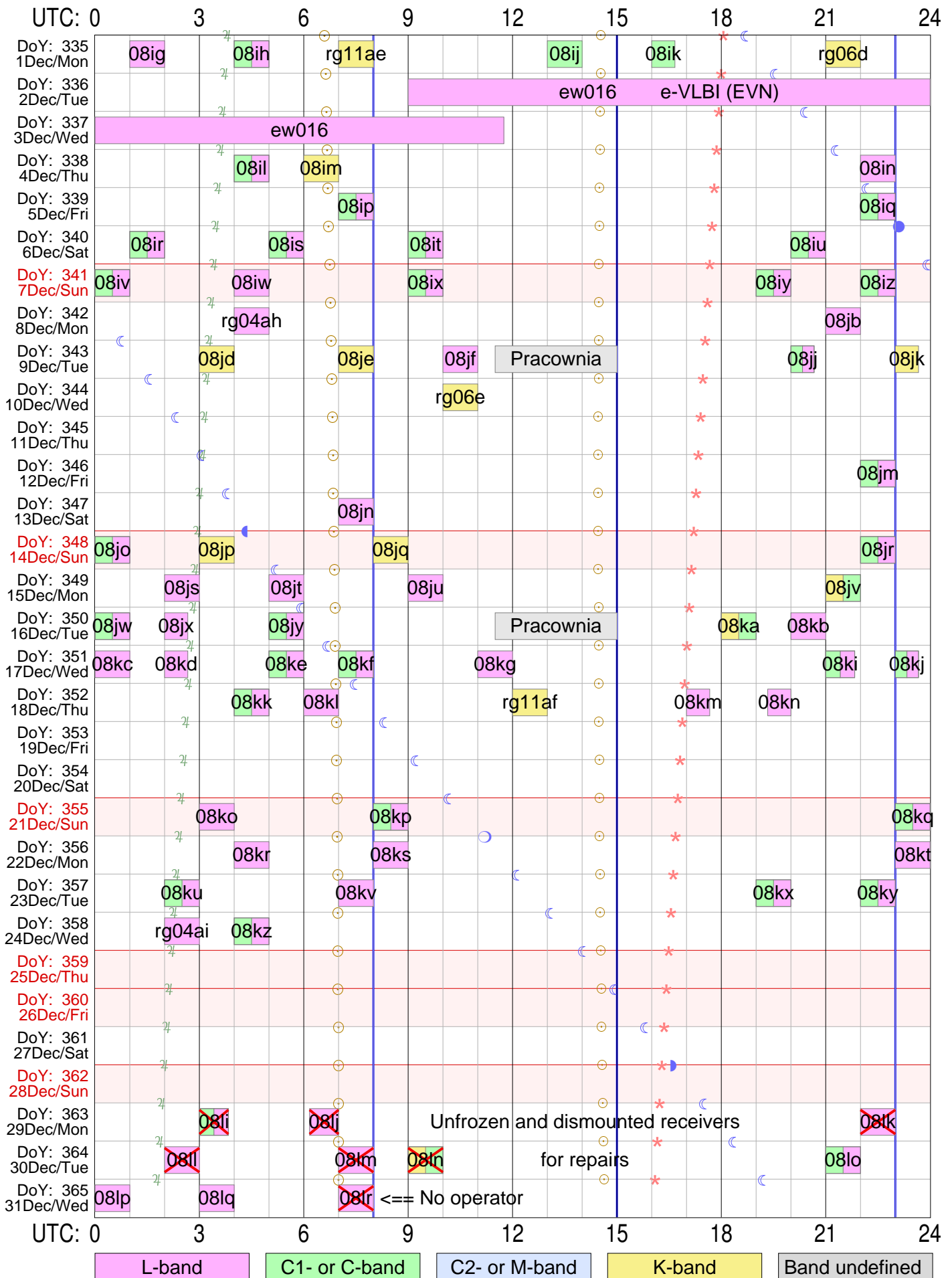


Tr VLBI plan for Dec 2014



Version: 2014.12.31

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: 136.4 hours in 78 experiments scheduled

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

Strona zostawiona celowo pusta

RadioAstron & EVN Experiments

December 2014

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	Uwagi
			h m	h m	name		
335	1	Pon	1 00	2 00	rk08ig	L	112 GB
335	1	Pon	4 00	5 00	rk08ih	C->L	104 GB
335	1	Pon	7 00	8 00	rg11ae	K	124 GB
335	1	Pon	13 00	14 00	rk08ij	C	112 GB
335	1	Pon	16 00	16 40	rk08ik	C	76 GB
335	1	Pon	21 00	22 00	rg06d	K	124 GB
336	2	Wto	9 00	24+11 45	ew016	L	e-VLBI
338	4	Czw	4 00	5 00	rk08il	C->L	104 GB
338	4	Czw	6 00	7 00	rk08im	K *	112 GB
338	4	Czw	22 00	23 00	rk08in	L	112 GB
339	5	Pia	7 00	8 00	rk08ip	C->L	104 GB
339	5	Pia	22 00	23 00	rk08iq	C->L	104 GB
340	6	Sob	1 00	2 00	rk08ir	C->L	104 GB
340	6	Sob	5 00	6 00	rk08is	C->L	104 GB
340	6	Sob	9 00	10 00	rk08it	C->L	104 GB
340	6	Sob	20 00	21 00	rk08iu	C->L	104 GB
341	7	Nie	0 00	1 00	rk08iv	C->L	104 GB
341	7	Nie	4 00	5 00	rk08iw	L	112 GB
341	7	Nie	9 00	10 00	rk08ix	C->L	104 GB
341	7	Nie	19 00	20 00	rk08iy	C->L	104 GB
341	7	Nie	22 00	23 00	rk08iz	C->L	104 GB
342	8	Pon	4 00	5 00	rg04ah	L	113 GB
342	8	Pon	21 00	22 00	rk08jb	L	112 GB
343	9	Wto	3 00	4 00	rk08jd	K *	112 GB
343	9	Wto	7 00	8 00	rk08je	K *	112 GB
343	9	Wto	10 00	11 00	rk08jf	L	112 GB
343	9	Wto	20 00	20 40	rk08jj	C->L	67 GB
343	9	Wto	23 00	23 40	rk08jk	K	76 GB
344	10	Sro	10 00	11 00	rg06e	K	124 GB
346	12	Pia	22 00	23 00	rk08jm	C->L	104 GB
347	13	Sob	7 00	8 00	rk08jn	L	112 GB
348	14	Nie	0 00	1 00	rk08jo	C->L	104 GB
348	14	Nie	3 00	4 00	rk08jp	K *	112 GB
348	14	Nie	8 00	9 00	rk08jq	K *	112 GB
348	14	Nie	22 00	23 00	rk08jr	C->L	104 GB
349	15	Pon	2 00	3 00	rk08js	L *	112 GB
349	15	Pon	5 00	6 00	rk08jt	L *	112 GB
349	15	Pon	9 00	10 00	rk08ju	L	112 GB
349	15	Pon	21 00	22 00	rk08jv	K->C	104 GB
350	16	Wto	0 00	1 00	rk08jw	C->L	104 GB

350	16	Wto	2 00	2 40	rk08jx	L	76 GB
350	16	Wto	5 00	6 00	rk08jy	C->L	104 GB
350	16	Wto	18 00	19 00	rk08ka	K->C	104 GB
350	16	Wto	20 00	21 00	rk08kb	L	112 GB
351	17	Sro	0 00	1 00	rk08kc	L	112 GB
351	17	Sro	2 00	2 40	rk08kd	L	76 GB
351	17	Sro	5 00	6 00	rk08ke	C->L	104 GB
351	17	Sro	7 00	8 00	rk08kf	C->L	104 GB
351	17	Sro	11 00	12 00	rk08kg	L	112 GB
351	17	Sro	21 00	21 50	rk08ki	C->L	84 GB
351	17	Sro	23 00	23 40	rk08kj	C->L	67 GB
352	18	Czw	4 00	5 00	rk08kk	C->L	104 GB
352	18	Czw	6 00	7 00	rk08kl	L	112 GB
352	18	Czw	12 00	13 00	rg11af	K	124 GB
352	18	Czw	17 00	17 40	rk08km	L	76 GB
352	18	Czw	19 20	20 00	rk08kn	L	76 GB
355	21	Nie	3 00	4 00	rk08ko	L	112 GB
355	21	Nie	8 00	9 00	rk08kp	C->L	104 GB
355	21	Nie	23 00	24 00	rk08kq	C->L	104 GB
356	22	Pon	4 00	5 00	rk08kr	L	112 GB
356	22	Pon	8 00	9 00	rk08ks	L	112 GB
356	22	Pon	23 00	24 00	rk08kt	L	112 GB
357	23	Wto	2 00	3 00	rk08ku	C->L	104 GB
357	23	Wto	7 00	8 00	rk08kv	L	112 GB
357	23	Wto	19 00	20 00	rk08kx	C->L	104 GB
357	23	Wto	22 00	23 00	rk08ky	C->L	104 GB
358	24	Sro	2 00	3 00	rg04ai	L	113 GB
358	24	Sro	4 00	5 00	rk08kz	C->L	104 GB
363	29	Pon	3 00	3 50	rk08li	C->L	84 GB
363	29	Pon	6 10	7 00	rk08lj	L	93 GB
363	29	Pon	22 00	23 00	rk08lk	L	112 GB
364	30	Wto	2 00	3 00	rk08ll	L	112 GB
364	30	Wto	7 00	8 00	rk08lm	L	112 GB
364	30	Wto	9 00	10 00	rk08ln	K->C	104 GB
364	30	Wto	21 00	22 00	rk08lo	C->L	104 GB
365	31	Sro	0 00	1 00	rk08lp	L	112 GB
365	31	Sro	3 00	4 00	rk08lq	L	112 GB
365	31	Sro	7 00	8 00	rk08lr	L	112 GB

Razem 77+1 = 78 eksperymentow (74+27 = 101 godz.) RA i EVN

* - po zmianie pasm(a)

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

<http://cosmo.astro.umk.pl/foswiki/pub/Main/KazB/VLBI2014Dec.pdf>

rk08igtr

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, LST, EL, AZ, HA, UP, ParA, Early Dwell, Disk GBytes, TPStart SYNC. Includes a separator line and a date header '--- Mon 1 Dec 2014 Day 335 ---'. Contains multiple rows of observation data.

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: 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)		
* 0201+113	02 01 06.003329	* 02 03 46.657061	02 04 36.071983	0.00
J0203+1134	11 20 22.95394	* 11 34 45.40942	11 39 03.59383	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)
0201+113	144.3

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

rk08ihtr

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 1 Dec 2014 Day 335 ---

----- 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

04 00 00 0814+425 09 54 01 70.9 245.2 1.6 47.5 0 0 04 00 00
04 14 30 --- 10 08 33 68.9 250.4 1.8 49.9 870 28 04 00 01
04 15 00 0814+425 10 09 03 68.8 250.5 1.8 50.0 24 28 04 15 00
04 25 00 --- 10 19 05 67.4 253.7 2.0 51.2 600 47 04 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

04 30 00 0814+425 10 24 06 66.7 255.2 2.1 51.7 293 47 04 30 00
04 44 30 --- 10 38 38 64.5 259.2 2.3 52.9 870 75 04 30 01
04 45 00 0814+425 10 39 08 64.5 259.3 2.3 52.9 24 75 04 45 00
05 00 00 --- 10 54 11 62.2 263.0 2.6 53.7 900 104 04 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:  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

```

==== Setup file: ra18cm2.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:          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:  9  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:  9

```

```

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)
* 0814+425	08 14 51.669840	* 08 18 15.999600	08 19 17.896423	0.00
J0818+4222	42 32 07.73231	* 42 22 45.41481	42 19 37.73594	0.00

rg11aetr

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 1 Dec 2014 Day 335 ---

----- This is a fringe finder/clock offset calibrator 7.3 deg. from NGC3079 -----

Next scan frequencies: 22172.00 22172.00 22172.00 22172.00
Next BBC frequencies: 672.00 672.00 672.00 672.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

06 50 00	0925+504	12 44 29	60.3	-75.8	3.2	65.3	0	0	06 50 00
06 55 00	---	12 49 29	59.6	-75.1	3.3	64.9	300	10	06 50 01
07 00 00	NGC3079	12 54 30	65.3	-66.8	2.9	77.8	262	10	07 00 00
07 29 30	---	13 24 05	61.2	-64.6	3.4	73.7	1770	66	07 00 01
07 30 00	NGC3079	13 24 35	61.2	-64.5	3.4	73.6	24	66	07 30 00
08 00 00	---	13 54 40	57.1	-61.9	3.9	69.7	1800	124	07 30 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 ./rg11ae_freq.dat: tr1cm

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= 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= 22172.00 22172.00 22172.00 22172.00
BBC fr= 672.00 672.00 672.00 672.00
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)
* NGC3079	09 58 35.011191	* 10 01 57.802000	10 02 57.936633	0.00
NGC3079_H20	55 55 15.50111	* 55 40 47.26000	55 36 05.82125	0.00
* 0925+504	09 25 51.973728	* 09 29 15.440209	09 30 16.293215	0.00
J0929+5013	50 26 44.31059	* 50 13 35.98961	50 09 19.01809	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)
NGC3079	111.5
0925+504	115.9

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

rk08ijtr

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

--- Mon 1 Dec 2014 Day 335 ---

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

13 00 00	0106+612	18 55 29	43.2	40.6	-6.3		-55.3	0	0	13 00 00
13 14 30	---	19 10 02	44.6	41.9	-6.0		-57.6	870	28	13 00 01
13 15 00	0106+612	19 10 32	44.7	41.9	-6.0		-57.6	24	28	13 15 00
13 29 30	---	19 25 04	46.2	43.2	-5.8		-59.9	870	56	13 15 01
13 30 00	0106+612	19 25 34	46.2	43.2	-5.8		-60.0	24	56	13 30 00
13 44 30	---	19 40 07	47.7	44.5	-5.5		-62.3	870	84	13 30 01
13 45 00	0106+612	19 40 37	47.8	44.5	-5.5		-62.4	24	84	13 45 00
14 00 00	---	19 55 39	49.4	45.7	-5.3		-64.8	900	112	13 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

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* 0106+612	01 06 36.621798	* 01 09 46.344314	01 10 46.434210	0.00
J0109+6133	61 17 32.64124	* 61 33 30.45573	61 38 30.08395	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)
0106+612	127.7

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

rk08iktr

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

--- Mon 1 Dec 2014 Day 335 ---

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	0202+149	21 55 59	28.6	103.1	-4.2		-37.3	0	0	16 00 00
16 19 30	---	22 15 32	31.5	107.4	-3.8		-36.4	1170	37	16 00 01
16 20 00	0202+149	22 16 02	31.5	107.5	-3.8		-36.4	24	37	16 20 00
16 40 00	---	22 36 06	34.4	112.2	-3.5		-35.2	1200	76	16 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: 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:  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) (B1950)	(J2000)	(Date)	Error (mas)
* 0202+149	02 02 07.396228	* 02 04 50.413896	02 05 40.598735	0.00
J0204+1514	14 59 50.93936	* 15 14 11.04358	15 18 29.18863	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+149    145.1

