedule for TORUN (Code Tr)

Page 29

e-EVN: tel16, ey022, ec053

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Wed 14 Jan 2015 Day 14 ---										
07 43 00	J143329	16 31 06	63.2	241.5	1.9		40.6	-19	9659	No stop
07 46 30	---	16 34 36	62.7	242.7	2.0		41.1	191	9686	07 43 01
07 46 30	J1430+3649	16 34 36	63.1	245.1	2.1		42.8	-19	9686	No stop
07 48 00	=1428+370	16 36 07	62.9	245.6	2.1		43.0	71	9697	07 46 31
07 48 00	J143055	16 36 07	61.7	243.1	2.1		40.9	-19	9697	No stop
07 51 30	---	16 39 37	61.2	244.2	2.1		41.3	191	9724	07 48 01
07 52 00	J1430+3649	16 40 07	62.3	246.8	2.1		43.5	11	9724	07 52 00
07 53 00	=1428+370	16 41 07	62.2	247.1	2.2		43.7	60	9732	07 52 01
07 53 00	J142904	16 41 07	61.2	246.1	2.2		42.5	-17	9732	No stop
07 56 30	---	16 44 38	60.7	247.2	2.2		42.9	193	9759	07 53 01
07 56 30	J1430+3649	16 44 38	61.7	248.2	2.2		44.1	-16	9759	No stop
07 58 00	=1428+370	16 46 08	61.5	248.7	2.2		44.3	74	9770	07 56 31
07 58 00	J142904	16 46 08	60.5	247.6	2.3		43.1	-17	9770	No stop
08 01 30	---	16 49 39	60.0	248.7	2.3		43.5	193	9797	07 58 01
08 02 00	J1430+3649	16 50 09	60.9	249.9	2.3		44.7	14	9797	08 02 00
08 03 00	=1428+370	16 51 09	60.8	250.1	2.3		44.8	60	9805	08 02 01
08 03 00	J143042	16 51 09	59.6	247.9	2.3		42.9	-18	9805	No stop
08 06 30	---	16 54 40	59.1	248.9	2.4		43.3	192	9832	08 03 01
08 06 30	J1430+3649	16 54 40	60.3	251.2	2.4		45.2	-19	9832	No stop
08 08 00	=1428+370	16 56 10	60.1	251.6	2.4		45.3	71	9844	08 06 31
08 08 00	J143042	16 56 10	58.9	249.4	2.4		43.4	-18	9844	No stop
08 11 30	---	16 59 40	58.4	250.4	2.5		43.8	192	9870	08 08 01
08 12 00	J1430+3649	17 00 11	59.5	252.7	2.5		45.7	12	9870	08 12 00
08 13 00	=1428+370	17 01 11	59.3	253.0	2.5		45.8	60	9878	08 12 01
08 13 00	J143042	17 01 11	58.2	250.8	2.5		43.9	-18	9878	No stop
08 16 30	---	17 04 41	57.7	251.8	2.6		44.2	192	9905	08 13 01
08 16 30	J1430+3649	17 04 41	58.8	253.9	2.6		46.1	-18	9905	No stop
08 18 00	=1428+370	17 06 12	58.6	254.3	2.6		46.2	72	9917	08 16 31
08 19 00	J1422+3223	17 07 12	54.1	251.2	2.7		42.3	30	9917	08 19 00
08 20 00	=1420+326	17 08 12	54.0	251.5	2.8		42.3	60	9924	08 19 01

Schedule for TORUN (Code Tr)

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e-EVN: tel16, ey022, ec053

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Wed 14 Jan 2015 Day 14 ---										
08 20 00	J142917	17 08 12	55.7	250.9	2.6		42.8	-20	9924	No stop
08 23 30	---	17 11 42	55.2	251.8	2.7		43.1	190	9951	08 20 01
08 23 30	J1422+3223	17 11 42	53.5	252.4	2.8		42.6	-20	9951	No stop
08 25 00	=1420+326	17 13 13	53.3	252.8	2.8		42.7	70	9963	08 23 31
08 26 00	J1430+3649	17 14 13	57.5	256.4	2.7		46.8	30	9963	08 26 00
08 27 00	=1428+370	17 15 13	57.3	256.7	2.7		46.8	60	9970	08 26 01
08 27 00	J143329	17 15 13	57.1	254.7	2.7		45.5	-18	9970	No stop
08 30 30	---	17 18 44	56.5	255.6	2.7		45.8	192	9997	08 27 01
08 30 30	J1430+3649	17 18 44	56.8	257.6	2.8		47.0	-18	9997	No stop
08 32 00	=1428+370	17 20 14	56.6	257.9	2.8		47.1	72	10009	08 30 31
08 32 00	J143055	17 20 14	55.5	255.7	2.8		45.3	-18	10009	No stop
08 35 30	---	17 23 44	55.0	256.6	2.9		45.5	192	10036	08 32 01
08 36 00	J1430+3649	17 24 14	56.0	258.9	2.9		47.3	12	10036	08 36 00
08 37 00	=1428+370	17 25 15	55.8	259.2	2.9		47.4	60	10044	08 36 01
08 37 00	J142904	17 25 15	54.9	258.2	2.9		46.3	-17	10044	No stop
08 40 30	---	17 28 45	54.4	259.0	3.0		46.5	193	10070	08 37 01
08 40 30	J1430+3649	17 28 45	55.3	260.0	3.0		47.6	-16	10070	No stop
08 42 00	=1428+370	17 30 15	55.1	260.4	3.0		47.6	74	10082	08 40 31
08 42 00	J142904	17 30 15	54.1	259.4	3.0		46.6	-17	10082	No stop
08 45 30	---	17 33 46	53.6	260.2	3.1		46.8	193	10109	08 42 01
08 46 00	J1430+3649	17 34 16	54.5	261.3	3.0		47.8	14	10109	08 46 00
08 47 00	=1428+370	17 35 16	54.4	261.5	3.1		47.8	60	10117	08 46 01
08 47 00	J143042	17 35 16	53.3	259.5	3.1		46.2	-17	10117	No stop
08 50 30	---	17 38 47	52.8	260.4	3.1		46.4	193	10144	08 47 01
08 50 30	J1430+3649	17 38 47	53.8	262.3	3.1		48.0	-18	10144	No stop
08 52 00	=1428+370	17 40 17	53.6	262.7	3.2		48.0	72	10155	08 50 31
08 52 00	J143042	17 40 17	52.5	260.7	3.1		46.4	-17	10155	No stop
08 55 30	---	17 43 48	52.0	261.5	3.2		46.6	193	10182	08 52 01
08 56 00	J1430+3649	17 44 18	53.0	263.6	3.2		48.1	12	10182	08 56 00
08 57 00	=1428+370	17 45 18	52.9	263.8	3.2		48.2	60	10190	08 56 01
08 57 00	J143042	17 45 18	51.8	261.9	3.2		46.6	-17	10190	No stop
09 00 30	---	17 48 49	51.3	262.6	3.3		46.7	193	10217	08 57 01

Schedule for TORUN (Code Tr)

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e-EVN: tel116, ey022, ec053

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Wed 14 Jan 2015 Day 14 ---										
09 00 30	J1430+3649	17 48 49	52.3	264.6	3.3		48.2	-18	10217	No stop
09 02 00	=1428+370	17 50 19	52.1	264.9	3.3		48.3	72	10228	09 00 31
09 03 00	J1422+3223	17 51 19	47.7	261.9	3.5		44.7	30	10228	09 03 00
09 04 00	=1420+326	17 52 19	47.5	262.1	3.5		44.7	60	10236	09 03 01
09 04 00	J142917	17 52 19	49.3	261.8	3.4		45.4	-20	10236	No stop
09 07 30	---	17 55 50	48.8	262.5	3.4		45.5	190	10263	09 04 01
09 07 30	J1422+3223	17 55 50	47.0	262.9	3.5		44.8	-20	10263	No stop
09 09 00	=1420+326	17 57 20	46.8	263.2	3.6		44.9	70	10274	09 07 31
09 10 00	J1430+3649	17 58 20	50.9	266.6	3.5		48.4	30	10274	09 10 00
09 11 00	=1428+370	17 59 20	50.8	266.8	3.5		48.4	60	10282	09 10 01
09 11 00	J143329	17 59 20	50.5	265.1	3.4		47.5	-17	10282	No stop
09 14 30	---	18 02 51	50.0	265.8	3.5		47.6	193	10309	09 11 01
09 14 30	J1430+3649	18 02 51	50.2	267.6	3.5		48.5	-17	10309	No stop
09 16 00	=1428+370	18 04 21	50.0	267.9	3.6		48.5	73	10320	09 14 31
09 16 00	J143055	18 04 21	48.9	265.9	3.5		47.0	-17	10320	No stop
09 19 30	---	18 07 52	48.4	266.7	3.6		47.1	193	10347	09 16 01
09 20 00	J1430+3649	18 08 22	49.4	268.7	3.6		48.5	12	10347	09 20 00
09 21 00	=1428+370	18 09 22	49.3	268.9	3.6		48.5	60	10355	09 20 01
09 21 00	J142904	18 09 22	48.3	268.0	3.7		47.6	-16	10355	No stop
09 24 30	---	18 12 52	47.8	268.7	3.7		47.6	194	10382	09 21 01
09 24 30	J1430+3649	18 12 52	48.7	269.6	3.7		48.5	-16	10382	No stop
09 26 00	=1428+370	18 14 23	48.5	269.9	3.7		48.5	74	10394	09 24 31
09 26 00	J142904	18 14 23	47.5	269.0	3.7		47.7	-16	10394	No stop
09 29 30	---	18 17 53	47.0	269.7	3.8		47.7	194	10420	09 26 01
09 30 00	J1430+3649	18 18 23	47.9	270.7	3.8		48.5	14	10420	09 30 00
09 31 00	=1428+370	18 19 24	47.8	270.9	3.8		48.5	60	10428	09 30 01
09 31 00	J143042	18 19 24	46.7	269.1	3.8		47.2	-17	10428	No stop
09 34 30	---	18 22 54	46.2	269.8	3.9		47.3	193	10455	09 31 01
09 34 30	J1430+3649	18 22 54	47.2	271.6	3.9		48.5	-17	10455	No stop
09 36 00	=1428+370	18 24 24	47.0	271.9	3.9		48.5	73	10467	09 34 31
09 36 00	J143042	18 24 24	45.9	270.1	3.9		47.3	-17	10467	No stop
09 39 30	---	18 27 55	45.4	270.8	3.9		47.2	193	10494	09 36 01

Schedule for TORUN (Code Tr)

Page 32

e-EVN: tel16, ey022, ec053

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop				Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Wed 14 Jan 2015 Day 14 ---										
09 40 00	J1430+3649	18 28 25	46.4	272.7	4.0		48.5	13	10494	09 40 00
09 41 00	=1428+370	18 29 25	46.3	272.9	4.0		48.5	60	10501	09 40 01
09 41 00	J143042	18 29 25	45.2	271.1	4.0		47.2	-17	10501	No stop
09 44 30	---	18 32 56	44.7	271.8	4.0		47.2	193	10528	09 41 01
09 44 30	J1430+3649	18 32 56	45.7	273.5	4.0		48.4	-17	10528	No stop
09 46 00	=1428+370	18 34 26	45.5	273.8	4.1		48.4	73	10540	09 44 31
09 47 00	J1422+3223	18 35 26	41.1	271.1	4.2		45.3	30	10540	09 47 00
09 48 00	=1420+326	18 36 26	40.9	271.3	4.2		45.3	60	10547	09 47 01
09 48 00	J142917	18 36 26	42.7	271.0	4.1		46.0	-20	10547	No stop
09 51 30	---	18 39 57	42.2	271.7	4.2		45.9	190	10574	09 48 01
09 51 30	J1422+3223	18 39 57	40.4	272.0	4.3		45.2	-20	10574	No stop
09 53 00	=1420+326	18 41 27	40.2	272.3	4.3		45.2	70	10586	09 51 31
09 54 00	J1430+3649	18 42 27	44.3	275.3	4.2		48.3	30	10586	09 54 00
09 55 00	=1428+370	18 43 27	44.1	275.5	4.2		48.2	60	10594	09 54 01
09 55 00	J143329	18 43 27	43.9	274.0	4.2		47.6	-16	10594	No stop
09 58 30	---	18 46 58	43.4	274.6	4.2		47.5	194	10620	09 55 01
09 58 30	J1430+3649	18 46 58	43.6	276.2	4.3		48.2	-16	10620	No stop
10 00 00	=1428+370	18 48 28	43.4	276.4	4.3		48.1	74	10632	09 58 31
10 00 00	J143055	18 48 28	42.3	274.7	4.3		47.0	-17	10632	No stop
10 03 30	---	18 51 59	41.8	275.4	4.3		46.9	193	10659	10 00 01
10 04 00	J1430+3649	18 52 29	42.8	277.2	4.4		48.0	13	10659	10 04 00
10 05 00	=1428+370	18 53 29	42.7	277.3	4.4		48.0	60	10667	10 04 01
10 05 00	J142904	18 53 29	41.7	276.6	4.4		47.2	-16	10667	No stop
10 08 30	---	18 57 00	41.2	277.2	4.5		47.2	194	10694	10 05 01
10 08 30	J1430+3649	18 57 00	42.1	278.0	4.4		47.9	-16	10694	No stop
10 10 00	=1428+370	18 58 30	41.9	278.3	4.5		47.9	74	10705	10 08 31
10 10 00	J142904	18 58 30	40.9	277.5	4.5		47.1	-17	10705	No stop
10 13 30	---	19 02 01	40.4	278.1	4.5		47.0	193	10732	10 10 01
10 14 00	J1430+3649	19 02 31	41.3	279.0	4.5		47.8	14	10732	10 14 00
10 15 00	=1428+370	19 03 31	41.2	279.2	4.5		47.7	60	10740	10 14 01
10 15 00	J143042	19 03 31	40.1	277.6	4.5		46.7	-17	10740	No stop
10 18 30	---	19 07 01	39.6	278.2	4.6		46.6	193	10767	10 15 01

Schedule for TORUN (Code Tr)

Page 33

e-EVN: tel16, ey022, ec053

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop				Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Wed 14 Jan 2015 Day 14 ---										
10 18 30	J1430+3649	19 07 01	40.6	279.8	4.6		47.6	-17	10767	No stop
10 20 00	=1428+370	19 08 32	40.4	280.1	4.6		47.6	73	10778	10 18 31
10 20 00	J143042	19 08 32	39.3	278.5	4.6		46.6	-17	10778	No stop
10 23 30	---	19 12 02	38.8	279.1	4.7		46.5	193	10805	10 20 01
10 24 00	J1430+3649	19 12 32	39.8	280.8	4.7		47.4	13	10805	10 24 00
10 25 00	=1428+370	19 13 32	39.7	280.9	4.7		47.4	60	10813	10 24 01
10 25 00	J143042	19 13 32	38.6	279.4	4.7		46.4	-17	10813	No stop
10 28 30	---	19 17 03	38.1	280.1	4.8		46.3	193	10840	10 25 01
10 28 30	J1430+3649	19 17 03	39.2	281.6	4.8		47.2	-17	10840	No stop
10 30 00	=1428+370	19 18 33	38.9	281.8	4.8		47.2	73	10851	10 28 31
10 31 00	J1422+3223	19 19 33	34.5	279.5	4.9		44.5	30	10851	10 31 00
10 32 00	=1420+326	19 20 34	34.4	279.7	5.0		44.5	60	10859	10 31 01
10 32 00	J142917	19 20 34	36.1	279.4	4.8		45.2	-20	10859	No stop
10 35 30	---	19 24 04	35.6	280.0	4.9		45.1	190	10886	10 32 01
10 35 30	J1422+3223	19 24 04	33.8	280.3	5.0		44.4	-20	10886	No stop
10 37 00	=1420+326	19 25 34	33.6	280.6	5.0		44.3	70	10897	10 35 31
10 38 00	J1430+3649	19 26 35	37.8	283.2	4.9		46.8	30	10897	10 38 00
10 39 00	=1428+370	19 27 35	37.6	283.4	4.9		46.8	60	10905	10 38 01
10 39 00	J143329	19 27 35	37.4	282.0	4.9		46.4	-15	10905	No stop
10 42 30	---	19 31 05	36.9	282.6	4.9		46.2	195	10932	10 39 01
10 42 30	J1430+3649	19 31 05	37.1	284.0	5.0		46.6	-16	10932	No stop
10 44 00	=1428+370	19 32 36	36.9	284.3	5.0		46.6	74	10944	10 42 31
10 44 00	J143055	19 32 36	35.8	282.7	5.0		45.7	-17	10944	No stop
10 47 30	---	19 36 06	35.3	283.3	5.1		45.6	193	10970	10 44 01
10 48 00	J1430+3649	19 36 36	36.3	284.9	5.1		46.4	13	10970	10 48 00
10 49 00	=1428+370	19 37 36	36.2	285.1	5.1		46.3	60	10978	10 48 01
10 49 00	J142904	19 37 36	35.2	284.4	5.1		45.7	-17	10978	No stop
10 52 30	---	19 41 07	34.7	285.0	5.2		45.5	193	11005	10 49 01
10 52 30	J1430+3649	19 41 07	35.7	285.7	5.2		46.2	-16	11005	No stop
10 54 00	=1428+370	19 42 37	35.4	286.0	5.2		46.1	74	11017	10 52 31
10 54 00	J142904	19 42 37	34.5	285.3	5.2		45.5	-17	11017	No stop
10 57 30	---	19 46 08	33.9	285.9	5.3		45.3	193	11044	10 54 01

Schedule for TORUN (Code Tr)

Page 34

e-EVN: tel16, ey022, ec053

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Wed 14 Jan 2015 Day 14 ---										
10 58 00	J1430+3649	19 46 38	34.9	286.7	5.3		45.9	14	11044	10 58 00
10 59 00	=1428+370	19 47 38	34.7	286.8	5.3		45.8	60	11051	10 58 01
10 59 00	J143042	19 47 38	33.6	285.4	5.3		45.1	-17	11051	No stop
11 02 30	---	19 51 09	33.1	286.0	5.3		44.9	193	11078	10 59 01
11 02 30	J1430+3649	19 51 09	34.2	287.4	5.3		45.6	-17	11078	No stop
11 04 00	=1428+370	19 52 39	34.0	287.7	5.4		45.6	73	11090	11 02 31
11 04 00	J143042	19 52 39	32.9	286.3	5.4		44.8	-17	11090	No stop
11 07 30	---	19 56 09	32.4	286.9	5.4		44.6	193	11117	11 04 01
11 08 00	J1430+3649	19 56 39	33.4	288.4	5.4		45.3	13	11117	11 08 00
11 09 00	=1428+370	19 57 40	33.3	288.5	5.4		45.3	60	11124	11 08 01
11 09 00	J143042	19 57 40	32.2	287.2	5.4		44.6	-17	11124	No stop
11 12 30	---	20 01 10	31.6	287.8	5.5		44.4	193	11151	11 09 01
11 12 30	J1430+3649	20 01 10	32.8	289.1	5.5		45.1	-17	11151	No stop
11 14 00	=1428+370	20 02 40	32.6	289.4	5.5		45.0	73	11163	11 12 31
11 15 00	J1422+3223	20 03 41	28.1	287.4	5.7		42.7	30	11163	11 15 00
11 16 00	=1420+326	20 04 41	27.9	287.6	5.7		42.6	60	11170	11 15 01
11 16 00	J142917	20 04 41	29.7	287.2	5.6		43.4	-20	11170	No stop
11 19 30	---	20 08 11	29.2	287.8	5.6		43.2	190	11197	11 16 01
11 19 30	J1422+3223	20 08 11	27.4	288.2	5.8		42.5	-20	11197	No stop
11 21 00	=1420+326	20 09 42	27.2	288.4	5.8		42.4	70	11209	11 19 31
11 22 00	J1430+3649	20 10 42	31.4	290.7	5.7		44.5	30	11209	11 22 00
11 23 00	=1428+370	20 11 42	31.3	290.9	5.7		44.4	60	11217	11 22 01
11 23 00	J143329	20 11 42	31.0	289.6	5.6		44.2	-15	11217	No stop
11 26 30	---	20 15 13	30.5	290.2	5.7		44.0	195	11244	11 23 01
11 26 30	J1430+3649	20 15 13	30.8	291.5	5.7		44.2	-15	11244	No stop
11 28 00	=1428+370	20 16 43	30.6	291.7	5.8		44.1	75	11255	11 26 31
11 28 00	J143055	20 16 43	29.4	290.3	5.8		43.5	-18	11255	No stop
11 31 30	---	20 20 13	28.9	290.9	5.8		43.3	192	11282	11 28 01
11 32 00	J1430+3649	20 20 43	30.0	292.4	5.8		43.9	13	11282	11 32 00
11 33 00	=1428+370	20 21 44	29.9	292.6	5.8		43.8	60	11290	11 32 01
11 33 00	J142904	20 21 44	28.9	292.0	5.9		43.3	-17	11290	No stop
11 36 30	---	20 25 14	28.4	292.6	5.9		43.0	193	11317	11 33 01

Schedule for TORUN (Code Tr)

Page 35

e-EVN: tel16, ey022, ec053

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Wed 14 Jan 2015 Day 14 ---										
11 36 30	J1430+3649	20 25 14	29.4	293.1	5.9		43.6	-16	11317	No stop
11 38 00	=1428+370	20 26 44	29.2	293.4	5.9		43.5	74	11328	11 36 31
11 38 00	J142904	20 26 44	28.2	292.8	6.0		42.9	-17	11328	No stop
11 41 30	---	20 30 15	27.7	293.4	6.0		42.7	193	11355	11 38 01
11 42 00	J1430+3649	20 30 45	28.7	294.1	6.0		43.2	14	11355	11 42 00
11 43 00	=1428+370	20 31 45	28.5	294.2	6.0		43.1	60	11363	11 42 01
11 43 00	J143042	20 31 45	27.3	293.0	6.0		42.5	-18	11363	No stop
11 46 30	---	20 35 16	26.9	293.6	6.1		42.3	192	11390	11 43 01
11 46 30	J1430+3649	20 35 16	28.0	294.8	6.1		42.9	-17	11390	No stop
11 48 00	=1428+370	20 36 46	27.8	295.1	6.1		42.8	73	11401	11 46 31
11 48 00	J143042	20 36 46	26.7	293.8	6.1		42.2	-18	11401	No stop
11 51 30	---	20 40 17	26.2	294.4	6.1		42.0	192	11428	11 48 01
11 52 00	J1430+3649	20 40 47	27.3	295.7	6.2		42.5	13	11428	11 52 00
11 53 00	=1428+370	20 41 47	27.2	295.9	6.2		42.4	60	11436	11 52 01
11 53 00	J143042	20 41 47	26.0	294.7	6.2		41.9	-18	11436	No stop
11 56 30	---	20 45 17	25.5	295.3	6.2		41.6	192	11463	11 53 01
11 56 30	J1430+3649	20 45 17	26.7	296.5	6.2		42.1	-17	11463	No stop
11 58 00	=1428+370	20 46 48	26.5	296.7	6.3		42.0	73	11474	11 56 31
11 59 00	J1422+3223	20 47 48	21.9	295.1	6.4		40.0	29	11474	11 59 00
12 00 00	=1420+326	20 48 48	21.8	295.3	6.4		40.0	60	11482	11 59 01
12 00 00	J142917	20 48 48	23.5	294.8	6.3		40.7	-20	11482	No stop
12 03 30	---	20 52 19	23.0	295.4	6.4		40.5	190	11509	12 00 01
12 03 30	J1422+3223	20 52 19	21.3	295.9	6.5		39.7	-20	11509	No stop
12 05 00	=1420+326	20 53 49	21.1	296.1	6.5		39.6	70	11520	12 03 31
12 06 00	J1430+3649	20 54 49	25.4	298.1	6.4		41.4	30	11520	12 06 00
12 07 00	=1428+370	20 55 49	25.3	298.2	6.4		41.3	60	11528	12 06 01
12 07 00	J143329	20 55 49	24.9	297.1	6.4		41.2	-15	11528	No stop
12 10 30	---	20 59 20	24.5	297.6	6.4		41.0	195	11555	12 07 01
12 10 30	J1430+3649	20 59 20	24.8	298.8	6.5		41.0	-15	11555	No stop
12 12 00	=1428+370	21 00 50	24.6	299.1	6.5		40.9	75	11567	12 10 31
12 12 00	J143055	21 00 50	23.4	297.8	6.5		40.5	-18	11567	No stop
12 15 30	---	21 04 21	22.9	298.4	6.5		40.2	192	11594	12 12 01

Schedule for TORUN (Code Tr)

Page 36

e-EVN: tel16, ey022, ec053

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Wed 14 Jan 2015 Day 14 ---										
12 16 00	J1430+3649	21 04 51	24.1	299.7	6.6		40.6	12	11594	12 16 00
12 17 00	=1428+370	21 05 51	24.0	299.9	6.6		40.5	60	11601	12 16 01
12 17 00	J142904	21 05 51	22.9	299.4	6.6		40.1	-17	11601	No stop
12 20 30	---	21 09 21	22.5	300.0	6.7		39.8	193	11628	12 17 01
12 20 30	J1430+3649	21 09 21	23.5	300.5	6.6		40.2	-17	11628	No stop
12 22 00	=1428+370	21 10 52	23.3	300.7	6.7		40.1	73	11640	12 20 31
12 22 00	J142904	21 10 52	22.3	300.3	6.7		39.7	-17	11640	No stop
12 25 30	---	21 14 22	21.8	300.8	6.7		39.4	193	11667	12 22 01
12 26 00	J1430+3649	21 14 52	22.8	301.4	6.7		39.8	13	11667	12 26 00
12 27 00	=1428+370	21 15 52	22.7	301.6	6.7		39.7	60	11674	12 26 01
12 27 00	J143042	21 15 52	21.4	300.5	6.7		39.3	-18	11674	No stop
12 30 30	---	21 19 23	21.0	301.1	6.8		39.0	192	11701	12 27 01
12 30 30	J1430+3649	21 19 23	22.2	302.2	6.8		39.4	-18	11701	No stop
12 32 00	=1428+370	21 20 53	22.0	302.4	6.8		39.2	72	11713	12 30 31
12 32 00	J143042	21 20 53	20.8	301.3	6.8		38.9	-18	11713	No stop
12 35 30	---	21 24 24	20.3	301.9	6.9		38.6	192	11740	12 32 01
12 36 00	J1430+3649	21 24 54	21.5	303.1	6.9		38.9	12	11740	12 36 00
12 37 00	=1428+370	21 25 54	21.4	303.3	6.9		38.8	60	11747	12 36 01
12 37 00	J143042	21 25 54	20.1	302.2	6.9		38.4	-18	11747	No stop
12 40 30	---	21 29 25	19.7	302.8	7.0		38.1	192	11774	12 37 01
12 40 30	J1430+3649	21 29 25	21.0	303.8	7.0		38.5	-18	11774	No stop
12 42 00	=1428+370	21 30 55	20.8	304.1	7.0		38.4	72	11786	12 40 31
12 43 00	J1422+3223	21 31 55	16.1	302.8	7.1		36.7	29	11786	12 43 00
12 44 00	=1420+326	21 32 55	16.0	303.0	7.2		36.6	60	11794	12 43 01
12 44 00	J142917	21 32 55	17.7	302.5	7.1		37.3	-20	11794	No stop
12 47 30	---	21 36 26	17.2	303.1	7.1		37.0	190	11820	12 44 01
12 47 30	J1422+3223	21 36 26	15.5	303.6	7.2		36.3	-20	11820	No stop
12 49 00	=1420+326	21 37 56	15.4	303.9	7.2		36.1	70	11832	12 47 31
12 50 00	J1430+3649	21 38 56	19.8	305.4	7.1		37.6	29	11832	12 50 00
12 51 00	=1428+370	21 39 56	19.7	305.6	7.1		37.5	60	11840	12 50 01
12 54 00	3C345	21 42 57	39.2	286.8	5.0		48.4	92	11840	12 54 00
13 00 00	---	21 48 58	38.3	287.8	5.1		48.1	360	11886	12 54 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: sess314.L1024

Setup group:	9	Station:	TORUN	Total bit rate:	1024
Format:	MARK5B	Bits per sample:	2	Sample rate:	32.000
Number of channels:	16	DBE type:	DBBC_DDC	Speedup factor:	1.00

Disk used to record data.