```

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

```

rg06dtr

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 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 1 Dec 2014 Day 335 ---

----- This is a fringe finder/clock offset calibrator 7.3 deg. from IC1396N -----

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

20 50 00	2135+508	02 46 47	44.8 -59.8	5.2		55.7	0	0	20 50 00
20 55 00	---	02 51 47	44.2 -59.1	5.2		55.2	300	10	20 50 01
21 00 00	IC1396N	02 56 48	47.8 -50.1	5.3		61.4	268	10	21 00 00
21 29 30	---	03 26 23	44.5 -47.2	5.8		57.2	1770	66	21 00 01
21 30 00	IC1396N	03 26 53	44.4 -47.2	5.8		57.1	24	66	21 30 00
22 00 00	---	03 56 58	41.2 -44.1	6.3		52.8	1800	124	21 30 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 ./rg06d_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) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* IC1396N	21 39 09.678974	* 21 40 41.750000	21 41 09.446660	0.00
IC1396N_H20	58 02 31.36343	* 58 16 11.90000	58 20 42.34012	0.00
* 2135+508	21 35 15.499567	* 21 37 00.986207	21 37 32.609539	0.00
J2137+5101	50 48 05.19436	* 51 01 36.12906	51 06 02.70728	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)
IC1396N	102.2
2135+508	98.8

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

ew016tr

E-EVN: TE115, RSG06, RSP10, EW016

PI: *Gabanyi, Woo*

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

Code	Band	Pol	Mb/s	Telescopes	Day	UT Start	UT Stop	Comments
Test	18cm	L+R	1024	Jb2 Wb Ef Nt	On25	Sh Tr Hh 336	0900(02/12)-1300(02/12)	Test
TE115	18cm	L+R	1024	Jb2 Wb Ef Nt	On25	Sh Tr Hh 336	1300(02/12)-1600(02/12)	Trigger Test
RSG06	18cm	L+R	1024	Jb2 Wb Ef Nt	On25	Sh Tr Hh 336	1600(02/12)-1900(02/12)	-
RSP10	18cm	L+R	1024	Jb2 Wb Ef Nt	On25	Sh Tr Hh 336	2200(02/12)-0100(03/12)	-
EW016	18cm	L+R	1024	Jb2 Wb Ef Nt	On25	Sh Tr Hh 337	0100(03/12)-1300(03/11)	-

Schedule for TORUN (Code Tr) Page 2

e-EVN: tel15, rsg06, ew016

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 2 Dec 2014 Day 336 ---										
Next scan frequencies: 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										
Next BBC frequencies: 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										
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										
09 00 00	3C395	14 58 47	42.0	90.7	-4.1	-45.1	0	0	09 00 00	
09 15 00	---	15 13 49	44.3	93.7	-3.8	-45.0	900	115	09 00 01	
09 15 40	3C395	15 14 29	44.4	93.9	-3.8	-45.0	34	115	09 15 40	
09 30 00	---	15 28 51	46.5	97.0	-3.6	-44.7	860	226	09 15 41	
09 30 40	3C395	15 29 32	46.6	97.1	-3.6	-44.7	34	226	09 30 40	
09 45 00	---	15 43 54	48.8	100.3	-3.3	-44.2	860	336	09 30 41	
09 45 40	3C395	15 44 34	48.9	100.5	-3.3	-44.1	34	336	09 45 40	
10 00 00	---	15 58 56	51.0	103.9	-3.1	-43.4	860	446	09 45 41	
10 00 40	3C395	15 59 37	51.1	104.1	-3.1	-43.4	34	446	10 00 40	
10 15 00	---	16 13 59	53.1	107.7	-2.8	-42.4	860	556	10 00 41	
10 15 40	3C395	16 14 39	53.2	107.9	-2.8	-42.4	34	556	10 15 40	
10 30 00	---	16 29 01	55.3	111.8	-2.6	-41.1	860	667	10 15 41	
10 30 40	3C395	16 29 41	55.4	112.0	-2.6	-41.1	34	667	10 30 40	
10 45 00	---	16 44 04	57.3	116.2	-2.3	-39.5	860	777	10 30 41	
10 45 40	3C395	16 44 44	57.4	116.4	-2.3	-39.4	34	777	10 45 40	
11 00 00	---	16 59 06	59.3	120.9	-2.1	-37.4	860	887	10 45 41	

Schedule for TORUN (Code Tr)

Page 3

e-EVN: tel15, rsg06, ew016

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
--- Tue 2 Dec 2014 Day 336 ---										
11 00 40	3C395	16 59 46	59.4	121.1	-2.1		-37.3	34	887	11 00 40
11 15 00	---	17 14 09	61.2	126.1	-1.8		-34.9	860	997	11 00 41
11 15 40	3C395	17 14 49	61.3	126.3	-1.8		-34.8	34	997	11 15 40
11 30 00	---	17 29 11	63.0	131.8	-1.6		-31.9	860	1108	11 15 41
11 30 40	3C395	17 29 51	63.0	132.0	-1.6		-31.7	33	1108	11 30 40
11 45 00	---	17 44 14	64.6	138.0	-1.3		-28.3	860	1218	11 30 41
11 45 40	3C395	17 44 54	64.6	138.3	-1.3		-28.1	33	1218	11 45 40
12 00 00	---	17 59 16	66.0	144.9	-1.1		-24.1	860	1328	11 45 41
12 00 40	3C395	17 59 56	66.0	145.2	-1.1		-23.9	33	1328	12 00 40
12 15 00	---	18 14 19	67.1	152.3	-0.8		-19.2	860	1438	12 00 41
12 15 40	3C395	18 14 59	67.2	152.7	-0.8		-19.0	33	1438	12 15 40
12 30 00	---	18 29 21	68.0	160.3	-0.6		-13.8	860	1549	12 15 41
12 33 00	3C454.3	18 32 22	27.5	99.7	-4.4		-38.1	14	1549	12 33 00
12 45 00	---	18 44 24	29.3	102.3	-4.2		-37.7	720	1641	12 33 01
12 45 40	3C454.3	18 45 04	29.4	102.4	-4.2		-37.6	34	1641	12 45 40
13 00 00	---	18 59 26	31.5	105.6	-3.9		-37.0	860	1751	12 45 41
13 00 40	3C454.3	19 00 06	31.6	105.8	-3.9		-37.0	34	1751	13 00 40
13 15 00	---	19 14 28	33.6	109.1	-3.7		-36.2	860	1862	13 00 41
13 15 40	3C454.3	19 15 09	33.7	109.2	-3.7		-36.2	34	1862	13 15 40
13 30 00	---	19 29 31	35.7	112.6	-3.4		-35.3	860	1972	13 15 41
13 30 40	3C454.3	19 30 11	35.8	112.8	-3.4		-35.2	34	1972	13 30 40
13 45 00	---	19 44 33	37.8	116.3	-3.2		-34.1	860	2082	13 30 41
13 45 40	3C454.3	19 45 13	37.9	116.5	-3.2		-34.0	34	2082	13 45 40
14 00 00	---	19 59 36	39.8	120.2	-2.9		-32.7	860	2192	13 45 41
14 00 40	3C454.3	20 00 16	39.9	120.4	-2.9		-32.7	34	2192	14 00 40
14 15 00	---	20 14 38	41.7	124.2	-2.7		-31.1	860	2303	14 00 41
14 15 40	3C454.3	20 15 18	41.8	124.4	-2.7		-31.1	34	2303	14 15 40
14 30 00	---	20 29 41	43.5	128.5	-2.4		-29.3	860	2413	14 15 41
14 30 40	3C454.3	20 30 21	43.6	128.7	-2.4		-29.2	34	2413	14 30 40
14 45 00	---	20 44 43	45.2	132.9	-2.2		-27.3	860	2523	14 30 41
14 45 40	3C454.3	20 45 23	45.3	133.1	-2.2		-27.2	34	2523	14 45 40
15 00 00	---	20 59 46	46.8	137.6	-1.9		-24.9	860	2633	14 45 41

Schedule for TORUN (Code Tr)

Page 4

e-EVN: tel15, rsg06, ew016

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 2 Dec 2014 Day 336 ---										
15 00 40	3C454.3	21 00 26	46.9	137.8	-1.9		-24.8	34	2633	15 00 40
15 15 00	---	21 14 48	48.3	142.5	-1.7		-22.4	860	2744	15 00 41
15 15 40	3C454.3	21 15 28	48.3	142.7	-1.7		-22.3	34	2744	15 15 40
15 30 00	---	21 29 51	49.6	147.6	-1.4		-19.6	860	2854	15 15 41
15 30 40	3C454.3	21 30 31	49.6	147.9	-1.4		-19.4	34	2854	15 30 40
15 45 00	---	21 44 53	50.7	153.0	-1.2		-16.5	860	2964	15 30 41
15 45 40	3C454.3	21 45 33	50.7	153.2	-1.2		-16.4	34	2964	15 45 40
16 00 00	---	21 59 56	51.6	158.5	-0.9		-13.2	860	3074	15 45 41
16 02 00	J0006-0623	22 01 56	25.0	145.3	-2.1		-20.1	6	3074	16 02 00
16 15 00	=0003-066	22 14 58	26.0	148.7	-1.9		-18.3	780	3174	16 02 01
16 17 00	J0125-0005	22 16 58	24.0	126.4	-3.2		-28.9	60	3174	16 17 00
16 30 00	=0122-003	22 30 00	25.5	129.6	-2.9		-27.6	780	3274	16 17 01
16 32 00	J0123-0348	22 32 01	22.7	132.4	-2.9		-26.4	95	3274	16 32 00
16 35 00	=0121-040	22 35 01	23.0	133.1	-2.8		-26.1	180	3297	16 32 01
16 35 00	J0131-0321	22 35 01	22.5	131.0	-3.0		-27.0	-18	3297	No stop
16 38 30	---	22 38 32	22.9	131.8	-2.9		-26.6	192	3324	16 35 01
16 38 30	J0123-0348	22 38 32	23.4	134.0	-2.8		-25.7	-18	3324	No stop
16 40 00	=0121-040	22 40 02	23.6	134.3	-2.7		-25.5	72	3336	16 38 31
16 40 00	J0131-0321	22 40 02	23.1	132.2	-2.9		-26.5	-18	3336	No stop
16 43 30	---	22 43 33	23.5	133.0	-2.8		-26.1	192	3363	16 40 01
16 44 10	J0123-0348	22 44 13	24.0	135.4	-2.7		-25.0	22	3363	16 44 10
16 45 00	=0121-040	22 45 03	24.1	135.6	-2.7		-24.9	50	3369	16 44 11
16 45 00	J0131-0321	22 45 03	23.7	133.4	-2.8		-25.9	-18	3369	No stop
16 48 30	---	22 48 34	24.0	134.3	-2.7		-25.5	192	3396	16 45 01
16 48 30	J0123-0348	22 48 34	24.5	136.4	-2.6		-24.5	-18	3396	No stop
16 50 00	=0121-040	22 50 04	24.6	136.8	-2.6		-24.3	72	3408	16 48 31
16 50 00	J0131-0321	22 50 04	24.2	134.6	-2.7		-25.3	-18	3408	No stop
16 53 30	---	22 53 34	24.6	135.5	-2.6		-24.9	192	3435	16 50 01
16 54 10	J0123-0348	22 54 14	25.0	137.9	-2.5		-23.8	22	3435	16 54 10
16 55 00	=0121-040	22 55 05	25.1	138.1	-2.5		-23.7	50	3441	16 54 11
16 55 00	J0131-0321	22 55 05	24.7	135.9	-2.6		-24.7	-18	3441	No stop
16 58 30	---	22 58 35	25.1	136.8	-2.6		-24.3	192	3468	16 55 01

Schedule for TORUN (Code Tr)

Page 5

e-EVN: tel15, rsg06, ew016

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 2 Dec 2014 Day 336 ---										
16 58 30	J0123-0348	22 58 35	25.5	139.0	-2.4		-23.3	-18	3468	No stop
17 00 00	=0121-040	23 00 05	25.6	139.3	-2.4		-23.1	72	3479	16 58 31
17 00 00	J0131-0321	23 00 05	25.2	137.1	-2.5		-24.1	-18	3479	No stop
17 03 30	---	23 03 36	25.6	138.0	-2.5		-23.7	192	3506	17 00 01
17 04 10	J0123-0348	23 04 16	26.0	140.4	-2.3		-22.6	22	3506	17 04 10
17 05 00	=0121-040	23 05 06	26.1	140.6	-2.3		-22.4	50	3513	17 04 11
17 05 00	J0131-0321	23 05 06	25.8	138.4	-2.5		-23.5	-18	3513	No stop
17 08 30	---	23 08 37	26.1	139.3	-2.4		-23.1	192	3540	17 05 01
17 08 30	J0123-0348	23 08 37	26.4	141.5	-2.3		-22.0	-18	3540	No stop
17 10 00	=0121-040	23 10 07	26.6	141.9	-2.2		-21.8	72	3551	17 08 31
17 10 00	J0131-0321	23 10 07	26.2	139.7	-2.4		-22.9	-18	3551	No stop
17 13 30	---	23 13 38	26.6	140.6	-2.3		-22.4	192	3578	17 10 01
17 14 10	J0123-0348	23 14 18	26.9	143.0	-2.2		-21.2	21	3578	17 14 10
17 15 00	=0121-040	23 15 08	27.0	143.2	-2.2		-21.1	50	3585	17 14 11
17 15 00	J0131-0321	23 15 08	26.7	141.0	-2.3		-22.2	-18	3585	No stop
17 18 30	---	23 18 38	27.1	141.9	-2.2		-21.8	192	3612	17 15 01
17 18 30	J0123-0348	23 18 38	27.3	144.1	-2.1		-20.6	-19	3612	No stop
17 20 00	=0121-040	23 20 09	27.5	144.5	-2.1		-20.4	71	3623	17 18 31
17 20 00	J0131-0321	23 20 09	27.2	142.3	-2.2		-21.6	-18	3623	No stop
17 23 30	---	23 23 39	27.5	143.2	-2.1		-21.1	192	3650	17 20 01
17 24 10	J0123-0348	23 24 19	27.8	145.6	-2.0		-19.9	21	3650	17 24 10
17 25 00	=0121-040	23 25 10	27.9	145.9	-2.0		-19.7	50	3656	17 24 11
17 25 00	J0131-0321	23 25 10	27.6	143.6	-2.1		-20.9	-18	3656	No stop
17 28 30	---	23 28 40	28.0	144.5	-2.1		-20.4	192	3683	17 25 01
17 28 30	J0123-0348	23 28 40	28.2	146.8	-1.9		-19.2	-19	3683	No stop
17 30 00	=0121-040	23 30 10	28.3	147.2	-1.9		-19.0	71	3695	17 28 31
17 30 00	J0131-0321	23 30 10	28.1	144.9	-2.0		-20.2	-18	3695	No stop
17 33 30	---	23 33 41	28.4	145.9	-2.0		-19.7	192	3722	17 30 01
17 34 10	J0123-0348	23 34 21	28.6	148.3	-1.8		-18.4	21	3722	17 34 10
17 35 00	=0121-040	23 35 11	28.7	148.5	-1.8		-18.3	50	3728	17 34 11
17 35 00	J0131-0321	23 35 11	28.5	146.3	-2.0		-19.5	-18	3728	No stop
17 38 30	---	23 38 42	28.8	147.2	-1.9		-19.0	192	3755	17 35 01

Schedule for TORUN (Code Tr)

Page 6

e-EVN: tel15, rsg06, ew016

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 2 Dec 2014 Day 336 ---										
17 38 30	J0123-0348	23 38 42	29.0	149.5	-1.8		-17.8	-19	3755	No stop
17 40 00	=0121-040	23 40 12	29.1	149.9	-1.7		-17.6	71	3767	17 38 31
17 40 00	J0131-0321	23 40 12	28.9	147.6	-1.9		-18.8	-18	3767	No stop
17 43 30	---	23 43 43	29.2	148.6	-1.8		-18.3	192	3794	17 40 01
17 44 10	J0123-0348	23 44 23	29.4	151.0	-1.7		-16.9	21	3794	17 44 10
17 45 00	=0121-040	23 45 13	29.5	151.3	-1.7		-16.8	50	3800	17 44 11
17 45 00	J0131-0321	23 45 13	29.3	149.0	-1.8		-18.1	-18	3800	No stop
17 48 30	---	23 48 43	29.6	149.9	-1.7		-17.5	192	3827	17 45 01
17 48 30	J0123-0348	23 48 43	29.7	152.2	-1.6		-16.3	-19	3827	No stop
17 50 00	=0121-040	23 50 14	29.8	152.7	-1.6		-16.0	71	3838	17 48 31
17 50 00	J0131-0321	23 50 14	29.7	150.3	-1.7		-17.3	-18	3838	No stop
17 53 30	---	23 53 44	30.0	151.3	-1.6		-16.8	192	3865	17 50 01
17 54 10	J0123-0348	23 54 24	30.1	153.8	-1.5		-15.4	21	3865	17 54 10
17 55 00	=0121-040	23 55 14	30.2	154.0	-1.5		-15.3	50	3872	17 54 11
17 55 00	J0131-0321	23 55 14	30.1	151.7	-1.6		-16.6	-18	3872	No stop
17 58 30	---	23 58 45	30.3	152.7	-1.6		-16.0	192	3899	17 55 01
17 58 30	J0123-0348	23 58 45	30.4	155.0	-1.4		-14.7	-19	3899	No stop
18 00 00	=0121-040	00 00 15	30.5	155.4	-1.4		-14.5	71	3910	17 58 31
18 00 00	J0131-0321	00 00 15	30.4	153.1	-1.5		-15.8	-18	3910	No stop
18 03 30	---	00 03 46	30.6	154.1	-1.5		-15.2	192	3937	18 00 01
18 04 10	J0123-0348	00 04 26	30.7	156.6	-1.3		-13.8	21	3937	18 04 10
18 05 00	=0121-040	00 05 16	30.8	156.9	-1.3		-13.7	50	3944	18 04 11
18 05 00	J0131-0321	00 05 16	30.7	154.5	-1.4		-15.0	-19	3944	No stop
18 08 30	---	00 08 47	31.0	155.5	-1.4		-14.4	191	3971	18 05 01
18 08 30	J0123-0348	00 08 47	31.0	157.9	-1.3		-13.1	-19	3971	No stop
18 10 00	=0121-040	00 10 17	31.1	158.3	-1.2		-12.9	71	3982	18 08 31
18 10 00	J0131-0321	00 10 17	31.1	155.9	-1.4		-14.2	-19	3982	No stop
18 13 30	---	00 13 47	31.3	156.9	-1.3		-13.6	191	4009	18 10 01
18 14 10	J0123-0348	00 14 28	31.3	159.5	-1.2		-12.2	21	4009	18 14 10
18 15 00	=0121-040	00 15 18	31.3	159.7	-1.2		-12.0	50	4015	18 14 11
18 15 00	J0131-0321	00 15 18	31.4	157.3	-1.3		-13.4	-19	4015	No stop
18 18 30	---	00 18 48	31.6	158.3	-1.2		-12.8	191	4042	18 15 01

Schedule for TORUN (Code Tr)

Page 7

e-EVN: tel15, rsg06, ew016

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 2 Dec 2014 Day 336 ---										
18 18 30	J0123-0348	00 18 48	31.5	160.7	-1.1		-11.5	-19	4042	No stop
18 20 00	=0121-040	00 20 19	31.6	161.1	-1.1		-11.2	71	4054	18 18 31
18 20 00	J0131-0321	00 20 19	31.6	158.8	-1.2		-12.6	-19	4054	No stop
18 23 30	---	00 23 49	31.8	159.8	-1.1		-12.0	191	4081	18 20 01
18 24 10	J0123-0348	00 24 29	31.8	162.3	-1.0		-10.5	21	4081	18 24 10
18 25 00	=0121-040	00 25 19	31.8	162.6	-1.0		-10.4	50	4087	18 24 11
18 25 00	J0131-0321	00 25 19	31.9	160.2	-1.1		-11.7	-19	4087	No stop
18 28 30	---	00 28 50	32.1	161.2	-1.1		-11.2	191	4114	18 25 01
18 28 30	J0123-0348	00 28 50	32.0	163.6	-0.9		-9.8	-19	4114	No stop
18 30 00	=0121-040	00 30 20	32.0	164.0	-0.9		-9.5	71	4126	18 28 31
18 30 00	J0131-0321	00 30 20	32.1	161.7	-1.0		-10.9	-19	4126	No stop
18 33 30	---	00 33 51	32.3	162.7	-1.0		-10.3	191	4153	18 30 01
18 34 10	J0123-0348	00 34 31	32.2	165.3	-0.8		-8.8	21	4153	18 34 10
18 35 00	=0121-040	00 35 21	32.2	165.5	-0.8		-8.7	50	4159	18 34 11
18 35 00	J0131-0321	00 35 21	32.4	163.1	-0.9		-10.1	-19	4159	No stop
18 38 30	---	00 38 52	32.5	164.1	-0.9		-9.5	191	4186	18 35 01
18 38 30	J0123-0348	00 38 52	32.4	166.5	-0.8		-8.1	-19	4186	No stop
18 40 00	=0121-040	00 40 22	32.4	167.0	-0.7		-7.8	71	4197	18 38 31
18 40 00	J0131-0321	00 40 22	32.6	164.6	-0.9		-9.2	-19	4197	No stop
18 43 30	---	00 43 52	32.7	165.6	-0.8		-8.6	191	4224	18 40 01
18 44 10	J0123-0348	00 44 33	32.6	168.2	-0.7		-7.1	21	4224	18 44 10
18 45 00	=0121-040	00 45 23	32.6	168.4	-0.6		-6.9	50	4231	18 44 11
18 45 00	J0131-0321	00 45 23	32.8	166.1	-0.8		-8.3	-19	4231	No stop
18 48 30	---	00 48 53	32.9	167.1	-0.7		-7.7	191	4258	18 45 01
18 48 30	J0123-0348	00 48 53	32.7	169.5	-0.6		-6.3	-19	4258	No stop
18 50 00	=0121-040	00 50 23	32.7	169.9	-0.6		-6.1	71	4269	18 48 31
18 50 00	J0131-0321	00 50 23	32.9	167.5	-0.7		-7.5	-19	4269	No stop
18 53 30	---	00 53 54	33.1	168.6	-0.6		-6.8	191	4296	18 50 01
18 54 10	J0123-0348	00 54 34	32.8	171.1	-0.5		-5.3	21	4296	18 54 10
18 55 00	=0121-040	00 55 24	32.8	171.4	-0.5		-5.2	50	4303	18 54 11
18 55 00	J0131-0321	00 55 24	33.1	169.0	-0.6		-6.6	-19	4303	No stop
18 58 30	---	00 58 55	33.2	170.0	-0.6		-6.0	191	4329	18 55 01

Schedule for TORUN (Code Tr)

Page 8

e-EVN: tel15, rsg06, ew016

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 2 Dec 2014 Day 336 ---										
18 59 10	J0123-0348	00 59 35	32.9	172.6	-0.4		-4.4	21	4329	18 59 10
19 00 00	=0121-040	01 00 25	32.9	172.9	-0.4		-4.3	50	4336	18 59 11
19 03 00	0528+134	01 03 26	24.5	100.3	-4.5		-37.4	20	4336	19 03 00
19 15 00	---	01 15 28	26.3	102.8	-4.3		-37.0	720	4428	19 03 01
19 15 40	0528+134	01 16 08	26.4	103.0	-4.3		-37.0	34	4428	19 15 40
19 30 00	---	01 30 30	28.4	106.1	-4.0		-36.4	860	4538	19 15 41
19 33 00	DA193	01 33 31	44.5	79.3	-4.4		-50.2	107	4538	19 33 00
19 45 00	---	01 45 33	46.3	81.4	-4.2		-50.6	720	4631	19 33 01
19 45 40	DA193	01 46 13	46.4	81.5	-4.2		-50.6	34	4631	19 45 40
20 00 00	---	02 00 35	48.6	84.1	-3.9		-51.0	860	4741	19 45 41
20 03 00	1124+571	02 03 35	24.3	22.1	-9.4		-24.4	41	4741	20 03 00
20 10 00	---	02 10 37	24.7	23.1	-9.3		-25.4	420	4795	20 03 01
20 10 00	SDSS1133	02 10 37	22.8	23.1	-9.4		-24.3	-21	4795	No stop
20 13 30	---	02 14 07	23.0	23.6	-9.3		-24.8	189	4822	20 10 01
20 13 30	1124+571	02 14 07	24.9	23.6	-9.2		-26.0	-21	4822	No stop
20 15 00	---	02 15 37	25.0	23.8	-9.2		-26.2	69	4833	20 13 31
20 15 00	SDSS1133	02 15 37	23.1	23.8	-9.3		-25.0	-21	4833	No stop
20 18 30	---	02 19 08	23.3	24.3	-9.3		-25.5	189	4860	20 15 01
20 19 00	1124+571	02 19 38	25.3	24.3	-9.1		-26.8	9	4860	20 19 00
20 20 00	---	02 20 38	25.3	24.5	-9.1		-27.0	60	4868	20 19 01
20 20 00	SDSS1133	02 20 38	23.4	24.5	-9.2		-25.8	-21	4868	No stop
20 23 30	---	02 24 09	23.6	25.0	-9.2		-26.3	189	4895	20 20 01
20 23 30	1124+571	02 24 09	25.6	24.9	-9.1		-27.5	-21	4895	No stop
20 25 00	---	02 25 39	25.7	25.1	-9.0		-27.7	69	4906	20 23 31
20 25 00	SDSS1133	02 25 39	23.7	25.2	-9.1		-26.5	-21	4906	No stop
20 28 30	---	02 29 10	24.0	25.7	-9.1		-27.0	189	4933	20 25 01
20 29 00	1124+571	02 29 40	25.9	25.7	-9.0		-28.3	9	4933	20 29 00
20 30 00	---	02 30 40	26.0	25.8	-9.0		-28.5	60	4941	20 29 01
20 30 00	SDSS1133	02 30 40	24.1	25.9	-9.1		-27.2	-21	4941	No stop
20 33 30	---	02 34 10	24.3	26.4	-9.0		-27.8	189	4968	20 30 01

Schedule for TORUN (Code Tr)

Page 9

e-EVN: tel15, rsg06, ew016

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 2 Dec 2014 Day 336 ---										
20 33 30	1124+571	02 34 10	26.2	26.3	-8.9		-29.0	-21	4968	No stop
20 35 00	---	02 35 41	26.3	26.5	-8.9		-29.2	69	4979	20 33 31
20 35 00	SDSS1133	02 35 41	24.4	26.6	-9.0		-28.0	-21	4979	No stop
20 38 30	---	02 39 11	24.6	27.1	-8.9		-28.5	189	5006	20 35 01
20 39 00	1124+571	02 39 41	26.6	27.0	-8.8		-29.8	9	5006	20 39 00
20 40 00	---	02 40 42	26.7	27.1	-8.8		-30.0	60	5014	20 39 01
20 40 00	SDSS1133	02 40 42	24.7	27.3	-8.9		-28.7	-21	5014	No stop
20 43 30	---	02 44 12	25.0	27.8	-8.8		-29.2	189	5041	20 40 01
20 43 30	1124+571	02 44 12	26.9	27.6	-8.7		-30.5	-21	5041	No stop
20 45 00	---	02 45 42	27.0	27.8	-8.7		-30.7	69	5053	20 43 31
20 45 00	SDSS1133	02 45 42	25.1	28.0	-8.8		-29.5	-21	5053	No stop
20 48 30	---	02 49 13	25.3	28.5	-8.7		-30.0	189	5079	20 45 01
20 49 00	1124+571	02 49 43	27.3	28.3	-8.6		-31.3	9	5079	20 49 00
20 50 00	---	02 50 43	27.4	28.5	-8.6		-31.5	60	5087	20 49 01
20 50 00	SDSS1133	02 50 43	25.4	28.7	-8.7		-30.2	-21	5087	No stop
20 53 30	---	02 54 14	25.7	29.2	-8.7		-30.7	189	5114	20 50 01
20 53 30	1124+571	02 54 14	27.6	28.9	-8.6		-32.0	-21	5114	No stop
20 55 00	---	02 55 44	27.7	29.1	-8.5		-32.2	69	5126	20 53 31
20 55 00	SDSS1133	02 55 44	25.8	29.4	-8.6		-30.9	-21	5126	No stop
20 58 30	---	02 59 15	26.1	29.9	-8.6		-31.4	189	5153	20 55 01
20 59 00	1124+571	02 59 45	28.0	29.7	-8.5		-32.8	9	5153	20 59 00
21 00 00	---	03 00 45	28.1	29.8	-8.5		-33.0	60	5160	20 59 01
21 00 00	SDSS1133	03 00 45	26.2	30.1	-8.6		-31.6	-21	5160	No stop
21 03 30	---	03 04 15	26.4	30.6	-8.5		-32.2	189	5187	21 00 01
21 03 30	1124+571	03 04 15	28.4	30.2	-8.4		-33.5	-21	5187	No stop
21 05 00	---	03 05 46	28.5	30.4	-8.4		-33.7	69	5199	21 03 31
21 05 00	SDSS1133	03 05 46	26.6	30.8	-8.5		-32.4	-21	5199	No stop
21 08 30	---	03 09 16	26.8	31.2	-8.4		-32.9	189	5226	21 05 01
21 09 00	1124+571	03 09 46	28.8	31.0	-8.3		-34.3	9	5226	21 09 00
21 10 00	---	03 10 46	28.9	31.1	-8.3		-34.4	60	5233	21 09 01

Schedule for TORUN (Code Tr)

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e-EVN: tel15, rsg06, ew016

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 2 Dec 2014 Day 336 ---										
21 10 00	SDSS1133	03 10 46	26.9	31.4	-8.4		-33.1	-21	5233	No stop
21 13 30	---	03 14 17	27.2	31.9	-8.3		-33.6	189	5260	21 10 01
21 13 30	1124+571	03 14 17	29.1	31.5	-8.2		-35.0	-21	5260	No stop
21 15 00	---	03 15 47	29.2	31.7	-8.2		-35.2	69	5272	21 13 31
21 15 00	SDSS1133	03 15 47	27.3	32.1	-8.3		-33.8	-21	5272	No stop
21 18 30	---	03 19 18	27.6	32.6	-8.2		-34.3	189	5299	21 15 01
21 19 00	1124+571	03 19 48	29.6	32.2	-8.1		-35.8	9	5299	21 19 00
21 20 00	---	03 20 48	29.6	32.4	-8.1		-35.9	60	5306	21 19 01
21 20 00	SDSS1133	03 20 48	27.7	32.8	-8.2		-34.5	-21	5306	No stop
21 23 30	---	03 24 19	28.0	33.3	-8.2		-35.0	189	5333	21 20 01
21 23 30	1124+571	03 24 19	29.9	32.8	-8.1		-36.4	-21	5333	No stop
21 25 00	---	03 25 49	30.1	33.0	-8.0		-36.6	69	5345	21 23 31
21 25 00	SDSS1133	03 25 49	28.2	33.5	-8.1		-35.2	-21	5345	No stop
21 28 30	---	03 29 20	28.4	33.9	-8.1		-35.7	189	5372	21 25 01
21 29 00	1124+571	03 29 50	30.4	33.5	-8.0		-37.2	9	5372	21 29 00
21 30 00	---	03 30 50	30.5	33.7	-8.0		-37.4	60	5379	21 29 01
21 30 00	SDSS1133	03 30 50	28.6	34.1	-8.1		-35.9	-21	5379	No stop
21 33 30	---	03 34 20	28.9	34.6	-8.0		-36.4	189	5406	21 30 01
21 33 30	1124+571	03 34 20	30.8	34.1	-7.9		-37.9	-21	5406	No stop
21 35 00	---	03 35 51	30.9	34.3	-7.9		-38.1	69	5418	21 33 31
21 35 00	SDSS1133	03 35 51	29.0	34.8	-8.0		-36.7	-21	5418	No stop
21 38 30	---	03 39 21	29.3	35.2	-7.9		-37.2	189	5445	21 35 01
21 39 00	1124+571	03 39 51	31.2	34.8	-7.8		-38.7	9	5445	21 39 00
21 40 00	---	03 40 51	31.3	34.9	-7.8		-38.8	60	5453	21 39 01
21 40 00	SDSS1133	03 40 51	29.4	35.4	-7.9		-37.4	-21	5453	No stop
21 43 30	---	03 44 22	29.7	35.9	-7.8		-37.9	189	5479	21 40 01
21 43 30	1124+571	03 44 22	31.6	35.3	-7.7		-39.3	-21	5479	No stop
21 45 00	---	03 45 52	31.7	35.5	-7.7		-39.5	69	5491	21 43 31
21 45 00	SDSS1133	03 45 52	29.9	36.1	-7.8		-38.1	-21	5491	No stop
21 48 30	---	03 49 23	30.2	36.6	-7.7		-38.6	189	5518	21 45 01

Schedule for TORUN (Code Tr)

Page 11

e-EVN: tel15, rsg06, ew016

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 2 Dec 2014 Day 336 ---										
21 49 00	1124+571	03 49 53	32.1	36.0	-7.6		-40.1	9	5518	21 49 00
21 50 00	---	03 50 53	32.2	36.2	-7.6		-40.3	60	5526	21 49 01
21 50 00	SDSS1133	03 50 53	30.3	36.7	-7.7		-38.8	-21	5526	No stop
21 53 30	---	03 54 24	30.6	37.2	-7.7		-39.3	189	5553	21 50 01
21 53 30	1124+571	03 54 24	32.5	36.6	-7.6		-40.8	-21	5553	No stop
21 55 00	---	03 55 54	32.6	36.8	-7.5		-41.0	69	5564	21 53 31
21 55 00	SDSS1133	03 55 54	30.8	37.4	-7.6		-39.5	-21	5564	No stop
21 58 30	---	03 59 24	31.1	37.8	-7.6		-39.9	189	5591	21 55 01
21 59 00	1124+571	03 59 55	33.0	37.3	-7.5		-41.5	9	5591	21 59 00
22 00 00	---	04 00 55	33.1	37.4	-7.5		-41.7	60	5599	21 59 01
22 00 00	SDSS1133	04 00 55	31.2	38.0	-7.6		-40.2	-21	5599	No stop
22 03 30	---	04 04 25	31.6	38.5	-7.5		-40.6	189	5626	22 00 01
22 03 30	1124+571	04 04 25	33.4	37.8	-7.4		-42.2	-21	5626	No stop
22 05 00	---	04 05 56	33.6	38.0	-7.4		-42.4	69	5637	22 03 31
22 05 00	SDSS1133	04 05 56	31.7	38.7	-7.5		-40.8	-21	5637	No stop
22 08 30	---	04 09 26	32.0	39.1	-7.4		-41.3	189	5664	22 05 01
22 09 00	1124+571	04 09 56	33.9	38.5	-7.3		-43.0	9	5664	22 09 00
22 10 00	---	04 10 56	34.0	38.6	-7.3		-43.1	60	5672	22 09 01
22 10 00	SDSS1133	04 10 56	32.2	39.3	-7.4		-41.5	-21	5672	No stop
22 13 30	---	04 14 27	32.5	39.8	-7.3		-42.0	189	5699	22 10 01
22 13 30	1124+571	04 14 27	34.3	39.0	-7.2		-43.6	-21	5699	No stop
22 15 00	---	04 15 57	34.5	39.2	-7.2		-43.8	69	5710	22 13 31
22 15 00	SDSS1133	04 15 57	32.7	40.0	-7.3		-42.2	-21	5710	No stop
22 18 30	---	04 19 28	33.0	40.4	-7.2		-42.7	189	5737	22 15 01
22 19 00	1124+571	04 19 58	34.9	39.7	-7.1		-44.4	9	5737	22 19 00
22 20 00	---	04 20 58	35.0	39.8	-7.1		-44.5	60	5745	22 19 01
22 20 00	SDSS1133	04 20 58	33.1	40.6	-7.2		-42.9	-21	5745	No stop
22 23 30	---	04 24 29	33.5	41.0	-7.2		-43.4	189	5772	22 20 01
22 23 30	1124+571	04 24 29	35.3	40.2	-7.1		-45.0	-21	5772	No stop
22 25 00	---	04 25 59	35.5	40.4	-7.0		-45.2	69	5783	22 23 31

Schedule for TORUN (Code Tr)

Page 12

e-EVN: tel15, rsg06, ew016

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 2 Dec 2014 Day 336 ---										
22 25 00	SDSS1133	04 25 59	33.6	41.2	-7.1		-43.6	-20	5783	No stop
22 28 30	---	04 29 29	34.0	41.6	-7.1		-44.1	190	5810	22 25 01
22 29 00	1124+571	04 29 59	35.8	40.9	-7.0		-45.8	9	5810	22 29 00
22 30 00	---	04 31 00	35.9	41.0	-7.0		-45.9	60	5818	22 29 01
22 30 00	SDSS1133	04 31 00	34.1	41.8	-7.1		-44.3	-20	5818	No stop
22 33 30	---	04 34 30	34.5	42.3	-7.0		-44.7	190	5845	22 30 01
22 33 30	1124+571	04 34 30	36.3	41.4	-6.9		-46.4	-21	5845	No stop
22 35 00	---	04 36 00	36.4	41.6	-6.9		-46.6	69	5856	22 33 31
22 35 00	SDSS1133	04 36 00	34.6	42.5	-7.0		-44.9	-20	5856	No stop
22 38 30	---	04 39 31	35.0	42.9	-6.9		-45.4	190	5883	22 35 01
22 39 00	1124+571	04 40 01	36.8	42.1	-6.8		-47.2	9	5883	22 39 00
22 40 00	---	04 41 01	36.9	42.2	-6.8		-47.3	60	5891	22 39 01
22 40 00	SDSS1133	04 41 01	35.1	43.1	-6.9		-45.6	-20	5891	No stop
22 43 30	---	04 44 32	35.5	43.5	-6.8		-46.1	190	5918	22 40 01
22 43 30	1124+571	04 44 32	37.3	42.6	-6.7		-47.8	-21	5918	No stop
22 45 00	---	04 46 02	37.5	42.8	-6.7		-48.0	69	5929	22 43 31
22 45 00	SDSS1133	04 46 02	35.7	43.7	-6.8		-46.3	-20	5929	No stop
22 48 30	---	04 49 33	36.0	44.1	-6.7		-46.8	190	5956	22 45 01
22 49 00	1124+571	04 50 03	37.9	43.2	-6.6		-48.6	9	5956	22 49 00
22 50 00	---	04 51 03	38.0	43.3	-6.6		-48.7	60	5964	22 49 01
22 50 00	SDSS1133	04 51 03	36.2	44.3	-6.7		-47.0	-20	5964	No stop
22 53 30	---	04 54 33	36.6	44.7	-6.7		-47.4	190	5991	22 50 01
22 53 30	1124+571	04 54 33	38.3	43.7	-6.6		-49.2	-20	5991	No stop
22 55 00	---	04 56 04	38.5	43.9	-6.5		-49.4	70	6003	22 53 31
22 55 00	SDSS1133	04 56 04	36.7	44.9	-6.6		-47.6	-20	6003	No stop
22 58 30	---	04 59 34	37.1	45.3	-6.6		-48.1	190	6029	22 55 01
22 59 00	1124+571	05 00 04	38.9	44.4	-6.5		-50.0	10	6029	22 59 00
23 00 00	---	05 01 05	39.0	44.5	-6.5		-50.1	60	6037	22 59 01
23 00 00	SDSS1133	05 01 05	37.2	45.5	-6.6		-48.3	-20	6037	No stop
23 03 30	---	05 04 35	37.6	45.9	-6.5		-48.8	190	6064	23 00 01

Schedule for TORUN (Code Tr)

Page 13

e-EVN: tel15, rsg06, ew016

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 2 Dec 2014 Day 336 ---										
23 03 30	1124+571	05 04 35	39.4	44.9	-6.4		-50.6	-20	6064	No stop
23 05 00	---	05 06 05	39.5	45.0	-6.4		-50.8	70	6076	23 03 31
23 05 00	SDSS1133	05 06 05	37.8	46.1	-6.5		-48.9	-20	6076	No stop
23 08 30	---	05 09 36	38.2	46.5	-6.4		-49.4	190	6103	23 05 01
23 09 00	1124+571	05 10 06	40.0	45.5	-6.3		-51.3	10	6103	23 09 00
23 10 00	---	05 11 06	40.1	45.6	-6.3		-51.5	60	6110	23 09 01
23 10 00	SDSS1133	05 11 06	38.3	46.7	-6.4		-49.6	-20	6110	No stop
23 13 30	---	05 14 37	38.7	47.1	-6.3		-50.1	190	6137	23 10 01
23 13 30	1124+571	05 14 37	40.5	46.0	-6.2		-52.0	-20	6137	No stop
23 15 00	---	05 16 07	40.6	46.2	-6.2		-52.2	70	6149	23 13 31
23 15 00	SDSS1133	05 16 07	38.9	47.3	-6.3		-50.3	-20	6149	No stop
23 18 30	---	05 19 38	39.3	47.7	-6.2		-50.7	190	6176	23 15 01
23 19 00	1124+571	05 20 08	41.1	46.6	-6.1		-52.7	10	6176	23 19 00
23 20 00	---	05 21 08	41.2	46.7	-6.1		-52.9	60	6183	23 19 01
23 20 00	SDSS1133	05 21 08	39.4	47.9	-6.2		-50.9	-20	6183	No stop
23 23 30	---	05 24 38	39.8	48.3	-6.2		-51.4	190	6210	23 20 01
23 23 30	1124+571	05 24 38	41.5	47.1	-6.1		-53.3	-20	6210	No stop
23 25 00	---	05 26 09	41.7	47.3	-6.0		-53.5	70	6222	23 23 31
23 25 00	SDSS1133	05 26 09	40.0	48.5	-6.1		-51.6	-20	6222	No stop
23 28 30	---	05 29 39	40.4	48.9	-6.1		-52.0	190	6249	23 25 01
23 29 00	1124+571	05 30 09	42.2	47.7	-6.0		-54.1	10	6249	23 29 00
23 30 00	---	05 31 09	42.3	47.8	-6.0		-54.2	60	6256	23 29 01
23 30 00	SDSS1133	05 31 09	40.6	49.1	-6.1		-52.2	-20	6256	No stop
23 33 30	---	05 34 40	41.0	49.5	-6.0		-52.7	190	6283	23 30 01
23 33 30	1124+571	05 34 40	42.7	48.2	-5.9		-54.7	-20	6283	No stop
23 35 00	---	05 36 10	42.8	48.3	-5.9		-54.9	70	6295	23 33 31
23 35 00	SDSS1133	05 36 10	41.1	49.6	-6.0		-52.9	-20	6295	No stop
23 38 30	---	05 39 41	41.5	50.0	-5.9		-53.3	190	6322	23 35 01
23 39 00	1124+571	05 40 11	43.3	48.8	-5.8		-55.5	10	6322	23 39 00
23 40 00	---	05 41 11	43.4	48.9	-5.8		-55.6	60	6329	23 39 01

Schedule for TORUN (Code Tr)

Page 14

e-EVN: tel15, rsg06, ew016

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
--- Tue 2 Dec 2014 Day 336 ---										
23 40 00	SDSS1133	05 41 11	41.7	50.2	-5.9		-53.5	-20	6329	No stop
23 43 30	---	05 44 42	42.1	50.6	-5.8		-54.0	190	6356	23 40 01
23 43 30	1124+571	05 44 42	43.8	49.3	-5.7		-56.1	-20	6356	No stop
23 45 00	---	05 46 12	44.0	49.4	-5.7		-56.3	70	6368	23 43 31
23 45 00	SDSS1133	05 46 12	42.3	50.8	-5.8		-54.2	-20	6368	No stop
23 48 30	---	05 49 43	42.7	51.2	-5.7		-54.6	190	6395	23 45 01
23 49 00	1124+571	05 50 13	44.4	49.8	-5.6		-56.8	10	6395	23 49 00
23 50 00	---	05 51 13	44.5	49.9	-5.6		-57.0	60	6403	23 49 01
23 50 00	SDSS1133	05 51 13	42.9	51.3	-5.7		-54.8	-20	6403	No stop
23 53 30	---	05 54 43	43.3	51.7	-5.7		-55.3	190	6429	23 50 01
23 53 30	1124+571	05 54 43	44.9	50.3	-5.6		-57.4	-20	6429	No stop
23 55 00	---	05 56 14	45.1	50.5	-5.5		-57.6	70	6441	23 53 31
23 55 00	SDSS1133	05 56 14	43.5	51.9	-5.6		-55.4	-20	6441	No stop
23 58 30	---	05 59 44	43.9	52.3	-5.6		-55.9	190	6468	23 55 01
23 59 00	1124+571	06 00 14	45.6	50.9	-5.5		-58.2	10	6468	23 59 00
23 59 59	---	06 01 14	45.7	51.0	-5.5		-58.3	59	6476	23 59 01
--- Wed 3 Dec 2014 Day 337 ---										
00 00 00	SDSS1133	06 01 14	44.1	52.5	-5.5		-56.1	-20	6476	No stop
00 03 30	---	06 04 45	44.5	52.9	-5.5		-56.5	190	6503	00 00 00
00 03 30	1124+571	06 04 45	46.1	51.3	-5.4		-58.8	-20	6503	No stop
00 05 00	---	06 06 15	46.3	51.5	-5.4		-59.0	70	6514	00 03 31
00 05 00	SDSS1133	06 06 15	44.7	53.0	-5.5		-56.7	-20	6514	No stop
00 08 30	---	06 09 46	45.1	53.4	-5.4		-57.2	190	6541	00 05 01
00 09 00	1124+571	06 10 16	46.8	51.9	-5.3		-59.5	10	6541	00 09 00
00 10 00	---	06 11 16	46.9	52.0	-5.3		-59.7	60	6549	00 09 01
00 10 00	SDSS1133	06 11 16	45.3	53.6	-5.4		-57.4	-19	6549	No stop
00 13 30	---	06 14 47	45.7	54.0	-5.3		-57.8	191	6576	00 10 01
00 13 30	1124+571	06 14 47	47.3	52.4	-5.2		-60.1	-20	6576	No stop
00 15 00	---	06 16 17	47.5	52.5	-5.2		-60.3	70	6587	00 13 31

Schedule for TORUN (Code Tr)

Page 15

e-EVN: tel15, rsg06, ew016

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 3 Dec 2014 Day 337 ---										
00 15 00	SDSS1133	06 16 17	45.9	54.1	-5.3		-58.0	-19	6587	No stop
00 18 30	---	06 19 47	46.3	54.5	-5.2		-58.4	191	6614	00 15 01
00 19 00	1124+571	06 20 18	47.9	52.9	-5.1		-60.9	10	6614	00 19 00
00 20 00	---	06 21 18	48.1	53.0	-5.1		-61.0	60	6622	00 19 01
00 20 00	SDSS1133	06 21 18	46.5	54.7	-5.2		-58.6	-19	6622	No stop
00 23 30	---	06 24 48	46.9	55.1	-5.2		-59.1	191	6649	00 20 01
00 23 30	1124+571	06 24 48	48.5	53.4	-5.1		-61.5	-20	6649	No stop
00 25 00	---	06 26 19	48.7	53.5	-5.0		-61.7	70	6660	00 23 31
00 25 00	SDSS1133	06 26 19	47.1	55.2	-5.1		-59.3	-19	6660	No stop
00 28 30	---	06 29 49	47.5	55.6	-5.1		-59.7	191	6687	00 25 01
00 29 00	1124+571	06 30 19	49.2	53.9	-5.0		-62.2	10	6687	00 29 00
00 30 00	---	06 31 19	49.3	54.0	-5.0		-62.4	60	6695	00 29 01
00 30 00	SDSS1133	06 31 19	47.7	55.8	-5.0		-59.9	-19	6695	No stop
00 33 30	---	06 34 50	48.2	56.1	-5.0		-60.3	191	6722	00 30 01
00 33 30	1124+571	06 34 50	49.7	54.3	-4.9		-62.9	-19	6722	No stop
00 35 00	---	06 36 20	49.9	54.5	-4.9		-63.1	71	6733	00 33 31
00 35 00	SDSS1133	06 36 20	48.3	56.3	-5.0		-60.5	-19	6733	No stop
00 38 30	---	06 39 51	48.8	56.7	-4.9		-61.0	191	6760	00 35 01
00 39 00	1124+571	06 40 21	50.4	54.9	-4.8		-63.6	11	6760	00 39 00
00 40 00	---	06 41 21	50.5	55.0	-4.8		-63.7	60	6768	00 39 01
00 40 00	SDSS1133	06 41 21	49.0	56.8	-4.9		-61.1	-19	6768	No stop
00 43 30	---	06 44 52	49.4	57.2	-4.8		-61.6	191	6795	00 40 01
00 43 30	1124+571	06 44 52	50.9	55.3	-4.7		-64.2	-19	6795	No stop
00 45 00	---	06 46 22	51.1	55.4	-4.7		-64.4	71	6806	00 43 31
00 45 00	SDSS1133	06 46 22	49.6	57.3	-4.8		-61.8	-19	6806	No stop
00 48 30	---	06 49 52	50.1	57.7	-4.7		-62.2	191	6833	00 45 01
00 49 00	1124+571	06 50 22	51.6	55.8	-4.6		-65.0	11	6833	00 49 00
00 50 00	---	06 51 23	51.7	55.9	-4.6		-65.1	60	6841	00 49 01
00 50 00	SDSS1133	06 51 23	50.2	57.9	-4.7		-62.4	-19	6841	No stop
00 53 30	---	06 54 53	50.7	58.2	-4.7		-62.8	191	6868	00 50 01

Schedule for TORUN (Code Tr)

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e-EVN: tel15, rsg06, ew016

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 3 Dec 2014 Day 337 ---										
00 53 30	1124+571	06 54 53	52.2	56.2	-4.6		-65.6	-19	6868	No stop
00 55 00	---	06 56 23	52.4	56.4	-4.5		-65.8	71	6879	00 53 31
00 55 00	SDSS1133	06 56 23	50.9	58.4	-4.6		-63.0	-19	6879	No stop
00 58 30	---	06 59 54	51.3	58.7	-4.6		-63.5	191	6906	00 55 01
00 59 00	1124+571	07 00 24	52.9	56.7	-4.5		-66.3	11	6906	00 59 00
01 00 00	---	07 01 24	53.0	56.8	-4.5		-66.5	60	6914	00 59 01
01 00 40	OJ287	07 02 04	50.4	135.5	-1.9		-26.6	-134	6914	01 00 40
01 15 00	---	07 16 27	51.8	140.4	-1.7		-24.1	726	7024	01 00 41
01 15 40	OJ287	07 17 07	51.9	140.6	-1.6		-23.9	34	7024	01 15 40
01 30 00	---	07 31 29	53.2	145.7	-1.4		-21.1	860	7135	01 15 41