1st LO=	2300.00	2300.00	2300.00	2300.00	2300.00	2300.00	2300.00	2300.00	2300.00
	2300.00	2300.00	2300.00	2300.00	2300.00	2300.00	2300.00	2300.00	2300.00
Net SB=	L	L	U	U	L	L	U	U	U
	L	L	U	U	L	L	U	U	U
IF SB =	L	L	L	L	L	L	L	L	L
	L	L	L	L	L	L	L	L	L
Pol. =	RCP	LCP	RCP	LCP	RCP	LCP	RCP	LCP	LCP
	RCP	LCP	RCP	LCP	RCP	LCP	RCP	LCP	LCP
BBC =	1	5	1	5	2	6	2	6	6
	3	7	3	7	4	8	4	8	8
BBC SB=	U	U	L	L	U	U	L	L	L
	U	U	L	L	U	U	L	L	L
IF =	A1	B1	A1	B1	A1	B1	A1	B1	B1
	A1	B1	A1	B1	A1	B1	A1	B1	B1

The following frequency sets based on these setups were used.

Frequency Set: 8 Setup file default. Used with PCAL = off

LO sum=	1610.49	1610.49	1610.49	1610.49	1642.49	1642.49	1642.49	1642.49
	1674.49	1674.49	1674.49	1674.49	1706.49	1706.49	1706.49	1706.49
BBC fr=	689.51	689.51	689.51	689.51	657.51	657.51	657.51	657.51
	625.51	625.51	625.51	625.51	593.51	593.51	593.51	593.51
Bandwd=	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00
	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00

Matching frequency sets: 8

Track assignments are:

track1= 2, 10, 18, 26, 4, 12, 20, 28, 6, 14, 22, 30, 8, 16, 24, 32
 barrel=roll_off

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* MRK590	02 12 00.370793	* 02 14 33.562000	02 15 20.256217	0.00
	-00 59 57.51500	*-00 46 00.09000	-00 41 56.50413	0.00
* J143329	14 31 25.983599	* 14 33 29.850000	14 34 06.452174	0.00
	36 03 50.43416	* 35 50 42.20000	35 46 36.44151	0.00
* J143055	14 28 50.024363	* 14 30 55.070000	14 31 32.056927	0.00
	35 22 08.07461	* 35 08 52.90000	35 04 45.08598	0.00
* J142904	14 26 59.921775	* 14 29 04.640000	14 29 41.526179	0.00
	35 57 45.13436	* 35 44 25.10000	35 40 15.56575	0.00

* J143042	14 28 37.527240	* 14 30 42.540000	14 31 19.516878	0.00
	35 25 55.12872	* 35 12 39.40000	35 08 31.39104	0.00
* J142917	14 27 10.342983	* 14 29 17.420000	14 29 55.063265	0.00
	33 39 45.93467	* 33 26 26.40000	33 22 17.63215	0.00
* J0216-0118	02 13 32.824065	* 02 16 05.663869	02 16 52.255024	0.21
0213-015	-01 31 57.11210	*-01 18 03.39715	-01 14 01.18248	0.50
* J0216-0105	02 13 39.235191	* 02 16 12.211953	02 16 58.847555	0.24
0213-013	-01 19 12.27625	*-01 05 18.82460	-01 01 16.62091	0.66
J0238+1636	02 35 52.630215	* 02 38 38.930107	02 39 29.944226	0.10
* 0235+164	16 24 04.01608	* 16 36 59.27450	16 40 48.94323	0.10
J0530+1331	05 28 06.759218	* 05 30 56.416749	05 31 49.049904	0.10
* 0528+134	13 29 42.28877	* 13 31 55.14944	13 32 22.80683	0.10
J0927+3902	09 23 55.319217	* 09 27 03.013938	09 28 00.776243	0.13
* 4C39.25	39 15 23.56637	* 39 02 20.85177	38 58 07.30253	0.10
J1407+2827	14 04 45.615156	* 14 07 00.394414	14 07 40.577691	0.24
* 0Q208	28 41 29.23519	* 28 27 14.69022	28 22 49.54789	0.34
* J1422+3223	14 20 21.232067	* 14 22 30.378957	14 23 08.704983	0.14
1420+326	32 36 47.54363	* 32 23 10.44008	32 18 56.29256	0.14
* J1430+3649	14 28 37.312694	* 14 30 40.583688	14 31 17.001287	0.13
1428+370	37 02 19.65909	* 36 49 03.88873	36 44 55.45321	0.11
J1642+3948	16 41 17.606228	* 16 42 58.809965	16 43 27.902322	0.77
* 3C345	39 54 10.81496	* 39 48 36.99402	39 46 55.20712	0.52
J1902+3159	19 01 02.310063	* 19 02 55.938899	19 03 28.811053	0.12
* 3C395	31 55 13.94275	* 31 59 41.70155	32 01 09.65502	0.10
J2253+1608	22 51 29.519738	* 22 53 57.747937	22 54 41.936169	0.68
* 3C454.3	15 52 54.34810	* 16 08 53.56093	16 13 48.65938	0.72

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)		
MRK590	97.7	0528+134	148.2
J143329	92.3	4C39.25	151.2
J143055	92.5	0Q208	94.5
J142904	93.1	J1422+3223	93.0
J143042	92.6	J1430+3649	93.2
J142917	92.1	3C345	73.9
J0216-0118	97.8	3C395	54.2
J0216-0105	98.0	3C454.3	60.5
0235+164	109.2		

rk08nltr

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Thu 15 Jan 2015 Day 15 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

Table with 11 columns: Start UT, Stop UT, Source, LST, EL, AZ, HA, UP, ParA, Dwell, GBytes, TPStart, SYNC. It lists observation times and parameters for multiple scans.

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra18cm2.set

Setup group: 7 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

1st LO=	2400.00	2400.00	2400.00	2400.00
Net SB=	L	L	U	U
IF SB =	L	L	L	L
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	U	U	L	L
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 4 Setup file default. Used with PCAL = 1MHz
 LO sum= 1668.00 1668.00 1668.00 1668.00
 BBC fr= 732.00 732.00 732.00 732.00
 Bandwd= 16.00 16.00 16.00 16.00
 Matching frequency sets: 4

Track assignments are:
 track1= 2, 18, 3, 19
 barrel=roll_off

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* 1015+359	10 15 16.226760	* 10 18 10.988103	10 19 04.596553	0.00
J1018+3542	35 57 41.35603	* 35 42 39.44084	35 37 50.41893	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
1015+359	143.7

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg


```

1st LO= 21500.00 21500.00 21500.00 21500.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  4  Setup file default.  Used with PCAL = 1MHz
LO sum=  22236.00 22236.00 22236.00 22236.00
BBC fr=   736.00  736.00  736.00  736.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  4

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

==== Setup file: ra18cm2.set

```

Setup group:    6          Station: TORUN          Total bit rate:  256
Format: MKIV1:4          Bits per sample: 2          Sample rate: 32.000
Number of channels:  4    DBE type:                Speedup factor:  1.00

```

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  5  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00 1668.00 1668.00 1668.00
BBC fr=   732.00  732.00  732.00  732.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  5

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0235+164	02 35 52.630215	* 02 38 38.930107	02 39 29.909656	0.00
J0238+1636	16 24 04.01610	* 16 36 59.27452	16 40 48.75592	0.00

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

=====> Observing mode: C/L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2
RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Fri 16 Jan 2015 Day 16 ---

----- C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 736.00 736.00 736.00 736.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

02 00 00 0459+135 10 55 03 12.1 276.7 5.9 37.9 0 0 02 00 00
02 14 30 --- 11 09 35 10.0 279.5 6.1 37.6 870 28 02 00 01
02 15 00 0459+135 11 10 05 9.9 279.6 6.1 37.5 24 28 02 15 00
02 25 00 --- 11 20 07 8.4 281.6 6.3 37.3 600 47 02 15 01

----- L-band VLBI scans -----

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00

02 30 00 0459+135 11 25 07 7.7 282.5 6.4 37.1 293 47 02 30 00
02 44 30 --- 11 39 40 5.6 285.4 6.6 36.6 870 75 02 30 01
02 45 00 0459+135 11 40 10 5.5 285.5 6.6 36.5 24 75 02 45 00
03 00 00 --- 11 55 12 3.3 288.4 6.9 35.9 900 104 02 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====> Setup file: ra6cm2.set

Setup group: 2 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.


```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  3  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00  736.00  736.00  736.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  3

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

==== Setup file: ra18cm2.set

```

Setup group:    6          Station: TORUN          Total bit rate:  256
Format: MKIV1:4          Bits per sample:  2          Sample rate: 32.000
Number of channels:  4    DBE type:                Speedup factor:  1.00

```

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  5  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00  732.00  732.00  732.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  5

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0459+135	04 59 43.841322	* 05 02 33.219517	05 03 25.693620	0.00
J0502+1338	13 33 56.42102	* 13 38 10.95887	13 39 16.05962	0.00

rk08notr

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: C-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Fri 16 Jan 2015 Day 16 ---

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 736.00 736.00 736.00 736.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

Table with 11 columns: Start UT, Source, LST, EL, AZ, HA, UP, ParA, Dwell, GBytes, SYNC. It lists observation times and parameters for source 1508+572.

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra6cm2.set

Setup group: 2 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP    LCP    RCP    LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  2  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00   736.00   736.00   736.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  2

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* 1508+572	15 08 45.204538	* 15 10 02.922371	15 10 24.830969	0.00
J1510+5702	57 14 02.08966	* 57 02 43.37583	56 59 07.76440	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
1508+572    97.5

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

```

1.6 GHz      45. deg
2.3 GHz      36. deg
5.0 GHz      23. deg
8.4 GHz      17. deg
15.0 GHz     12. deg
22.0 GHz     9. deg

```

rk08nptr

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: C-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Fri 16 Jan 2015 Day 16 ---

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 736.00 736.00 736.00 736.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

22 00 00	0202+149	06 58 20	22.3	266.0	4.9	38.4	0	0	22 00 00
22 19 30	---	07 17 53	19.3	269.9	5.2	38.5	1170	37	22 00 01
22 20 00	0202+149	07 18 23	19.3	270.0	5.2	38.5	24	37	22 20 00
22 40 00	---	07 38 26	16.2	274.0	5.5	38.4	1200	76	22 20 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra6cm2.set

Setup group: 2	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

1st LO=	4100.00	4100.00	4100.00	4100.00
Net SB=	L	L	U	U
IF SB =	U	U	U	U
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	L	L	U	U
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 3 Setup file default. Used with PCAL = 1MHz
 LO sum= 4836.00 4836.00 4836.00 4836.00
 BBC fr= 736.00 736.00 736.00 736.00
 Bandwd= 16.00 16.00 16.00 16.00
 Matching frequency sets: 3

Track assignments are:
 track1= 2, 18, 3, 19
 barrel=roll_off

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 0202+149	02 02 07.396228	* 02 04 50.413896	02 05 40.180178	0.00
J0204+1514	14 59 50.93936	* 15 14 11.04358	15 18 27.29471	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
3C48	98.2
0202+149	98.1

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

rk08nqtr

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
 Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
 Fax: +7-495-3332378 Phone during observation: +7-915-1546281

=====> Observing mode: C/L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2
 RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
 Early: Seconds between end of slew and start. Dwell: On source seconds.
 Disk: GBytes recorded to this point.
 TPStart: Recording start time. Frequencies are L0 sum (band edge).
 SYNC: Time correlator is expected to sync up.

 Start UT Source Start / Stop Early Disk TPStart
 Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Sat 17 Jan 2015 Day 17 ---

----- C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
 Next BBC frequencies: 736.00 736.00 736.00 736.00
 Next scan bandwidths: 16.00 16.00 16.00 16.00

00 00 00	0406+121	08 58 39	20.5	263.1	4.8		37.6	0	0	00 00 00
00 14 30	---	09 13 12	18.4	266.1	5.0		37.8	870	28	00 00 01
00 15 00	0406+121	09 13 42	18.3	266.2	5.1		37.8	24	28	00 15 00
00 25 00	---	09 23 44	16.8	268.3	5.2		37.9	600	47	00 15 01

----- L-band VLBI scans -----

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
 Next BBC frequencies: 732.00 732.00 732.00 732.00

00 30 00	0406+121	09 28 44	16.0	269.3	5.3		37.9	293	47	00 30 00
00 44 30	---	09 43 17	13.9	272.2	5.6		37.9	870	75	00 30 01
00 45 00	0406+121	09 43 47	13.8	272.3	5.6		37.9	24	75	00 45 00
01 00 00	---	09 58 49	11.5	275.2	5.8		37.7	900	104	00 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra6cm2.set

Setup group: 2 Station: TORUN Total bit rate: 256
 Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
 Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  3  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00  736.00  736.00  736.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  3

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

==== Setup file: ra18cm2.set

```

Setup group:  5      Station: TORUN      Total bit rate:  256
Format: MKIV1:4      Bits per sample:  2      Sample rate: 32.000
Number of channels:  4  DBE type:      Speedup factor:  1.00

```

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  4  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00  732.00  732.00  732.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  4

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0406+121	04 06 35.476887	* 04 09 22.008713	04 10 13.426411	0.00
J0409+1217	12 09 49.31041	* 12 17 39.84767	12 19 51.74522	0.00

rk08nrtr

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

=====> Observing mode: C/K-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Sat 17 Jan 2015 Day 17 ---

----- K-band VLBI scans -----

Next scan frequencies: 22236.00 22236.00 22236.00 22236.00
Next BBC frequencies: 736.00 736.00 736.00 736.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

05 00 00	1256-220	13 59 29	13.4	194.2	1.0		9.2	0	0	05 00 00
05 14 30	---	14 14 01	12.8	197.6	1.2		11.3	870	28	05 00 01
05 15 00	1256-220	14 14 31	12.8	197.7	1.2		11.4	24	28	05 15 00
05 25 00	---	14 24 33	12.3	200.0	1.4		12.8	600	47	05 15 01

----- C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 736.00 736.00 736.00 736.00

05 30 00	1256-220	14 29 34	12.0	201.2	1.5		13.6	293	47	05 30 00
05 44 30	---	14 44 06	11.2	204.5	1.7		15.6	870	75	05 30 01
05 45 00	1256-220	14 44 36	11.1	204.6	1.7		15.7	24	75	05 45 00
06 00 00	---	14 59 39	10.1	208.0	2.0		17.7	900	104	05 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====
Setup file: ra1cm2.set

Matching groups in ./rk08nr_freq.dat: tr1cm

Setup group: 5	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.


```

1st LO= 21500.00 21500.00 21500.00 21500.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  2  Setup file default.  Used with PCAL = 1MHz
LO sum=  22236.00 22236.00 22236.00 22236.00
BBC fr=   736.00  736.00  736.00  736.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  2

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

==== Setup file: ra6cm2.set

```

Setup group:  3      Station: TORUN      Total bit rate:  256
Format: MKIV1:4      Bits per sample: 2      Sample rate: 32.000
Number of channels: 4  DBE type:          Speedup factor:  1.00

```

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  5  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00 4836.00 4836.00 4836.00
BBC fr=   736.00  736.00  736.00  736.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  5

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 1256-220	12 56 13.938610	* 12 58 54.478780	12 59 43.684815	0.00
J1258-2219	-22 03 20.34433	*-22 19 31.12561	-22 24 17.86562	0.00

rk08nstr

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: C-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Sat 17 Jan 2015 Day 17 ---

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 736.00 736.00 736.00 736.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

21 00 00	1015+057	06 02 06	19.6	107.8	-4.3	-35.0	0	0	21 00 00
21 14 30	---	06 16 39	21.6	111.0	-4.0	-34.3	870	28	21 00 01
21 15 00	1015+057	06 17 09	21.7	111.1	-4.0	-34.2	24	28	21 15 00
21 29 30	---	06 31 41	23.7	114.4	-3.8	-33.3	870	56	21 15 01
21 30 00	1015+057	06 32 11	23.8	114.5	-3.8	-33.3	24	56	21 30 00
21 44 30	---	06 46 44	25.7	117.8	-3.5	-32.2	870	84	21 30 01
21 45 00	1015+057	06 47 14	25.8	118.0	-3.5	-32.2	24	84	21 45 00
22 00 00	---	07 02 16	27.8	121.5	-3.3	-30.9	900	112	21 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra6cm2.set

Setup group: 3 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP    LCP    RCP    LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  1  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00   736.00   736.00   736.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  1

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 1015+057	10 15 51.237789	* 10 18 27.848284	10 19 16.265518	0.00
J1018+0530	05 45 32.82524	* 05 30 29.96198	05 25 46.40458	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
1015+057    142.5

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

```

1.6 GHz      45. deg
2.3 GHz      36. deg
5.0 GHz      23. deg
8.4 GHz      17. deg
15.0 GHz     12. deg
22.0 GHz     9. deg

```

rk08nttr

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

=====> Observing mode: C/L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2
RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Sun 18 Jan 2015 Day 18 ---

----- C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 736.00 736.00 736.00 736.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

02 00 00 0507+179 11 02 56 15.5 279.5 5.9 38.5 0 0 02 00 00
02 14 30 --- 11 17 28 13.4 282.3 6.1 38.1 870 28 02 00 01
02 15 00 0507+179 11 17 58 13.3 282.4 6.1 38.1 24 28 02 15 00
02 25 00 --- 11 28 00 11.8 284.3 6.3 37.7 600 47 02 15 01

----- L-band VLBI scans -----

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00

02 30 00 0507+179 11 33 01 11.1 285.3 6.4 37.5 293 47 02 30 00
02 44 30 --- 11 47 33 9.0 288.1 6.6 36.9 870 75 02 30 01
02 45 00 0507+179 11 48 03 8.9 288.2 6.6 36.9 24 75 02 45 00
03 00 00 --- 12 03 06 6.8 291.1 6.9 36.1 900 104 02 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra6cm2.set

Setup group: 2 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  2  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00  736.00  736.00  736.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  2

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

==== Setup file: ra18cm2.set

```

Setup group:    6          Station: TORUN          Total bit rate:  256
Format: MKIV1:4          Bits per sample: 2          Sample rate: 32.000
Number of channels:  4    DBE type:              Speedup factor:  1.00

```

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  4  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00  732.00  732.00  732.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  4

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0507+179	05 07 07.486545	* 05 10 02.369131	05 10 56.570666	0.00
J0510+1800	17 56 58.64618	* 18 00 41.58163	18 01 37.71330	0.00

rk08nutr

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

=====> Observing mode: C/L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Sun 18 Jan 2015 Day 18 ---

----- C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 736.00 736.00 736.00 736.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

10 00 00	1324+224	19 04 15	21.0	279.2	5.6		39.8	0	0	10 00 00
10 14 30	---	19 18 47	18.8	282.0	5.9		39.3	870	28	10 00 01
10 15 00	1324+224	19 19 17	18.7	282.1	5.9		39.3	24	28	10 15 00
10 25 00	---	19 29 19	17.3	284.0	6.0		39.0	600	47	10 15 01

----- L-band VLBI scans -----

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00

10 30 00	1324+224	19 34 19	16.6	284.9	6.1		38.8	293	47	10 30 00
10 44 30	---	19 48 52	14.5	287.7	6.4		38.1	870	75	10 30 01
10 45 00	1324+224	19 49 22	14.4	287.8	6.4		38.1	24	75	10 45 00
11 00 00	---	20 04 24	12.3	290.6	6.6		37.3	900	104	10 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====
Setup file: ra6cm2.set

Setup group: 2	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  2  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00   736.00   736.00   736.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  2

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

==== Setup file: ra18cm2.set

```

Setup group:    5          Station: TORUN          Total bit rate:  256
Format: MKIV1:4          Bits per sample: 2          Sample rate: 32.000
Number of channels:  4    DBE type:              Speedup factor:  1.00

```

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  4  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00   732.00   732.00   732.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  4

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 1324+224	13 24 37.118626	* 13 27 00.861311	13 27 44.251991	0.00
J1327+2210	22 26 22.70232	* 22 10 50.16276	22 06 00.55045	0.00

rk08nvtr

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

=====> Observing mode: C/L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2
RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Sun 18 Jan 2015 Day 18 ---

----- C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 736.00 736.00 736.00 736.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

21 00 00 0106+612 06 06 03 51.5 -47.2 4.9 68.0 0 0 21 00 00
21 14 30 --- 06 20 35 50.0 -46.1 5.2 65.7 870 28 21 00 01
21 15 00 0106+612 06 21 05 49.9 -46.1 5.2 65.6 24 28 21 15 00
21 25 00 --- 06 31 07 48.8 -45.3 5.3 64.0 600 47 21 15 01

----- L-band VLBI scans -----

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00

21 30 00 0106+612 06 36 08 48.3 -44.9 5.4 63.2 294 47 21 30 00
21 44 30 --- 06 50 40 46.8 -43.7 5.7 60.9 870 75 21 30 01
21 45 00 0106+612 06 51 10 46.7 -43.7 5.7 60.8 24 75 21 45 00
22 00 00 --- 07 06 13 45.2 -42.4 5.9 58.4 900 104 21 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra6cm2.set

Setup group: 2 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.