01 30 40	OJ287	07 32 09	53.2	146.0	-1.4		-21.0	34	7135	01 30 40
01 45 00	---	07 46 32	54.4	151.4	-1.2		-17.8	860	7245	01 30 41
01 48 00	1156+295	07 49 32	39.1	92.1	-4.2		-43.4	46	7245	01 48 00
01 54 00	---	07 55 33	40.0	93.3	-4.1		-43.4	360	7291	01 48 01
01 54 40	1156+295	07 56 13	40.1	93.4	-4.1		-43.3	34	7291	01 54 40
02 09 00	---	08 10 36	42.2	96.5	-3.8		-43.1	860	7401	01 54 41
02 09 40	1156+295	08 11 16	42.3	96.6	-3.8		-43.1	34	7401	02 09 40
02 24 00	---	08 25 38	44.5	99.8	-3.6		-42.7	860	7512	02 09 41
02 24 40	1156+295	08 26 18	44.6	99.9	-3.6		-42.6	34	7512	02 24 40
02 39 00	---	08 40 41	46.7	103.2	-3.3		-42.0	860	7622	02 24 41
02 39 40	1156+295	08 41 21	46.8	103.4	-3.3		-42.0	34	7622	02 39 40
02 54 00	---	08 55 43	48.8	106.9	-3.1		-41.1	860	7732	02 39 41
02 54 40	1156+295	08 56 23	48.9	107.1	-3.1		-41.1	34	7732	02 54 40
03 09 00	---	09 10 45	51.0	110.8	-2.8		-40.0	860	7842	02 54 41
03 09 40	1156+295	09 11 26	51.1	110.9	-2.8		-40.0	34	7842	03 09 40
03 24 00	---	09 25 48	53.1	114.9	-2.6		-38.6	860	7953	03 09 41
03 27 00	J1319-0049	09 28 48	17.8	117.1	-3.9		-32.3	34	7953	03 27 00
03 30 00	=1317-005	09 31 49	18.2	117.8	-3.8		-32.1	180	7976	03 27 01
03 30 00	J132323	09 31 49	16.8	117.6	-3.9		-32.2	-19	7976	No stop
03 33 30	---	09 35 19	17.2	118.4	-3.8		-31.9	191	8003	03 30 01
03 33 30	J1319-0049	09 35 19	18.7	118.6	-3.8		-31.8	-19	8003	No stop
03 35 00	=1317-005	09 36 50	18.9	118.9	-3.7		-31.7	71	8014	03 33 31

Schedule for TORUN (Code Tr)

Page 17

e-EVN: tel15, rsg06, ew016

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 3 Dec 2014 Day 337 ---										
03 35 00	J132323	09 36 50	17.4	118.7	-3.8		-31.8	-19	8014	No stop
03 38 30	---	09 40 20	17.9	119.5	-3.7		-31.5	191	8041	03 35 01
03 39 00	J1319-0049	09 40 50	19.4	119.8	-3.7		-31.4	11	8041	03 39 00
03 40 00	=1317-005	09 41 51	19.6	120.1	-3.6		-31.3	60	8049	03 39 01
03 40 00	J132323	09 41 51	18.1	119.9	-3.7		-31.4	-19	8049	No stop
03 43 30	---	09 45 21	18.5	120.7	-3.6		-31.1	191	8076	03 40 01
03 43 30	J1319-0049	09 45 21	20.0	120.9	-3.6		-31.0	-19	8076	No stop
03 45 00	=1317-005	09 46 51	20.2	121.2	-3.6		-30.9	71	8087	03 43 31
03 45 00	J132323	09 46 51	18.7	121.0	-3.6		-31.0	-19	8087	No stop
03 48 30	---	09 50 22	19.2	121.8	-3.6		-30.7	191	8114	03 45 01
03 49 00	J1319-0049	09 50 52	20.7	122.1	-3.5		-30.6	11	8114	03 49 00
03 50 00	=1317-005	09 51 52	20.9	122.4	-3.5		-30.5	60	8122	03 49 01
03 50 00	J132323	09 51 52	19.4	122.1	-3.5		-30.6	-19	8122	No stop
03 53 30	---	09 55 23	19.8	122.9	-3.5		-30.3	191	8149	03 50 01
03 53 30	J1319-0049	09 55 23	21.3	123.2	-3.4		-30.2	-19	8149	No stop
03 55 00	=1317-005	09 56 53	21.5	123.5	-3.4		-30.0	71	8160	03 53 31
03 55 00	J132323	09 56 53	20.0	123.3	-3.5		-30.2	-19	8160	No stop
03 58 30	---	10 00 24	20.4	124.1	-3.4		-29.8	191	8187	03 55 01
03 59 00	J1319-0049	10 00 54	22.0	124.5	-3.3		-29.7	11	8187	03 59 00
04 00 00	=1317-005	10 01 54	22.1	124.7	-3.3		-29.6	60	8195	03 59 01
04 00 00	J132323	10 01 54	20.6	124.4	-3.4		-29.7	-19	8195	No stop
04 03 30	---	10 05 24	21.1	125.3	-3.3		-29.4	191	8222	04 00 01
04 03 30	J1319-0049	10 05 24	22.5	125.5	-3.2		-29.3	-19	8222	No stop
04 05 00	=1317-005	10 06 55	22.7	125.9	-3.2		-29.1	71	8233	04 03 31
04 05 00	J132323	10 06 55	21.2	125.6	-3.3		-29.2	-19	8233	No stop
04 08 30	---	10 10 25	21.7	126.4	-3.2		-28.9	191	8260	04 05 01
04 09 00	J1319-0049	10 10 55	23.2	126.8	-3.2		-28.7	11	8260	04 09 00
04 10 00	=1317-005	10 11 55	23.3	127.1	-3.1		-28.6	60	8268	04 09 01
04 10 00	J132323	10 11 55	21.9	126.8	-3.2		-28.8	-19	8268	No stop
04 13 30	---	10 15 26	22.3	127.6	-3.1		-28.4	191	8295	04 10 01
04 13 30	J1319-0049	10 15 26	23.7	127.9	-3.1		-28.3	-19	8295	No stop
04 15 00	=1317-005	10 16 56	23.9	128.3	-3.1		-28.1	71	8306	04 13 31

Schedule for TORUN (Code Tr)

Page 18

e-EVN: tel15, rsg06, ew016

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 3 Dec 2014 Day 337 ---										
04 15 00	J132323	10 16 56	22.4	128.0	-3.1		-28.3	-19	8306	No stop
04 18 30	---	10 20 27	22.9	128.8	-3.1		-27.9	191	8333	04 15 01
04 19 00	J1319-0049	10 20 57	24.4	129.2	-3.0		-27.7	11	8333	04 19 00
04 20 00	=1317-005	10 21 57	24.5	129.5	-3.0		-27.6	60	8341	04 19 01
04 20 00	J132323	10 21 57	23.0	129.2	-3.0		-27.8	-19	8341	No stop
04 23 30	---	10 25 28	23.4	130.0	-3.0		-27.4	191	8368	04 20 01
04 23 30	J1319-0049	10 25 28	24.9	130.3	-2.9		-27.2	-19	8368	No stop
04 25 00	=1317-005	10 26 58	25.1	130.7	-2.9		-27.1	71	8379	04 23 31
04 25 00	J132323	10 26 58	23.6	130.4	-3.0		-27.2	-19	8379	No stop
04 28 30	---	10 30 29	24.0	131.2	-2.9		-26.9	191	8406	04 25 01
04 29 00	J1319-0049	10 30 59	25.5	131.7	-2.8		-26.6	11	8406	04 29 00
04 30 00	=1317-005	10 31 59	25.6	132.0	-2.8		-26.5	60	8414	04 29 01
04 30 00	J132323	10 31 59	24.2	131.6	-2.9		-26.7	-19	8414	No stop
04 33 30	---	10 35 29	24.6	132.5	-2.8		-26.3	191	8441	04 30 01
04 33 30	J1319-0049	10 35 29	26.0	132.8	-2.7		-26.1	-19	8441	No stop
04 35 00	=1317-005	10 37 00	26.2	133.2	-2.7		-26.0	71	8453	04 33 31
04 35 00	J132323	10 37 00	24.7	132.8	-2.8		-26.1	-19	8453	No stop
04 38 30	---	10 40 30	25.1	133.7	-2.7		-25.7	191	8479	04 35 01
04 39 00	J1319-0049	10 41 00	26.6	134.2	-2.7		-25.5	11	8479	04 39 00
04 40 00	=1317-005	10 42 00	26.7	134.5	-2.6		-25.4	60	8487	04 39 01
04 40 00	J132323	10 42 00	25.3	134.1	-2.7		-25.6	-19	8487	No stop
04 43 30	---	10 45 31	25.7	135.0	-2.6		-25.2	191	8514	04 40 01
04 43 30	J1319-0049	10 45 31	27.1	135.4	-2.6		-25.0	-19	8514	No stop
04 45 00	=1317-005	10 47 01	27.3	135.7	-2.6		-24.8	71	8526	04 43 31
04 45 00	J132323	10 47 01	25.8	135.3	-2.6		-25.0	-19	8526	No stop
04 48 30	---	10 50 32	26.2	136.2	-2.6		-24.6	191	8553	04 45 01
04 49 00	J1319-0049	10 51 02	27.7	136.8	-2.5		-24.3	11	8553	04 49 00
04 50 00	=1317-005	10 52 02	27.8	137.0	-2.5		-24.2	60	8560	04 49 01
04 50 00	J132323	10 52 02	26.3	136.6	-2.5		-24.4	-19	8560	No stop
04 53 30	---	10 55 33	26.7	137.5	-2.5		-24.0	191	8587	04 50 01
04 53 30	J1319-0049	10 55 33	28.2	137.9	-2.4		-23.7	-19	8587	No stop
04 55 00	=1317-005	10 57 03	28.3	138.3	-2.4		-23.5	71	8599	04 53 31

Schedule for TORUN (Code Tr)

Page 19

e-EVN: tel15, rsg06, ew016

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 3 Dec 2014 Day 337 ---										
04 55 00	J132323	10 57 03	26.9	137.9	-2.5		-23.8	-19	8599	No stop
04 58 30	---	11 00 33	27.2	138.8	-2.4		-23.3	191	8626	04 55 01
04 59 00	J1319-0049	11 01 04	28.7	139.4	-2.3		-23.0	11	8626	04 59 00
05 00 00	=1317-005	11 02 04	28.8	139.6	-2.3		-22.9	60	8633	04 59 01
05 00 00	J132323	11 02 04	27.4	139.2	-2.4		-23.1	-19	8633	No stop
05 03 30	---	11 05 34	27.7	140.1	-2.3		-22.7	191	8660	05 00 01
05 03 30	J1319-0049	11 05 34	29.1	140.6	-2.2		-22.4	-19	8660	No stop
05 05 00	=1317-005	11 07 05	29.3	141.0	-2.2		-22.2	71	8672	05 03 31
05 05 00	J132323	11 07 05	27.8	140.5	-2.3		-22.5	-19	8672	No stop
05 08 30	---	11 10 35	28.2	141.4	-2.2		-22.0	191	8699	05 05 01
05 09 00	J1319-0049	11 11 05	29.7	142.0	-2.2		-21.7	11	8699	05 09 00
05 10 00	=1317-005	11 12 05	29.7	142.3	-2.1		-21.5	60	8706	05 09 01
05 10 00	J132323	11 12 05	28.3	141.8	-2.2		-21.8	-19	8706	No stop
05 13 30	---	11 15 36	28.6	142.7	-2.1		-21.3	191	8733	05 10 01
05 13 30	J1319-0049	11 15 36	30.1	143.2	-2.1		-21.1	-19	8733	No stop
05 15 00	=1317-005	11 17 06	30.2	143.6	-2.1		-20.9	71	8745	05 13 31
05 15 00	J132323	11 17 06	28.8	143.1	-2.1		-21.1	-19	8745	No stop
05 18 30	---	11 20 37	29.1	144.1	-2.1		-20.7	191	8772	05 15 01
05 19 00	J1319-0049	11 21 07	30.5	144.7	-2.0		-20.3	11	8772	05 19 00
05 20 00	=1317-005	11 22 07	30.6	145.0	-2.0		-20.1	60	8779	05 19 01
05 20 00	J132323	11 22 07	29.2	144.5	-2.0		-20.4	-19	8779	No stop
05 23 30	---	11 25 38	29.5	145.4	-2.0		-19.9	191	8806	05 20 01
05 23 30	J1319-0049	11 25 38	30.9	146.0	-1.9		-19.6	-19	8806	No stop
05 25 00	=1317-005	11 27 08	31.1	146.4	-1.9		-19.4	71	8818	05 23 31
05 25 00	J132323	11 27 08	29.6	145.8	-2.0		-19.7	-19	8818	No stop
05 28 30	---	11 30 38	29.9	146.8	-1.9		-19.2	191	8845	05 25 01
05 29 00	J1319-0049	11 31 08	31.4	147.5	-1.8		-18.8	11	8845	05 29 00
05 30 00	=1317-005	11 32 09	31.5	147.8	-1.8		-18.7	60	8853	05 29 01
05 33 00	OQ208	11 35 09	52.7	116.3	-2.5		-37.7	87	8853	05 33 00
05 39 00	---	11 41 10	53.5	118.0	-2.4		-37.1	360	8899	05 33 01
05 42 00	J1319-0049	11 44 11	32.4	151.1	-1.6		-16.9	86	8899	05 42 00
05 45 00	=1317-005	11 47 11	32.6	152.0	-1.6		-16.4	180	8922	05 42 01

Schedule for TORUN (Code Tr)

Page 20

e-EVN: tel15, rsg06, ew016

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 3 Dec 2014 Day 337 ---										
05 45 00	J132323	11 47 11	31.2	151.3	-1.6		-16.8	-19	8922	No stop
05 48 30	---	11 50 42	31.5	152.3	-1.6		-16.2	191	8949	05 45 01
05 48 30	J1319-0049	11 50 42	32.8	153.0	-1.5		-15.8	-19	8949	No stop
05 50 00	=1317-005	11 52 12	32.9	153.4	-1.5		-15.6	71	8960	05 48 31
05 50 00	J132323	11 52 12	31.6	152.7	-1.5		-16.0	-18	8960	No stop
05 53 30	---	11 55 42	31.8	153.7	-1.5		-15.4	192	8987	05 50 01
05 54 00	J1319-0049	11 56 13	33.2	154.6	-1.4		-14.9	11	8987	05 54 00
05 55 00	=1317-005	11 57 13	33.3	154.9	-1.4		-14.8	60	8995	05 54 01
05 55 00	J132323	11 57 13	31.9	154.2	-1.4		-15.2	-18	8995	No stop
05 58 30	---	12 00 43	32.1	155.2	-1.4		-14.6	192	9022	05 55 01
05 58 30	J1319-0049	12 00 43	33.5	155.9	-1.3		-14.2	-19	9022	No stop
06 00 00	=1317-005	12 02 14	33.6	156.3	-1.3		-14.0	71	9033	05 58 31
06 00 00	J132323	12 02 14	32.2	155.6	-1.4		-14.4	-18	9033	No stop
06 03 30	---	12 05 44	32.4	156.6	-1.3		-13.8	192	9060	06 00 01
06 04 00	J1319-0049	12 06 14	33.8	157.5	-1.2		-13.3	11	9060	06 04 00
06 05 00	=1317-005	12 07 14	33.9	157.8	-1.2		-13.1	60	9068	06 04 01
06 05 00	J132323	12 07 14	32.5	157.0	-1.3		-13.6	-18	9068	No stop
06 08 30	---	12 10 45	32.7	158.0	-1.2		-13.0	192	9095	06 05 01
06 08 30	J1319-0049	12 10 45	34.1	158.8	-1.2		-12.5	-18	9095	No stop
06 10 00	=1317-005	12 12 15	34.2	159.3	-1.1		-12.3	72	9106	06 08 31
06 10 00	J132323	12 12 15	32.8	158.5	-1.2		-12.7	-18	9106	No stop
06 13 30	---	12 15 46	33.0	159.5	-1.1		-12.2	192	9133	06 10 01
06 14 00	J1319-0049	12 16 16	34.4	160.5	-1.1		-11.6	12	9133	06 14 00
06 15 00	=1317-005	12 17 16	34.4	160.8	-1.1		-11.4	60	9141	06 14 01
06 15 00	J132323	12 17 16	33.1	159.9	-1.1		-11.9	-18	9141	No stop
06 18 30	---	12 20 47	33.3	161.0	-1.1		-11.3	192	9168	06 15 01
06 18 30	J1319-0049	12 20 47	34.6	161.8	-1.0		-10.8	-18	9168	No stop
06 20 00	=1317-005	12 22 17	34.7	162.2	-1.0		-10.6	72	9179	06 18 31
06 20 00	J132323	12 22 17	33.3	161.4	-1.0		-11.0	-18	9179	No stop
06 23 30	---	12 25 47	33.5	162.4	-1.0		-10.4	192	9206	06 20 01
06 24 00	J1319-0049	12 26 17	34.8	163.4	-0.9		-9.9	12	9206	06 24 00
06 25 00	=1317-005	12 27 18	34.9	163.7	-0.9		-9.7	60	9214	06 24 01

Schedule for TORUN (Code Tr)

Page 21

e-EVN: tel15, rsg06, ew016

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 3 Dec 2014 Day 337 ---										
06 25 00	J132323	12 27 18	33.6	162.9	-0.9		-10.2	-18	9214	No stop
06 28 30	---	12 30 48	33.7	163.9	-0.9		-9.6	192	9241	06 25 01
06 28 30	J1319-0049	12 30 48	35.0	164.8	-0.8		-9.1	-18	9241	No stop
06 30 00	=1317-005	12 32 18	35.1	165.3	-0.8		-8.8	72	9253	06 28 31
06 30 00	J132323	12 32 18	33.8	164.4	-0.9		-9.3	-18	9253	No stop
06 33 30	---	12 35 49	33.9	165.4	-0.8		-8.7	192	9279	06 30 01
06 34 00	J1319-0049	12 36 19	35.2	166.5	-0.7		-8.1	12	9279	06 34 00
06 35 00	=1317-005	12 37 19	35.3	166.8	-0.7		-7.9	60	9287	06 34 01
06 35 00	J132323	12 37 19	34.0	165.8	-0.8		-8.4	-18	9287	No stop
06 38 30	---	12 40 50	34.1	166.9	-0.7		-7.8	192	9314	06 35 01
06 38 30	J1319-0049	12 40 50	35.4	167.8	-0.7		-7.3	-18	9314	No stop
06 40 00	=1317-005	12 42 20	35.4	168.3	-0.6		-7.0	72	9326	06 38 31
06 40 00	J132323	12 42 20	34.1	167.3	-0.7		-7.6	-18	9326	No stop
06 43 30	---	12 45 51	34.3	168.4	-0.6		-6.9	192	9353	06 40 01
06 44 00	J1319-0049	12 46 21	35.5	169.5	-0.6		-6.3	12	9353	06 44 00
06 45 00	=1317-005	12 47 21	35.6	169.8	-0.6		-6.1	60	9360	06 44 01
06 45 00	J132323	12 47 21	34.3	168.8	-0.6		-6.7	-18	9360	No stop
06 48 30	---	12 50 52	34.4	169.9	-0.6		-6.0	192	9387	06 45 01
06 48 30	J1319-0049	12 50 52	35.6	170.9	-0.5		-5.5	-18	9387	No stop
06 50 00	=1317-005	12 52 22	35.7	171.4	-0.5		-5.2	72	9399	06 48 31
06 50 00	J132323	12 52 22	34.4	170.4	-0.5		-5.8	-18	9399	No stop
06 53 30	---	12 55 52	34.5	171.4	-0.5		-5.1	192	9426	06 50 01
06 54 00	J1319-0049	12 56 22	35.8	172.6	-0.4		-4.4	12	9426	06 54 00
06 55 00	=1317-005	12 57 23	35.8	172.9	-0.4		-4.3	60	9433	06 54 01
06 55 00	J132323	12 57 23	34.5	171.9	-0.4		-4.9	-18	9433	No stop
06 58 30	---	13 00 53	34.6	172.9	-0.4		-4.2	192	9460	06 55 01
06 58 30	J1319-0049	13 00 53	35.8	174.0	-0.3		-3.6	-18	9460	No stop
07 00 00	=1317-005	13 02 23	35.9	174.4	-0.3		-3.3	72	9472	06 58 31
07 00 00	J132323	13 02 23	34.6	173.4	-0.4		-4.0	-18	9472	No stop
07 03 30	---	13 05 54	34.7	174.5	-0.3		-3.3	192	9499	07 00 01
07 04 00	J1319-0049	13 06 24	35.9	175.7	-0.2		-2.6	12	9499	07 04 00
07 05 00	=1317-005	13 07 24	35.9	176.0	-0.2		-2.4	60	9506	07 04 01

Schedule for TORUN (Code Tr)

Page 22

e-EVN: tel15, rsg06, ew016

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 3 Dec 2014 Day 337 ---										
07 05 00	J132323	13 07 24	34.7	174.9	-0.3		-3.1	-18	9506	No stop
07 08 30	---	13 10 55	34.8	176.0	-0.2		-2.4	192	9533	07 05 01
07 08 30	J1319-0049	13 10 55	36.0	177.1	-0.2		-1.8	-18	9533	No stop
07 10 00	=1317-005	13 12 25	36.0	177.5	-0.1		-1.5	72	9545	07 08 31
07 10 00	J132323	13 12 25	34.8	176.4	-0.2		-2.1	-18	9545	No stop
07 13 30	---	13 15 56	34.8	177.5	-0.1		-1.5	192	9572	07 10 01
07 14 00	J1319-0049	13 16 26	36.0	178.8	-0.1		-0.7	12	9572	07 14 00
07 15 00	=1317-005	13 17 26	36.0	179.1	-0.0		-0.6	60	9579	07 14 01
07 15 00	J132323	13 17 26	34.8	178.0	-0.1		-1.2	-18	9579	No stop
07 18 30	---	13 20 56	34.8	179.0	-0.1		-0.6	192	9606	07 15 01
07 18 30	J1319-0049	13 20 56	36.0	180.2	0.0		0.1	-17	9606	No stop
07 20 00	=1317-005	13 22 27	36.0	180.6	0.0		0.4	73	9618	07 18 31
07 20 00	J132323	13 22 27	34.8	179.5	-0.0		-0.3	-17	9618	No stop
07 23 30	---	13 25 57	34.8	180.5	0.0		0.3	193	9645	07 20 01
07 24 00	J1319-0049	13 26 27	36.0	181.9	0.1		1.1	13	9645	07 24 00
07 25 00	=1317-005	13 27 28	36.0	182.2	0.1		1.3	60	9653	07 24 01
07 25 00	J132323	13 27 28	34.8	181.0	0.1		0.6	-17	9653	No stop
07 28 30	---	13 30 58	34.8	182.1	0.1		1.2	193	9679	07 25 01
07 28 30	J1319-0049	13 30 58	36.0	183.3	0.2		2.0	-17	9679	No stop
07 30 00	=1317-005	13 32 28	35.9	183.7	0.2		2.2	73	9691	07 28 31
07 30 00	J132323	13 32 28	34.8	182.5	0.1		1.5	-17	9691	No stop
07 33 30	---	13 35 59	34.8	183.6	0.2		2.2	193	9718	07 30 01
07 34 00	J1319-0049	13 36 29	35.9	185.0	0.3		3.0	13	9718	07 34 00
07 35 00	=1317-005	13 37 29	35.9	185.3	0.3		3.2	60	9726	07 34 01
07 35 00	J132323	13 37 29	34.8	184.1	0.2		2.4	-17	9726	No stop
07 38 30	---	13 41 00	34.7	185.1	0.3		3.1	193	9753	07 35 01
07 38 30	J1319-0049	13 41 00	35.8	186.4	0.3		3.8	-17	9753	No stop
07 40 00	=1317-005	13 42 30	35.8	186.8	0.4		4.1	73	9764	07 38 31
07 40 00	J132323	13 42 30	34.7	185.6	0.3		3.3	-17	9764	No stop
07 43 30	---	13 46 01	34.6	186.6	0.4		4.0	193	9791	07 40 01
07 44 00	J1319-0049	13 46 31	35.7	188.0	0.4		4.8	13	9791	07 44 00
07 45 00	=1317-005	13 47 31	35.7	188.4	0.5		5.0	60	9799	07 44 01

Schedule for TORUN (Code Tr)

Page 23

e-EVN: tel15, rsg06, ew016

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 3 Dec 2014 Day 337 ---										
07 45 00	J132323	13 47 31	34.6	187.1	0.4		4.3	-17	9799	No stop
07 48 30	---	13 51 01	34.5	188.2	0.4		4.9	193	9826	07 45 01
07 48 30	J1319-0049	13 51 01	35.6	189.4	0.5		5.6	-17	9826	No stop
07 50 00	=1317-005	13 52 32	35.6	189.9	0.5		5.9	73	9837	07 48 31
07 50 00	J132323	13 52 32	34.5	188.6	0.5		5.2	-17	9837	No stop
07 53 30	---	13 56 02	34.4	189.7	0.5		5.8	193	9864	07 50 01
07 54 00	J1319-0049	13 56 32	35.5	191.1	0.6		6.6	13	9864	07 54 00
07 55 00	=1317-005	13 57 32	35.4	191.4	0.6		6.8	60	9872	07 54 01
07 55 00	J132323	13 57 32	34.4	190.1	0.6		6.1	-17	9872	No stop
07 58 30	---	14 01 03	34.3	191.2	0.6		6.7	193	9899	07 55 01
07 58 30	J1319-0049	14 01 03	35.3	192.5	0.7		7.5	-17	9899	No stop
08 00 00	=1317-005	14 02 33	35.3	192.9	0.7		7.7	73	9910	07 58 31