```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  3  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00   736.00   736.00   736.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  3

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

==== Setup file: ra18cm2.set

```

Setup group:    5          Station: TORUN          Total bit rate:  256
Format: MKIV1:4          Bits per sample: 2          Sample rate: 32.000
Number of channels: 4    DBE type:                Speedup factor:  1.00

```

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  4  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00   732.00   732.00   732.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  4

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0106+612	01 06 36.621798	* 01 09 46.344314	01 10 44.931699	0.00
J0109+6133	61 17 32.64124	* 61 33 30.45573	61 38 33.11322	0.00

rk08nwtr

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

=====> Observing mode: C/K-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Mon 19 Jan 2015 Day 19 ---

----- K-band VLBI scans -----

Next scan frequencies: 22236.00 22236.00 22236.00 22236.00
Next BBC frequencies: 736.00 736.00 736.00 736.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

03 00 00 1642+690 12 07 02 55.5 36.3 -4.6 -81.4 0 0 03 00 00
03 14 30 --- 12 21 34 56.8 36.6 -4.3 -84.6 870 28 03 00 01
03 15 00 1642+690 12 22 05 56.9 36.6 -4.3 -84.7 24 28 03 15 00
03 25 00 --- 12 32 06 57.8 36.7 -4.2 -86.9 600 47 03 15 01

----- C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 736.00 736.00 736.00 736.00

03 30 00 1642+690 12 37 07 58.2 36.8 -4.1 -88.0 294 47 03 30 00
03 44 30 --- 12 51 39 59.5 36.8 -3.8 -91.4 870 75 03 30 01
03 45 00 1642+690 12 52 09 59.6 36.8 -3.8 -91.5 24 75 03 45 00
04 00 00 --- 13 07 12 60.9 36.6 -3.6 -95.2 900 104 03 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra1cm2.set

Matching groups in ./rk08nw_freq.dat: tr1cm

Setup group: 4 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO= 21500.00 21500.00 21500.00 21500.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  2  Setup file default.  Used with PCAL = 1MHz
LO sum=  22236.00 22236.00 22236.00 22236.00
BBC fr=   736.00  736.00  736.00  736.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  2

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

==== Setup file: ra6cm2.set

```

Setup group:  2      Station: TORUN      Total bit rate:  256
Format: MKIV1:4      Bits per sample: 2      Sample rate: 32.000
Number of channels: 4  DBE type:          Speedup factor:  1.00

```

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  4  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00 4836.00 4836.00 4836.00
BBC fr=   736.00  736.00  736.00  736.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  4

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 1642+690	16 42 18.064877	* 16 42 07.848507	16 42 01.718060	0.00
J1642+6856	69 02 13.21708	* 68 56 39.75636	68 54 52.24386	0.00

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev	Profsoyuznaya 84/32	117997 Moscow, Russia
Phone: +7-495-3332167	EMAIL: yyk@asc.rssi.ru	
Fax: +7-495-3332378	Phone during observation: +7-915-1546281	

=====> Observing mode: C/L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2
 RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
 Early: Seconds between end of slew and start. Dwell: On source seconds.
 Disk: GBytes recorded to this point.
 TPStart: Recording start time. Frequencies are LO sum (band edge).
 SYNC: Time correlator is expected to sync up.

```
-----
Start UT  Source                Start / Stop                Early  Disk  TPStart
Stop UT                               LST    EL    AZ    HA    UP    ParA  Dwell  GBytes  SYNC
-----
```

--- Mon 19 Jan 2015 Day 19 ---

----- C-band VLBI scans -----

```
Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies:  736.00  736.00  736.00  736.00
Next scan bandwidths:  16.00   16.00   16.00   16.00

09 00 00 1222+216   18 08 01 19.5 279.8  5.7   39.4   0     0   09 00 00
09 14 30 ---        18 22 34 17.3 282.6  5.9   39.0  870   28   09 00 01

09 15 00 1222+216   18 23 04 17.3 282.7  6.0   39.0  24    28   09 15 00
09 25 00 ---        18 33 05 15.8 284.6  6.1   38.6  600   47   09 15 01
```

----- L-band VLBI scans -----

```
Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies:  732.00  732.00  732.00  732.00

09 30 00 1222+216   18 38 06 15.1 285.5  6.2   38.4  293   47   09 30 00
09 44 30 ---        18 52 39 13.0 288.3  6.4   37.7  870   75   09 30 01

09 45 00 1222+216   18 53 09 12.9 288.4  6.5   37.7  24    75   09 45 00
10 00 00 ---        19 08 11 10.8 291.2  6.7   36.9  900  104   09 45 01
```

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====
 Setup file: ra6cm2.set

Setup group: 2	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  2  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00  736.00  736.00  736.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  2

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

==== Setup file: ra18cm2.set

```

Setup group:    5          Station: TORUN          Total bit rate:  256
Format: MKIV1:4          Bits per sample:  2          Sample rate: 32.000
Number of channels:  4    DBE type:                Speedup factor:  1.00

```

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  4  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00  732.00  732.00  732.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  4

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 1222+216	12 22 23.408709	* 12 24 54.458394	12 25 40.460618	0.00
J1224+2122	21 39 23.03696	* 21 22 46.38857	21 17 34.83226	0.00

rk08nztr

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

=====> Observing mode: C/K-band, dual-pol

Schedule for TORUN (Code Tr) Page 2
RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Mon 19 Jan 2015 Day 19 ---

----- K-band VLBI scans -----

Next scan frequencies: 22236.00 22236.00 22236.00 22236.00
Next BBC frequencies: 736.00 736.00 736.00 736.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

20 00 00 0202+319 05 09 50 51.3 256.2 3.1 43.6 0 0 20 00 00
20 14 30 --- 05 24 22 49.1 259.7 3.3 44.3 870 28 20 00 01
20 15 00 0202+319 05 24 52 49.0 259.8 3.3 44.3 24 28 20 15 00
20 25 00 --- 05 34 54 47.6 262.0 3.5 44.7 600 47 20 15 01

----- C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 736.00 736.00 736.00 736.00

20 30 00 0202+319 05 39 55 46.8 263.2 3.6 44.8 293 47 20 30 00
20 44 30 --- 05 54 27 44.6 266.3 3.8 45.1 870 75 20 30 01
20 45 00 0202+319 05 54 57 44.6 266.4 3.8 45.1 24 75 20 45 00
21 00 00 --- 06 09 59 42.3 269.5 4.1 45.3 900 104 20 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra1cm2.set
Matching groups in ./rk08nz_freq.dat: tr1cm

Setup group: 5 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO= 21500.00 21500.00 21500.00 21500.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  3  Setup file default.  Used with PCAL = 1MHz
LO sum=  22236.00 22236.00 22236.00 22236.00
BBC fr=   736.00  736.00  736.00  736.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  3

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

==== Setup file: ra6cm2.set

```

Setup group:  2      Station: TORUN      Total bit rate:  256
Format: MKIV1:4      Bits per sample: 2      Sample rate: 32.000
Number of channels: 4  DBE type:          Speedup factor:  1.00

```

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  4  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00 4836.00 4836.00 4836.00
BBC fr=   736.00  736.00  736.00  736.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  4

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0202+319	02 02 09.652798	* 02 05 04.925361	02 05 58.656765	0.00
J0205+3212	31 58 10.39519	* 32 12 30.09541	32 16 52.04588	0.00

rk08oatr

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Tue 20 Jan 2015 Day 20 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

Table with 11 columns: Start UT, Stop UT, Source, LST, EL, AZ, HA, UP, ParA, Dwell, GBytes, TPStart, SYNC. It lists observation times and parameters for scans on 2015-01-20.

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra18cm2.set

Setup group: 2 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

1st LO=	2400.00	2400.00	2400.00	2400.00
Net SB=	L	L	U	U
IF SB =	L	L	L	L
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	U	U	L	L
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 2 Setup file default. Used with PCAL = 1MHz
 LO sum= 1668.00 1668.00 1668.00 1668.00
 BBC fr= 732.00 732.00 732.00 732.00
 Bandwd= 16.00 16.00 16.00 16.00
 Matching frequency sets: 2

Track assignments are:
 track1= 2, 18, 3, 19
 barrel=roll_off

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 1642+690	16 42 18.064877	* 16 42 07.848507	16 42 01.761780	0.00
J1642+6856	69 02 13.21708	* 68 56 39.75636	68 54 51.96827	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
1642+690	96.4

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

rk08odtr

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

=====> Observing mode: C/L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2
RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Tue 20 Jan 2015 Day 20 ---

----- C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 736.00 736.00 736.00 736.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

15 00 00 1642+690 00 12 57 41.5 -26.3 7.5 47.7 0 0 15 00 00
15 14 30 --- 00 27 29 40.6 -25.1 7.8 45.1 870 28 15 00 01
15 15 00 1642+690 00 27 59 40.5 -25.1 7.8 45.0 24 28 15 15 00
15 25 00 --- 00 38 01 39.9 -24.2 7.9 43.2 600 47 15 15 01

----- L-band VLBI scans -----

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00

15 30 00 1642+690 00 43 02 39.6 -23.8 8.0 42.3 294 47 15 30 00
15 44 30 --- 00 57 34 38.7 -22.5 8.3 39.7 870 75 15 30 01
15 45 00 1642+690 00 58 04 38.7 -22.5 8.3 39.6 24 75 15 45 00
16 00 00 --- 01 13 07 37.9 -21.1 8.5 37.0 900 104 15 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra6cm2.set

Setup group: 2 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  3  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00  736.00  736.00  736.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  3

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

==== Setup file: ra18cm2.set

```

Setup group:  5      Station: TORUN      Total bit rate:  256
Format: MKIV1:4      Bits per sample: 2      Sample rate: 32.000
Number of channels: 4  DBE type:          Speedup factor:  1.00

```

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  4  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00  732.00  732.00  732.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  4

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 1642+690	16 42 18.064877	* 16 42 07.848507	16 42 01.794331	0.00
J1642+6856	69 02 13.21708	* 68 56 39.75636	68 54 51.76591	0.00

rk08oetr

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: K-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC

--- Tue 20 Jan 2015 Day 20 ---										
Next scan frequencies: 22236.00 22236.00 22236.00 22236.00										
Next BBC frequencies: 736.00 736.00 736.00 736.00										
Next scan bandwidths: 16.00 16.00 16.00 16.00										
18 00 00	1642+690	03 13 26	33.1	-9.3	10.5		15.7	0	0	18 00 00
18 14 30	---	03 27 59	32.8	-7.8	10.8		13.1	870	28	18 00 01
18 15 00	1642+690	03 28 29	32.8	-7.8	10.8		13.0	24	28	18 15 00
18 29 30	---	03 43 01	32.5	-6.2	11.0		10.4	870	56	18 15 01
18 30 00	1642+690	03 43 31	32.5	-6.2	11.0		10.4	24	56	18 30 00
18 44 30	---	03 58 04	32.3	-4.7	11.3		7.8	870	84	18 30 01
18 45 00	1642+690	03 58 34	32.3	-4.6	11.3		7.7	24	84	18 45 00
19 00 00	---	04 13 36	32.1	-3.0	11.5		5.0	900	112	18 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====
Setup file: ra1cm2.set

Matching groups in ./rk08oe_freq.dat: tr1cm

Setup group: 1 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO= 21500.00 21500.00 21500.00 21500.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  2  Setup file default.  Used with PCAL = 1MHz
LO sum= 22236.00 22236.00 22236.00 22236.00
BBC fr=  736.00  736.00  736.00  736.00
Bandwd=  16.00  16.00  16.00  16.00
Matching frequency sets:  2

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 1642+690	16 42 18.064877	* 16 42 07.848507	16 42 01.801452	0.00
J1642+6856	69 02 13.21708	* 68 56 39.75636	68 54 51.72218	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
1642+690	96.5

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

gl042btr

RADIOASTRON AGN IMAGING
PI: *Manel Perucho Pla*

Address: Departamento de Astronomia y Astrofisica
Universidad de Valencia, E-46100 Burjassot (Valencia), Spain
Phone: +7-903-6614865 EMAIL: kirx@kirx.net, manel.perucho@uv.es
Fax: +7-495-3332378 Phone during observation: +7-903-6614865

UWAGA, UWAGA #####
Eksperyment ten wymaga wiele zmian pasma C => L => C => L => C => L ...
Observing mode: C/L-band, dual-pol
#####

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN imaging

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Tue 20 Jan 2015 Day 20 ---

----- Space Segment 01: C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 736.00 736.00 736.00 736.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

21 00 00	1642+690	06 13 56	33.2	9.7-10.5	-16.3	0	0	21 00 00
21 09 30	---	06 23 28	33.4	10.6-10.3	-17.9	570	18	21 00 01
21 10 00	1642+690	06 23 58	33.4	10.7-10.3	-18.0	24	18	21 10 00
21 19 30	---	06 33 29	33.7	11.7-10.1	-19.7	570	36	21 10 01
21 20 00	1642+690	06 33 59	33.7	11.7-10.1	-19.8	24	36	21 20 00
21 29 30	---	06 43 31	34.0	12.7-10.0	-21.5	570	55	21 20 01
21 30 00	1642+690	06 44 01	34.1	12.7-10.0	-21.6	24	55	21 30 00
21 35 00	---	06 49 02	34.2	13.2 -9.9	-22.5	300	64	21 30 01

----- Space Segment 01: L-band VLBI scans -----

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00

21 40 00	1642+690	06 54 03	34.4	13.7 -9.8	-23.4	294	64	21 40 00
21 49 30	---	07 03 34	34.7	14.7 -9.6	-25.0	570	83	21 40 01
21 50 00	1642+690	07 04 04	34.8	14.7 -9.6	-25.1	24	83	21 50 00
21 59 30	---	07 13 36	35.1	15.7 -9.5	-26.8	570	101	21 50 01
22 00 00	1642+690	07 14 06	35.2	15.7 -9.5	-26.9	24	101	22 00 00
22 10 00	---	07 24 08	35.6	16.7 -9.3	-28.7	600	120	22 00 01

Schedule for TORUN (Code Tr)

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RadioAstron AGN imaging

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC

--- Tue 20 Jan 2015 Day 20 ---

----- Ground Segment 01: L-band VLBI scans -----

22 10 30	1642+690	07 24 38	35.6	16.8	-9.3		-28.8	24	120	22 10 30
22 20 00	---	07 34 09	36.0	17.7	-9.1		-30.4	570	138	22 10 31
22 20 30	1642+690	07 34 39	36.1	17.7	-9.1		-30.5	24	138	22 20 30
22 30 00	---	07 44 11	36.5	18.6	-9.0		-32.2	570	156	22 20 31
22 30 30	1642+690	07 44 41	36.5	18.7	-9.0		-32.3	25	156	22 30 30
22 40 00	---	07 54 12	37.0	19.6	-8.8		-34.0	570	175	22 30 31
22 40 30	1642+690	07 54 43	37.0	19.6	-8.8		-34.1	25	175	22 40 30
22 50 00	---	08 04 14	37.5	20.5	-8.6		-35.8	570	193	22 40 31
22 50 30	1642+690	08 04 44	37.5	20.5	-8.6		-35.9	25	193	22 50 30
23 00 00	---	08 14 16	38.0	21.4	-8.5		-37.5	570	211	22 50 31

----- Ground Segment 01: C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
 Next BBC frequencies: 736.00 736.00 736.00 736.00

23 05 00	1642+690	08 19 17	38.3	21.9	-8.4		-38.4	294	211	23 05 00
23 15 00	---	08 29 18	38.9	22.8	-8.2		-40.2	600	230	23 05 01
23 15 30	1642+690	08 29 48	38.9	22.8	-8.2		-40.3	24	230	23 15 30
23 25 00	---	08 39 20	39.5	23.6	-8.0		-42.0	570	249	23 15 31
23 25 30	1642+690	08 39 50	39.5	23.7	-8.0		-42.1	24	249	23 25 30
23 35 00	---	08 49 22	40.1	24.5	-7.9		-43.8	570	267	23 25 31
23 35 30	1642+690	08 49 52	40.1	24.5	-7.9		-43.9	24	267	23 35 30
23 45 00	---	08 59 23	40.7	25.3	-7.7		-45.6	570	285	23 35 31
23 45 30	1642+690	08 59 53	40.8	25.4	-7.7		-45.7	24	285	23 45 30
23 54 30	---	09 08 55	41.4	26.1	-7.6		-47.3	540	302	23 45 31

----- Space Segment 02: C-band VLBI scans -----

23 55 00	1642+690	09 09 25	41.4	26.2	-7.5		-47.4	24	302	23 55 00
23 59 30	---	09 13 56	41.7	26.5	-7.5		-48.2	270	311	23 55 01

--- Wed 21 Jan 2015 Day 21 ---

00 00 00	1642+690	09 14 26	41.7	26.6	-7.5		-48.3	24	311	00 00 00
00 04 30	---	09 18 56	42.0	26.9	-7.4		-49.1	270	320	00 00 01
00 05 00	1642+690	09 19 26	42.1	27.0	-7.4		-49.2	24	320	00 05 00
00 14 30	---	09 28 58	42.7	27.7	-7.2		-50.9	570	338	00 05 01

Schedule for TORUN (Code Tr)

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RadioAstron AGN imaging

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC

```

--- Wed 21 Jan 2015 Day 21 ---
00 15 00 1642+690 09 29 28 42.8 27.7 -7.2 -51.0 24 338 00 15 00
00 20 00 --- 09 34 29 43.1 28.1 -7.1 -51.9 300 348 00 15 01

```

----- Space Segment 02: L-band VLBI scans -----

```

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00

00 25 00 1642+690 09 39 30 43.5 28.5 -7.0 -52.8 294 348 00 25 00
00 34 30 --- 09 49 01 44.2 29.2 -6.9 -54.6 570 366 00 25 01

00 35 00 1642+690 09 49 31 44.2 29.3 -6.9 -54.6 24 366 00 35 00
00 44 30 --- 09 59 03 44.9 29.9 -6.7 -56.4 570 384 00 35 01

00 45 00 1642+690 09 59 33 44.9 30.0 -6.7 -56.5 24 384 00 45 00
00 55 00 --- 10 09 35 45.7 30.7 -6.5 -58.3 600 403 00 45 01

```

----- Ground Segment 02: L-band VLBI scans -----

```

00 55 30 1642+690 10 10 05 45.7 30.7 -6.5 -58.4 24 403 00 55 30
01 05 00 --- 10 19 36 46.5 31.3 -6.4 -60.2 570 421 00 55 31

01 05 30 1642+690 10 20 06 46.5 31.4 -6.4 -60.3 24 421 01 05 30
01 15 00 --- 10 29 38 47.3 32.0 -6.2 -62.1 570 440 01 05 31

01 15 30 1642+690 10 30 08 47.3 32.0 -6.2 -62.2 24 440 01 15 30
01 25 00 --- 10 39 40 48.1 32.6 -6.0 -64.0 570 458 01 15 31

01 25 30 1642+690 10 40 10 48.1 32.6 -6.0 -64.0 24 458 01 25 30
01 35 00 --- 10 49 41 48.9 33.1 -5.9 -65.9 570 476 01 25 31

01 35 30 1642+690 10 50 11 48.9 33.2 -5.9 -66.0 24 476 01 35 30
01 45 00 --- 10 59 43 49.7 33.7 -5.7 -67.8 570 494 01 35 31

01 45 30 1642+690 11 00 13 49.7 33.7 -5.7 -67.9 24 494 01 45 30
01 55 00 --- 11 09 45 50.5 34.2 -5.5 -69.7 570 513 01 45 31

01 55 30 1642+690 11 10 15 50.6 34.2 -5.5 -69.8 24 513 01 55 30
02 05 00 --- 11 19 46 51.4 34.7 -5.4 -71.7 570 531 01 55 31

02 05 30 1642+690 11 20 16 51.4 34.7 -5.4 -71.8 24 531 02 05 30
02 10 00 --- 11 24 47 51.8 34.9 -5.3 -72.7 270 540 02 05 31

```

----- Ground Segment 02: C-band VLBI scans -----

```

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 736.00 736.00 736.00 736.00

02 15 00 1642+690 11 29 48 52.3 35.1 -5.2 -73.7 294 540 02 15 00
02 25 00 --- 11 39 49 53.1 35.5 -5.0 -75.7 600 559 02 15 01

```


Schedule for TORUN (Code Tr)

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RadioAstron AGN imaging

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC

--- Wed 21 Jan 2015 Day 21 ---										
02 25 30	1642+690	11 40 20	53.2	35.5	-5.0		-75.8	24	559	02 25 30
02 35 00	---	11 49 51	54.0	35.8	-4.9		-77.8	570	577	02 25 31
02 35 30	1642+690	11 50 21	54.1	35.9	-4.9		-77.9	24	577	02 35 30
02 45 00	---	11 59 53	54.9	36.1	-4.7		-79.9	570	595	02 35 31
02 45 30	1642+690	12 00 23	54.9	36.2	-4.7		-80.0	24	595	02 45 30
02 55 00	---	12 09 54	55.8	36.4	-4.5		-82.0	570	613	02 45 31
02 55 30	1642+690	12 10 24	55.8	36.4	-4.5		-82.1	24	613	02 55 30
03 05 00	---	12 19 56	56.7	36.6	-4.4		-84.2	570	632	02 55 31
03 05 30	1642+690	12 20 26	56.7	36.6	-4.4		-84.3	24	632	03 05 30
03 15 00	---	12 29 58	57.6	36.7	-4.2		-86.4	570	650	03 05 31
03 15 30	1642+690	12 30 28	57.6	36.7	-4.2		-86.5	24	650	03 15 30
03 25 00	---	12 39 59	58.5	36.8	-4.0		-88.7	570	668	03 15 31
03 25 30	1642+690	12 40 29	58.5	36.8	-4.0		-88.8	24	668	03 25 30
03 29 30	---	12 44 30	58.9	36.8	-4.0		-89.7	240	676	03 25 31
----- Space Segment 03: C-band VLBI scans -----										
03 30 00	1642+690	12 45 00	58.9	36.8	-4.0		-89.9	24	676	03 30 00
03 39 30	---	12 54 32	59.8	36.8	-3.8		-92.1	570	694	03 30 01
03 40 00	1642+690	12 55 02	59.8	36.8	-3.8		-92.2	24	694	03 40 00
03 45 00	---	13 00 03	60.3	36.7	-3.7		-93.4	300	704	03 40 01
----- Space Segment 03: L-band VLBI scans -----										
Next scan frequencies: 1668.00 1668.00 1668.00 1668.00										
Next BBC frequencies: 732.00 732.00 732.00 732.00										
03 50 00	1642+690	13 05 03	60.7	36.7	-3.6		-94.7	294	704	03 50 00
03 59 30	---	13 14 35	61.6	36.5	-3.5		-97.0	570	722	03 50 01
04 00 00	1642+690	13 15 05	61.6	36.5	-3.4		-97.2	24	722	04 00 00
04 10 00	---	13 25 07	62.5	36.2	-3.3		-99.8	600	741	04 00 01
----- Ground Segment 03: L-band VLBI scans -----										
04 10 30	1642+690	13 25 37	62.6	36.2	-3.3		-99.9	24	741	04 10 30
04 20 00	---	13 35 08	63.4	35.8	-3.1		-102.4	570	759	04 10 31
04 20 30	1642+690	13 35 38	63.4	35.8	-3.1		-102.6	24	759	04 20 30
04 30 00	---	13 45 10	64.3	35.3	-2.9		-105.2	570	778	04 20 31

Schedule for TORUN (Code Tr)

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RadioAstron AGN imaging

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC

--- Wed 21 Jan 2015 Day 21 ---

04 30 30	1642+690	13 45 40	64.3	35.3	-2.9		-105.4	24	778	04 30 30
04 35 00	---	13 50 11	64.7	35.0	-2.9		-106.6	270	786	04 30 31

----- Ground Segment 03: C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00

Next BBC frequencies: 736.00 736.00 736.00 736.00

04 40 00	1642+690	13 55 12	65.1	34.7	-2.8		-108.1	294	786	04 40 00
04 50 00	---	14 05 13	66.0	34.0	-2.6		-111.1	600	805	04 40 01
04 50 30	1642+690	14 05 43	66.0	33.9	-2.6		-111.3	24	805	04 50 30
05 00 00	---	14 15 15	66.8	33.1	-2.4		-114.2	570	824	04 50 31
05 00 30	1642+690	14 15 45	66.9	33.1	-2.4		-114.4	24	824	05 00 30
05 04 30	---	14 19 46	67.2	32.7	-2.4		-115.7	240	831	05 00 31

----- Space Segment 04: C-band VLBI scans -----

05 05 00	1642+690	14 20 16	67.2	32.6	-2.4		-115.9	24	831	05 05 00
05 14 30	---	14 29 47	68.0	31.6	-2.2		-119.0	570	850	05 05 01
05 15 00	1642+690	14 30 17	68.0	31.5	-2.2		-119.2	24	850	05 15 00
05 20 00	---	14 35 18	68.4	30.9	-2.1		-120.9	300	859	05 15 01

----- Space Segment 04: L-band VLBI scans -----

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00

Next BBC frequencies: 732.00 732.00 732.00 732.00

05 25 00	1642+690	14 40 19	68.8	30.3	-2.0		-122.7	294	859	05 25 00
05 34 30	---	14 49 51	69.5	28.9	-1.9		-126.2	570	877	05 25 01
05 35 00	1642+690	14 50 21	69.6	28.8	-1.9		-126.4	24	877	05 35 00
05 45 00	---	15 00 22	70.3	27.2	-1.7		-130.3	600	897	05 35 01

----- Ground Segment 04: L-band VLBI scans -----

05 45 30	1642+690	15 00 52	70.3	27.1	-1.7		-130.5	24	897	05 45 30
05 55 00	---	15 10 24	70.9	25.4	-1.5		-134.3	570	915	05 45 31
05 55 30	1642+690	15 10 54	71.0	25.3	-1.5		-134.5	24	915	05 55 30
06 05 00	---	15 20 26	71.5	23.3	-1.4		-138.6	570	933	05 55 31
06 05 30	1642+690	15 20 56	71.6	23.2	-1.4		-138.8	24	933	06 05 30
06 15 00	---	15 30 27	72.1	21.1	-1.2		-143.1	570	951	06 05 31
06 15 30	1642+690	15 30 57	72.1	21.0	-1.2		-143.3	24	951	06 15 30
06 20 00	---	15 35 28	72.4	19.9	-1.1		-145.4	270	960	06 15 31

Schedule for TORUN (Code Tr)

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RadioAstron AGN imaging

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC

--- Wed 21 Jan 2015 Day 21 ---

----- Ground Segment 04: C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
 Next BBC frequencies: 736.00 736.00 736.00 736.00

06 25 00	1642+690	15 40 29	72.6	18.6	-1.0	-147.7	293	960	06 25 00
06 35 00	---	15 50 31	73.1	16.0	-0.9	-152.6	600	979	06 25 01
06 35 30	1642+690	15 51 01	73.1	15.9	-0.9	-152.9	24	979	06 35 30
06 45 00	---	16 00 32	73.5	13.1	-0.7	-157.7	570	997	06 35 31
06 45 30	1642+690	16 01 02	73.5	13.0	-0.7	-157.9	24	997	06 45 30
06 54 30	---	16 10 04	73.7	10.3	-0.5	-162.6	540	1015	06 45 31

----- Space Segment 05: C-band VLBI scans -----

06 55 00	1642+690	16 10 34	73.8	10.1	-0.5	-162.9	24	1015	06 55 00
07 04 30	---	16 20 05	74.0	7.2	-0.4	-168.0	570	1033	06 55 01
07 05 00	1642+690	16 20 35	74.0	7.0	-0.4	-168.3	24	1033	07 05 00
07 10 00	---	16 25 36	74.1	5.4	-0.3	-171.0	300	1043	07 05 01

----- Space Segment 05: L-band VLBI scans -----

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
 Next BBC frequencies: 732.00 732.00 732.00 732.00

07 15 00	1642+690	16 30 37	74.1	3.8	-0.2	-173.7	293	1043	07 15 00
07 24 30	---	16 40 09	74.2	0.6	-0.0	-179.0	570	1061	07 15 01
07 25 00	1642+690	16 40 39	74.2	0.5	-0.0	-179.2	24	1061	07 25 00
07 35 00	---	16 50 40	74.1	-2.8	0.1	175.2	600	1080	07 25 01

----- Ground Segment 05: L-band VLBI scans -----

07 35 30	1642+690	16 51 10	74.1	-3.0	0.2	175.0	24	1080	07 35 30
07 45 00	---	17 00 42	74.0	-6.1	0.3	169.8	570	1098	07 35 31
07 45 30	1642+690	17 01 12	74.0	-6.3	0.3	169.5	24	1098	07 45 30
07 55 00	---	17 10 44	73.8	-9.3	0.5	164.4	570	1116	07 45 31
07 55 30	1642+690	17 11 14	73.8	-9.4	0.5	164.1	24	1116	07 55 30
08 05 00	---	17 20 45	73.5	-12.3	0.6	159.1	570	1135	07 55 31

Schedule for TORUN (Code Tr)

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RadioAstron AGN imaging

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC

--- Wed 21 Jan 2015 Day 21 ---

----- Ground Segment 05: C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
 Next BBC frequencies: 736.00 736.00 736.00 736.00

08 10 00	1642+690	17 25 46	73.4	-13.8	0.7		156.5	293	1135	08 10 00
08 20 00	---	17 35 48	73.0	-16.6	0.9		151.5	600	1154	08 10 01
08 20 30	1642+690	17 36 18	73.0	-16.7	0.9		151.3	24	1154	08 20 30
08 30 00	---	17 45 49	72.5	-19.2	1.1		146.7	570	1172	08 20 31
08 30 30	1642+690	17 46 19	72.5	-19.3	1.1		146.4	24	1172	08 30 30
08 39 30	---	17 55 21	72.0	-21.5	1.2		142.3	540	1189	08 30 31

----- Space Segment 06: C-band VLBI scans -----

08 40 00	1642+690	17 55 51	72.0	-21.6	1.2		142.1	24	1189	08 40 00
08 49 30	---	18 05 23	71.4	-23.7	1.4		137.8	570	1208	08 40 01

----- Space Segment 06: L-band VLBI scans -----

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
 Next BBC frequencies: 732.00 732.00 732.00 732.00

08 55 00	1642+690	18 10 54	71.1	-24.8	1.5		135.5	323	1208	08 55 00
08 59 30	---	18 15 24	70.8	-25.7	1.6		133.6	270	1216	08 55 01
09 00 00	1642+690	18 15 54	70.8	-25.8	1.6		133.4	24	1216	09 00 00
09 10 00	---	18 25 56	70.1	-27.6	1.7		129.4	600	1236	09 00 01

----- Ground Segment 06: L-band VLBI scans -----

09 10 30	1642+690	18 26 26	70.1	-27.7	1.7		129.2	24	1236	09 10 30
09 20 00	---	18 35 58	69.4	-29.2	1.9		125.6	570	1254	09 10 31
09 20 30	1642+690	18 36 28	69.4	-29.2	1.9		125.4	24	1254	09 20 30
09 30 00	---	18 45 59	68.6	-30.6	2.1		121.9	570	1272	09 20 31
09 30 30	1642+690	18 46 29	68.6	-30.6	2.1		121.7	24	1272	09 30 30
09 40 00	---	18 56 01	67.9	-31.8	2.2		118.4	570	1290	09 30 31
09 40 30	1642+690	18 56 31	67.8	-31.8	2.2		118.3	24	1290	09 40 30
09 50 00	---	19 06 03	67.1	-32.8	2.4		115.1	570	1308	09 40 31

Schedule for TORUN (Code Tr)

Page 9

RadioAstron AGN imaging

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

```
-----
Start UT  Source          Start / Stop          Early   Disk   TPStart
Stop UT   LST      EL    AZ    HA  UP   ParA Dwell  GBytes  SYNC
-----
```

--- Wed 21 Jan 2015 Day 21 ---

----- Ground Segment 06: C-band VLBI scans -----

```
Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies:  736.00  736.00  736.00  736.00
```

```
09 55 00 1642+690    19 11 03 66.6 -33.3 2.5    113.5 294    1308 09 55 00
10 05 00 ---          19 21 05 65.8 -34.2 2.7    110.4 600    1328 09 55 01

10 05 30 1642+690    19 21 35 65.8 -34.2 2.7    110.3 24     1328 10 05 30
10 15 00 ---          19 31 07 65.0 -34.9 2.8    107.4 570    1346 10 05 31

10 15 30 1642+690    19 31 37 64.9 -34.9 2.8    107.3 24     1346 10 15 30
10 25 00 ---          19 41 08 64.1 -35.4 3.0    104.6 570    1364 10 15 31

10 25 30 1642+690    19 41 38 64.0 -35.5 3.0    104.4 24     1364 10 25 30
10 29 30 ---          19 45 39 63.7 -35.7 3.1    103.3 240    1372 10 25 31
```

----- Space Segment 07: C-band VLBI scans -----

```
10 30 00 1642+690    19 46 09 63.6 -35.7 3.1    103.2 24     1372 10 30 00
10 39 30 ---          19 55 41 62.8 -36.1 3.2    100.6 570    1390 10 30 01
```

----- Space Segment 07: L-band VLBI scans -----

```
Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies:  732.00  732.00  732.00  732.00
```

```
10 45 00 1642+690    20 01 12 62.3 -36.3 3.3     99.2 324    1390 10 45 00
10 49 30 ---          20 05 42 61.9 -36.4 3.4     98.0 270    1399 10 45 01

10 50 00 1642+690    20 06 12 61.9 -36.4 3.4     97.9 24     1399 10 50 00
11 00 00 ---          20 16 14 61.0 -36.6 3.6     95.3 600    1418 10 50 01
```

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

===== Setup file: ra6cm2.set

```
Setup group: 34          Station: TORUN          Total bit rate: 256
Format: MKIV1:4        Bits per sample: 2     Sample rate: 32.000
Number of channels: 4   DBE type:              Speedup factor: 1.00
```

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set: 14 Setup file default. Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00   736.00   736.00   736.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets: 14

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

==== Setup file: ra18cm2.set

```

Setup group:  17      Station: TORUN      Total bit rate:  256
Format: MKIV1:4      Bits per sample: 2      Sample rate: 32.000
Number of channels:  4  DBE type:          Speedup factor:  1.00

```

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set: 25 Setup file default. Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00   732.00   732.00   732.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets: 25

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 1642+690	16 42 18.064877	* 16 42 07.848507	16 42 01.818607	0.00
J1642+6856	69 02 13.21708	* 68 56 39.75636	68 54 51.61784	0.00

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

=====> Observing mode: C/L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Fri 23 Jan 2015 Day 23 ---

----- C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 736.00 736.00 736.00 736.00
Next scan bandwidths: 16.00 16.00 16.00 16.00
03 00 00 1244-255 12 22 48 10.8 174.3 -0.4 -3.8 0 0 03 00 00
03 14 30 --- 12 37 21 11.0 177.6 -0.2 -1.6 870 28 03 00 01
03 15 00 1244-255 12 37 51 11.0 177.8 -0.2 -1.5 24 28 03 15 00
03 25 00 --- 12 47 52 11.0 180.1 0.0 0.0 600 47 03 15 01

----- L-band VLBI scans -----

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00
03 30 00 1244-255 12 52 53 11.0 181.2 0.1 0.8 293 47 03 30 00
03 44 30 --- 13 07 26 10.9 184.5 0.3 3.0 870 75 03 30 01
03 45 00 1244-255 13 07 56 10.9 184.7 0.3 3.1 24 75 03 45 00
04 00 00 --- 13 22 58 10.7 188.1 0.6 5.4 900 104 03 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====> Setup file: ra6cm2.set

Setup group: 3 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  3  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00  736.00  736.00  736.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  3

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

==== Setup file: ra18cm2.set

```

Setup group:  7      Station: TORUN      Total bit rate:  256
Format: MKIV1:4      Bits per sample:  2      Sample rate: 32.000
Number of channels:  4  DBE type:      Speedup factor:  1.00

```

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  5  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00  732.00  732.00  732.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  5

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 1244-255	12 44 06.713922	* 12 46 46.802036	12 47 36.224219	0.00
J1246-2547	-25 31 26.67469	*-25 47 49.28903	-25 52 40.58176	0.00

rk08ogtr

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

=====> Observing mode: C/L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2
RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Fri 23 Jan 2015 Day 23 ---

----- C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 736.00 736.00 736.00 736.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

19 00 00 0403-132 04 25 26 23.7 185.1 0.3 3.1 0 0 19 00 00
19 14 30 --- 04 39 58 23.4 188.9 0.6 5.5 870 28 19 00 01
19 15 00 0403-132 04 40 28 23.4 189.1 0.6 5.6 24 28 19 15 00
19 25 00 --- 04 50 30 23.1 191.7 0.7 7.2 600 47 19 15 01

----- L-band VLBI scans -----

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00

19 30 00 0403-132 04 55 31 23.0 193.0 0.8 8.0 293 47 19 30 00
19 44 30 --- 05 10 03 22.4 196.8 1.1 10.3 870 75 19 30 01
19 45 00 0403-132 05 10 33 22.4 196.9 1.1 10.4 24 75 19 45 00
20 00 00 --- 05 25 36 21.6 200.8 1.3 12.7 900 104 19 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra6cm2.set

Setup group: 3 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  3  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00  736.00  736.00  736.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  3

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

==== Setup file: ra18cm2.set

```

Setup group:  7      Station: TORUN      Total bit rate:  256
Format: MKIV1:4      Bits per sample:  2      Sample rate: 32.000
Number of channels:  4  DBE type:      Speedup factor:  1.00

```

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  5  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00  732.00  732.00  732.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  5

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0403-132	04 03 13.979060	* 04 05 34.003395	04 06 17.147107	0.00
J0405-1308	-13 16 18.08449	*-13 08 13.69083	-13 06 04.95350	0.00

rk08ojtr

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

=====> Observing mode: C/L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2
RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Sat 24 Jan 2015 Day 24 ---

----- C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 736.00 736.00 736.00 736.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

18 00 00 0403-132 03 29 13 23.3 170.2 -0.6 -6.0 0 0 18 00 00
18 14 30 --- 03 43 45 23.6 174.0 -0.4 -3.7 870 28 18 00 01
18 15 00 0403-132 03 44 15 23.6 174.1 -0.4 -3.6 24 28 18 15 00
18 25 00 --- 03 54 17 23.8 176.8 -0.2 -2.0 600 47 18 15 01

----- L-band VLBI scans -----

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00

18 30 00 0403-132 03 59 18 23.8 178.1 -0.1 -1.1 293 47 18 30 00
18 44 30 --- 04 13 50 23.8 182.0 0.1 1.2 870 75 18 30 01
18 45 00 0403-132 04 14 20 23.8 182.1 0.1 1.3 24 75 18 45 00
19 00 00 --- 04 29 23 23.6 186.1 0.4 3.8 900 104 18 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra6cm2.set

Setup group: 3 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  3  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00   736.00   736.00   736.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  3

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

==== Setup file: ra18cm2.set

```

Setup group:  7      Station: TORUN      Total bit rate:  256
Format: MKIV1:4      Bits per sample:  2      Sample rate: 32.000
Number of channels:  4  DBE type:      Speedup factor:  1.00

```

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  5  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00   732.00   732.00   732.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  5

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0403-132	04 03 13.979060	* 04 05 34.003395	04 06 17.129679	0.00
J0405-1308	-13 16 18.08449	*-13 08 13.69083	-13 06 05.06944	0.00

rk08oktr

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

=====> Observing mode: C/K-band, dual-pol

Schedule for TORUN (Code Tr) Page 2
RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Sun 25 Jan 2015 Day 25 ---

----- K-band VLBI scans -----

Next scan frequencies: 22236.00 22236.00 22236.00 22236.00
Next BBC frequencies: 736.00 736.00 736.00 736.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

00 00 00 1642+690 09 30 12 42.8 27.8 -7.2 -51.1 0 0 00 00 00
00 14 30 --- 09 44 44 43.8 28.9 -7.0 -53.8 870 28 00 00 01
00 15 00 1642+690 09 45 14 43.9 28.9 -6.9 -53.9 24 28 00 15 00
00 25 00 --- 09 55 16 44.6 29.7 -6.8 -55.7 600 47 00 15 01

----- C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 736.00 736.00 736.00 736.00

00 30 00 1642+690 10 00 17 45.0 30.0 -6.7 -56.6 294 47 00 30 00
00 44 30 --- 10 14 49 46.1 31.0 -6.5 -59.3 870 75 00 30 01
00 45 00 1642+690 10 15 19 46.1 31.0 -6.4 -59.4 24 75 00 45 00
01 00 00 --- 10 30 22 47.3 32.0 -6.2 -62.2 900 104 00 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====> Setup file: ra1cm2.set
Matching groups in ./rk08ok_freq.dat: tr1cm

Setup group: 5 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO=  21500.00  21500.00  21500.00  21500.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  3  Setup file default.  Used with PCAL = 1MHz
LO sum=  22236.00  22236.00  22236.00  22236.00
BBC fr=   736.00   736.00   736.00   736.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  3

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

==== Setup file: ra6cm2.set

```

Setup group:  2      Station: TORUN      Total bit rate:  256
Format: MKIV1:4      Bits per sample:  2      Sample rate: 32.000
Number of channels:  4  DBE type:      Speedup factor:  1.00

```

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  5  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00   736.00   736.00   736.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  5

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 1642+690	16 42 18.064877	* 16 42 07.848507	16 42 02.031047	0.00
J1642+6856	69 02 13.21708	* 68 56 39.75636	68 54 50.51151	0.00

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
 Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
 Fax: +7-495-3332378 Phone during observation: +7-915-1546281

=====> Observing mode: C/K-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC

--- Sun 25 Jan 2015 Day 25 ---

----- K-band VLBI scans -----

Next scan frequencies: 22236.00 22236.00 22236.00 22236.00
 Next BBC frequencies: 736.00 736.00 736.00 736.00
 Next scan bandwidths: 16.00 16.00 16.00 16.00

03 00 00	1244-255	12 30 41	10.9	176.1	-0.3	-2.6	0	0	03 00 00
03 14 30	---	12 45 14	11.0	179.5	-0.0	-0.4	870	28	03 00 01
03 15 00	1244-255	12 45 44	11.0	179.6	-0.0	-0.3	24	28	03 15 00
03 25 00	---	12 55 46	11.0	181.9	0.1	1.2	600	47	03 15 01

----- C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
 Next BBC frequencies: 736.00 736.00 736.00 736.00

03 30 00	1244-255	13 00 46	11.0	183.0	0.2	2.0	293	47	03 30 00
03 44 30	---	13 15 19	10.8	186.3	0.5	4.2	870	75	03 30 01
03 45 00	1244-255	13 15 49	10.8	186.5	0.5	4.3	24	75	03 45 00
04 00 00	---	13 30 51	10.5	189.9	0.7	6.6	900	104	03 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====> Setup file: ra1cm2.set

Matching groups in ./rk08ol_freq.dat: tr1cm

Setup group: 5	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

```

1st LO= 21500.00 21500.00 21500.00 21500.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set: 3 Setup file default. Used with PCAL = 1MHz
LO sum= 22236.00 22236.00 22236.00 22236.00
BBC fr= 736.00 736.00 736.00 736.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 3

```

```

Track assignments are:
track1= 2, 18, 3, 19
barrel=roll_off

```

==== Setup file: ra6cm2.set

```

Setup group: 3 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

```

Disk used to record data.

```

1st LO= 4100.00 4100.00 4100.00 4100.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set: 6 Setup file default. Used with PCAL = 1MHz
LO sum= 4836.00 4836.00 4836.00 4836.00
BBC fr= 736.00 736.00 736.00 736.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 6

```

```

Track assignments are:
track1= 2, 18, 3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 1244-255	12 44 06.713922	* 12 46 46.802036	12 47 36.277265	0.00
J1246-2547	-25 31 26.67469	*-25 47 49.28903	-25 52 40.98288	0.00

rk08omtr

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

=====> Observing mode: C/K-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Sun 25 Jan 2015 Day 25 ---

----- K-band VLBI scans -----

Next scan frequencies: 22236.00 22236.00 22236.00 22236.00
Next BBC frequencies: 736.00 736.00 736.00 736.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

07 00 00	1156+295	16 31 21	36.0	272.0	4.5	43.4	0	0	07 00 00
07 14 30	---	16 45 53	33.8	274.8	4.8	43.3	870	28	07 00 01
07 15 00	1156+295	16 46 23	33.8	274.9	4.8	43.2	24	28	07 15 00
07 25 00	---	16 56 25	32.3	276.8	4.9	43.1	600	47	07 15 01

----- C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 736.00 736.00 736.00 736.00

07 30 00	1156+295	17 01 26	31.5	277.8	5.0	42.9	293	47	07 30 00
07 44 30	---	17 15 58	29.4	280.5	5.3	42.5	870	75	07 30 01
07 45 00	1156+295	17 16 28	29.3	280.6	5.3	42.5	24	75	07 45 00
08 00 00	---	17 31 31	27.1	283.3	5.5	42.0	900	104	07 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====> Setup file: ra1cm2.set

Matching groups in ./rk08om_freq.dat: tr1cm

Setup group: 5	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

```

1st LO= 21500.00 21500.00 21500.00 21500.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  4  Setup file default.  Used with PCAL = 1MHz
LO sum=  22236.00 22236.00 22236.00 22236.00
BBC fr=   736.00  736.00  736.00  736.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  4

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

==== Setup file: ra6cm2.set

```

Setup group:  3      Station: TORUN      Total bit rate:  256
Format: MKIV1:4      Bits per sample: 2      Sample rate: 32.000
Number of channels: 4  DBE type:          Speedup factor:  1.00

```

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  6  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00 4836.00 4836.00 4836.00
BBC fr=   736.00  736.00  736.00  736.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  6

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 1156+295	11 56 57.786212	* 11 59 31.833913	12 00 18.981732	0.00
J1159+2914	29 31 25.73868	* 29 14 43.82678	29 09 27.28854	0.00

rk08ontr

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Sun 25 Jan 2015 Day 25 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

Table with 11 columns: Start UT, Stop UT, Source, LST, EL, AZ, HA, UP, ParA, Dwell, GBytes, TPStart, SYNC. Contains scan schedule data for 0300+470.

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra18cm2.set

Setup group: 5 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  4  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00  732.00  732.00  732.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  4

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0300+470	03 00 10.111206	* 03 03 35.242224	03 04 38.633398	0.00
J0303+4716	47 04 33.67712	* 47 16 16.27546	47 19 52.08494	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
3C48	89.9
0300+470	109.4

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

rk08ootr

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Mon 26 Jan 2015 Day 26 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

Table with 11 columns: Start UT, Stop UT, Source, LST, EL, AZ, HA, UP, ParA, Dwell, GBytes, SYNC. It lists observation times and parameters for source 1128+385.

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra18cm2.set

Setup group: 8 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  4  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00  732.00  732.00  732.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  4

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 1128+385	11 28 12.513446	* 11 30 53.282615	11 31 42.568296	0.00
J1130+3815	38 31 51.62112	* 38 15 18.54689	38 10 02.35813	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
3C286	112.1
1128+385	136.7

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

rk08optr

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

=====> Observing mode: C/L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2
RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Mon 26 Jan 2015 Day 26 ---

----- C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 736.00 736.00 736.00 736.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

19 00 00 0552+398 04 37 16 71.1 126.6 -1.3 -38.9 0 0 19 00 00
19 14 30 --- 04 51 48 72.7 133.8 -1.1 -34.4 870 28 19 00 01
19 15 00 0552+398 04 52 18 72.8 134.0 -1.1 -34.2 23 28 19 15 00
19 25 00 --- 05 02 20 73.8 139.7 -0.9 -30.4 600 47 19 15 01

----- L-band VLBI scans -----

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00

19 30 00 0552+398 05 07 21 74.3 142.8 -0.8 -28.2 291 47 19 30 00
19 44 30 --- 05 21 53 75.5 152.5 -0.6 -21.2 870 75 19 30 01
19 45 00 0552+398 05 22 23 75.5 152.9 -0.6 -20.9 23 75 19 45 00
20 00 00 --- 05 37 26 76.3 164.3 -0.3 -12.2 900 104 19 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra6cm2.set

Setup group: 3 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  3  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00   736.00   736.00   736.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  3

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

==== Setup file: ra18cm2.set

```

Setup group:  7          Station: TORUN          Total bit rate:  256
Format: MKIV1:4          Bits per sample:  2          Sample rate: 32.000
Number of channels:  4    DBE type:              Speedup factor:  1.00

```

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  5  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00   732.00   732.00   732.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  5

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0552+398	05 52 01.407174	* 05 55 30.805616	05 56 35.821085	0.00
J0555+3948	39 48 21.94579	* 39 48 49.16494	39 48 48.86388	0.00

rk08oqtr

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Mon 26 Jan 2015 Day 26 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

21 50 00	0202+319	07 27 44	30.8	-76.0	5.4		43.6	0	0	21 50 00
22 02 00	---	07 39 46	29.0	-73.8	5.6		43.0	720	23	21 50 01
22 02 30	0202+319	07 40 16	28.9	-73.7	5.6		43.0	24	23	22 02 30
22 14 30	---	07 52 18	27.2	-71.6	5.8		42.4	720	46	22 02 31
22 15 00	0202+319	07 52 48	27.1	-71.5	5.8		42.4	24	46	22 15 00
22 27 00	---	08 04 50	25.4	-69.4	6.0		41.7	720	69	22 15 01
22 27 30	0202+319	08 05 20	25.4	-69.3	6.0		41.7	24	69	22 27 30
22 40 00	---	08 17 52	23.6	-67.2	6.2		40.9	750	93	22 27 31

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra18cm2.set

Setup group: 6	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

1st LO=	2400.00	2400.00	2400.00	2400.00
Net SB=	L	L	U	U
IF SB =	L	L	L	L
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	U	U	L	L
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 4 Setup file default. Used with PCAL = 1MHz
 LO sum= 1668.00 1668.00 1668.00 1668.00
 BBC fr= 732.00 732.00 732.00 732.00
 Bandwd= 16.00 16.00 16.00 16.00
 Matching frequency sets: 4

Track assignments are:
 track1= 2, 18, 3, 19
 barrel=roll_off

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(Date)	Error (mas)	
* 0202+319	02 02 09.652798	* 02 05 04.925361	02 05 58.513003	0.00
J0205+3212	31 58 10.39519	* 32 12 30.09541	32 16 51.60975	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
0202+319	93.7

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

rk08ortr

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: K-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC

--- Tue 27 Jan 2015 Day 27 ---										
Next scan frequencies: 22236.00 22236.00 22236.00 22236.00										
Next BBC frequencies: 736.00 736.00 736.00 736.00										
Next scan bandwidths: 16.00 16.00 16.00 16.00										
00 00 00	1128+385	09 38 05	65.4	115.9	-1.9		-43.4	0	0	00 00 00
00 14 30	---	09 52 37	67.3	121.2	-1.7		-40.8	870	28	00 00 01
00 15 00	1128+385	09 53 07	67.4	121.4	-1.6		-40.7	24	28	00 15 00
00 29 30	---	10 07 40	69.2	127.4	-1.4		-37.3	870	56	00 15 01
00 30 00	1128+385	10 08 10	69.3	127.7	-1.4		-37.2	23	56	00 30 00
00 44 30	---	10 22 42	70.9	134.5	-1.2		-33.0	870	84	00 30 01
00 45 00	1128+385	10 23 12	71.0	134.8	-1.1		-32.8	23	84	00 45 00
01 00 00	---	10 38 15	72.5	142.9	-0.9		-27.4	900	112	00 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====
Setup file: ra1cm2.set

Matching groups in ./rk08or_freq.dat: tr1cm

Setup group: 8 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO=  21500.00  21500.00  21500.00  21500.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  3  Setup file default.  Used with PCAL = 1MHz
LO sum=  22236.00  22236.00  22236.00  22236.00
BBC fr=   736.00   736.00   736.00   736.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  3

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 1128+385	11 28 12.513446	* 11 30 53.282615	11 31 42.593269	0.00
J1130+3815	38 31 51.62112	* 38 15 18.54689	38 10 02.37959	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
1128+385    137.3

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{ deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

```

1.6 GHz      45. deg
2.3 GHz      36. deg
5.0 GHz      23. deg
8.4 GHz      17. deg
15.0 GHz     12. deg
22.0 GHz     9. deg

```

rk08ostr

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

=====> Observing mode: C/K-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Tue 27 Jan 2015 Day 27 ---

----- K-band VLBI scans -----

Next scan frequencies: 22236.00 22236.00 22236.00 22236.00
Next BBC frequencies: 736.00 736.00 736.00 736.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

03 00 00 1150+497 12 38 35 82.2 246.6 0.7 57.9 0 0 03 00 00
03 14 30 --- 12 53 07 80.1 254.2 1.0 62.7 870 28 03 00 01
03 15 00 1150+497 12 53 37 80.0 254.4 1.0 62.8 23 28 03 15 00
03 25 00 --- 13 03 39 78.6 258.3 1.2 64.7 600 47 03 15 01

----- C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 736.00 736.00 736.00 736.00

03 30 00 1150+497 13 08 39 77.8 260.0 1.2 65.4 293 47 03 30 00
03 44 30 --- 13 23 12 75.7 264.2 1.5 66.7 870 75 03 30 01
03 45 00 1150+497 13 23 42 75.6 264.3 1.5 66.7 24 75 03 45 00
04 00 00 --- 13 38 44 73.3 267.8 1.7 67.3 900 104 03 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====> Setup file: ra1cm2.set

Matching groups in ./rk08os_freq.dat: tr1cm

Setup group: 8 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO= 21500.00 21500.00 21500.00 21500.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set: 6 Setup file default. Used with PCAL = 1MHz
LO sum= 22236.00 22236.00 22236.00 22236.00
BBC fr= 736.00 736.00 736.00 736.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 6

```

```

Track assignments are:
track1= 2, 18, 3, 19
barrel=roll_off

```

==== Setup file: ra6cm2.set

```

Setup group: 4 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

```

Disk used to record data.