08 00 00	J132323	14 02 33	34.2	191.6	0.6		7.0	-17	9910	No stop
08 03 30	---	14 06 04	34.1	192.7	0.7		7.6	193	9937	08 00 01
08 04 00	J1319-0049	14 06 34	35.1	194.2	0.8		8.4	13	9937	08 04 00
08 05 00	=1317-005	14 07 34	35.1	194.5	0.8		8.6	60	9945	08 04 01
08 05 00	J132323	14 07 34	34.1	193.1	0.7		7.8	-17	9945	No stop
08 08 30	---	14 11 05	34.0	194.2	0.8		8.5	193	9972	08 05 01
08 08 30	J1319-0049	14 11 05	35.0	195.5	0.8		9.2	-17	9972	No stop
08 10 00	=1317-005	14 12 35	34.9	196.0	0.9		9.5	73	9983	08 08 31
08 10 00	J132323	14 12 35	33.9	194.6	0.8		8.7	-17	9983	No stop
08 13 30	---	14 16 05	33.8	195.7	0.9		9.3	193	10010	08 10 01
08 14 00	J1319-0049	14 16 36	34.7	197.2	0.9		10.2	14	10010	08 14 00
08 15 00	=1317-005	14 17 36	34.7	197.5	1.0		10.4	60	10018	08 14 01
08 15 00	J132323	14 17 36	33.7	196.1	0.9		9.6	-17	10018	No stop
08 18 30	---	14 21 06	33.6	197.2	0.9		10.2	193	10045	08 15 01
08 18 30	J1319-0049	14 21 06	34.5	198.5	1.0		11.0	-16	10045	No stop
08 20 00	=1317-005	14 22 37	34.5	199.0	1.0		11.3	74	10056	08 18 31
08 20 00	J132323	14 22 37	33.5	197.6	1.0		10.5	-16	10056	No stop
08 23 30	---	14 26 07	33.3	198.6	1.0		11.1	194	10083	08 20 01
08 24 00	J1319-0049	14 26 37	34.3	200.2	1.1		11.9	14	10083	08 24 00
08 25 00	=1317-005	14 27 37	34.2	200.5	1.1		12.1	60	10091	08 24 01

Schedule for TORUN (Code Tr)

Page 24

e-EVN: tel15, rsg06, ew016

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 3 Dec 2014 Day 337 ---										
08 25 00	J132323	14 27 37	33.3	199.1	1.1		11.3	-16	10091	No stop
08 28 30	---	14 31 08	33.1	200.1	1.1		11.9	194	10118	08 25 01
08 28 30	J1319-0049	14 31 08	34.0	201.5	1.2		12.7	-16	10118	No stop
08 30 00	=1317-005	14 32 38	33.9	201.9	1.2		13.0	74	10129	08 28 31
08 30 00	J132323	14 32 38	33.0	200.5	1.1		12.2	-16	10129	No stop
08 33 30	---	14 36 09	32.8	201.6	1.2		12.8	194	10156	08 30 01
08 34 00	J1319-0049	14 36 39	33.7	203.1	1.3		13.6	14	10156	08 34 00
08 35 00	=1317-005	14 37 39	33.6	203.4	1.3		13.8	60	10164	08 34 01
08 35 00	J132323	14 37 39	32.7	202.0	1.2		13.0	-16	10164	No stop
08 38 30	---	14 41 10	32.5	203.0	1.3		13.6	194	10191	08 35 01
08 38 30	J1319-0049	14 41 10	33.4	204.4	1.3		14.4	-16	10191	No stop
08 40 00	=1317-005	14 42 40	33.3	204.9	1.4		14.6	74	10203	08 38 31
08 40 00	J132323	14 42 40	32.4	203.4	1.3		13.8	-16	10203	No stop
08 43 30	---	14 46 10	32.2	204.4	1.4		14.4	194	10229	08 40 01
08 44 00	J1319-0049	14 46 40	33.1	206.0	1.4		15.3	14	10229	08 44 00
08 45 00	=1317-005	14 47 41	33.0	206.3	1.5		15.4	60	10237	08 44 01
08 45 00	J132323	14 47 41	32.1	204.9	1.4		14.6	-16	10237	No stop
08 48 30	---	14 51 11	31.9	205.9	1.5		15.2	194	10264	08 45 01
08 48 30	J1319-0049	14 51 11	32.8	207.3	1.5		16.0	-16	10264	No stop
08 50 00	=1317-005	14 52 41	32.7	207.7	1.5		16.2	74	10276	08 48 31
08 50 00	J132323	14 52 41	31.8	206.3	1.5		15.4	-16	10276	No stop
08 53 30	---	14 56 12	31.6	207.3	1.5		16.0	194	10303	08 50 01
08 54 00	J1319-0049	14 56 42	32.4	208.9	1.6		16.9	14	10303	08 54 00
08 55 00	=1317-005	14 57 42	32.3	209.2	1.6		17.0	60	10310	08 54 01
08 55 00	J132323	14 57 42	31.5	207.7	1.6		16.2	-16	10310	No stop
08 58 30	---	15 01 13	31.2	208.7	1.6		16.8	194	10337	08 55 01
08 58 30	J1319-0049	15 01 13	32.0	210.2	1.7		17.6	-16	10337	No stop
09 00 00	=1317-005	15 02 43	31.9	210.6	1.7		17.8	74	10349	08 58 31
09 00 00	J132323	15 02 43	31.1	209.1	1.6		17.0	-16	10349	No stop
09 03 30	---	15 06 14	30.8	210.1	1.7		17.5	194	10376	09 00 01
09 04 00	J1319-0049	15 06 44	31.6	211.7	1.8		18.4	14	10376	09 04 00
09 05 00	=1317-005	15 07 44	31.5	212.0	1.8		18.5	60	10383	09 04 01

Schedule for TORUN (Code Tr)

Page 25

e-EVN: tel15, rsg06, ew016

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 3 Dec 2014 Day 337 ---										
09 05 00	J132323	15 07 44	30.7	210.5	1.7		17.8	-16	10383	No stop
09 08 30	---	15 11 15	30.5	211.5	1.8		18.3	194	10410	09 05 01
09 08 30	J1319-0049	15 11 15	31.3	212.9	1.8		19.1	-16	10410	No stop
09 10 00	=1317-005	15 12 45	31.1	213.4	1.9		19.3	74	10422	09 08 31
09 10 00	J132323	15 12 45	30.3	211.9	1.8		18.5	-16	10422	No stop
09 13 30	---	15 16 15	30.1	212.9	1.9		19.0	194	10449	09 10 01
09 14 00	J1319-0049	15 16 45	30.8	214.5	1.9		19.9	14	10449	09 14 00
09 15 00	=1317-005	15 17 46	30.7	214.7	2.0		20.0	60	10456	09 14 01
09 15 00	J132323	15 17 46	29.9	213.3	1.9		19.2	-16	10456	No stop
09 18 30	---	15 21 16	29.6	214.2	2.0		19.7	194	10483	09 15 01
09 18 30	J1319-0049	15 21 16	30.4	215.7	2.0		20.5	-16	10483	No stop
09 20 00	=1317-005	15 22 46	30.3	216.1	2.0		20.7	74	10495	09 18 31
09 20 00	J132323	15 22 46	29.5	214.6	2.0		20.0	-16	10495	No stop
09 23 30	---	15 26 17	29.2	215.6	2.0		20.5	194	10522	09 20 01
09 24 00	J1319-0049	15 26 47	29.9	217.2	2.1		21.3	14	10522	09 24 00
09 25 00	=1317-005	15 27 47	29.8	217.5	2.1		21.4	60	10529	09 24 01
09 25 00	J132323	15 27 47	29.1	216.0	2.1		20.7	-16	10529	No stop
09 28 30	---	15 31 18	28.8	216.9	2.1		21.2	194	10556	09 25 01
09 28 30	J1319-0049	15 31 18	29.5	218.4	2.2		21.9	-16	10556	No stop
09 30 00	=1317-005	15 32 48	29.4	218.8	2.2		22.1	74	10568	09 28 31
09 30 00	J132323	15 32 48	28.6	217.3	2.1		21.4	-16	10568	No stop
09 33 30	---	15 36 19	28.3	218.2	2.2		21.8	194	10595	09 30 01
09 34 00	J1319-0049	15 36 49	29.0	219.9	2.3		22.6	14	10595	09 34 00
09 35 00	=1317-005	15 37 49	28.9	220.1	2.3		22.8	60	10603	09 34 01
09 35 00	J132323	15 37 49	28.2	218.6	2.2		22.0	-16	10603	No stop
09 38 30	---	15 41 19	27.8	219.5	2.3		22.5	194	10629	09 35 01
09 38 30	J1319-0049	15 41 19	28.5	221.0	2.3		23.2	-16	10629	No stop
09 40 00	=1317-005	15 42 50	28.4	221.4	2.4		23.4	74	10641	09 38 31
09 40 00	J132323	15 42 50	27.7	219.9	2.3		22.7	-16	10641	No stop
09 43 30	---	15 46 20	27.3	220.9	2.4		23.1	194	10668	09 40 01
09 44 00	J1319-0049	15 46 50	28.0	222.5	2.4		23.9	14	10668	09 44 00
09 45 00	=1317-005	15 47 51	27.9	222.7	2.5		24.1	60	10676	09 44 01

Schedule for TORUN (Code Tr)

Page 26

e-EVN: tel15, rsg06, ew016

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 3 Dec 2014 Day 337 ---										
09 45 00	J132323	15 47 51	27.2	221.2	2.4		23.3	-16	10676	No stop
09 48 30	---	15 51 21	26.8	222.1	2.5		23.8	194	10703	09 45 01
09 48 30	J1319-0049	15 51 21	27.5	223.6	2.5		24.5	-16	10703	No stop
09 50 00	=1317-005	15 52 51	27.4	224.0	2.5		24.7	74	10714	09 48 31
09 50 00	J132323	15 52 51	26.7	222.5	2.5		24.0	-16	10714	No stop
09 53 30	---	15 56 22	26.3	223.4	2.5		24.4	194	10741	09 50 01
09 54 00	J1319-0049	15 56 52	27.0	225.0	2.6		25.2	14	10741	09 54 00
09 55 00	=1317-005	15 57 52	26.8	225.3	2.6		25.3	60	10749	09 54 01
09 55 00	J132323	15 57 52	26.2	223.8	2.6		24.6	-16	10749	No stop
09 58 30	---	16 01 23	25.8	224.7	2.6		25.0	194	10776	09 55 01
09 58 30	J1319-0049	16 01 23	26.5	226.2	2.7		25.7	-16	10776	No stop
10 00 00	=1317-005	16 02 53	26.3	226.6	2.7		25.9	74	10787	09 58 31
10 00 00	J132323	16 02 53	25.7	225.1	2.6		25.2	-16	10787	No stop
10 03 30	---	16 06 24	25.3	225.9	2.7		25.6	194	10814	10 00 01
10 04 00	J1319-0049	16 06 54	25.9	227.6	2.8		26.3	14	10814	10 04 00
10 05 00	=1317-005	16 07 54	25.8	227.8	2.8		26.4	60	10822	10 04 01
10 05 00	J132323	16 07 54	25.1	226.3	2.7		25.8	-16	10822	No stop
10 08 30	---	16 11 24	24.7	227.2	2.8		26.2	194	10849	10 05 01
10 08 30	J1319-0049	16 11 24	25.4	228.7	2.9		26.8	-16	10849	No stop
10 10 00	=1317-005	16 12 55	25.2	229.1	2.9		27.0	74	10860	10 08 31
10 10 00	J132323	16 12 55	24.6	227.6	2.8		26.3	-16	10860	No stop
10 13 30	---	16 16 25	24.2	228.4	2.9		26.7	194	10887	10 10 01
10 14 00	J1319-0049	16 16 55	24.7	230.0	2.9		27.4	14	10887	10 14 00
10 15 00	=1317-005	16 17 55	24.6	230.3	3.0		27.5	60	10895	10 14 01
10 15 00	J132323	16 17 55	24.0	228.8	2.9		26.9	-16	10895	No stop
10 18 30	---	16 21 26	23.6	229.6	3.0		27.2	194	10922	10 15 01
10 18 30	J1319-0049	16 21 26	24.2	231.1	3.0		27.9	-16	10922	No stop
10 20 00	=1317-005	16 22 56	24.0	231.5	3.0		28.0	74	10933	10 18 31
10 20 00	J132323	16 22 56	23.4	230.0	3.0		27.4	-16	10933	No stop
10 23 30	---	16 26 27	23.0	230.8	3.0		27.8	194	10960	10 20 01
10 24 00	J1319-0049	16 26 57	23.6	232.5	3.1		28.4	14	10960	10 24 00
10 25 00	=1317-005	16 27 57	23.4	232.7	3.1		28.5	60	10968	10 24 01

Schedule for TORUN (Code Tr)

Page 27

e-EVN: tel15, rsg06, ew016

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 3 Dec 2014 Day 337 ---										
10 25 00	J132323	16 27 57	22.9	231.2	3.1		27.9	-16	10968	No stop
10 28 30	---	16 31 28	22.4	232.0	3.1		28.3	194	10995	10 25 01
10 28 30	J1319-0049	16 31 28	23.0	233.5	3.2		28.9	-16	10995	No stop
10 30 00	=1317-005	16 32 58	22.8	233.9	3.2		29.0	74	11006	10 28 31
10 30 00	J132323	16 32 58	22.3	232.4	3.1		28.4	-16	11006	No stop
10 33 30	---	16 36 28	21.8	233.2	3.2		28.8	194	11033	10 30 01
10 34 00	J1319-0049	16 36 59	22.3	234.8	3.3		29.4	14	11033	10 34 00
10 35 00	=1317-005	16 37 59	22.2	235.1	3.3		29.5	60	11041	10 34 01
10 35 00	J132323	16 37 59	21.7	233.6	3.2		28.9	-16	11041	No stop
10 38 30	---	16 41 29	21.2	234.4	3.3		29.3	194	11068	10 35 01
10 38 30	J1319-0049	16 41 29	21.8	235.9	3.4		29.8	-16	11068	No stop
10 40 00	=1317-005	16 43 00	21.6	236.3	3.4		30.0	74	11079	10 38 31
10 40 00	J132323	16 43 00	21.0	234.8	3.3		29.4	-16	11079	No stop
10 43 30	---	16 46 30	20.6	235.6	3.4		29.7	194	11106	10 40 01
10 44 00	J1319-0049	16 47 00	21.1	237.2	3.4		30.3	14	11106	10 44 00
10 45 00	=1317-005	16 48 00	21.0	237.4	3.5		30.4	60	11114	10 44 01
10 45 00	J132323	16 48 00	20.4	235.9	3.4		29.9	-16	11114	No stop
10 48 30	---	16 51 31	20.0	236.7	3.5		30.2	194	11141	10 45 01
10 48 30	J1319-0049	16 51 31	20.5	238.2	3.5		30.7	-16	11141	No stop
10 50 00	=1317-005	16 53 01	20.3	238.6	3.5		30.8	74	11153	10 48 31
10 50 00	J132323	16 53 01	19.8	237.1	3.5		30.3	-16	11153	No stop
10 53 30	---	16 56 32	19.4	237.9	3.5		30.6	194	11179	10 50 01
10 54 00	J1319-0049	16 57 02	19.8	239.5	3.6		31.2	14	11179	10 54 00
10 55 00	=1317-005	16 58 02	19.7	239.7	3.6		31.2	60	11187	10 54 01
10 55 00	J132323	16 58 02	19.2	238.2	3.6		30.7	-16	11187	No stop
10 58 30	---	17 01 33	18.7	239.0	3.6		31.0	194	11214	10 55 01
10 58 30	J1319-0049	17 01 33	19.2	240.5	3.7		31.5	-16	11214	No stop
11 00 00	=1317-005	17 03 03	19.0	240.8	3.7		31.6	74	11226	10 58 31
11 00 00	J132323	17 03 03	18.5	239.4	3.6		31.1	-16	11226	No stop
11 03 30	---	17 06 33	18.1	240.2	3.7		31.4	194	11253	11 00 01
11 04 00	J1319-0049	17 07 03	18.5	241.7	3.8		31.9	14	11253	11 04 00
11 05 00	=1317-005	17 08 04	18.4	242.0	3.8		32.0	60	11260	11 04 01

Schedule for TORUN (Code Tr)

Page 28

e-EVN: tel15, rsg06, ew016

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 3 Dec 2014 Day 337 ---										
11 05 00	J132323	17 08 04	17.9	240.5	3.7		31.5	-16	11260	No stop
11 08 30	---	17 11 34	17.4	241.3	3.8		31.8	194	11287	11 05 01
11 08 30	J1319-0049	17 11 34	17.9	242.8	3.9		32.3	-16	11287	No stop
11 10 00	=1317-005	17 13 04	17.7	243.1	3.9		32.4	74	11299	11 08 31
11 10 00	J132323	17 13 04	17.2	241.6	3.8		31.9	-16	11299	No stop
11 13 30	---	17 16 35	16.7	242.4	3.9		32.2	194	11326	11 10 01
11 14 00	J1319-0049	17 17 05	17.2	244.0	3.9		32.7	14	11326	11 14 00
11 15 00	=1317-005	17 18 05	17.0	244.2	4.0		32.7	60	11333	11 14 01
11 15 00	J132323	17 18 05	16.5	242.7	3.9		32.3	-16	11333	No stop
11 18 30	---	17 21 36	16.1	243.5	4.0		32.5	194	11360	11 15 01
11 18 30	J1319-0049	17 21 36	16.6	245.0	4.0		33.0	-16	11360	No stop
11 20 00	=1317-005	17 23 06	16.3	245.3	4.0		33.1	74	11372	11 18 31
11 20 00	J132323	17 23 06	15.9	243.8	4.0		32.6	-16	11372	No stop
11 23 30	---	17 26 37	15.4	244.6	4.0		32.9	194	11399	11 20 01
11 24 00	J1319-0049	17 27 07	15.8	246.2	4.1		33.3	14	11399	11 24 00
11 25 00	=1317-005	17 28 07	15.7	246.4	4.1		33.4	60	11406	11 24 01
11 25 00	J132323	17 28 07	15.2	244.9	4.1		33.0	-16	11406	No stop
11 28 30	---	17 31 38	14.7	245.7	4.1		33.2	194	11433	11 25 01
11 28 30	J1319-0049	17 31 38	15.2	247.1	4.2		33.6	-16	11433	No stop
11 30 00	=1317-005	17 33 08	15.0	247.5	4.2		33.7	74	11445	11 28 31
11 30 00	J132323	17 33 08	14.5	246.0	4.1		33.3	-16	11445	No stop
11 33 30	---	17 36 38	14.0	246.8	4.2		33.5	194	11472	11 30 01
11 34 00	J1319-0049	17 37 08	14.4	248.3	4.3		33.9	14	11472	11 34 00
11 35 00	=1317-005	17 38 09	14.3	248.5	4.3		34.0	60	11479	11 34 01
11 35 00	J132323	17 38 09	13.8	247.1	4.2		33.6	-16	11479	No stop
11 38 30	---	17 41 39	13.3	247.8	4.3		33.8	194	11506	11 35 01
11 38 30	J1319-0049	17 41 39	13.8	249.3	4.4		34.2	-16	11506	No stop
11 40 00	=1317-005	17 43 09	13.6	249.6	4.4		34.3	74	11518	11 38 31
11 40 00	J132323	17 43 09	13.1	248.1	4.3		33.9	-16	11518	No stop
11 43 30	---	17 46 40	12.6	248.9	4.4		34.1	194	11545	11 40 01
11 44 00	J1319-0049	17 47 10	13.0	250.5	4.4		34.5	14	11545	11 44 00
11 45 00	=1317-005	17 48 10	12.9	250.7	4.5		34.5	60	11553	11 44 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: 8 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: 6 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: 6

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)		
* J0131-0321	01 28 55.150269	* 01 31 27.354000	01 32 13.882528	0.00
	-03 36 25.72451	*-03 21 00.14000	-03 16 25.19864	0.00
* J132323	13 20 48.801348	* 13 23 23.332800	13 24 08.856733	0.00
	-01 44 03.43288	*-01 59 41.92800	-02 04 15.95083	0.00
* J0006-0623	00 03 40.288767	* 00 06 13.892888	00 07 00.336507	0.10
0003-066	-06 40 17.30000	*-06 23 35.33543	-06 18 34.60910	0.10
* J0123-0348	01 21 03.631208	* 01 23 35.774777	01 24 22.241443	0.40
0121-040	-04 04 17.53398	*-03 48 39.31650	-03 44 00.37807	0.94

* J0125-0005	01 22 55.178117	* 01 25 28.843828	01 26 15.820540	0.15
0122-003	-00 21 31.21935	*-00 05 55.93219	-00 01 16.91980	0.24
J0530+1331	05 28 06.759218	* 05 30 56.416749	05 31 48.720610	0.10
* 0528+134	13 29 42.28877	* 13 31 55.14944	13 32 25.13444	0.10
J0555+3948	05 52 01.407174	* 05 55 30.805616	05 56 35.333886	0.13
0552+398	39 48 21.94578	* 39 48 49.16493	39 48 43.30867	0.10
J0854+2006	08 51 57.250618	* 08 54 48.874930	08 55 40.805916	0.11
* OJ287	20 17 58.41733	* 20 06 30.64078	20 02 52.23913	0.10
J1127+5650	11 24 51.308579	* 11 27 40.135149	11 28 29.124082	0.49
* 1124+571	57 06 45.80194	* 56 50 14.79500	56 45 00.43328	0.34
J1159+2914	11 56 57.786211	* 11 59 31.833912	12 00 17.119440	0.11
* 1156+295	29 31 25.73868	* 29 14 43.82678	29 09 36.14901	0.10
* J1319-0049	13 17 04.725317	* 13 19 38.766179	13 20 24.145813	0.18
1317-005	-00 33 55.84395	*-00 49 39.93893	-00 54 16.14292	0.48
J1407+2827	14 04 45.615156	* 14 07 00.394414	14 07 39.311209	0.24
* OQ208	28 41 29.23519	* 28 27 14.69022	28 23 00.37701	0.34
J1902+3159	19 01 02.310063	* 19 02 55.938899	19 03 28.761649	0.12
* 3C395	31 55 13.94275	* 31 59 41.70155	32 01 20.89422	0.10
J2253+1608	22 51 29.519738	* 22 53 57.747937	22 54 42.428584	0.68
* 3C454.3	15 52 54.34810	* 16 08 53.56093	16 13 52.84972	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)	Source	Sun distance (deg)
J0131-0321	128.4	OJ287	119.9
J132323	50.7	1124+571	101.5
SDSS1133	100.1	1156+295	83.9
J0006-0623	108.3	J1319-0049	52.1
J0123-0348	126.5	OQ208	61.9
J0125-0005	128.7	3C395	64.5
0528+134	164.3	3C454.3	100.1
DA193	155.4		

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:

327 MHz	117. deg	8.4 GHz	17. deg
610 MHz	81. deg	15.0 GHz	12. deg
1.6 GHz	45. deg	22.0 GHz	9. deg
2.3 GHz	36. deg	43.0 GHz	6. deg
5.0 GHz	23. deg		

rk08iltr

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

--- Thu 4 Dec 2014 Day 338 ---

----- 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

04 00 00	1128+385	10 05 50	69.0	126.7	-1.4		-37.8	0	0	04 00 00
04 14 30	---	10 20 23	70.7	133.4	-1.2		-33.7	870	28	04 00 01
04 15 00	1128+385	10 20 53	70.7	133.6	-1.2		-33.6	23	28	04 15 00
04 25 00	---	10 30 54	71.8	138.8	-1.0		-30.2	600	47	04 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

04 30 00	1128+385	10 35 55	72.2	141.6	-0.9		-28.3	292	47	04 30 00
04 44 30	---	10 50 28	73.5	150.4	-0.7		-22.2	870	75	04 30 01
04 45 00	1128+385	10 50 58	73.5	150.7	-0.7		-21.9	23	75	04 45 00
05 00 00	---	11 06 00	74.4	160.9	-0.4		-14.5	900	104	04 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: 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=  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:  10  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:  10