```

1st LO= 4100.00 4100.00 4100.00 4100.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set: 8 Setup file default. Used with PCAL = 1MHz
LO sum= 4836.00 4836.00 4836.00 4836.00
BBC fr= 736.00 736.00 736.00 736.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 8

```

```

Track assignments are:
track1= 2, 18, 3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 1150+497	11 50 47.999856	* 11 53 24.466639	11 54 12.267184	0.00
J1153+4931	49 47 50.09409	* 49 31 08.83012	49 25 48.87007	0.00

rk08ottr

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: K-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Table with columns: Start UT, Source, Start / Stop (LST, EL, AZ, HA, UP), ParA, Early Dwell, Disk GBytes, TPStart SYNC. Includes scan data for 2015-01-27.

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra1cm2.set

Matching groups in ./rk08ot_freq.dat: tr1cm

Setup group: 4 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO= 21500.00 21500.00 21500.00 21500.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set: 3 Setup file default. Used with PCAL = 1MHz
LO sum= 22236.00 22236.00 22236.00 22236.00
BBC fr= 736.00 736.00 736.00 736.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 3

```

Track assignments are:

```

track1= 2, 18, 3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 1156+295	11 56 57.786212	* 11 59 31.833913	12 00 19.033691	0.00
J1159+2914	29 31 25.73868	* 29 14 43.82678	29 09 27.22187	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
3C286	113.2
1156+295	132.9

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

=====> Observing mode: C/L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Tue 27 Jan 2015 Day 27 ---

----- C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 736.00 736.00 736.00 736.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

22 00 00 0307+380 07 41 42 42.5 -79.7 4.5 48.8 0 0 22 00 00
22 14 30 --- 07 56 14 40.4 -77.2 4.7 48.3 870 28 22 00 01

22 15 00 0307+380 07 56 44 40.3 -77.1 4.7 48.2 24 28 22 15 00
22 25 00 --- 08 06 46 38.9 -75.4 4.9 47.8 600 47 22 15 01

----- L-band VLBI scans -----

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00

22 30 00 0307+380 08 11 47 38.1 -74.5 5.0 47.5 293 47 22 30 00
22 44 30 --- 08 26 19 36.1 -72.1 5.2 46.7 870 75 22 30 01

22 45 00 0307+380 08 26 49 36.0 -72.0 5.3 46.7 24 75 22 45 00
23 00 00 --- 08 41 52 33.9 -69.5 5.5 45.8 900 104 22 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====> Setup file: ra6cm2.set

Setup group: 3 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  5  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00   736.00   736.00   736.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  5

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

==== Setup file: ra18cm2.set

```

Setup group:  7      Station: TORUN      Total bit rate:  256
Format: MKIV1:4      Bits per sample: 2      Sample rate: 32.000
Number of channels: 4  DBE type:          Speedup factor:  1.00

```

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  6  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00   732.00   732.00   732.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  6

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0307+380	03 07 37.554068	* 03 10 49.879926	03 11 49.125101	0.00
J0310+3814	38 03 34.47086	* 38 14 53.83785	38 18 19.48962	0.00

rk08ovtr

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC

--- Wed 28 Jan 2015 Day 28 ---										
Next scan frequencies: 1668.00 1668.00 1668.00 1668.00										
Next BBC frequencies: 732.00 732.00 732.00 732.00										
Next scan bandwidths: 16.00 16.00 16.00 16.00										
02 00 00	1150+497	11 42 21	85.9	152.0	-0.2		-25.7	0	0	02 00 00
02 14 30	---	11 56 54	86.3	186.8	0.0		6.3	870	28	02 00 01
02 15 00	1150+497	11 57 24	86.3	188.1	0.1		7.4	19	28	02 15 00
02 29 30	---	12 11 56	85.4	218.9	0.3		35.4	870	56	02 15 01
02 30 00	1150+497	12 12 26	85.4	219.7	0.3		36.1	21	56	02 30 00
02 44 30	---	12 26 59	83.7	237.7	0.5		51.3	870	84	02 30 01
02 45 00	1150+497	12 27 29	83.6	238.1	0.6		51.7	22	84	02 45 00
03 00 00	---	12 42 31	81.6	248.9	0.8		59.5	900	112	02 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====
Setup file: ra18cm2.set

Setup group: 5	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  4  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00  732.00  732.00  732.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  4

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 1150+497	11 50 47.999856	* 11 53 24.466639	11 54 12.299211	0.00
J1153+4931	49 47 50.09409	* 49 31 08.83012	49 25 48.91249	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
1150+497    130.5

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

```

1.6 GHz      45. deg
2.3 GHz      36. deg
5.0 GHz      23. deg
8.4 GHz      17. deg
15.0 GHz     12. deg
22.0 GHz     9. deg

```

rk08owtr

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Wed 28 Jan 2015 Day 28 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

Table with 11 columns: Start UT, Source, LST, EL, AZ, HA, UP, ParA, Dwell, GBytes, SYNC. It lists observation times and parameters for source 1324+574.

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra18cm2.set

Setup group: 5 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  4  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00  732.00  732.00  732.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  4

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 1324+574	13 24 54.934679	* 13 26 50.572337	13 27 25.278603	0.00
J1326+5712	57 27 39.04145	* 57 12 06.74540	57 07 08.45280	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
1324+574    115.3

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

```

1.6 GHz      45. deg
2.3 GHz      36. deg
5.0 GHz      23. deg
8.4 GHz      17. deg
15.0 GHz     12. deg
22.0 GHz     9. deg

```

rk08oxtr

RADIOASTRON AGN SURVEY

PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

=====> Observing mode: C/K-band, dual-pol

Schedule for TORUN (Code Tr) Page 2
RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Wed 28 Jan 2015 Day 28 ---

----- K-band VLBI scans -----

Next scan frequencies: 22236.00 22236.00 22236.00 22236.00
Next BBC frequencies: 736.00 736.00 736.00 736.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

08 50 00 1128+385 18 33 29 21.6 -54.6 7.0 38.5 0 0 08 50 00
09 04 30 --- 18 48 01 19.9 -52.2 7.3 37.1 870 28 08 50 01
09 05 00 1128+385 18 48 31 19.8 -52.1 7.3 37.1 24 28 09 05 00
09 15 00 --- 18 58 33 18.6 -50.4 7.4 36.1 600 47 09 05 01

----- C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 736.00 736.00 736.00 736.00

09 20 00 1128+385 19 03 33 18.1 -49.6 7.5 35.6 293 47 09 20 00
09 34 30 --- 19 18 06 16.4 -47.1 7.8 34.0 870 75 09 20 01
09 35 00 1128+385 19 18 36 16.4 -47.0 7.8 34.0 24 75 09 35 00
09 50 00 --- 19 33 38 14.8 -44.5 8.0 32.4 900 104 09 35 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra1cm2.set
Matching groups in ./rk08ox_freq.dat: tr1cm

Setup group: 4 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

```

1st LO= 21500.00 21500.00 21500.00 21500.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  3  Setup file default.  Used with PCAL = 1MHz
LO sum=  22236.00 22236.00 22236.00 22236.00
BBC fr=   736.00  736.00  736.00  736.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  3

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

==== Setup file: ra6cm2.set

```

Setup group:  2      Station: TORUN      Total bit rate:  256
Format: MKIV1:4      Bits per sample: 2      Sample rate: 32.000
Number of channels: 4  DBE type:          Speedup factor:  1.00

```

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  4  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00 4836.00 4836.00 4836.00
BBC fr=   736.00  736.00  736.00  736.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  4

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 1128+385	11 28 12.513446	* 11 30 53.282615	11 31 42.631242	0.00
J1130+3815	38 31 51.62112	* 38 15 18.54689	38 10 02.39199	0.00

rk08oztr

RADIOASTRON AGN SURVEY

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
Phone: +7-495-3332167 EMAIL: yyk@asc.rssi.ru
Fax: +7-495-3332378 Phone during observation: +7-915-1546281

=====> Observing mode: C/K-band, dual-pol

Schedule for TORUN (Code Tr) Page 2
 RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC

--- Wed 28 Jan 2015 Day 28 ---

----- K-band VLBI scans -----

Next scan frequencies: 22236.00 22236.00 22236.00 22236.00
Next BBC frequencies: 736.00 736.00 736.00 736.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

17 00 00	1642+690	02 44 49	33.9	-12.2	10.0		20.7	0	0	17 00 00
17 14 30	---	02 59 21	33.5	-10.8	10.3		18.2	870	28	17 00 01
17 15 00	1642+690	02 59 52	33.4	-10.7	10.3		18.1	24	28	17 15 00
17 25 00	---	03 09 53	33.2	-9.7	10.5		16.3	600	47	17 15 01

----- C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 736.00 736.00 736.00 736.00

17 30 00	1642+690	03 14 54	33.1	-9.2	10.5		15.4	294	47	17 30 00
17 44 30	---	03 29 26	32.7	-7.7	10.8		12.8	870	75	17 30 01
17 45 00	1642+690	03 29 56	32.7	-7.6	10.8		12.8	24	75	17 45 00
18 00 00	---	03 44 59	32.5	-6.0	11.0		10.1	900	104	17 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====
Setup file: ra1cm2.set

Matching groups in ./rk08oz_freq.dat: tr1cm

Setup group: 6	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

```

1st LO= 21500.00 21500.00 21500.00 21500.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  5  Setup file default.  Used with PCAL = 1MHz
LO sum=  22236.00 22236.00 22236.00 22236.00
BBC fr=   736.00  736.00  736.00  736.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  5

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

==== Setup file: ra6cm2.set

```

Setup group:  4      Station: TORUN      Total bit rate:  256
Format: MKIV1:4      Bits per sample: 2      Sample rate: 32.000
Number of channels: 4  DBE type:          Speedup factor:  1.00

```

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  7  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00 4836.00 4836.00 4836.00
BBC fr=   736.00  736.00  736.00  736.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  7

```

```

Track assignments are:
track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 1642+690	16 42 18.064877	* 16 42 07.848507	16 42 02.229199	0.00
J1642+6856	69 02 13.21708	* 68 56 39.75636	68 54 49.73100	0.00

RADIOASTRON GP PULSAR OBSERVATIONS

PI: *Alexey Rudnitskiy*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
 Phone: +7-495-3332512 EMAIL: yyk@asc.rssi.ru
 Fax: +7-495-3332378 Phone during observation: +7-903-6614865

Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron GP pulsar observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
 Early: Seconds between end of slew and start. Dwell: On source seconds.
 Disk: GBytes recorded to this point.
 TPStart: Recording start time. Frequencies are L0 sum (band edge).
 SYNC: Time correlator is expected to sync up.

```
-----
Start UT  Source          Start / Stop          Early   Disk   TPStart
Stop UT                LST    EL    AZ    HA    UP    ParA  Dwell  GBytes  SYNC
-----
```

--- Wed 28 Jan 2015 Day 28 ---

----- This is a 1min calibration scan with auto-level (AGC) ON -----

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
 Next BBC frequencies: 732.00 732.00 732.00 732.00
 Next scan bandwidths: 16.00 16.00 16.00 16.00

```
20 58 00  CRAB          06 43 28  56.3 209.3  1.1    18.5    0    0    Stopped
20 59 00  ---            06 44 28  56.2 209.7  1.2    18.7    60    0
```

----- Please make sure Pcal, noise diode (Tsyes) and auto-level (AGC) are OFF now -----

```
21 00 00  CRAB          06 45 28  56.2 210.1  1.2    18.9    53    0    21 00 00
21 19 30  ---            07 05 02  54.5 217.5  1.5    23.2   1170    37    21 00 01

21 20 00  CRAB          07 05 32  54.5 217.7  1.5    23.3    24    37    21 20 00
21 39 30  ---            07 25 05  52.6 224.6  1.8    27.0   1170    75    21 20 01

21 40 00  CRAB          07 25 35  52.5 224.8  1.8    27.1    24    75    21 40 00
21 59 30  ---            07 45 08  50.3 231.1  2.2    30.3   1170   112    21 40 01

22 00 00  CRAB          07 45 38  50.3 231.3  2.2    30.4    24   112    22 00 00
22 20 00  ---            08 05 42  47.8 237.3  2.5    33.0   1200   151    22 00 01
```

----- Please make sure Pcal, noise diode (Tsyes) and auto-level (AGC) are OFF now -----

```
22 20 30  CRAB          08 06 12  47.8 237.5  2.5    33.1    24   151    22 20 30
22 39 30  ---            08 25 15  45.3 242.8  2.8    35.2   1140   187    22 20 31

22 40 00  CRAB          08 25 45  45.2 242.9  2.8    35.2    24   187    22 40 00
22 59 30  ---            08 45 18  42.5 248.0  3.2    36.9   1170   225    22 40 01

23 00 00  CRAB          08 45 48  42.5 248.1  3.2    36.9    24   225    23 00 00
23 19 30  ---            09 05 21  39.7 252.9  3.5    38.2   1170   262    23 00 01

23 20 00  CRAB          09 05 51  39.6 253.0  3.5    38.3    24   262    23 20 00
23 39 30  ---            09 25 25  36.8 257.5  3.8    39.2   1170   300    23 20 01
```

Schedule for TORUN (Code Tr)

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RadioAstron GP pulsar observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

```
-----
Start UT  Source          Start / Stop      Early   Disk   TPStart
Stop UT   LST      EL   AZ   HA  UP   ParA  Dwell  GBytes  SYNC
-----
```

--- Wed 28 Jan 2015 Day 28 ---

```
23 40 00  CRAB          09 25 55  36.7 257.6  3.8      39.2   24    300  23 40 00
23 59 30  ---          09 45 28  33.8 261.9  4.2      39.9  1170    337  23 40 01
```

--- Thu 29 Jan 2015 Day 29 ---

```
00 00 00  CRAB          09 45 58  33.8 262.0  4.2      39.9   24    337  00 00 00
00 09 30  ---          09 55 30  32.3 264.0  4.3      40.1   570    355  00 00 01
```

----- Please make sure Pcal, noise diode (Tsys) and auto-level (AGC) are OFF now -----

```
00 10 00  CRAB          09 56 00  32.3 264.1  4.3      40.1   24    355  00 10 00
00 29 30  ---          10 15 33  29.3 268.2  4.7      40.3  1170    393  00 10 01
```

```
00 30 00  CRAB          10 16 03  29.3 268.3  4.7      40.3   24    393  00 30 00
00 49 30  ---          10 35 36  26.3 272.2  5.0      40.3  1170    430  00 30 01
```

```
00 50 00  CRAB          10 36 06  26.3 272.3  5.0      40.3   24    430  00 50 00
01 09 30  ---          10 55 39  23.3 276.1  5.3      40.1  1170    468  00 50 01
```

```
01 10 00  CRAB          10 56 10  23.3 276.2  5.3      40.1   24    468  01 10 00
01 29 30  ---          11 15 43  20.3 279.9  5.7      39.6  1170    505  01 10 01
```

```
01 30 00  CRAB          11 16 13  20.3 280.0  5.7      39.6   24    505  01 30 00
01 49 30  ---          11 35 46  17.4 283.7  6.0      39.0  1170    542  01 30 01
```

```
01 50 00  CRAB          11 36 16  17.3 283.8  6.0      39.0   24    542  01 50 00
02 09 30  ---          11 55 49  14.5 287.5  6.3      38.2  1170    580  01 50 01
```

```
02 10 00  CRAB          11 56 19  14.4 287.6  6.3      38.1   24    580  02 10 00
02 29 30  ---          12 15 53  11.7 291.3  6.7      37.1  1170    617  02 10 01
```

```
02 30 00  CRAB          12 16 23  11.6 291.4  6.7      37.1   24    617  02 30 00
02 49 30  ---          12 35 56   8.9 295.1  7.0      35.9  1170    655  02 30 01
```

```
02 50 00  CRAB          12 36 26   8.8 295.2  7.0      35.9   24    655  02 50 00
03 00 00  ---          12 46 28   7.5 297.1  7.2      35.2   600    674  02 50 01
```

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

===== Setup file: ra18cm2_autolevel.set

```
Setup group:  17      Station: TORUN      Total bit rate:  256
Format: MKIV1:4      Bits per sample:  2      Sample rate: 32.000
Number of channels:  4      DBE type:
```

Disk used to record data.

Setup not used for recording data.

1st LO=	2400.00	2400.00	2400.00	2400.00
Net SB=	L	L	U	U
IF SB =	L	L	L	L
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	U	U	L	L
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 8 Setup file default. Used with PCAL = off
 LO sum= 1668.00 1668.00 1668.00 1668.00
 BBC fr= 732.00 732.00 732.00 732.00
 Bandwd= 16.00 16.00 16.00 16.00
 Matching frequency sets: 8

==== Setup file: ra18cm2.set

Setup group: 25	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

1st LO=	2400.00	2400.00	2400.00	2400.00
Net SB=	L	L	U	U
IF SB =	L	L	L	L
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	U	U	L	L
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 19 Setup file default. Used with PCAL = off
 LO sum= 1668.00 1668.00 1668.00 1668.00
 BBC fr= 732.00 732.00 732.00 732.00
 Bandwd= 16.00 16.00 16.00 16.00
 Matching frequency sets: 19

Track assignments are:

track1= 2, 18, 3, 19
 barrel=roll_off

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* CRAB	05 31 31.427725	* 05 34 31.973000	05 35 27.914359	0.00
J0534+2200	21 58 54.40670	* 22 00 52.06000	22 01 16.35229	0.00

RADIOASTRON MASER OBSERVATIONS

PI: *Alexei Alakoz*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia
 Phone: +7-495-3332512 EMAIL: kirx@scan.sai.msu.ru
 Fax: +7-495-3332378 Phone during observation: +7-903-6614865

Observing mode: K-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

```
-----
Start UT    Source                      Start / Stop                      Early    Disk    TPStart
Stop UT                      LST        EL    AZ    HA    UP    ParA    Dwell    GBytes    SYNC
-----
```

--- Thu 29 Jan 2015 Day 29 ---

----- Space-ground K-band VLBI scans -----

```
Next scan frequencies: 22228.00 22228.00 22228.00 22228.00
Next BBC frequencies:    728.00    728.00    728.00    728.00
Next scan bandwidths:    16.00    16.00    16.00    16.00

07 00 00 W3IRS5                      16 47 07 28.5 17.8 -9.7                      -23.1    0                      0    07 00 00
07 09 00 ---                      16 56 09 29.0 18.9 -9.5                      -24.6    540                      17    07 00 01

07 10 30 W3IRS5                      16 57 39 29.0 19.1 -9.5                      -24.8    84                      17    07 10 30
07 19 30 ---                      17 06 40 29.5 20.1 -9.3                      -26.3    540                      35    07 10 31

07 21 00 W3IRS5                      17 08 11 29.6 20.3 -9.3                      -26.5    84                      35    07 21 00
07 30 00 ---                      17 17 12 30.0 21.4 -9.2                      -28.0    540                      52    07 21 01

07 32 25 W3IRS5                      17 19 37 30.2 21.7 -9.1                      -28.4    139                      52    07 32 25
07 33 25 ---                      17 20 38 30.2 21.8 -9.1                      -28.6    60                      54    07 32 26

07 33 50 0219+628                      17 21 03 31.3 21.5 -9.1                      -29.3    8                      54    07 33 50
07 34 10 ---                      17 21 23 31.3 21.6 -9.1                      -29.3    20                      54    07 33 51

07 34 35 W3IRS5                      17 21 48 30.3 22.0 -9.1                      -28.7    8                      54    07 34 35
07 35 35 ---                      17 22 48 30.4 22.1 -9.1                      -28.9    60                      56    07 34 36

07 36 00 0219+628                      17 23 13 31.4 21.8 -9.0                      -29.6    8                      56    07 36 00
07 36 20 ---                      17 23 33 31.4 21.8 -9.0                      -29.7    20                      57    07 36 01

07 36 45 W3IRS5                      17 23 58 30.4 22.2 -9.0                      -29.1    8                      57    07 36 45
07 37 45 ---                      17 24 58 30.5 22.3 -9.0                      -29.3    60                      59    07 36 46

07 38 10 0219+628                      17 25 23 31.5 22.0 -9.0                      -30.0    8                      59    07 38 10
07 38 30 ---                      17 25 43 31.5 22.1 -9.0                      -30.0    20                      60    07 38 11

07 38 55 W3IRS5                      17 26 08 30.5 22.5 -9.0                      -29.4    8                      60    07 38 55
07 39 55 ---                      17 27 09 30.6 22.6 -9.0                      -29.6    60                      62    07 38 56
```

Schedule for TORUN (Code Tr)

Page 3

RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Thu 29 Jan 2015 Day 29 ---										
07 40 20	0219+628	17 27 34	31.6	22.3	-9.0		-30.3	8	62	07 40 20
07 40 40	---	17 27 54	31.7	22.3	-8.9		-30.4	20	62	07 40 21
07 41 05	W3IRS5	17 28 19	30.7	22.7	-9.0		-29.8	8	62	07 41 05
07 42 05	---	17 29 19	30.7	22.8	-9.0		-30.0	60	64	07 41 06
07 42 30	0219+628	17 29 44	31.8	22.5	-8.9		-30.7	8	64	07 42 30
07 42 50	---	17 30 04	31.8	22.6	-8.9		-30.7	20	65	07 42 31
07 45 20	2021+614	17 32 35	66.1	52.2	-2.8		-91.5	8	65	07 45 20
07 50 40	---	17 37 55	66.7	52.1	-2.7		-92.7	320	75	07 45 21
07 53 16	0241+622	17 40 32	30.6	21.7	-9.1		-28.7	7	75	07 53 16
07 55 16	---	17 42 32	30.7	21.9	-9.1		-29.1	120	79	07 53 17
07 55 56	W3IRS5	17 43 12	31.6	24.5	-8.7		-32.2	21	79	07 55 56
07 56 56	---	17 44 12	31.6	24.6	-8.7		-32.3	60	81	07 55 57
07 57 21	0219+628	17 44 37	32.7	24.2	-8.7		-33.1	8	81	07 57 21
07 57 41	---	17 44 58	32.7	24.3	-8.7		-33.2	20	81	07 57 22
07 58 06	W3IRS5	17 45 23	31.7	24.7	-8.7		-32.5	9	81	07 58 06
07 59 06	---	17 46 23	31.8	24.8	-8.7		-32.7	60	83	07 58 07
07 59 31	0219+628	17 46 48	32.8	24.5	-8.6		-33.5	8	83	07 59 31
07 59 51	---	17 47 08	32.8	24.5	-8.6		-33.5	20	84	07 59 32
08 00 16	W3IRS5	17 47 33	31.8	25.0	-8.7		-32.9	9	84	08 00 16
08 01 16	---	17 48 33	31.9	25.1	-8.6		-33.0	60	86	08 00 17
08 01 41	0219+628	17 48 58	32.9	24.7	-8.6		-33.8	8	86	08 01 41
08 02 01	---	17 49 18	32.9	24.7	-8.6		-33.9	20	87	08 01 42
08 02 26	W3IRS5	17 49 43	32.0	25.2	-8.6		-33.2	9	87	08 02 26
08 03 26	---	17 50 43	32.0	25.3	-8.6		-33.4	60	88	08 02 27
08 03 51	0219+628	17 51 09	33.1	24.9	-8.6		-34.2	8	88	08 03 51
08 04 11	---	17 51 29	33.1	25.0	-8.6		-34.2	20	89	08 03 52
08 05 51	W3IRS5	17 53 09	32.2	25.6	-8.6		-33.8	84	89	08 05 51
08 06 51	---	17 54 09	32.3	25.7	-8.5		-33.9	60	91	08 05 52
08 07 16	0219+628	17 54 34	33.3	25.3	-8.5		-34.7	8	91	08 07 16
08 07 36	---	17 54 54	33.3	25.4	-8.5		-34.8	20	92	08 07 17
08 08 01	W3IRS5	17 55 19	32.3	25.9	-8.5		-34.1	9	92	08 08 01
08 09 01	---	17 56 19	32.4	26.0	-8.5		-34.3	60	94	08 08 02