```

```

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

```

==== Setup file: ra18cm2.set

```

Setup group:  13      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:  12  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:  12

```

```

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 40.613766	0.00
J1130+3815	38 31 51.62112	* 38 15 18.54689	38 10 08.49538	0.00


```

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)	(J2000)	(Date)	Error (mas)
* 0851+202	08 51 57.250618	* 08 54 48.874930	08 55 40.861166	0.00
J0854+2006	20 17 58.41733	* 20 06 30.64078	20 02 51.95721	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)
0851+202    121.3

```

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

```

rk08intr

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 4 Dec 2014 Day 338 ---

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

22 00 00	2328+107	04 08 48	21.2	260.0	4.6	37.1	0	0	22 00 00
22 14 30	---	04 23 20	19.0	263.1	4.9	37.4	870	28	22 00 01
22 15 00	2328+107	04 23 50	19.0	263.2	4.9	37.4	24	28	22 15 00
22 29 30	---	04 38 23	16.8	266.1	5.1	37.6	870	56	22 15 01
22 30 00	2328+107	04 38 53	16.7	266.2	5.1	37.6	24	56	22 30 00
22 44 30	---	04 53 25	14.5	269.2	5.4	37.7	870	84	22 30 01
22 45 00	2328+107	04 53 55	14.5	269.3	5.4	37.7	24	84	22 45 00
23 00 00	---	05 08 58	12.2	272.3	5.6	37.7	900	112	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: 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)		
* 2328+107	23 28 08.785997	* 23 30 40.852261	23 31 26.821225	0.00
J2330+1100	10 43 45.52196	* 11 00 18.70969	11 05 24.45479	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)
2328+107	104.8

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

rk08iptr

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 5 Dec 2014 Day 339 ---

----- 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	13 10 17	54.4	270.1	3.3	52.3	0	0	07 00 00
07 14 30	---	13 24 49	52.2	272.9	3.6	52.2	870	28	07 00 01
07 15 00	0945+408	13 25 19	52.1	273.0	3.6	52.1	24	28	07 15 00
07 25 00	---	13 35 21	50.6	274.9	3.8	52.0	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	13 40 21	49.9	275.8	3.8	51.9	293	47	07 30 00
07 44 30	---	13 54 54	47.7	278.4	4.1	51.5	870	75	07 30 01
07 45 00	0945+408	13 55 24	47.6	278.5	4.1	51.4	24	75	07 45 00
08 00 00	---	14 10 26	45.4	281.1	4.3	50.9	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: 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:  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

```

==== 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:  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)
* 0945+408	09 45 50.078219	* 09 48 55.338151	09 49 50.843058	0.00
J0948+4039	40 53 43.38094	* 40 39 44.58693	40 35 15.27913	0.00

rk08iqtr

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 5 Dec 2014 Day 339 ---

----- 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 0736+017 04 12 44 23.1 121.3 -3.5 -30.9 0 0 22 00 00
22 14 30 --- 04 27 17 25.0 124.7 -3.2 -29.6 870 28 22 00 01
22 15 00 0736+017 04 27 47 25.0 124.8 -3.2 -29.5 24 28 22 15 00
22 25 00 --- 04 37 48 26.2 127.3 -3.0 -28.6 600 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 0736+017 04 42 49 26.8 128.5 -3.0 -28.0 293 47 22 30 00
22 44 30 --- 04 57 22 28.5 132.1 -2.7 -26.5 870 75 22 30 01
22 45 00 0736+017 04 57 52 28.6 132.3 -2.7 -26.4 24 75 22 45 00
23 00 00 --- 05 12 54 30.2 136.2 -2.5 -24.6 900 104 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:  9  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:  9

```

```

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

```

==== Setup file: ra18cm2.set

```

Setup group:  12      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: 11  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: 11

```

```

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)
* 0736+017	07 36 42.512339	* 07 39 18.033897	07 40 05.743142	0.00
J0739+0137	01 44 00.18080	* 01 37 04.61773	01 34 51.18997	0.00

rk08irtr

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 6 Dec 2014 Day 340 ---

----- 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

01 00 00 0201+113 07 13 14 17.0 266.8 5.1 37.7 0 0 01 00 00
01 14 30 --- 07 27 46 14.8 269.8 5.4 37.8 870 28 01 00 01
01 15 00 0201+113 07 28 16 14.7 269.9 5.4 37.8 24 28 01 15 00
01 25 00 --- 07 38 18 13.2 271.9 5.6 37.8 600 47 01 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

01 30 00 0201+113 07 43 19 12.5 272.9 5.6 37.8 293 47 01 30 00
01 44 30 --- 07 57 51 10.3 275.7 5.9 37.6 870 75 01 30 01
01 45 00 0201+113 07 58 21 10.2 275.8 5.9 37.6 24 75 01 45 00
02 00 00 --- 08 13 24 8.0 278.8 6.1 37.3 900 104 01 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:   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) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0201+113	02 01 06.003329	* 02 03 46.657061	02 04 36.049243	0.00
J0203+1134	11 20 22.95394	* 11 34 45.40942	11 39 03.32131	0.00

rk08istr

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 6 Dec 2014 Day 340 ---

----- 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

05 00 00	0954+658	11 13 53	74.5	-29.6	1.2		134.4	0	0	05 00 00
05 14 30	---	11 28 26	73.4	-33.2	1.5		127.6	870	28	05 00 01
05 15 00	0954+658	11 28 56	73.4	-33.3	1.5		127.4	24	28	05 15 00
05 25 00	---	11 38 57	72.5	-35.3	1.7		123.2	600	47	05 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

05 30 00	0954+658	11 43 58	72.1	-36.2	1.7		121.2	294	47	05 30 00
05 44 30	---	11 58 31	70.7	-38.5	2.0		115.7	870	75	05 30 01
05 45 00	0954+658	11 59 01	70.7	-38.6	2.0		115.5	24	75	05 45 00
06 00 00	---	12 14 03	69.3	-40.3	2.2		110.4	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: 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:  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:  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:  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) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0954+658	09 54 57.847936	* 09 58 47.245116	09 59 55.232457	0.00
J0958+6533	65 48 15.53882	* 65 33 54.81801	65 29 12.81528	0.00

rk08ittr

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 6 Dec 2014 Day 340 ---

----- 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	1015+057	15 14 33	14.0	260.2	4.9		36.5	0	0	09 00 00
09 14 30	---	15 29 05	11.9	263.2	5.2		36.8	870	28	09 00 01
09 15 00	1015+057	15 29 35	11.8	263.3	5.2		36.8	24	28	09 15 00
09 25 00	---	15 39 37	10.3	265.3	5.3		37.0	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	1015+057	15 44 38	9.5	266.3	5.4		37.0	293	47	09 30 00
09 44 30	---	15 59 10	7.4	269.3	5.7		37.1	870	75	09 30 01
09 45 00	1015+057	15 59 40	7.3	269.4	5.7		37.1	24	75	09 45 00
10 00 00	---	16 14 43	5.0	272.4	5.9		37.1	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: 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:  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:  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)
* 1015+057	10 15 51.237789	* 10 18 27.848284	10 19 15.032816	0.00
J1018+0530	05 45 32.82524	* 05 30 29.96198	05 25 54.19616	0.00

rk08iutr

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 6 Dec 2014 Day 340 ---

----- 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 00 00 0003-066 02 16 21 24.6 215.8 2.2 20.7 0 0 20 00 00
20 14 30 --- 02 30 54 23.3 219.5 2.4 22.6 870 28 20 00 01
20 15 00 0003-066 02 31 24 23.2 219.6 2.4 22.6 24 28 20 15 00
20 25 00 --- 02 41 25 22.2 222.1 2.6 23.9 600 47 20 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
20 30 00 0003-066 02 46 26 21.7 223.3 2.7 24.5 293 47 20 30 00
20 44 30 --- 03 00 59 20.2 226.8 2.9 26.1 870 75 20 30 01
20 45 00 0003-066 03 01 29 20.1 226.9 2.9 26.2 24 75 20 45 00
21 00 00 --- 03 16 31 18.4 230.4 3.2 27.8 900 104 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: 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:  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:    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:  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) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0003-066	00 03 40.288767	* 00 06 13.892888	00 07 00.290628	0.00
J0006-0623	-06 40 17.29998	*-06 23 35.33541	-06 18 34.96046	0.00

rk08ivtr

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 7 Dec 2014 Day 341 ---

----- 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 0119+115 06 17 01 19.3 264.1 4.9 37.6 0 0 00 00 00
00 14 30 --- 06 31 33 17.1 267.1 5.2 37.8 870 28 00 00 01
00 15 00 0119+115 06 32 03 17.1 267.2 5.2 37.8 24 28 00 15 00
00 25 00 --- 06 42 05 15.6 269.2 5.3 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 0119+115 06 47 06 14.8 270.2 5.4 37.9 293 47 00 30 00
00 44 30 --- 07 01 38 12.6 273.1 5.7 37.8 870 75 00 30 01
00 45 00 0119+115 07 02 08 12.5 273.2 5.7 37.8 24 75 00 45 00
01 00 00 --- 07 17 10 10.3 276.2 5.9 37.6 900 104 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:  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)
* 0119+115	01 19 03.080127	* 01 21 41.595043	01 22 30.154312	0.00
J0121+1149	11 34 09.31507	* 11 49 50.41305	11 54 34.43758	0.00

rk08iwtr

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 7 Dec 2014 Day 341 ---

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 0633+734.

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)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 0633+734	06 33 06.424963	* 06 39 21.961221	06 41 18.450645	0.00
J0639+7324	73 27 35.83984	* 73 24 58.04034	73 23 48.65288	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)
0633+734	127.2

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

rk08ixtr

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 7 Dec 2014 Day 341 ---

----- 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 0945+408 15 18 29 35.6 -67.7 5.5 47.0 0 0 09 00 00
09 14 30 --- 15 33 02 33.6 -65.4 5.7 46.0 870 28 09 00 01
09 15 00 0945+408 15 33 32 33.6 -65.4 5.7 45.9 24 28 09 15 00
09 25 00 --- 15 43 33 32.2 -63.8 5.9 45.2 600 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 0945+408 15 48 34 31.5 -63.0 6.0 44.8 293 47 09 30 00
09 44 30 --- 16 03 07 29.6 -60.7 6.2 43.6 870 75 09 30 01
09 45 00 0945+408 16 03 37 29.5 -60.6 6.2 43.5 24 75 09 45 00
10 00 00 --- 16 18 39 27.6 -58.2 6.5 42.2 900 104 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:  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:  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:  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) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0945+408	09 45 50.078219	* 09 48 55.338151	09 49 50.934828	0.00
J0948+4039	40 53 43.38094	* 40 39 44.58693	40 35 14.97946	0.00

rk08iytr

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 7 Dec 2014 Day 341 ---

----- 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 0048-097 01 20 08 27.2 188.0 0.5 4.8 0 0 19 00 00
19 14 30 --- 01 34 40 26.8 192.0 0.7 7.2 870 28 19 00 01
19 15 00 0048-097 01 35 10 26.8 192.1 0.7 7.3 24 28 19 15 00
19 25 00 --- 01 45 12 26.5 194.8 0.9 9.0 600 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 0048-097 01 50 13 26.3 196.2 1.0 9.8 293 47 19 30 00
19 44 30 --- 02 04 45 25.6 200.1 1.2 12.1 870 75 19 30 01
19 45 00 0048-097 02 05 15 25.6 200.2 1.2 12.2 24 75 19 45 00
20 00 00 --- 02 20 18 24.7 204.2 1.5 14.5 900 104 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: 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