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Thu 29 Jan 2015 Day 29 ---										
08 09 26	0219+628	17 56 44	33.4	25.6	-8.5		-35.1	8	94	08 09 26
08 09 46	---	17 57 05	33.4	25.6	-8.5		-35.1	20	94	08 09 27
08 10 11	W3IRS5	17 57 30	32.5	26.1	-8.5		-34.5	9	94	08 10 11
08 11 11	---	17 58 30	32.6	26.2	-8.5		-34.6	60	96	08 10 12
08 11 36	0219+628	17 58 55	33.6	25.8	-8.4		-35.4	8	96	08 11 36
08 11 56	---	17 59 15	33.6	25.8	-8.4		-35.5	20	97	08 11 37
08 12 21	W3IRS5	17 59 40	32.6	26.4	-8.5		-34.8	9	97	08 12 21
08 13 21	---	18 00 40	32.7	26.5	-8.4		-35.0	60	99	08 12 22
08 13 46	0219+628	18 01 05	33.7	26.0	-8.4		-35.8	8	99	08 13 46
08 14 06	---	18 01 25	33.7	26.1	-8.4		-35.8	20	99	08 13 47
08 14 31	W3IRS5	18 01 50	32.8	26.6	-8.4		-35.2	9	99	08 14 31
08 15 31	---	18 02 50	32.8	26.7	-8.4		-35.3	60	101	08 14 32
08 15 56	0219+628	18 03 16	33.8	26.3	-8.4		-36.1	9	101	08 15 56
08 16 16	---	18 03 36	33.9	26.3	-8.4		-36.2	20	102	08 15 57
08 17 56	W3IRS5	18 05 16	33.0	27.0	-8.4		-35.7	84	102	08 17 56
08 18 56	---	18 06 16	33.1	27.1	-8.3		-35.9	60	104	08 17 57
08 19 21	0219+628	18 06 41	34.1	26.7	-8.3		-36.7	9	104	08 19 21
08 19 41	---	18 07 01	34.1	26.7	-8.3		-36.7	20	104	08 19 22
08 20 06	W3IRS5	18 07 26	33.2	27.2	-8.3		-36.1	9	104	08 20 06
08 21 06	---	18 08 26	33.2	27.3	-8.3		-36.2	60	106	08 20 07
08 21 31	0219+628	18 08 51	34.2	26.9	-8.3		-37.0	9	106	08 21 31
08 21 51	---	18 09 11	34.2	26.9	-8.3		-37.1	20	107	08 21 32
08 22 16	W3IRS5	18 09 37	33.3	27.5	-8.3		-36.4	9	107	08 22 16
08 23 16	---	18 10 37	33.4	27.6	-8.3		-36.6	60	109	08 22 17
08 23 41	0219+628	18 11 02	34.4	27.1	-8.2		-37.4	9	109	08 23 41
08 24 01	---	18 11 22	34.4	27.2	-8.2		-37.4	20	110	08 23 42
08 24 26	W3IRS5	18 11 47	33.5	27.7	-8.3		-36.7	9	110	08 24 26
08 25 26	---	18 12 47	33.5	27.8	-8.2		-36.9	60	112	08 24 27
08 25 51	0219+628	18 13 12	34.5	27.4	-8.2		-37.7	9	112	08 25 51
08 26 11	---	18 13 32	34.5	27.4	-8.2		-37.8	20	112	08 25 52
08 26 36	W3IRS5	18 13 57	33.6	28.0	-8.2		-37.1	9	112	08 26 36
08 27 36	---	18 14 57	33.7	28.1	-8.2		-37.3	60	114	08 26 37

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

```
-----
Start UT  Source          Start / Stop          Early  Disk  TPStart
Stop UT          LST      EL  AZ  HA  UP  ParA  Dwell  GBytes  SYNC
-----
```

--- Thu 29 Jan 2015 Day 29 ---

----- Space-ground K-band VLBI scans -----

```
08 28 01  0219+628      18 15 23  34.7 27.6 -8.2   -38.1   9   114  08 28 01
08 28 21  ---          18 15 43  34.7 27.6 -8.1   -38.2  20   115  08 28 02

08 35 00  0716+714      18 22 23  34.9 -5.9 11.0    11.2  316   115  08 35 00
08 44 00  ---          18 31 24  34.8 -5.1 11.1     9.5  540   132  08 35 01

08 45 30  0716+714      18 32 54  34.7 -4.9 11.2     9.2   84   132  08 45 30
08 54 30  ---          18 41 56  34.6 -4.0 11.3     7.6  540   149  08 45 31

08 56 00  0716+714      18 43 26  34.6 -3.9 11.3     7.3   84   149  08 56 00
09 05 00  ---          18 52 28  34.5 -3.0 11.5     5.7  540   167  08 56 01

09 11 05  W3IRS5         18 58 34  37.0 32.8 -7.5   -44.2  279   167  09 11 05
09 12 05  ---          18 59 34  37.1 32.9 -7.5   -44.3   60   169  09 11 06

09 12 30  0219+628      18 59 59  38.0 32.3 -7.4   -45.3   9   169  09 12 30
09 12 50  ---          19 00 19  38.0 32.3 -7.4   -45.3  20   169  09 12 31

09 13 15  W3IRS5         19 00 44  37.2 33.0 -7.4   -44.5   9   169  09 13 15
09 14 15  ---          19 01 44  37.3 33.1 -7.4   -44.7  60   171  09 13 16

09 14 40  0219+628      19 02 09  38.2 32.5 -7.4   -45.6   9   171  09 14 40
09 15 00  ---          19 02 29  38.2 32.5 -7.4   -45.7  20   172  09 14 41

09 15 25  W3IRS5         19 02 54  37.4 33.3 -7.4   -44.9   9   172  09 15 25
09 16 25  ---          19 03 54  37.4 33.4 -7.4   -45.0  60   174  09 15 26

09 16 50  0219+628      19 04 20  38.4 32.7 -7.3   -46.0   9   174  09 16 50
09 17 10  ---          19 04 40  38.4 32.7 -7.3   -46.0  20   174  09 16 51

09 17 35  W3IRS5         19 05 05  37.5 33.5 -7.4   -45.2   9   174  09 17 35
09 18 35  ---          19 06 05  37.6 33.6 -7.3   -45.4  60   176  09 17 36

09 19 00  0219+628      19 06 30  38.5 32.9 -7.3   -46.3   9   176  09 19 00
09 19 20  ---          19 06 50  38.6 32.9 -7.3   -46.4  20   177  09 19 01

09 19 45  W3IRS5         19 07 15  37.7 33.7 -7.3   -45.5   9   177  09 19 45
09 20 45  ---          19 08 15  37.8 33.8 -7.3   -45.7  60   179  09 19 46

09 21 10  0219+628      19 08 40  38.7 33.1 -7.3   -46.7   9   179  09 21 10
09 21 30  ---          19 09 00  38.7 33.2 -7.3   -46.7  20   179  09 21 11

09 24 30  2021+614      19 12 01  77.3 40.7 -1.2   -124.4  22   179  09 24 30
09 29 50  ---          19 17 22  77.8 39.0 -1.1   -127.3 320   190  09 24 31
```

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Thu 29 Jan 2015 Day 29 ---										
09 32 50	0241+622	19 20 22	37.5	32.7	-7.4		-44.8	15	190	09 32 50
09 34 50	---	19 22 22	37.6	32.9	-7.4		-45.1	120	194	09 32 51
09 35 30	W3IRS5	19 23 03	39.1	35.3	-7.1		-48.0	21	194	09 35 30
09 36 30	---	19 24 03	39.1	35.4	-7.0		-48.2	60	196	09 35 31
09 36 55	0219+628	19 24 28	40.0	34.7	-7.0		-49.2	9	196	09 36 55
09 37 15	---	19 24 48	40.1	34.7	-7.0		-49.3	20	196	09 36 56
09 37 40	W3IRS5	19 25 13	39.2	35.5	-7.0		-48.4	9	196	09 37 40
09 38 40	---	19 26 13	39.3	35.6	-7.0		-48.5	60	198	09 37 41
09 39 05	0219+628	19 26 38	40.2	34.9	-7.0		-49.6	9	198	09 39 05
09 39 25	---	19 26 58	40.3	34.9	-7.0		-49.6	20	199	09 39 06
09 39 50	W3IRS5	19 27 23	39.4	35.8	-7.0		-48.7	9	199	09 39 50
09 40 50	---	19 28 23	39.5	35.9	-7.0		-48.9	60	201	09 39 51
09 41 15	0219+628	19 28 49	40.4	35.1	-6.9		-49.9	9	201	09 41 15
09 41 35	---	19 29 09	40.4	35.1	-6.9		-50.0	20	201	09 41 16
09 43 05	W3IRS5	19 30 39	39.7	36.1	-6.9		-49.2	74	201	09 43 05
09 44 05	---	19 31 39	39.8	36.2	-6.9		-49.4	60	203	09 43 06
09 44 30	0219+628	19 32 04	40.7	35.4	-6.9		-50.5	9	203	09 44 30
09 44 50	---	19 32 24	40.7	35.4	-6.9		-50.5	20	204	09 44 31
09 45 15	W3IRS5	19 32 49	39.9	36.3	-6.9		-49.6	9	204	09 45 15
09 46 15	---	19 33 49	40.0	36.4	-6.9		-49.7	60	206	09 45 16
09 46 40	0219+628	19 34 14	40.9	35.6	-6.8		-50.8	9	206	09 46 40
09 47 00	---	19 34 34	40.9	35.6	-6.8		-50.9	20	206	09 46 41
09 47 25	W3IRS5	19 35 00	40.1	36.5	-6.9		-49.9	9	206	09 47 25
09 48 25	---	19 36 00	40.2	36.6	-6.8		-50.1	60	208	09 47 26
09 48 50	0219+628	19 36 25	41.1	35.8	-6.8		-51.2	9	208	09 48 50
09 49 10	---	19 36 45	41.1	35.8	-6.8		-51.2	20	209	09 48 51
09 49 35	W3IRS5	19 37 10	40.3	36.7	-6.8		-50.3	10	209	09 49 35
09 50 35	---	19 38 10	40.4	36.8	-6.8		-50.4	60	211	09 49 36
09 51 00	0219+628	19 38 35	41.3	36.0	-6.8		-51.5	9	211	09 51 00
09 51 20	---	19 38 55	41.3	36.0	-6.8		-51.6	20	212	09 51 01

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Thu 29 Jan 2015 Day 29 ---										
09 52 50	W3IRS5	19 40 25	40.6	37.0	-6.8		-50.8	75	212	09 52 50
09 53 50	---	19 41 26	40.7	37.1	-6.8		-50.9	60	213	09 52 51
09 54 15	0219+628	19 41 51	41.6	36.3	-6.7		-52.0	9	213	09 54 15
09 54 35	---	19 42 11	41.6	36.3	-6.7		-52.1	20	214	09 54 16
09 55 00	W3IRS5	19 42 36	40.8	37.2	-6.7		-51.1	10	214	09 55 00
09 56 00	---	19 43 36	40.9	37.3	-6.7		-51.3	60	216	09 55 01
09 56 25	0219+628	19 44 01	41.8	36.5	-6.7		-52.4	9	216	09 56 25
09 56 45	---	19 44 21	41.8	36.5	-6.7		-52.5	20	217	09 56 26
09 57 10	W3IRS5	19 44 46	41.0	37.5	-6.7		-51.5	10	217	09 57 10
09 58 10	---	19 45 46	41.1	37.6	-6.7		-51.6	60	219	09 57 11
09 58 35	0219+628	19 46 11	41.9	36.7	-6.6		-52.7	9	219	09 58 35
09 58 55	---	19 46 31	42.0	36.7	-6.6		-52.8	20	219	09 58 36
09 59 20	W3IRS5	19 46 57	41.2	37.7	-6.7		-51.8	10	219	09 59 20
10 00 20	---	19 47 57	41.3	37.8	-6.6		-52.0	60	221	09 59 21
10 00 45	0219+628	19 48 22	42.1	36.9	-6.6		-53.1	9	221	10 00 45
10 01 05	---	19 48 42	42.2	36.9	-6.6		-53.2	20	222	10 00 46
10 02 35	W3IRS5	19 50 12	41.5	38.0	-6.6		-52.3	75	222	10 02 35
10 03 35	---	19 51 12	41.6	38.1	-6.6		-52.5	60	224	10 02 36
10 04 00	0219+628	19 51 37	42.4	37.2	-6.6		-53.6	9	224	10 04 00
10 04 20	---	19 51 57	42.5	37.2	-6.5		-53.7	20	224	10 04 01
10 04 45	W3IRS5	19 52 22	41.7	38.2	-6.6		-52.7	10	224	10 04 45
10 05 45	---	19 53 23	41.8	38.3	-6.6		-52.8	60	226	10 04 46
10 06 10	0219+628	19 53 48	42.6	37.4	-6.5		-54.0	9	226	10 06 10
10 06 30	---	19 54 08	42.7	37.4	-6.5		-54.0	20	227	10 06 11
10 06 55	W3IRS5	19 54 33	41.9	38.4	-6.5		-53.0	10	227	10 06 55
10 07 55	---	19 55 33	42.0	38.5	-6.5		-53.2	60	229	10 06 56
10 08 20	0219+628	19 55 58	42.8	37.6	-6.5		-54.3	10	229	10 08 20
10 08 40	---	19 56 18	42.9	37.6	-6.5		-54.4	20	229	10 08 21
10 09 05	W3IRS5	19 56 43	42.1	38.6	-6.5		-53.3	10	229	10 09 05
10 10 05	---	19 57 43	42.2	38.7	-6.5		-53.5	60	231	10 09 06

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC

--- Thu 29 Jan 2015 Day 29 ---										
10 10 30	0219+628	19 58 08	43.0	37.8	-6.4		-54.7	10	231	10 10 30
10 10 50	---	19 58 28	43.1	37.8	-6.4		-54.7	20	232	10 10 31
10 11 15	W3IRS5	19 58 53	42.3	38.8	-6.5		-53.7	10	232	10 11 15
10 12 15	---	19 59 54	42.4	38.9	-6.4		-53.8	60	234	10 11 16
10 12 40	0219+628	20 00 19	43.2	38.0	-6.4		-55.0	10	234	10 12 40
10 13 00	---	20 00 39	43.3	38.0	-6.4		-55.1	20	235	10 12 41
----- Space-ground K-band VLBI scans -----										
10 15 00	W3IRS5	20 02 39	42.7	39.1	-6.4		-54.3	105	235	10 15 00
10 24 00	---	20 11 41	43.5	40.0	-6.3		-55.7	540	252	10 15 01
10 25 30	W3IRS5	20 13 11	43.7	40.1	-6.2		-56.0	84	252	10 25 30
10 34 30	---	20 22 12	44.5	40.9	-6.1		-57.4	540	269	10 25 31
10 36 00	W3IRS5	20 23 43	44.7	41.0	-6.1		-57.6	84	269	10 36 00
10 45 00	---	20 32 44	45.6	41.8	-5.9		-59.1	540	287	10 36 01
10 47 25	W3IRS5	20 35 09	45.8	42.0	-5.9		-59.5	139	287	10 47 25
10 48 25	---	20 36 10	45.9	42.1	-5.8		-59.6	60	288	10 47 26
10 48 50	0219+628	20 36 35	46.7	41.0	-5.8		-61.0	10	288	10 48 50
10 49 10	---	20 36 55	46.7	41.1	-5.8		-61.0	20	289	10 48 51
10 49 35	W3IRS5	20 37 20	46.1	42.2	-5.8		-59.8	10	289	10 49 35
10 50 35	---	20 38 20	46.2	42.3	-5.8		-60.0	60	291	10 49 36
10 51 00	0219+628	20 38 45	46.9	41.2	-5.8		-61.3	10	291	10 51 00
10 51 20	---	20 39 05	46.9	41.2	-5.8		-61.4	20	292	10 51 01
10 51 45	W3IRS5	20 39 30	46.3	42.4	-5.8		-60.2	10	292	10 51 45
10 52 45	---	20 40 30	46.4	42.5	-5.8		-60.3	60	294	10 51 46
10 53 10	0219+628	20 40 55	47.1	41.4	-5.7		-61.7	10	294	10 53 10
10 53 30	---	20 41 15	47.2	41.4	-5.7		-61.7	20	294	10 53 11
10 53 55	W3IRS5	20 41 40	46.5	42.6	-5.8		-60.5	10	294	10 53 55
10 54 55	---	20 42 41	46.6	42.7	-5.7		-60.7	60	296	10 53 56
10 55 20	0219+628	20 43 06	47.3	41.6	-5.7		-62.0	10	296	10 55 20
10 55 40	---	20 43 26	47.4	41.6	-5.7		-62.1	20	297	10 55 21

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Thu 29 Jan 2015 Day 29 ---										
10 56 05	W3IRS5	20 43 51	46.7	42.8	-5.7		-60.8	10	297	10 56 05
10 57 05	---	20 44 51	46.8	42.9	-5.7		-61.0	60	299	10 56 06
10 57 30	0219+628	20 45 16	47.6	41.7	-5.7		-62.4	10	299	10 57 30
10 57 50	---	20 45 36	47.6	41.8	-5.7		-62.5	20	299	10 57 31
11 00 50	2021+614	20 48 37	80.7	-19.7	0.4		154.7	42	299	11 00 50
11 05 50	---	20 53 37	80.5	-22.9	0.5		150.5	300	309	11 00 51
11 09 10	0241+622	20 56 58	46.3	41.8	-5.8		-60.2	56	309	11 09 10
11 10 10	---	20 57 58	46.4	41.9	-5.8		-60.3	60	311	11 09 11
11 10 40	W3IRS5	20 58 28	48.2	44.0	-5.5		-63.2	9	311	11 10 40
11 11 40	---	20 59 28	48.3	44.0	-5.5		-63.4	60	313	11 10 41
11 12 05	0219+628	20 59 53	49.0	42.8	-5.4		-64.8	10	313	11 12 05
11 12 25	---	21 00 14	49.1	42.9	-5.4		-64.9	20	313	11 12 06
11 12 50	W3IRS5	21 00 39	48.4	44.1	-5.4		-63.6	10	313	11 12 50
11 13 50	---	21 01 39	48.6	44.2	-5.4		-63.7	60	315	11 12 51
11 14 15	0219+628	21 02 04	49.3	43.0	-5.4		-65.2	10	315	11 14 15
11 14 35	---	21 02 24	49.3	43.0	-5.4		-65.3	20	316	11 14 16
11 15 00	W3IRS5	21 02 49	48.7	44.3	-5.4		-63.9	10	316	11 15 00
11 16 00	---	21 03 49	48.8	44.4	-5.4		-64.1	60	318	11 15 01
11 16 25	0219+628	21 04 14	49.5	43.1	-5.3		-65.6	10	318	11 16 25
11 16 45	---	21 04 34	49.5	43.2	-5.3		-65.6	20	319	11 16 26
11 17 10	W3IRS5	21 04 59	48.9	44.5	-5.4		-64.3	10	319	11 17 10
11 18 10	---	21 05 59	49.0	44.5	-5.3		-64.4	60	321	11 17 11
11 18 35	0219+628	21 06 25	49.7	43.3	-5.3		-65.9	10	321	11 18 35
11 18 55	---	21 06 45	49.7	43.3	-5.3		-66.0	20	321	11 18 36
11 20 35	W3IRS5	21 08 25	49.3	44.7	-5.3		-64.8	85	321	11 20 35
11 21 35	---	21 09 25	49.4	44.8	-5.3		-65.0	60	323	11 20 36
11 22 00	0219+628	21 09 50	50.1	43.5	-5.2		-66.5	10	323	11 22 00
11 22 20	---	21 10 10	50.1	43.6	-5.2		-66.6	20	324	11 22 01
11 22 45	W3IRS5	21 10 35	49.5	44.9	-5.3		-65.2	10	324	11 22 45
11 23 45	---	21 11 35	49.6	45.0	-5.3		-65.3	60	326	11 22 46

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Thu 29 Jan 2015 Day 29 ---										
11 24 10	0219+628	21 12 00	50.3	43.7	-5.2		-66.9	10	326	11 24 10
11 24 30	---	21 12 21	50.3	43.7	-5.2		-67.0	20	326	11 24 11
11 24 55	W3IRS5	21 12 46	49.7	45.0	-5.2		-65.5	10	326	11 24 55
11 25 55	---	21 13 46	49.8	45.1	-5.2		-65.7	60	328	11 24 56
11 26 20	0219+628	21 14 11	50.5	43.8	-5.2		-67.3	10	328	11 26 20
11 26 40	---	21 14 31	50.5	43.9	-5.2		-67.3	20	329	11 26 21
11 27 05	W3IRS5	21 14 56	50.0	45.2	-5.2		-65.9	10	329	11 27 05
11 28 05	---	21 15 56	50.1	45.3	-5.2		-66.1	60	331	11 27 06
11 28 30	0219+628	21 16 21	50.7	44.0	-5.1		-67.6	10	331	11 28 30
11 28 50	---	21 16 41	50.8	44.0	-5.1		-67.7	20	331	11 28 31
11 29 15	W3IRS5	21 17 06	50.2	45.4	-5.2		-66.3	10	331	11 29 15
11 30 15	---	21 18 06	50.3	45.4	-5.1		-66.4	60	333	11 29 16
11 30 40	0219+628	21 18 32	51.0	44.1	-5.1		-68.0	10	333	11 30 40
11 31 00	---	21 18 52	51.0	44.2	-5.1		-68.1	20	334	11 30 41
11 31 25	W3IRS5	21 19 17	50.4	45.5	-5.1		-66.6	10	334	11 31 25
11 32 25	---	21 20 17	50.5	45.6	-5.1		-66.8	60	336	11 31 26
11 32 50	0219+628	21 20 42	51.2	44.3	-5.1		-68.4	10	336	11 32 50
11 33 10	---	21 21 02	51.2	44.3	-5.1		-68.4	20	337	11 32 51
11 33 35	W3IRS5	21 21 27	50.7	45.7	-5.1		-67.0	10	337	11 33 35
11 34 35	---	21 22 27	50.8	45.8	-5.1		-67.1	60	338	11 33 36
11 35 00	0219+628	21 22 52	51.4	44.4	-5.0		-68.8	10	338	11 35 00
11 35 20	---	21 23 12	51.5	44.4	-5.0		-68.8	20	339	11 35 01
11 35 45	W3IRS5	21 23 37	50.9	45.8	-5.1		-67.3	10	339	11 35 45
11 36 45	---	21 24 38	51.0	45.9	-5.0		-67.5	60	341	11 35 46
11 37 10	0219+628	21 25 03	51.6	44.6	-5.0		-69.1	10	341	11 37 10
11 37 30	---	21 25 23	51.7	44.6	-5.0		-69.2	20	342	11 37 11
11 37 55	W3IRS5	21 25 48	51.1	46.0	-5.0		-67.7	9	342	11 37 55
11 38 55	---	21 26 48	51.2	46.1	-5.0		-67.9	60	344	11 37 56
11 39 20	0219+628	21 27 13	51.9	44.7	-5.0		-69.5	10	344	11 39 20
11 39 40	---	21 27 33	51.9	44.7	-5.0		-69.6	20	344	11 39 21

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC

--- Thu 29 Jan 2015 Day 29 ---										
11 40 05	W3IRS5	21 27 58	51.4	46.1	-5.0		-68.1	9	344	11 40 05
11 41 05	---	21 28 58	51.5	46.2	-5.0		-68.2	60	346	11 40 06
11 41 30	0219+628	21 29 23	52.1	44.8	-4.9		-69.9	9	346	11 41 30
11 41 50	---	21 29 43	52.1	44.9	-4.9		-69.9	20	347	11 41 31
11 42 15	W3IRS5	21 30 08	51.6	46.3	-4.9		-68.4	9	347	11 42 15
11 43 15	---	21 31 09	51.7	46.4	-4.9		-68.6	60	349	11 42 16
11 43 40	0219+628	21 31 34	52.3	45.0	-4.9		-70.3	9	349	11 43 40
11 44 00	---	21 31 54	52.4	45.0	-4.9		-70.3	20	349	11 43 41
11 44 25	W3IRS5	21 32 19	51.8	46.5	-4.9		-68.8	9	349	11 44 25
11 45 25	---	21 33 19	51.9	46.5	-4.9		-68.9	60	351	11 44 26
11 45 50	0219+628	21 33 44	52.6	45.1	-4.8		-70.6	9	351	11 45 50
11 46 10	---	21 34 04	52.6	45.1	-4.8		-70.7	20	352	11 45 51
11 46 35	W3IRS5	21 34 29	52.1	46.6	-4.9		-69.1	9	352	11 46 35
11 47 35	---	21 35 29	52.2	46.7	-4.9		-69.3	60	354	11 46 36
11 48 00	0219+628	21 35 54	52.8	45.2	-4.8		-71.0	9	354	11 48 00
11 48 20	---	21 36 14	52.8	45.3	-4.8		-71.1	20	354	11 48 01
11 48 45	W3IRS5	21 36 39	52.3	46.7	-4.8		-69.5	9	354	11 48 45
11 49 45	---	21 37 40	52.4	46.8	-4.8		-69.7	60	356	11 48 46
11 50 10	0219+628	21 38 05	53.0	45.4	-4.8		-71.4	9	356	11 50 10
11 50 30	---	21 38 25	53.1	45.4	-4.8		-71.4	20	357	11 50 11
11 50 55	W3IRS5	21 38 50	52.5	46.9	-4.8		-69.9	9	357	11 50 55
11 51 55	---	21 39 50	52.6	47.0	-4.8		-70.0	60	359	11 50 56
11 52 20	0219+628	21 40 15	53.3	45.5	-4.7		-71.8	9	359	11 52 20
11 52 40	---	21 40 35	53.3	45.5	-4.7		-71.8	20	360	11 52 21
11 53 05	W3IRS5	21 41 00	52.8	47.0	-4.8		-70.2	9	360	11 53 05
11 54 05	---	21 42 00	52.9	47.1	-4.7		-70.4	60	362	11 53 06
----- Space-ground K-band VLBI scans -----										
11 55 00	W3IRS5	21 42 56	53.0	47.2	-4.7		-70.6	49	362	11 55 00
12 04 30	---	21 52 27	54.0	47.8	-4.6		-72.2	570	380	11 55 01

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Thu 29 Jan 2015 Day 29 ---										
12 05 00	W3IRS5	21 52 57	54.1	47.8	-4.6		-72.3	24	380	12 05 00
12 14 30	---	22 02 29	55.2	48.3	-4.4		-73.9	570	398	12 05 01
12 15 00	W3IRS5	22 02 59	55.2	48.4	-4.4		-74.0	24	398	12 15 00
12 25 00	---	22 13 00	56.3	48.9	-4.2		-75.8	600	417	12 15 01
----- Ground-only K-band VLBI scans -----										
12 26 00	W3IRS5	22 14 01	56.5	49.0	-4.2		-76.0	54	417	12 26 00
12 27 00	---	22 15 01	56.6	49.0	-4.2		-76.1	60	419	12 26 01
12 27 30	0219+628	22 15 31	57.1	47.3	-4.2		-78.2	13	419	12 27 30
12 27 50	---	22 15 51	57.1	47.3	-4.1		-78.2	20	420	12 27 31
----- Ground-only K-band VLBI scans -----										
12 28 20	W3IRS5	22 16 21	56.7	49.1	-4.2		-76.4	13	420	12 28 20
12 29 20	---	22 17 21	56.8	49.1	-4.2		-76.6	60	422	12 28 21
12 29 50	0219+628	22 17 51	57.4	47.4	-4.1		-78.6	13	422	12 29 50
12 30 10	---	22 18 11	57.4	47.4	-4.1		-78.7	20	422	12 29 51
----- Ground-only K-band VLBI scans -----										
12 30 40	W3IRS5	22 18 41	57.0	49.2	-4.1		-76.8	13	422	12 30 40
12 31 40	---	22 19 42	57.1	49.2	-4.1		-77.0	60	424	12 30 41
12 32 10	0219+628	22 20 12	57.6	47.5	-4.1		-79.0	13	424	12 32 10
12 32 30	---	22 20 32	57.7	47.5	-4.1		-79.1	20	425	12 32 11
----- Ground-only K-band VLBI scans -----										
12 33 00	W3IRS5	22 21 02	57.3	49.3	-4.1		-77.2	13	425	12 33 00
12 34 00	---	22 22 02	57.4	49.4	-4.1		-77.4	60	427	12 33 01
12 34 30	0219+628	22 22 32	57.9	47.6	-4.0		-79.5	13	427	12 34 30
12 34 50	---	22 22 52	57.9	47.6	-4.0		-79.6	20	428	12 34 31
----- Ground-only K-band VLBI scans -----										
12 35 20	W3IRS5	22 23 22	57.5	49.4	-4.1		-77.7	13	428	12 35 20
12 36 20	---	22 24 22	57.6	49.5	-4.0		-77.8	60	429	12 35 21
12 36 50	0219+628	22 24 52	58.1	47.7	-4.0		-79.9	13	429	12 36 50
12 37 10	---	22 25 12	58.2	47.7	-4.0		-80.0	20	430	12 36 51

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Thu 29 Jan 2015 Day 29 ---										
12 39 20	0716+714	22 27 23	38.6	17.1	-8.9		-33.5	43	430	12 39 20
12 44 20	---	22 32 24	38.8	17.6	-8.9		-34.4	300	440	12 39 21
12 46 30	0219+628	22 34 34	59.2	48.0	-3.8		-81.8	40	440	12 46 30
12 46 50	---	22 34 54	59.3	48.0	-3.8		-81.9	20	440	12 46 31
12 47 20	W3IRS5	22 35 24	58.9	49.9	-3.9		-79.9	13	440	12 47 20
12 48 20	---	22 36 24	59.0	50.0	-3.8		-80.1	60	442	12 47 21
12 48 50	0219+628	22 36 54	59.5	48.1	-3.8		-82.3	13	442	12 48 50
12 49 10	---	22 37 14	59.5	48.1	-3.8		-82.3	20	443	12 48 51
12 49 40	W3IRS5	22 37 44	59.2	50.0	-3.8		-80.3	13	443	12 49 40
12 50 40	---	22 38 45	59.3	50.1	-3.8		-80.5	60	445	12 49 41
12 51 10	0219+628	22 39 15	59.7	48.2	-3.8		-82.7	13	445	12 51 10
12 51 30	---	22 39 35	59.8	48.2	-3.8		-82.8	20	446	12 51 11
12 52 00	W3IRS5	22 40 05	59.4	50.1	-3.8		-80.7	13	446	12 52 00
12 53 00	---	22 41 05	59.6	50.2	-3.8		-80.9	60	447	12 52 01
12 53 30	0219+628	22 41 35	60.0	48.2	-3.7		-83.2	13	447	12 53 30
12 53 50	---	22 41 55	60.0	48.2	-3.7		-83.3	20	448	12 53 31
12 54 20	W3IRS5	22 42 25	59.7	50.2	-3.7		-81.2	12	448	12 54 20
12 55 20	---	22 43 25	59.8	50.2	-3.7		-81.4	60	450	12 54 21
12 55 50	0219+628	22 43 56	60.3	48.3	-3.7		-83.7	12	450	12 55 50
12 56 10	---	22 44 16	60.3	48.3	-3.7		-83.7	20	451	12 55 51
12 56 40	W3IRS5	22 44 46	60.0	50.3	-3.7		-81.6	12	451	12 56 40
12 57 40	---	22 45 46	60.1	50.3	-3.7		-81.8	60	453	12 56 41
12 58 10	0219+628	22 46 16	60.5	48.3	-3.6		-84.1	12	453	12 58 10
12 58 30	---	22 46 36	60.6	48.4	-3.6		-84.2	20	453	12 58 11
12 59 00	W3IRS5	22 47 06	60.2	50.4	-3.7		-82.1	12	453	12 59 00
13 00 00	---	22 48 06	60.4	50.4	-3.6		-82.3	60	455	12 59 01
13 00 30	0219+628	22 48 36	60.8	48.4	-3.6		-84.6	12	455	13 00 30
13 00 50	---	22 48 56	60.8	48.4	-3.6		-84.7	20	456	13 00 31
13 01 20	W3IRS5	22 49 26	60.5	50.4	-3.6		-82.5	12	456	13 01 20
13 02 20	---	22 50 27	60.6	50.5	-3.6		-82.7	60	458	13 01 21

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Thu 29 Jan 2015 Day 29 ---										
13 02 50	0219+628	22 50 57	61.0	48.4	-3.6		-85.1	12	458	13 02 50
13 03 10	---	22 51 17	61.1	48.5	-3.6		-85.2	20	458	13 02 51
13 03 40	W3IRS5	22 51 47	60.8	50.5	-3.6		-83.0	12	458	13 03 40
13 04 40	---	22 52 47	60.9	50.5	-3.6		-83.2	60	460	13 03 41
13 05 10	0219+628	22 53 17	61.3	48.5	-3.5		-85.6	12	460	13 05 10
13 05 30	---	22 53 37	61.3	48.5	-3.5		-85.7	20	461	13 05 11
13 06 10	0241+622	22 54 17	58.9	49.2	-3.9		-80.4	17	461	13 06 10
13 08 10	---	22 56 18	59.1	49.3	-3.8		-80.8	120	465	13 06 11
13 08 40	W3IRS5	22 56 48	61.4	50.6	-3.5		-84.0	8	465	13 08 40
13 09 40	---	22 57 48	61.5	50.7	-3.5		-84.2	60	467	13 08 41
13 10 10	0219+628	22 58 18	61.9	48.6	-3.4		-86.6	12	467	13 10 10
13 10 30	---	22 58 38	61.9	48.6	-3.4		-86.7	20	467	13 10 11
13 11 00	W3IRS5	22 59 08	61.6	50.7	-3.5		-84.5	12	467	13 11 00
13 12 00	---	23 00 08	61.8	50.7	-3.4		-84.7	60	469	13 11 01
13 12 30	0219+628	23 00 38	62.1	48.6	-3.4		-87.1	12	469	13 12 30
13 12 50	---	23 00 58	62.2	48.6	-3.4		-87.2	20	470	13 12 31
13 13 20	W3IRS5	23 01 28	61.9	50.8	-3.4		-84.9	12	470	13 13 20
13 14 20	---	23 02 29	62.0	50.8	-3.4		-85.1	60	472	13 13 21
13 14 50	0219+628	23 02 59	62.4	48.6	-3.4		-87.6	12	472	13 14 50
13 15 10	---	23 03 19	62.4	48.6	-3.4		-87.7	20	472	13 14 51
13 15 40	W3IRS5	23 03 49	62.2	50.8	-3.4		-85.4	12	472	13 15 40
13 16 40	---	23 04 49	62.3	50.8	-3.4		-85.6	60	474	13 15 41
13 17 10	0219+628	23 05 19	62.7	48.6	-3.3		-88.1	12	474	13 17 10
13 17 30	---	23 05 39	62.7	48.6	-3.3		-88.2	20	475	13 17 11
13 18 00	W3IRS5	23 06 09	62.5	50.8	-3.3		-85.9	12	475	13 18 00
13 19 00	---	23 07 09	62.6	50.9	-3.3		-86.1	60	477	13 18 01
13 19 30	0219+628	23 07 39	62.9	48.7	-3.3		-88.6	12	477	13 19 30
13 19 50	---	23 07 59	63.0	48.7	-3.3		-88.7	20	478	13 19 31
13 20 20	W3IRS5	23 08 30	62.7	50.9	-3.3		-86.4	12	478	13 20 20
13 21 20	---	23 09 30	62.8	50.9	-3.3		-86.6	60	479	13 20 21

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC

--- Thu 29 Jan 2015 Day 29 ---										
13 21 50	0219+628	23 10 00	63.2	48.7	-3.2		-89.1	12	479	13 21 50
13 22 10	---	23 10 20	63.2	48.7	-3.2		-89.2	20	480	13 21 51
----- 9 min gap for Effelsberg / KVN pointing -----										
13 22 40	W3IRS5	23 10 50	63.0	50.9	-3.3		-86.8	12	480	13 22 40
13 23 40	---	23 11 50	63.1	50.9	-3.3		-87.1	60	482	13 22 41
13 24 10	0219+628	23 12 20	63.5	48.7	-3.2		-89.7	12	482	13 24 10
13 24 30	---	23 12 40	63.5	48.7	-3.2		-89.7	20	483	13 24 11
13 25 00	W3IRS5	23 13 10	63.3	51.0	-3.2		-87.3	12	483	13 25 00
13 26 00	---	23 14 10	63.4	51.0	-3.2		-87.5	60	485	13 25 01
13 26 30	0219+628	23 14 41	63.7	48.7	-3.2		-90.2	11	485	13 26 30
13 26 50	---	23 15 01	63.8	48.7	-3.2		-90.3	20	485	13 26 31
13 27 20	W3IRS5	23 15 31	63.6	51.0	-3.2		-87.8	11	485	13 27 20
13 28 20	---	23 16 31	63.7	51.0	-3.2		-88.0	60	487	13 27 21
13 28 50	0219+628	23 17 01	64.0	48.7	-3.1		-90.7	11	487	13 28 50
13 29 10	---	23 17 21	64.0	48.7	-3.1		-90.8	20	488	13 28 51
13 29 40	W3IRS5	23 17 51	63.8	51.0	-3.2		-88.3	11	488	13 29 40
13 30 40	---	23 18 51	63.9	51.0	-3.1		-88.5	60	490	13 29 41
13 31 10	0219+628	23 19 21	64.2	48.7	-3.1		-91.2	11	490	13 31 10
13 31 30	---	23 19 41	64.3	48.7	-3.1		-91.3	20	490	13 31 11
13 32 00	W3IRS5	23 20 11	64.1	51.0	-3.1		-88.8	11	490	13 32 00
13 33 00	---	23 21 12	64.2	51.0	-3.1		-89.0	60	492	13 32 01
13 33 30	0219+628	23 21 42	64.5	48.6	-3.0		-91.8	11	492	13 33 30
13 33 50	---	23 22 02	64.6	48.6	-3.0		-91.9	20	493	13 33 31
----- Space-ground K-band VLBI scans -----										
13 35 00	W3IRS5	23 23 12	64.4	51.0	-3.1		-89.5	51	493	13 35 00
13 44 30	---	23 32 44	65.6	51.0	-2.9		-91.6	570	511	13 35 01
13 45 00	W3IRS5	23 33 14	65.6	51.0	-2.9		-91.7	24	511	13 45 00
13 54 30	---	23 42 45	66.7	50.9	-2.7		-94.0	570	529	13 45 01
13 55 00	W3IRS5	23 43 15	66.8	50.9	-2.7		-94.1	24	529	13 55 00
14 05 00	---	23 53 17	68.0	50.6	-2.6		-96.6	600	549	13 55 01

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

```

-----
Start UT  Source          Start / Stop          Early  Disk  TPStart
Stop UT          LST      EL  AZ  HA  UP  ParA  Dwell  GBytes  SYNC
-----
--- Thu 29 Jan 2015  Day 29 ---

----- Ground-only K-band VLBI scans -----

14 06 00  W3IRS5          23 54 17  68.1  50.5 -2.5   -96.8   54   549  14 06 00
14 07 00  ---                23 55 17  68.2  50.5 -2.5   -97.1   60   551  14 06 01

14 07 32  0219+628       23 55 49  68.3  47.6 -2.5  -100.3   12   551  14 07 32
14 07 52  ---                23 56 09  68.4  47.6 -2.5  -100.4   20   551  14 07 33

----- Ground-only K-band VLBI scans -----

14 08 24  W3IRS5          23 56 41  68.3  50.4 -2.5   -97.4   12   551  14 08 24
14 09 24  ---                23 57 42  68.5  50.4 -2.5   -97.7   60   553  14 08 25

14 09 56  0219+628       23 58 14  68.6  47.5 -2.4  -101.0   12   553  14 09 56
14 10 16  ---                23 58 34  68.6  47.5 -2.4  -101.1   20   554  14 09 57

----- Ground-only K-band VLBI scans -----

14 10 48  W3IRS5          23 59 06  68.6  50.3 -2.5   -98.1   12   554  14 10 48
14 11 48  ---                00 00 06  68.7  50.3 -2.4   -98.3   60   556  14 10 49

14 12 20  0219+628       00 00 38  68.9  47.4 -2.4  -101.7   12   556  14 12 20
14 12 40  ---                00 00 58  68.9  47.3 -2.4  -101.8   20   556  14 12 21

----- Ground-only K-band VLBI scans -----

14 13 12  W3IRS5          00 01 30  68.9  50.2 -2.4   -98.7   12   556  14 13 12
14 14 12  ---                00 02 30  69.0  50.2 -2.4   -99.0   60   558  14 13 13

14 14 44  0219+628       00 03 02  69.1  47.2 -2.4  -102.4   12   558  14 14 44
14 15 04  ---                00 03 23  69.2  47.2 -2.4  -102.4   20   559  14 14 45

----- Ground-only K-band VLBI scans -----

14 15 36  W3IRS5          00 03 55  69.2  50.1 -2.4   -99.3   12   559  14 15 36
14 16 36  ---                00 04 55  69.3  50.0 -2.4   -99.6   60   561  14 15 37

14 17 08  0219+628       00 05 27  69.4  47.0 -2.3  -103.0   12   561  14 17 08
14 17 28  ---                00 05 47  69.4  47.0 -2.3  -103.1   20   562  14 17 09

14 19 38  0716+714       00 07 57  44.0  24.9 -7.3   -52.2   21   562  14 19 38
14 24 38  ---                00 12 58  44.4  25.3 -7.2   -53.1  300   571  14 19 39

14 26 48  0219+628       00 15 08  70.5  46.2 -2.2  -106.0   18   571  14 26 48
14 27 08  ---                00 15 29  70.5  46.2 -2.2  -106.1   20   572  14 26 49

```

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Thu 29 Jan 2015 Day 29 ---										
14 27 40	W3IRS5	00 16 01	70.6	49.3	-2.2		-102.8	11	572	14 27 40
14 28 40	---	00 17 01	70.7	49.2	-2.2		-103.1	60	574	14 27 41
14 29 12	0219+628	00 17 33	70.7	46.0	-2.1		-106.7	11	574	14 29 12
14 29 32	---	00 17 53	70.8	46.0	-2.1		-106.8	20	574	14 29 13
14 30 04	W3IRS5	00 18 25	70.8	49.1	-2.1		-103.5	11	574	14 30 04
14 31 04	---	00 19 25	71.0	49.0	-2.1		-103.8	60	576	14 30 05
14 31 36	0219+628	00 19 57	71.0	45.8	-2.1		-107.5	11	576	14 31 36
14 31 56	---	00 20 17	71.0	45.7	-2.1		-107.6	20	577	14 31 37
14 32 28	W3IRS5	00 20 49	71.1	48.9	-2.1		-104.2	11	577	14 32 28
14 33 28	---	00 21 50	71.2	48.8	-2.1		-104.5	60	579	14 32 29
14 34 00	0219+628	00 22 22	71.2	45.5	-2.0		-108.3	11	579	14 34 00
14 34 20	---	00 22 42	71.3	45.5	-2.0		-108.4	20	579	14 34 01
14 34 52	W3IRS5	00 23 14	71.4	48.7	-2.1		-104.9	11	579	14 34 52
14 35 52	---	00 24 14	71.5	48.6	-2.0		-105.3	60	581	14 34 53
14 36 24	0219+628	00 24 46	71.5	45.2	-2.0		-109.1	11	581	14 36 24
14 36 44	---	00 25 06	71.5	45.2	-2.0		-109.2	20	582	14 36 25
14 37 16	W3IRS5	00 25 38	71.7	48.5	-2.0		-105.7	11	582	14 37 16
14 38 16	---	00 26 38	71.8	48.4	-2.0		-106.0	60	584	14 37 17
14 38 48	0219+628	00 27 10	71.7	44.9	-2.0		-109.9	11	584	14 38 48
14 39 08	---	00 27 30	71.8	44.9	-2.0		-110.0	20	585	14 38 49
14 39 40	W3IRS5	00 28 03	71.9	48.2	-2.0		-106.5	11	585	14 39 40
14 40 40	---	00 29 03	72.0	48.1	-2.0		-106.8	60	587	14 39 41
14 41 12	0219+628	00 29 35	72.0	44.6	-1.9		-110.7	10	587	14 41 12
14 41 32	---	00 29 55	72.0	44.6	-1.9		-110.8	20	587	14 41 13
14 42 04	W3IRS5	00 30 27	72.2	47.9	-1.9		-107.2	11	587	14 42 04
14 43 04	---	00 31 27	72.3	47.8	-1.9		-107.6	60	589	14 42 05
14 43 36	0219+628	00 31 59	72.3	44.3	-1.9		-111.5	10	589	14 43 36
14 43 56	---	00 32 19	72.3	44.3	-1.9		-111.6	20	590	14 43 37
14 44 28	W3IRS5	00 32 51	72.5	47.7	-1.9		-108.0	10	590	14 44 28
14 45 28	---	00 33 52	72.6	47.5	-1.9		-108.4	60	592	14 44 29

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Thu 29 Jan 2015 Day 29 ---										
14 46 00	0219+628	00 34 24	72.5	44.0	-1.8		-112.4	10	592	14 46 00
14 46 20	---	00 34 44	72.5	43.9	-1.8		-112.5	20	592	14 46 01
14 46 52	W3IRS5	00 35 16	72.7	47.4	-1.9		-108.9	10	592	14 46 52
14 47 52	---	00 36 16	72.8	47.2	-1.8		-109.2	60	594	14 46 53
14 48 24	0219+628	00 36 48	72.8	43.6	-1.8		-113.3	10	594	14 48 24
14 48 44	---	00 37 08	72.8	43.6	-1.8		-113.4	20	595	14 48 25
14 49 16	W3IRS5	00 37 40	73.0	47.1	-1.8		-109.7	10	595	14 49 16
14 50 16	---	00 38 40	73.1	46.9	-1.8		-110.0	60	597	14 49 17
14 50 48	0219+628	00 39 12	73.0	43.3	-1.8		-114.1	10	597	14 50 48
14 51 08	---	00 39 32	73.0	43.2	-1.8		-114.3	20	597	14 50 49
14 51 40	W3IRS5	00 40 05	73.3	46.7	-1.8		-110.5	10	597	14 51 40
14 52 40	---	00 41 05	73.4	46.6	-1.8		-110.9	60	599	14 51 41
14 53 12	0219+628	00 41 37	73.3	42.9	-1.7		-115.1	10	599	14 53 12
14 53 32	---	00 41 57	73.3	42.8	-1.7		-115.2	20	600	14 53 13
14 54 04	W3IRS5	00 42 29	73.5	46.4	-1.7		-111.4	10	600	14 54 04
14 55 04	---	00 43 29	73.6	46.2	-1.7		-111.8	60	602	14 54 05
14 55 36	0219+628	00 44 01	73.5	42.5	-1.7		-116.0	10	602	14 55 36
14 55 56	---	00 44 21	73.5	42.4	-1.7		-116.1	20	603	14 55 37
14 56 28	W3IRS5	00 44 53	73.8	46.0	-1.7		-112.3	10	603	14 56 28
14 57 28	---	00 45 53	73.9	45.8	-1.7		-112.7	60	604	14 56 29
14 58 08	0241+622	00 46 34	71.7	47.2	-2.0		-107.3	18	604	14 58 08
15 00 08	---	00 48 34	71.9	47.0	-2.0		-107.9	120	608	14 58 09
15 00 38	W3IRS5	00 49 04	74.2	45.3	-1.6		-113.9	8	608	15 00 38
15 01 38	---	00 50 04	74.3	45.1	-1.6		-114.3	60	610	15 00 39
15 02 08	0219+628	00 50 34	74.2	41.2	-1.6		-118.6	7	610	15 02 08
15 02 28	---	00 50 54	74.2	41.2	-1.6		-118.8	20	611	15 02 09
15 03 06	W3IRS5	00 51 32	74.5	44.9	-1.6		-114.9	16	611	15 03 06
15 04 06	---	00 52 33	74.6	44.7	-1.6		-115.3	60	613	15 03 07
15 04 44	0219+628	00 53 11	74.4	40.7	-1.5		-119.7	15	613	15 04 44
15 05 04	---	00 53 31	74.4	40.6	-1.5		-119.8	20	613	15 04 45

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC

--- Thu 29 Jan 2015 Day 29 ---										
15 05 42	W3IRS5	00 54 09	74.8	44.4	-1.5		-115.9	16	613	15 05 42
15 06 42	---	00 55 09	74.9	44.2	-1.5		-116.3	60	615	15 05 43
15 07 20	0219+628	00 55 47	74.7	40.2	-1.5		-120.8	15	615	15 07 20
15 07 40	---	00 56 07	74.7	40.1	-1.5		-121.0	20	616	15 07 21
15 08 18	W3IRS5	00 56 45	75.0	43.9	-1.5		-117.0	15	616	15 08 18
15 09 18	---	00 57 45	75.1	43.6	-1.5		-117.4	60	618	15 08 19
15 09 56	0219+628	00 58 24	74.9	39.6	-1.4		-122.0	15	618	15 09 56
15 10 16	---	00 58 44	74.9	39.5	-1.4		-122.1	20	619	15 09 57
15 10 54	W3IRS5	00 59 22	75.3	43.3	-1.5		-118.1	15	619	15 10 54
15 11 54	---	01 00 22	75.4	43.1	-1.4		-118.5	60	621	15 10 55
15 12 32	0219+628	01 01 00	75.2	39.0	-1.4		-123.1	15	621	15 12 32
15 12 52	---	01 01 20	75.2	38.9	-1.4		-123.3	20	621	15 12 33
15 13 30	W3IRS5	01 01 58	75.6	42.7	-1.4		-119.2	15	621	15 13 30
15 14 30	---	01 02 58	75.7	42.5	-1.4		-119.7	60	623	15 13 31
15 15 08	0219+628	01 03 36	75.4	38.3	-1.4		-124.3	15	623	15 15 08
15 15 28	---	01 03 56	75.4	38.2	-1.3		-124.5	20	624	15 15 09
15 16 06	W3IRS5	01 04 35	75.8	42.1	-1.4		-120.4	15	624	15 16 06
15 17 06	---	01 05 35	75.9	41.9	-1.4		-120.9	60	626	15 16 07
15 17 44	0219+628	01 06 13	75.6	37.7	-1.3		-125.6	15	626	15 17 44
15 18 04	---	01 06 33	75.7	37.6	-1.3		-125.7	20	626	15 17 45
----- Space-ground K-band VLBI scans -----										
15 20 00	W3IRS5	01 08 29	76.2	41.1	-1.3		-122.2	93	626	15 20 00
15 29 00	---	01 17 31	77.1	38.5	-1.2		-126.7	540	644	15 20 01
15 30 30	W3IRS5	01 19 01	77.2	38.1	-1.1		-127.5	83	644	15 30 30
15 39 30	---	01 28 02	78.0	34.9	-1.0		-132.6	540	661	15 30 31
15 41 00	W3IRS5	01 29 33	78.2	34.3	-1.0		-133.5	83	661	15 41 00
15 50 00	---	01 38 34	78.9	30.5	-0.8		-139.3	540	678	15 41 01
15 52 15	W3IRS5	01 40 49	79.1	29.4	-0.8		-140.8	128	678	15 52 15
15 53 15	---	01 41 50	79.1	28.9	-0.8		-141.5	60	680	15 52 16

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Thu 29 Jan 2015 Day 29 ---										
15 53 51	0219+628	01 42 26	78.5	24.5	-0.7		-146.5	12	680	15 53 51
15 54 11	---	01 42 46	78.5	24.3	-0.7		-146.7	20	681	15 53 52
15 54 47	W3IRS5	01 43 22	79.3	28.2	-0.7		-142.6	13	681	15 54 47
15 55 47	---	01 44 22	79.3	27.7	-0.7		-143.3	60	683	15 54 48
15 56 23	0219+628	01 44 58	78.7	23.3	-0.7		-148.2	13	683	15 56 23
15 56 43	---	01 45 18	78.7	23.1	-0.7		-148.5	20	683	15 56 24
15 57 19	W3IRS5	01 45 54	79.4	26.9	-0.7		-144.4	13	683	15 57 19
15 58 19	---	01 46 54	79.5	26.4	-0.7		-145.2	60	685	15 57 20
15 58 55	0219+628	01 47 31	78.8	22.0	-0.6		-150.0	13	685	15 58 55
15 59 15	---	01 47 51	78.8	21.9	-0.6		-150.3	20	686	15 58 56
15 59 51	W3IRS5	01 48 27	79.6	25.5	-0.6		-146.3	13	686	15 59 51
16 00 51	---	01 49 27	79.7	25.0	-0.6		-147.1	60	688	15 59 52
16 01 27	0219+628	01 50 03	78.9	20.7	-0.6		-151.9	13	688	16 01 27
16 01 47	---	01 50 23	79.0	20.6	-0.6		-152.1	20	688	16 01 28
16 02 23	W3IRS5	01 50 59	79.8	24.2	-0.6		-148.2	14	688	16 02 23
16 03 23	---	01 51 59	79.8	23.6	-0.6		-149.0	60	690	16 02 24
16 04 43	0241+622	01 53 20	78.3	31.2	-0.9		-137.5	49	690	16 04 43
16 06 43	---	01 55 20	78.4	30.4	-0.8		-138.8	120	694	16 04 44
16 07 28	W3IRS5	01 56 05	80.1	21.2	-0.5		-152.3	12	694	16 07 28
16 08 28	---	01 57 05	80.1	20.6	-0.5		-153.1	60	696	16 07 29
16 09 04	0219+628	01 57 41	79.3	16.6	-0.4		-157.6	13	696	16 09 04
16 09 24	---	01 58 01	79.3	16.4	-0.4		-157.9	20	697	16 09 05
16 10 00	W3IRS5	01 58 37	80.2	19.7	-0.5		-154.4	14	697	16 10 00
16 11 00	---	01 59 38	80.2	19.0	-0.5		-155.2	60	699	16 10 01
16 11 36	0219+628	02 00 14	79.4	15.2	-0.4		-159.6	14	699	16 11 36
16 11 56	---	02 00 34	79.4	15.0	-0.4		-159.9	20	699	16 11 37
16 12 32	W3IRS5	02 01 10	80.3	18.1	-0.4		-156.5	15	699	16 12 32
16 13 32	---	02 02 10	80.4	17.4	-0.4		-157.3	60	701	16 12 33
16 14 08	0219+628	02 02 46	79.5	13.7	-0.4		-161.7	14	701	16 14 08
16 14 28	---	02 03 06	79.5	13.5	-0.4		-161.9	20	702	16 14 09