```

==== Setup file: ra18cm2.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:          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:  9  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:  9

```

```

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)
* 0048-097	00 48 09.975920	* 00 50 41.317387	00 51 27.260312	0.00
J0050-0929	-09 45 24.21201	*-09 29 05.21037	-09 24 14.88778	0.00

rk08iztr

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 7 Dec 2014 Day 341 ---

----- 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 0106+612 04 20 37 63.7 -52.2 3.2 87.1 0 0 22 00 00
22 14 30 --- 04 35 10 62.0 -51.9 3.4 84.1 870 28 22 00 01
22 15 00 0106+612 04 35 40 61.9 -51.9 3.4 84.0 24 28 22 15 00
22 25 00 --- 04 45 42 60.7 -51.6 3.6 82.1 600 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 0106+612 04 50 42 60.2 -51.4 3.7 81.1 293 47 22 30 00
22 44 30 --- 05 05 15 58.5 -50.8 3.9 78.5 870 75 22 30 01
22 45 00 0106+612 05 05 45 58.4 -50.8 3.9 78.4 24 75 22 45 00
23 00 00 --- 05 20 47 56.7 -50.0 4.2 75.7 900 104 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:  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

```

==== 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:  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)
* 0106+612	01 06 36.621798	* 01 09 46.344314	01 10 46.310157	0.00
J0109+6133	61 17 32.64124	* 61 33 30.45573	61 38 31.13738	0.00

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: 13 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: 13

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)		
* B0834+06	08 34 26.198610	* 08 37 05.642000	08 37 54.303641	0.00
J0837+0610	06 20 44.37717	* 06 10 14.56000	06 06 56.47413	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)
B0834+06	124.8

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

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)
* 0954+658	09 54 57.847936	* 09 58 47.245116	09 59 55.424693	0.00
J0958+6533	65 48 15.53882	* 65 33 54.81801	65 29 12.61949	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)
0954+658	117.1

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

rk08jdr

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 9 Dec 2014 Day 343 ---

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	0945+408	09 25 23	76.8	159.2	-0.4		-16.3	0	0	03 00 00
03 14 30	---	09 39 56	77.4	171.3	-0.2		-6.8	870	28	03 00 01
03 15 00	0945+408	09 40 26	77.4	171.8	-0.2		-6.5	22	28	03 15 00
03 29 30	---	09 54 58	77.5	184.5	0.1		3.5	870	56	03 15 01
03 30 00	0945+408	09 55 28	77.5	184.9	0.1		3.9	22	56	03 30 00
03 44 30	---	10 10 01	77.0	197.3	0.3		13.6	870	84	03 30 01
03 45 00	0945+408	10 10 31	77.0	197.7	0.3		13.9	22	84	03 45 00
04 00 00	---	10 25 33	76.1	209.4	0.6		22.8	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: ra1cm2.set
Matching groups in ./rk08jd_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: 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)		
* 0945+408	09 45 50.078219	* 09 48 55.338151	09 49 51.014480	0.00
J0948+4039	40 53 43.38094	* 40 39 44.58693	40 35 14.76455	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)
0945+408    118.2

```

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

```

rk08jetr

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 9 Dec 2014 Day 343 ---

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, SYNC. It lists observation times and parameters for source 0851+202.

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 ./rk08je_freq.dat: tr1cm

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=	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: 7 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: 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)	(J2000)	(Date)	Error (mas)
* 0851+202	08 51 57.250618	* 08 54 48.874930	08 55 41.040446	0.00
J0854+2006	20 17 58.41733	* 20 06 30.64078	20 02 51.18397	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)
0851+202	126.4

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

rk08jfr

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 9 Dec 2014 Day 343 ---

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	0106+612	16 26 32	31.1	24.7	-8.7		-31.9	0	0	10 00 00
10 14 30	---	16 41 05	32.0	26.4	-8.5		-34.2	870	28	10 00 01
10 15 00	0106+612	16 41 35	32.1	26.5	-8.5		-34.3	24	28	10 15 00
10 29 30	---	16 56 07	33.1	28.1	-8.2		-36.6	870	56	10 15 01
10 30 00	0106+612	16 56 37	33.1	28.2	-8.2		-36.7	24	56	10 30 00
10 44 30	---	17 11 10	34.2	29.8	-8.0		-39.0	870	84	10 30 01
10 45 00	0106+612	17 11 40	34.2	29.9	-8.0		-39.1	24	84	10 45 00
11 00 00	---	17 26 42	35.4	31.6	-7.7		-41.4	900	112	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: 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: 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)	(J2000)	(Date)	Error (mas)
* 0106+612	01 06 36.621798	* 01 09 46.344314	01 10 46.276182	0.00
J0109+6133	61 17 32.64124	* 61 33 30.45573	61 38 31.41032	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)
0106+612	124.8

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

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

==== 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: 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)	(J2000)	(Date)	Error (mas)
* 0202+149	02 02 07.396228	* 02 04 50.413896	02 05 40.580666	0.00
J0204+1514	14 59 50.93936	* 15 14 11.04358	15 18 29.05690	0.00


```

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:  9  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:  9

```

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)		
* 0954+658	09 54 57.847936	* 09 58 47.245116	09 59 55.502383	0.00
J0958+6533	65 48 15.53882	* 65 33 54.81801	65 29 12.57453	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	152.1
0954+658	117.6

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

rg06etr

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

--- Wed 10 Dec 2014 Day 344 ---

----- This is a fringe finder/clock offset calibrator 7.3 deg. from IC1396N -----

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

09 50 00	2135+508	16 20 27	43.8	58.8	-5.3		-54.9	0	0	09 50 00
09 55 00	---	16 25 28	44.5	59.4	-5.2		-55.4	300	10	09 50 01
10 00 00	IC1396N	16 30 29	48.4	50.6	-5.2		-62.1	266	10	10 00 00
10 29 30	---	17 00 04	51.9	53.2	-4.7		-66.4	1770	66	10 00 01
10 30 00	IC1396N	17 00 34	52.0	53.2	-4.7		-66.5	24	66	10 30 00
11 00 00	---	17 30 39	55.6	55.7	-4.2		-70.9	1800	124	10 30 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 ./rg06e_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:  3  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:  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)
* IC1396N	21 39 09.678974	* 21 40 41.750000	21 41 09.180717	0.00
IC1396N_H20	58 02 31.36343	* 58 16 11.90000	58 20 41.66380	0.00
* 2135+508	21 35 15.499567	* 21 37 00.986207	21 37 32.406020	0.00
J2137+5101	50 48 05.19436	* 51 01 36.12906	51 06 01.93465	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)
IC1396N	98.7
2135+508	94.5

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

rk08jmtr

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.

Table with columns: Start UT, Source, Stop UT, LST, EL, AZ, HA, UP, ParA, Early Dwell, Disk GBytes, TPStart SYNC

--- Fri 12 Dec 2014 Day 346 ---

----- 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

Table with columns: Start UT, Source, Stop UT, LST, EL, AZ, HA, UP, ParA, Early Dwell, Disk GBytes, TPStart SYNC

----- 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

Table with columns: Start UT, Source, Stop UT, LST, EL, AZ, HA, UP, ParA, Early Dwell, Disk GBytes, TPStart SYNC

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:  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
```

==== Setup file: ra18cm2.set

```
Setup group:  11      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: 10  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: 10
```

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)
* 0851+202	08 51 57.250618	* 08 54 48.874930	08 55 41.152793	0.00
J0854+2006	20 17 58.41733	* 20 06 30.64078	20 02 50.82059	0.00

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)	(Date)	Error (mas)
* 0821+394	08 21 37.310231	* 08 25 55.913904	0.00
J0824+3916	39 26 28.25687	* 39 16 41.90401	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)
0821+394	138.0

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

rk08jotr

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 14 Dec 2014 Day 348 ---

----- 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	0202+149	06 44 37	24.3	263.2	4.6	38.2	0	0	00 00 00
00 14 30	---	06 59 09	22.1	266.1	4.9	38.4	870	28	00 00 01
00 15 00	0202+149	06 59 39	22.1	266.3	4.9	38.4	24	28	00 15 00
00 25 00	---	07 09 41	20.6	268.3	5.1	38.5	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	0202+149	07 14 41	19.8	269.3	5.2	38.5	293	47	00 30 00
00 44 30	---	07 29 14	17.6	272.2	5.4	38.5	870	75	00 30 01
00 45 00	0202+149	07 29 44	17.6	272.3	5.4	38.5	24	75	00 45 00
01 00 00	---	07 44 46	15.3	275.3	5.7	38.3	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: 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:	10	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)
* 0202+149	02 02 07.396228	* 02 04 50.413896	02 05 40.546851	0.00
J0204+1514	14 59 50.93936	* 15 14 11.04358	15 18 28.97163	0.00

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)		
* 0716+714	07 16 13.029739	* 07 21 53.448474	07 23 38.467896	0.00
J0721+7120	71 26 15.17406	* 71 20 36.36340	71 18 32.22746	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	129.0

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

rk08jqtr

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 14 Dec 2014 Day 348 ---

----- 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

Table with columns: Start UT, Stop UT, Source, LST, EL, AZ, HA, UP, ParA, Dwell, Disk GBytes, TPStart SYNC. Contains scan data for 08:00:00 to 09:00:00.

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 ./rk08jq_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:  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)	(J2000)	(Date)	Error (mas)
* 0851+202	08 51 57.250618	* 08 54 48.874930	08 55 41.189730	0.00
J0854+2006	20 17 58.41733	* 20 06 30.64078	20 02 50.69648	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)
0851+202    131.5

```

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

```

rk08jrtr

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 14 Dec 2014 Day 348 ---

----- 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 0821+394 04 48 13 50.9 88.2 -3.6 -50.8 0 0 22 00 00
22 14 30 --- 05 02 46 53.1 91.1 -3.4 -50.8 870 28 22 00 01
22 15 00 0821+394 05 03 16 53.2 91.2 -3.4 -50.8 24 28 22 15 00
22 25 00 --- 05 13 17 54.7 93.3 -3.2 -50.7 600 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 0821+394 05 18 18 55.4 94.4 -3.1 -50.6 293 47 22 30 00
22 44 30 --- 05 32 51 57.6 97.6 -2.9 -50.2 870 75 22 30 01
22 45 00 0821+394 05 33 21 57.7 97.8 -2.9 -50.2 24 75 22 45 00
23 00 00 --- 05 48 23 59.9 101.4 -2.6 -49.5 900 104 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: 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

==== Setup file: ra18cm2.set

Setup group: 11	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: 10 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: 10

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)
* 0821+394	08 21 37.310231	* 08 24 55.483856	08 25 55.958460	0.00
J0824+3916	39 26 28.25687	* 39 16 41.90401	39 13 27.48841	0.00

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)	(Date)	Error (mas)	
* 1842+681	18 42 43.397968	* 18 42 33.641683	18 42 27.319754	0.00
J1842+6809	68 06 19.82590	* 68 09 25.22773	68 10 36.05454	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)
1842+681	92.4

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

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
	(B1950)	(J2000)		(mas)
* 1642+690	16 42 18.064877	* 16 42 07.848507	16 42 00.628257	0.00
J1642+6856	69 02 13.21708	* 68 56 39.75636	68 55 04.00114	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	92.6

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

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)
* 0953+254	09 53 59.738485	* 09 56 49.875379	09 57 41.336650	0.00
J0956+2515	25 29 33.58568	* 25 15 16.04978	25 10 44.83550	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	119.8

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

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: 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= 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)
* 0851+202	08 51 57.250618	* 08 54 48.874930	08 55 41.227217	0.00
J0854+2006	20 17 58.41733	* 20 06 30.64078	20 02 50.55180	0.00

rk08jwtr

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 16 Dec 2014 Day 350 ---

----- 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 0954+658 06 52 30 63.9 43.5 -3.1 -95.5 0 0 00 00 00
00 14 30 --- 07 07 02 65.4 43.0 -2.9 -99.2 870 28 00 00 01
00 15 00 0954+658 07 07 32 65.4 43.0 -2.9 -99.3 24 28 00 15 00
00 25 00 --- 07 17 34 66.5 42.5 -2.7 -102.0 600 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 0954+658 07 22 35 67.0 42.2 -2.6 -103.4 294 47 00 30 00
00 44 30 --- 07 37 07 68.4 41.2 -2.4 -107.7 870 75 00 30 01
00 45 00 0954+658 07 37 37 68.5 41.1 -2.4 -107.9 24 75 00 45 00
01 00 00 --- 07 52 39 69.9 39.6 -2.1 -112.7 900 104 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: 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=	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: 9 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: 9

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

==== Setup file: ra18cm2.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:	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: 10 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: 10

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)	
* 0954+658	09 54 57.847936	* 09 58 47.245116	09 59 55.880003	0.00
J0958+6533	65 48 15.53882	* 65 33 54.81801	65 29 12.61502	0.00

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)	(Date)	Error (mas)	
* 0821+394	08 21 37.310231	* 08 24 55.483856	08 25 55.989353	0.00
J0824+3916	39 26 28.25687	* 39 16 41.90401	39 13 27.49973	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)
0821+394	140.4

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

rk08jytr

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 16 Dec 2014 Day 350 ---

----- 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

05 00 00	0604+728	11 53 19	51.2 -28.0	5.7	72.6	0	0	05 00 00
05 14 30	---	12 07 51	50.1 -27.5	5.9	69.5	870	28	05 00 01
05 15 00	0604+728	12 08 21	50.1 -27.4	5.9	69.4	24	28	05 15 00
05 25 00	---	12 18 23	49.4 -27.0	6.1	67.4	600	47	05 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

05 30 00	0604+728	12 23 24	49.1 -26.8	6.2	66.3	294	47	05 30 00
05 44 30	---	12 37 56	48.1 -26.1	6.4	63.4	870	75	05 30 01
05 45 00	0604+728	12 38 26	48.1 -26.1	6.4	63.3	24	75	05 45 00
06 00 00	---	12 53 29	47.1 -25.3	6.7	60.3	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: ra6cm2.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=	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

==== Setup file: ra18cm2.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:	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: 9 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: 9

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)
* 0604+728	06 04 39.220367	* 06 10 48.873417	06 12 44.540904	0.00
J0610+7248	72 49 27.04207	* 72 48 53.18435	72 48 25.68150	0.00

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: 7 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: 7
```

Track assignments are:

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

==== Setup file: ra6cm2.set

```
Setup group: 4      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= 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: 9 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: 9
```

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 38.583957	0.00
J0721+7120	71 26 15.17406	* 71 20 36.36340	71 18 32.77337	0.00

rk08kbtr

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 16 Dec 2014 Day 350 ---

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 0945+408.

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 51.297850	0.00
J0948+4039	40 53 43.38094	* 40 39 44.58693	40 35 14.26074	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)
0945+408	125.0

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


```

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:  9  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:  9

```

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)
* 1101+384	11 01 40.567856	* 11 04 27.313945	11 05 17.135920	0.00
J1104+3812	38 28 42.95187	* 38 12 31.79894	38 07 24.62738	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	153.5
1101+384	110.3

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

rk08kptr

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 17 Dec 2014 Day 351 ---

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 1128+385 08 56 46 59.6 103.6 -2.6 -47.9 0 0 02 00 00
02 19 30 --- 09 16 19 62.4 109.0 -2.3 -46.2 1170 37 02 00 01
02 20 00 1128+385 09 16 49 62.5 109.2 -2.2 -46.2 24 37 02 20 00
02 40 00 --- 09 36 52 65.3 115.5 -1.9 -43.6 1200 76 02 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: 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: 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)		
* 1128+385	11 28 12.513446	* 11 30 53.282615	11 31 41.108600	0.00
J1130+3815	38 31 51.62112	* 38 15 18.54689	38 10 05.94806	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	105.4

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

rk08ketr

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
-----
```

--- Wed 17 Dec 2014 Day 351 ---

----- 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

```
05 00 00 0604+728      11 57 15 50.9 -27.9 5.7      71.7    0    0    05 00 00
05 14 30 ---          12 11 48 49.9 -27.3 6.0      68.7   870   28    05 00 01

05 15 00 0604+728      12 12 18 49.8 -27.3 6.0      68.6   24   28    05 15 00
05 25 00 ---          12 22 20 49.2 -26.8 6.2      66.5  600   47    05 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

```
05 30 00 0604+728      12 27 20 48.8 -26.6 6.2      65.5  294   47    05 30 00
05 44 30 ---          12 41 53 47.9 -25.9 6.5      62.6  870   75    05 30 01

05 45 00 0604+728      12 42 23 47.8 -25.9 6.5      62.5   24   75    05 45 00
06 00 00 ---          12 57 25 46.8 -25.1 6.7      59.5  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: ra6cm2.set

--- WARNING --- This group does not match an entry in the frequency catalog.
 This might be ok because the catalog is not complete.
 But be very careful to be sure that the setup is correct.