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Thu 29 Jan 2015 Day 29 ---										
16 16 24	W3IRS5	02 05 02	80.5	15.6	-0.4		-159.8	95	702	16 16 24
16 17 24	---	02 06 03	80.5	14.9	-0.3		-160.7	60	704	16 16 25
16 18 00	0219+628	02 06 39	79.6	11.4	-0.3		-164.8	15	704	16 18 00
16 18 20	---	02 06 59	79.6	11.2	-0.3		-165.1	20	704	16 18 01
16 18 56	W3IRS5	02 07 35	80.6	13.9	-0.3		-162.1	16	704	16 18 56
16 19 56	---	02 08 35	80.6	13.2	-0.3		-163.0	60	706	16 18 57
16 20 32	0219+628	02 09 11	79.7	9.8	-0.3		-166.9	15	706	16 20 32
16 20 52	---	02 09 31	79.7	9.6	-0.3		-167.2	20	707	16 20 33
16 21 28	W3IRS5	02 10 07	80.7	12.1	-0.3		-164.3	16	707	16 21 28
16 22 28	---	02 11 07	80.7	11.4	-0.3		-165.3	60	709	16 21 29
16 23 04	0219+628	02 11 44	79.8	8.2	-0.2		-169.0	16	709	16 23 04
16 23 24	---	02 12 04	79.8	8.0	-0.2		-169.3	20	710	16 23 05
16 24 00	W3IRS5	02 12 40	80.7	10.3	-0.2		-166.7	17	710	16 24 00
16 25 00	---	02 13 40	80.8	9.6	-0.2		-167.6	60	712	16 24 01
16 25 36	0219+628	02 14 16	79.8	6.7	-0.2		-171.1	16	712	16 25 36
16 25 56	---	02 14 36	79.8	6.4	-0.2		-171.4	20	712	16 25 37
16 27 52	W3IRS5	02 16 32	80.8	7.6	-0.2		-170.2	97	712	16 27 52
16 28 52	---	02 17 33	80.8	6.8	-0.2		-171.2	60	714	16 27 53
16 29 28	0219+628	02 18 09	79.9	4.2	-0.1		-174.4	17	714	16 29 28
16 29 48	---	02 18 29	79.9	4.0	-0.1		-174.7	20	715	16 29 29
16 30 24	W3IRS5	02 19 05	80.9	5.7	-0.1		-172.6	18	715	16 30 24
16 31 24	---	02 20 05	80.9	5.0	-0.1		-173.6	60	717	16 30 25
16 32 00	0219+628	02 20 41	79.9	2.6	-0.1		-176.6	18	717	16 32 00
16 32 20	---	02 21 01	79.9	2.4	-0.1		-176.9	20	717	16 32 01
16 32 56	W3IRS5	02 21 37	80.9	3.9	-0.1		-175.0	19	717	16 32 56
16 33 56	---	02 22 37	80.9	3.1	-0.1		-176.0	60	719	16 32 57
16 34 32	0219+628	02 23 13	79.9	0.9	-0.0		-178.8	19	719	16 34 32
16 34 52	---	02 23 33	79.9	0.7	-0.0		-179.0	20	720	16 34 33
16 35 28	W3IRS5	02 24 10	80.9	2.0	-0.0		-177.4	19	720	16 35 28
16 36 28	---	02 25 10	80.9	1.3	-0.0		-178.4	60	722	16 35 29

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC

--- Thu 29 Jan 2015 Day 29 ---										
16 37 04	0219+628	02 25 46	79.9	-0.7	0.0		179.1	19	722	16 37 04
16 37 24	---	02 26 06	79.9	-0.9	0.0		178.8	20	722	16 37 05
16 39 20	W3IRS5	02 28 02	80.9	-0.9	0.0		178.9	99	722	16 39 20
16 40 20	---	02 29 02	80.9	-1.6	0.0		177.9	60	724	16 39 21
16 40 56	0219+628	02 29 38	79.9	-3.2	0.1		175.8	19	724	16 40 56
16 41 16	---	02 29 59	79.9	-3.4	0.1		175.5	20	725	16 40 57
16 41 52	W3IRS5	02 30 35	80.9	-2.8	0.1		176.5	19	725	16 41 52
16 42 52	---	02 31 35	80.9	-3.5	0.1		175.5	60	727	16 41 53
16 43 28	0219+628	02 32 11	79.9	-4.8	0.1		173.6	19	727	16 43 28
16 43 48	---	02 32 31	79.9	-5.0	0.1		173.3	20	728	16 43 29
16 44 24	W3IRS5	02 33 07	80.9	-4.6	0.1		174.1	19	728	16 44 24
16 45 24	---	02 34 07	80.9	-5.4	0.1		173.1	60	729	16 44 25
16 46 00	0219+628	02 34 43	79.8	-6.4	0.2		171.4	19	729	16 46 00
16 46 20	---	02 35 03	79.8	-6.6	0.2		171.2	20	730	16 46 01
16 46 56	W3IRS5	02 35 39	80.9	-6.5	0.1		171.7	19	730	16 46 56
16 47 56	---	02 36 40	80.8	-7.2	0.2		170.7	60	732	16 46 57
16 48 32	0219+628	02 37 16	79.8	-8.0	0.2		169.3	19	732	16 48 32
16 48 52	---	02 37 36	79.8	-8.2	0.2		169.0	20	733	16 48 33
----- Space-ground K-band VLBI scans -----										
16 55 00	0716+714	02 43 45	55.4	32.0	-4.7		-83.8	261	733	16 55 00
17 04 00	---	02 52 46	56.1	32.2	-4.5		-85.8	540	750	16 55 01
17 05 30	0716+714	02 54 17	56.3	32.2	-4.5		-86.2	84	750	17 05 30
17 14 30	---	03 03 18	57.0	32.2	-4.3		-88.3	540	767	17 05 31
17 16 00	0716+714	03 04 48	57.1	32.2	-4.3		-88.6	84	767	17 16 00
17 25 00	---	03 13 50	57.8	32.2	-4.2		-90.7	540	785	17 16 01
17 30 30	W3IRS5	03 19 21	78.6	-32.3	0.9		136.5	189	785	17 30 30
17 31 30	---	03 20 21	78.5	-32.8	0.9		135.9	60	787	17 30 31
17 32 05	0219+628	03 20 56	77.5	-30.5	0.9		137.5	16	787	17 32 05
17 32 25	---	03 21 16	77.5	-30.6	0.9		137.3	20	787	17 32 06

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop				Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Thu 29 Jan 2015 Day 29 ---										
17 33 00	W3IRS5	03 21 51	78.4	-33.4	0.9		135.0	15	787	17 33 00
17 34 00	---	03 22 51	78.3	-33.8	0.9		134.3	60	789	17 33 01
17 34 35	0219+628	03 23 26	77.3	-31.4	1.0		136.0	16	789	17 34 35
17 34 55	---	03 23 46	77.3	-31.6	1.0		135.8	20	790	17 34 36
17 35 30	W3IRS5	03 24 21	78.2	-34.4	1.0		133.4	15	790	17 35 30
17 36 30	---	03 25 22	78.1	-34.8	1.0		132.8	60	792	17 35 31
17 37 05	0219+628	03 25 57	77.1	-32.3	1.0		134.6	16	792	17 37 05
17 37 25	---	03 26 17	77.1	-32.5	1.0		134.4	20	792	17 37 06
17 38 00	W3IRS5	03 26 52	77.9	-35.3	1.0		131.9	15	792	17 38 00
17 39 00	---	03 27 52	77.9	-35.7	1.0		131.3	60	794	17 38 01
17 39 35	0219+628	03 28 27	76.9	-33.2	1.1		133.2	16	794	17 39 35
17 39 55	---	03 28 47	76.9	-33.3	1.1		133.0	20	795	17 39 36
17 41 25	0241+622	03 30 17	78.9	-27.3	0.7		143.3	62	795	17 41 25
17 43 25	---	03 32 18	78.8	-28.3	0.8		141.9	120	799	17 41 26
17 44 01	0219+628	03 32 54	76.6	-34.7	1.1		130.8	8	799	17 44 01
17 44 21	---	03 33 14	76.5	-34.8	1.1		130.6	20	799	17 44 02
17 44 56	W3IRS5	03 33 49	77.3	-37.8	1.1		128.0	15	799	17 44 56
17 45 56	---	03 34 49	77.2	-38.1	1.1		127.5	60	801	17 44 57
17 46 31	0219+628	03 35 24	76.3	-35.5	1.2		129.4	15	801	17 46 31
17 46 51	---	03 35 44	76.3	-35.6	1.2		129.3	20	802	17 46 32
17 47 26	W3IRS5	03 36 19	77.1	-38.6	1.2		126.7	15	802	17 47 26
17 48 26	---	03 37 20	77.0	-38.9	1.2		126.2	60	804	17 47 27
17 49 01	0219+628	03 37 55	76.1	-36.2	1.2		128.2	15	804	17 49 01
17 49 21	---	03 38 15	76.1	-36.3	1.2		128.0	20	804	17 49 02
17 51 01	W3IRS5	03 39 55	76.7	-39.7	1.2		124.8	80	804	17 51 01
17 52 01	---	03 40 55	76.6	-39.9	1.2		124.3	60	806	17 51 02
17 52 31	0219+628	03 41 25	75.8	-37.2	1.3		126.4	10	806	17 52 31
17 52 51	---	03 41 45	75.8	-37.3	1.3		126.3	20	807	17 52 32
17 53 21	W3IRS5	03 42 15	76.5	-40.3	1.3		123.7	10	807	17 53 21
17 54 21	---	03 43 16	76.4	-40.6	1.3		123.2	60	809	17 53 22

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop				Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Thu 29 Jan 2015 Day 29 ---										
17 54 51	0219+628	03 43 46	75.6	-37.8	1.3		125.3	10	809	17 54 51
17 55 11	---	03 44 06	75.6	-37.9	1.3		125.1	20	810	17 54 52
17 55 41	W3IRS5	03 44 36	76.3	-41.0	1.3		122.5	10	810	17 55 41
17 56 41	---	03 45 36	76.2	-41.2	1.3		122.1	60	812	17 55 42
17 57 11	0219+628	03 46 06	75.4	-38.4	1.4		124.2	10	812	17 57 11
17 57 31	---	03 46 26	75.3	-38.5	1.4		124.0	20	812	17 57 12
17 58 01	W3IRS5	03 46 56	76.1	-41.6	1.3		121.4	9	812	17 58 01
17 59 01	---	03 47 56	76.0	-41.8	1.4		121.0	60	814	17 58 02
17 59 31	0219+628	03 48 26	75.2	-39.0	1.4		123.1	10	814	17 59 31
17 59 51	---	03 48 46	75.1	-39.1	1.4		123.0	20	815	17 59 32
18 02 51	2021+614	03 51 47	36.5	-33.1	7.5		43.7	22	815	18 02 51
18 08 51	---	03 57 48	36.1	-32.5	7.6		42.8	360	826	18 02 52
18 11 51	W3IRS5	04 00 48	74.6	-44.6	1.6		115.4	21	826	18 11 51
18 12 51	---	04 01 49	74.5	-44.8	1.6		115.0	60	828	18 11 52
18 13 21	0219+628	04 02 19	73.8	-41.9	1.6		117.2	10	828	18 13 21
18 13 41	---	04 02 39	73.8	-42.0	1.6		117.0	20	829	18 13 22
18 14 11	W3IRS5	04 03 09	74.4	-45.0	1.6		114.5	9	829	18 14 11
18 15 11	---	04 04 09	74.3	-45.2	1.6		114.1	60	831	18 14 12
18 15 41	0219+628	04 04 39	73.6	-42.3	1.7		116.3	10	831	18 15 41
18 16 01	---	04 04 59	73.5	-42.4	1.7		116.1	20	831	18 15 42
18 16 31	W3IRS5	04 05 29	74.1	-45.5	1.6		113.6	9	831	18 16 31
18 17 31	---	04 06 29	74.0	-45.6	1.7		113.2	60	833	18 16 32
18 18 01	0219+628	04 06 59	73.3	-42.7	1.7		115.3	10	833	18 18 01
18 18 21	---	04 07 19	73.3	-42.8	1.7		115.2	20	834	18 18 02
18 18 51	W3IRS5	04 07 50	73.9	-45.8	1.7		112.7	10	834	18 18 51
18 19 51	---	04 08 50	73.8	-46.0	1.7		112.3	60	836	18 18 52
18 20 21	0219+628	04 09 20	73.1	-43.1	1.7		114.5	10	836	18 20 21
18 20 41	---	04 09 40	73.1	-43.2	1.7		114.3	20	837	18 20 22
18 22 16	W3IRS5	04 11 15	73.5	-46.4	1.7		111.4	75	837	18 22 16
18 23 16	---	04 12 15	73.4	-46.5	1.8		111.0	60	838	18 22 17

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

```

-----
Start UT  Source          Start / Stop          Early   Disk   TPStart
Stop UT          LST      EL    AZ    HA  UP   ParA Dwell  GBytes  SYNC
-----
--- Thu 29 Jan 2015  Day 29 ---

18 23 46 0219+628      04 12 45 72.7 -43.7 1.8    113.2   10    838   18 23 46
18 24 06 ---          04 13 05 72.7 -43.7 1.8    113.1   20    839   18 23 47

18 24 36 W3IRS5        04 13 36 73.3 -46.7 1.8    110.6   10    839   18 24 36
18 25 36 ---          04 14 36 73.2 -46.9 1.8    110.2   60    841   18 24 37

18 26 06 0219+628      04 15 06 72.5 -44.0 1.8    112.3   10    841   18 26 06
18 26 26 ---          04 15 26 72.5 -44.1 1.8    112.2   20    842   18 26 07

```

----- Space-ground K-band VLBI scans -----

```

18 30 00 W3IRS5        04 19 00 72.7 -47.4 1.9    108.7  194    842   18 30 00
18 39 00 ---          04 28 02 71.7 -48.5 2.0    105.7  540    859   18 30 01

18 40 30 W3IRS5        04 29 32 71.5 -48.6 2.0    105.2   84    859   18 40 30
18 49 30 ---          04 38 34 70.5 -49.4 2.2    102.5  540    876   18 40 31

18 51 00 W3IRS5        04 40 04 70.3 -49.5 2.2    102.1   84    876   18 51 00
19 00 00 ---          04 49 05 69.3 -50.1 2.4     99.5  540    894   18 51 01

```

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra1cm2.set

```

Setup group:    5          Station: TORUN          Total bit rate: 256
Format: MARK5B  Bits per sample: 2      Sample rate: 32.000
Number of channels: 4    DBE type: DBBC_DDC    Speedup factor: 1.00

```

Disk used to record data.

```

1st LO= 21500.00 21500.00 21500.00 21500.00
Net SB=      U      U      L      L
IF SB =      U      U      U      U
Pol.  =      RCP    LCP    RCP    LCP
BBC   =      1      5      1      5
BBC SB=      U      U      L      L
IF    =      A1    B1    A1    B1

```

The following frequency sets based on these setups were used.

```

Frequency Set: 7 Setup file default. Used with PCAL = off
LO sum= 22228.00 22228.00 22228.00 22228.00
BBC fr= 728.00 728.00 728.00 728.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 7

```

```

Track assignments are:
track1= 2, 4, 6, 8
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* W3IRS5	02 21 53.316427	* 02 25 40.775000	02 26 51.274130	0.00
	61 52 21.57107	* 62 05 52.61000	62 10 06.90467	0.00
* 0219+628	02 19 39.890136	* 02 23 29.607000	02 24 40.842973	0.00
	62 53 40.64902	* 63 07 17.30600	63 11 33.63211	0.00
* 0241+622	02 41 00.673380	* 02 44 57.696700	02 46 11.304152	0.00
	62 15 27.54349	* 62 28 06.51600	62 32 04.10197	0.00
1328+307	13 28 49.657778	* 13 31 08.288070	13 31 50.362729	0.00
* 3C286	30 45 58.64060	* 30 30 32.95924	30 25 41.80810	0.00
* 0716+714	07 16 13.029739	* 07 21 53.448474	07 23 39.690226	0.00
J0721+7120	71 26 15.17406	* 71 20 36.36340	71 18 43.65591	0.00
* 2021+614	20 21 13.300234	* 20 22 06.681752	20 22 20.630414	0.00
J2022+6136	61 27 18.15575	* 61 36 58.80476	61 40 00.61344	0.00

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
W3IRS5	103.5
0219+628	103.5
0241+622	105.8
3C286	114.8
0716+714	125.2
2021+614	79.7

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of $60 \text{ deg } F^{-0.6}$ where F is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg	8.4 GHz	17. deg
2.3 GHz	36. deg	15.0 GHz	12. deg
5.0 GHz	23. deg	22.0 GHz	9. deg

RadioAstron Mission

http://www.asc.rssi.ru/radioastron/description/intro_eng.htm

RadioAstron project is an international collaborative mission to launch a free flying satellite carrying a 10-meter radio telescope in high apogee orbit around the Earth. The aim of the mission is to use the space telescope to conduct interferometer observations in conjunction with the global ground radio telescope network in order to obtain images, coordinates, motions and evolution of angular structure of different radio emitting objects in the Universe with the extraordinary high angular resolution.

The orbit of RadioAstron satellite will have apogee radius in the range up to 350 000 km. The spacecraft's operational lifetime will be no less than five years. Space-ground Very Long Baseline Interferometer (VLBI) measurements with this orbit will provide morphological and coordinate information on galactic and extragalactic radio sources with fringe size up to 8 micro arc second at the shortest wavelength 1.35 cm.

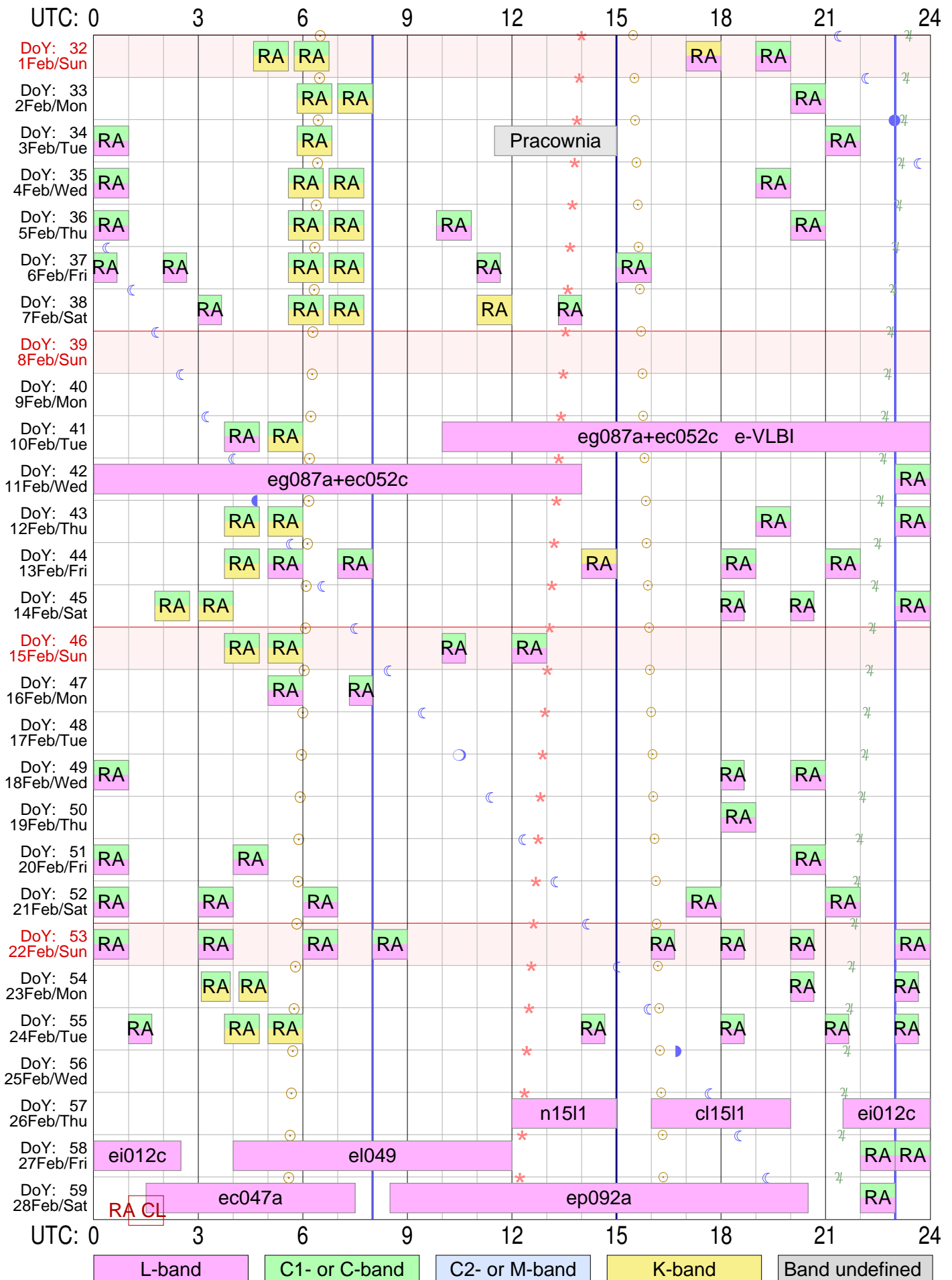
The RadioAstron program, initiated by Astro Space Center (ASC) of Lebedev Physical Institute of Russian Academy of Sciences (RAS) in collaboration with other institutions of RAS and Federal Space Agency (FSA), has expanded into a broad international collaboration: scientists from over 20 countries are constructing the instruments, planning the mission profile, and assuring ground radio telescopes support for RadioAstron. Russia will provide the satellite, most of the on-board hardware, interferometer integration and all kinds of the tests. General designer of satellite and SRT construction is Lavochkin Association (LA) of the RosKosmos.

Several other countries contribute to the on-board scientific payload. The 92-cm receiver is being built in India - National Center for Radio Astrophysics (NCRA) and Russia (Nizhny Novgorod, OAO KB "Gorizont"), the 18-cm receiver in Australia (CSIRO - Commonwealth Scientific and Industrial Research Organization), the 6-cm receiver by Russia, the 1.35-cm receiver by Finland (HUT - Helsinki University of Technology) and upgraded in USA (National Radio Astronomy Observatory- NRAO) and Russia (Moscow Institute of Radioengineering and Electronics - IRE), rubidium on-board frequency standard was built by the European Space Agency (ESA) at Neuchatel observatory in Switzerland. H-maser on-board frequency standard is being developed in Russia (Nizhny Novgorod, ZAO "Vremya-CH"). Russian (ASC) recording system on 6-system HDD and tapes will be able to accept a digital data stream at a maximum data rate of 128 Mbit/s. The correlator will be able to process the data from up to 5 interferometer stations (including the space element) at a maximum data rate of 128 Mbit/s. European Space Agency (ESA) participated in testing of the space radio telescope antenna. On board operating spacecraft system and command communication centers at Bear Lake (near Moscow) and near Ussuriisk (Eastern Russia), and also a tracking station at Pushchino are under preparation.

Main scientific goal of the mission is the study of various astronomical objects with unprecedented angular resolution up to few millionth of an arcsecond. The resolution achieved with RadioAstron will allow us in principle to study the following phenomena and problems:

- central engine of AGN and physical processes near super massive black holes providing an acceleration of cosmic rays — size, velocity and shape of emitting region in the core, spectrum, polarization and variability of emitting components;
- cosmological models, dark matter and dark energy - by studying dependence of above mentioned AGN's parameters with redshift, and by observing gravitational lensing;
- structure and dynamics of star and planets forming regions in our Galaxy and in AGN — by studying maser and Mega maser radio emission;
- neutron (quark?) stars and black holes in our Galaxy, their structure and dynamics — by VLBI and measurements of visibility scintillations, proper motions and parallaxes;
- structure and distribution of interstellar and interplanetary plasma — by fringe visibility scintillations of pulsars;
- building of high accuracy astronomical reference system of coordinates;
- building of high accuracy model of the Earth gravity field.

Tr VLBI plan for Feb 2015



Sky events at Tr: ☉ Sunrise & sunset ☾☽ Transit of Moon ♃ Transit of Jupiter * Transit of Aries (0h ST)

Vertical lines in blue mark operator shift times at Tr

Total observing time: 147.0 hours in 95 experiments scheduled

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