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:  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

```

==== 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:  9  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:  9

```

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)
* 0604+728	06 04 39.220367	* 06 10 48.873417	06 12 44.568094	0.00
J0610+7248	72 49 27.04207	* 72 48 53.18435	72 48 25.92415	0.00

rk08kfr

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

--- Wed 17 Dec 2014 Day 351 ---

----- 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 1642+690 13 57 35 65.3 34.5 -2.7 -108.8 0 0 07 00 00
07 14 30 --- 14 12 08 66.6 33.4 -2.5 -113.3 870 28 07 00 01
07 15 00 1642+690 14 12 38 66.6 33.3 -2.5 -113.4 24 28 07 15 00
07 25 00 --- 14 22 39 67.4 32.4 -2.3 -116.7 600 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 1642+690 14 27 40 67.8 31.8 -2.2 -118.3 294 47 07 30 00
07 44 30 --- 14 42 12 68.9 30.0 -2.0 -123.4 870 75 07 30 01
07 45 00 1642+690 14 42 43 69.0 29.9 -2.0 -123.6 24 75 07 45 00
08 00 00 --- 14 57 45 70.1 27.6 -1.7 -129.3 900 104 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: 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

```

==== 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:  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)		
* 1642+690	16 42 18.064877	* 16 42 07.848507	16 42 00.653541	0.00
J1642+6856	69 02 13.21708	* 68 56 39.75636	68 55 03.27638	0.00

rk08kgtr

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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 17 Dec 2014 Day 351 ---

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

11 00 00	1239+376	17 58 15	35.2	-72.9	5.3	46.1	0	0	11 00 00
11 14 30	---	18 12 47	33.1	-70.5	5.5	45.3	870	28	11 00 01
11 15 00	1239+376	18 13 17	33.1	-70.4	5.5	45.3	24	28	11 15 00
11 29 30	---	18 27 49	31.0	-68.0	5.7	44.4	870	56	11 15 01
11 30 00	1239+376	18 28 20	31.0	-67.9	5.8	44.3	24	56	11 30 00
11 44 30	---	18 42 52	28.9	-65.5	6.0	43.3	870	84	11 30 01
11 45 00	1239+376	18 43 22	28.9	-65.4	6.0	43.3	24	84	11 45 00
12 00 00	---	18 58 24	26.8	-62.9	6.3	42.2	900	112	11 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: 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)		
* 1239+376	12 39 45.151329	* 12 42 09.812390	12 42 52.332337	0.00
J1242+3720	37 36 31.63208	* 37 20 05.69271	37 14 59.44712	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)
1239+376	92.4

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

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

==== 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: 9 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: 9

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)	
* 0122-003	01 22 55.178115	* 01 25 28.843826	01 26 15.688485	0.00
J0125-0005	-00 21 31.21931	*-00 05 55.93215	-00 01 18.26241	0.00

rk08kjtr

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

--- Wed 17 Dec 2014 Day 351 ---

----- 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

23 00 00 0821+394 06 00 13 61.6 104.5 -2.4 -48.6 0 0 23 00 00
23 15 00 --- 06 15 15 63.8 108.7 -2.2 -47.2 900 29 23 00 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

23 20 00 0821+394 06 20 16 64.5 110.2 -2.1 -46.7 293 29 23 20 00
23 40 00 --- 06 40 19 67.3 116.9 -1.8 -43.7 1200 67 23 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: 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:	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: 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) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0821+394	08 21 37.310231	* 08 24 55.483856	08 25 56.040315	0.00
J0824+3916	39 26 28.25687	* 39 16 41.90401	39 13 27.48711	0.00

rk08ktr

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

--- Thu 18 Dec 2014 Day 352 ---

----- 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

04 00 00	0604+728	11 01 02	54.9	-29.3	4.8	84.0	0	0	04 00 00
04 14 30	---	11 15 35	53.9	-29.1	5.0	80.8	870	28	04 00 01
04 15 00	0604+728	11 16 05	53.8	-29.1	5.1	80.6	24	28	04 15 00
04 25 00	---	11 26 06	53.1	-28.8	5.2	78.4	600	47	04 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

04 30 00	0604+728	11 31 07	52.7	-28.7	5.3	77.3	294	47	04 30 00
04 44 30	---	11 45 39	51.7	-28.3	5.5	74.2	870	75	04 30 01
04 45 00	0604+728	11 46 10	51.7	-28.3	5.6	74.1	24	75	04 45 00
05 00 00	---	12 01 12	50.6	-27.7	5.8	70.9	900	104	04 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: 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=  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:  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:  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)
* 0604+728	06 04 39.220367	* 06 10 48.873417	06 12 44.596728	0.00
J0610+7248	72 49 27.04207	* 72 48 53.18435	72 48 26.14864	0.00

rk08kltr

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 18 Dec 2014 Day 352 ---

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 1101+384.

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: 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)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 1101+384	11 01 40.567856	* 11 04 27.313945	11 05 17.180013	0.00
J1104+3812	38 28 42.95187	* 38 12 31.79894	38 07 24.44769	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)
1101+384	111.4

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

rg11aftr

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 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 18 Dec 2014 Day 352 ---

----- This is a fringe finder/clock offset calibrator 4.8 deg. from NGC4258 -----

Next scan frequencies: 22204.00 22204.00 22204.00 22204.00
Next BBC frequencies: 704.00 704.00 704.00 704.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

11 50 00	1150+497	18 52 19	30.6	-47.0	7.0	42.5	0	0	11 50 00
11 55 00	---	18 57 20	30.1	-46.3	7.1	41.9	300	10	11 50 01
12 00 00	NGC4258	19 02 21	30.8	-51.0	6.7	43.4	274	10	12 00 00
12 29 30	---	19 31 56	27.4	-46.7	7.2	40.0	1770	66	12 00 01
12 30 00	NGC4258	19 32 26	27.4	-46.6	7.2	40.0	24	66	12 30 00
13 00 00	---	20 02 31	24.2	-42.1	7.7	36.4	1800	124	12 30 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 ./rg11af_freq.dat: tr1cm

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=	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 = off
 LO sum= 22204.00 22204.00 22204.00 22204.00
 BBC fr= 704.00 704.00 704.00 704.00
 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)	(J2000)	(Date)	Error (mas)
* NGC4258	12 16 29.364915	* 12 18 57.504600	12 19 40.973637	0.00
NGC4258_H20	47 34 53.16919	* 47 18 14.30300	47 12 59.82439	0.00
* 1150+497	11 50 47.999856	* 11 53 24.466639	11 54 10.571016	0.00
J1153+4931	49 47 50.09409	* 49 31 08.83012	49 25 51.64100	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)
NGC4258	101.3
1150+497	106.1

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

rk08kmtr

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 18 Dec 2014 Day 352 ---

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

17 00 00	1642+690	00 03 10	42.2	-27.1	7.4		49.4	0	0	17 00 00
17 19 30	---	00 22 43	40.9	-25.5	7.7		45.9	1170	37	17 00 01
17 20 00	1642+690	00 23 14	40.8	-25.5	7.7		45.8	24	37	17 20 00
17 40 00	---	00 43 17	39.6	-23.8	8.0		42.3	1200	76	17 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: 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)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 1642+690	16 42 18.064877	* 16 42 07.848507	16 42 00.672210	0.00
J1642+6856	69 02 13.21708	* 68 56 39.75636	68 55 02.79732	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	93.0

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

rk08kntr

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 18 Dec 2014 Day 352 ---

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 20 00 1842+681 02 23 33 40.3 -26.2 7.7 45.4 0 0 19 20 00
19 39 30 --- 02 43 06 39.1 -24.5 8.0 42.0 1170 37 19 20 01
19 40 00 1842+681 02 43 37 39.0 -24.4 8.0 41.9 24 37 19 40 00
20 00 00 --- 03 03 40 37.8 -22.6 8.4 38.4 1200 76 19 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.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)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 1842+681	18 42 43.397968	* 18 42 33.641683	18 42 27.257702	0.00
J1842+6809	68 06 19.82590	* 68 09 25.22773	68 10 34.87772	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)
1842+681	92.2

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

rk08kotr

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 21 Dec 2014 Day 355 ---

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: 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: 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)		
* 1324+574	13 24 54.934679	* 13 26 50.572337	13 27 23.409416	0.00
J1326+5712	57 27 39.04145	* 57 12 06.74540	57 07 13.97006	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	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

rk08kptr

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 21 Dec 2014 Day 355 ---

----- 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 0716+714 15 13 31 42.0 -22.5 7.8 45.8 0 0 08 00 00
08 14 30 --- 15 28 04 41.2 -21.4 8.1 43.1 870 28 08 00 01
08 15 00 0716+714 15 28 34 41.1 -21.3 8.1 43.0 25 28 08 15 00
08 25 00 --- 15 38 35 40.6 -20.5 8.2 41.1 600 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 0716+714 15 43 36 40.3 -20.1 8.3 40.2 294 47 08 30 00
08 44 30 --- 15 58 09 39.6 -19.0 8.6 37.5 870 75 08 30 01
08 45 00 0716+714 15 58 39 39.6 -18.9 8.6 37.4 25 75 08 45 00
09 00 00 --- 16 13 41 38.9 -17.7 8.8 34.6 900 104 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: 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=  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:    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:  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)
* 0716+714	07 16 13.029739	* 07 21 53.448474	07 23 38.821203	0.00
J0721+7120	71 26 15.17406	* 71 20 36.36340	71 18 33.61745	0.00

rk08kqtr

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 21 Dec 2014 Day 355 ---

----- 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

23 00 00	0149+218	06 15 59	32.1	264.7	4.4	40.2	0	0	23 00 00
23 14 30	---	06 30 31	29.9	267.7	4.6	40.4	870	28	23 00 01
23 15 00	0149+218	06 31 02	29.8	267.8	4.6	40.4	24	28	23 15 00
23 25 00	---	06 41 03	28.3	269.9	4.8	40.4	600	47	23 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

23 30 00	0149+218	06 46 04	27.5	270.9	4.9	40.4	293	47	23 30 00
23 44 30	---	07 00 36	25.4	273.7	5.1	40.3	870	75	23 30 01
23 45 00	0149+218	07 01 06	25.3	273.8	5.1	40.3	24	75	23 45 00
23 59 59	---	07 16 09	23.0	276.7	5.4	40.1	899	104	23 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:  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

```

--- WARNING --- This group does not match an entry in the frequency catalog.
                This might be ok because the catalog is not complete.
                But be very careful to be sure that the setup is correct.

```

```

Setup group:  7      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:  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) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0149+218	01 49 31.744133	* 01 52 18.059044	01 53 09.183976	0.00
J0152+2207	21 52 20.74786	* 22 07 07.69974	22 11 36.15013	0.00

rk08krtr

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 22 Dec 2014 Day 356 ---

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

04 00 00	0917+449	11 16 48	69.5	257.3	1.9	55.4	0	0	04 00 00
04 14 30	---	11 31 21	67.3	261.2	2.2	56.5	870	28	04 00 01
04 15 00	0917+449	11 31 51	67.3	261.3	2.2	56.5	24	28	04 15 00
04 29 30	---	11 46 23	65.1	264.8	2.4	57.2	870	56	04 15 01
04 30 00	0917+449	11 46 53	65.0	264.9	2.4	57.2	24	56	04 30 00
04 44 30	---	12 01 26	62.8	268.1	2.7	57.5	870	84	04 30 01
04 45 00	0917+449	12 01 56	62.8	268.2	2.7	57.5	24	84	04 45 00
05 00 00	---	12 16 58	60.5	271.3	2.9	57.5	900	112	04 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: 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)		
* 0917+449	09 17 41.919222	* 09 20 58.458485	09 21 58.232413	0.00
J0920+4441	44 54 39.62449	* 44 41 53.98501	44 37 44.07856	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)
0917+449	134.2

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

rk08kstr

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 22 Dec 2014 Day 356 ---

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 1101+384 15 17 28 45.1 277.0 4.2 49.3 0 0 08 00 00
08 14 30 --- 15 32 00 42.9 279.6 4.4 48.8 870 28 08 00 01
08 15 00 1101+384 15 32 30 42.8 279.6 4.5 48.8 24 28 08 15 00
08 29 30 --- 15 47 03 40.7 282.2 4.7 48.3 870 56 08 15 01
08 30 00 1101+384 15 47 33 40.6 282.3 4.7 48.2 24 56 08 30 00
08 44 30 --- 16 02 05 38.5 284.8 4.9 47.6 870 84 08 30 01
08 45 00 1101+384 16 02 35 38.4 284.8 5.0 47.5 24 84 08 45 00
09 00 00 --- 16 17 38 36.2 287.4 5.2 46.8 900 112 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: 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: 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)		
* 1101+384	11 01 40.567856	* 11 04 27.313945	11 05 17.351396	0.00
J1104+3812	38 28 42.95187	* 38 12 31.79894	38 07 23.75751	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)
1101+384	114.9

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

rk08kttr

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 22 Dec 2014 Day 356 ---

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 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: 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: 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)		
* 1642+690	16 42 18.064877	* 16 42 07.848507	16 42 00.745739	0.00
J1642+6856	69 02 13.21708	* 68 56 39.75636	68 55 01.25170	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	93.6

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

rk08kutr

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 23 Dec 2014 Day 357 ---

----- 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	1803+784	09 20 25	45.0	12.5	-8.7	-40.7	0	0	02 00 00
02 14 30	---	09 34 58	45.4	13.3	-8.4	-43.7	870	28	02 00 01
02 15 00	1803+784	09 35 28	45.5	13.3	-8.4	-43.8	25	28	02 15 00
02 25 00	---	09 45 29	45.8	13.8	-8.2	-45.9	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	1803+784	09 50 30	46.0	14.1	-8.2	-46.9	294	47	02 30 00
02 44 30	---	10 05 03	46.5	14.8	-7.9	-50.0	870	75	02 30 01
02 45 00	1803+784	10 05 33	46.6	14.8	-7.9	-50.1	25	75	02 45 00
03 00 00	---	10 20 35	47.2	15.5	-7.7	-53.3	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: 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:  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

```

==== 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)
* 1803+784	18 03 39.193524	* 18 00 45.683902	17 59 46.395526	0.00
J1800+7828	78 27 54.29744	* 78 28 04.01838	78 28 13.57277	0.00

rk08kvtr

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 23 Dec 2014 Day 357 ---

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 1239+376.

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)		(Date)	Error
	(B1950)	(J2000)		(mas)
* 1239+376	12 39 45.151329	* 12 42 09.812390	12 42 52.562872	0.00
J1242+3720	37 36 31.63208	* 37 20 05.69271	37 14 58.01511	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)
1239+376	97.1

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

rk08kxtr

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 23 Dec 2014 Day 357 ---

----- 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	0122-003	02 23 13	35.6	197.6	0.9	10.5	0	0	19 00 00
19 14 30	---	02 37 45	34.8	202.0	1.2	13.0	870	28	19 00 01
19 15 00	0122-003	02 38 15	34.8	202.1	1.2	13.1	24	28	19 15 00
19 25 00	---	02 48 17	34.2	205.1	1.4	14.7	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	0122-003	02 53 18	33.9	206.5	1.5	15.6	293	47	19 30 00
19 44 30	---	03 07 50	32.8	210.7	1.7	17.8	870	75	19 30 01
19 45 00	0122-003	03 08 20	32.8	210.8	1.7	17.9	24	75	19 45 00
20 00 00	---	03 23 23	31.6	215.0	2.0	20.2	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:  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:   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) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0122-003	01 22 55.178115	* 01 25 28.843826	01 26 15.652107	0.00
J0125-0005	-00 21 31.21931	*-00 05 55.93215	-00 01 18.63887	0.00

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:	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) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0336-019	03 36 58.953148	* 03 39 30.937788	03 40 17.883037	0.00
J0339-0146	-01 56 16.89659	*-01 46 35.80419	-01 43 50.97761	0.00

rg04aitr

RADIOASTRON PULSAR OBSERVATIONS

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 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 24 Dec 2014 Day 358 ---

----- 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

Table with 11 columns: Start UT, Stop UT, Source, LST, EL, AZ, HA, UP, ParA, Dwell, GBytes, TPStart. Contains observation data for B1237+25.

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: 11 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 = 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

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
	(B1950)	(J2000)		(mas)
* B1237+25	12 37 11.905336	* 12 39 40.461400	12 40 24.688798	0.00
J1239+2453	25 10 17.18956	* 24 53 49.29000	24 48 44.50394	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	153.1
B1237+25	93.1

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

rk08kztr

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

--- Wed 24 Dec 2014 Day 358 ---

----- 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

04 00 00 1101+384 11 24 41 74.7 194.6 0.3 11.1 0 0 04 00 00
04 14 30 --- 11 39 14 73.9 204.8 0.6 18.7 870 28 04 00 01
04 15 00 1101+384 11 39 44 73.9 205.1 0.6 18.9 23 28 04 15 00
04 25 00 --- 11 49 46 73.2 211.6 0.7 23.6 600 47 04 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

04 30 00 1101+384 11 54 46 72.8 214.7 0.8 25.7 291 47 04 30 00
04 44 30 --- 12 09 19 71.4 222.8 1.1 31.3 870 75 04 30 01
04 45 00 1101+384 12 09 49 71.3 223.1 1.1 31.4 23 75 04 45 00
05 00 00 --- 12 24 51 69.7 230.5 1.3 36.1 900 104 04 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:  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:  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) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 1101+384	11 01 40.567856	* 11 04 27.313945	11 05 17.435379	0.00
J1104+3812	38 28 42.95187	* 38 12 31.79894	38 07 23.47313	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 29 Dec 2014 Day 363 ---

----- 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 0333+321    10 44 14 16.4 -57.5  7.1    36.8    0    0    03 00 00
03 12 00 ---          10 56 16 14.9 -55.4  7.3    35.8   720   23    03 00 01

03 12 30 0333+321    10 56 46 14.8 -55.3  7.3    35.8   24   23    03 12 30
03 20 00 ---          11 04 18 13.9 -54.0  7.4    35.1  450   37    03 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

03 25 00 0333+321    11 09 19 13.3 -53.1  7.5    34.6   293   37    03 25 00
03 37 00 ---          11 21 20 11.9 -50.9  7.7    33.5   720   60    03 25 01

03 37 30 0333+321    11 21 51 11.8 -50.8  7.7    33.4   24   60    03 37 30
03 50 00 ---          11 34 23 10.4 -48.5  7.9    32.2   750   84    03 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:      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=  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)
* 0333+321	03 33 22.404692	* 03 36 30.107611	03 37 28.299254	0.00
J0336+3218	32 08 36.66043	* 32 18 29.34220	32 21 24.94264	0.00

rk08ljtr

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 29 Dec 2014 Day 363 ---

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 10 00	1239+376	13 54 46	69.8	225.4	1.2	32.5	0	0	06 10 00
06 22 00	---	14 06 48	68.5	231.0	1.4	35.9	720	23	06 10 01
06 22 30	1239+376	14 07 18	68.4	231.2	1.4	36.0	23	23	06 22 30
06 34 30	---	14 19 20	67.0	236.2	1.6	38.8	720	46	06 22 31
06 35 00	1239+376	14 19 50	66.9	236.4	1.6	38.9	24	46	06 35 00
06 47 00	---	14 31 52	65.4	240.9	1.8	41.3	720	69	06 35 01
06 47 30	1239+376	14 32 22	65.3	241.1	1.8	41.3	24	69	06 47 30
07 00 00	---	14 44 54	63.6	245.4	2.0	43.3	750	93	06 47 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: 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)
* 1239+376	12 39 45.151329	* 12 42 09.812390	12 42 52.786249	0.00
J1242+3720	37 36 31.63208	* 37 20 05.69271	37 14 56.84419	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)
1239+376	101.9

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

rk08lkr

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 29 Dec 2014 Day 363 ---

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

22 00 00	0336-019	05 47 22	29.1	217.0	2.1		21.2	0	0	22 00 00
22 14 30	---	06 01 54	27.7	220.8	2.4		23.1	870	28	22 00 01
22 15 00	0336-019	06 02 24	27.7	221.0	2.4		23.2	24	28	22 15 00
22 29 30	---	06 16 57	26.2	224.7	2.6		25.0	870	56	22 15 01
22 30 00	0336-019	06 17 27	26.1	224.8	2.6		25.1	24	56	22 30 00
22 44 30	---	06 31 59	24.5	228.4	2.9		26.7	870	84	22 30 01
22 45 00	0336-019	06 32 29	24.5	228.6	2.9		26.8	24	84	22 45 00
23 00 00	---	06 47 32	22.7	232.2	3.1		28.3	900	112	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: ra18cm2.set

--- WARNING --- This group does not match an entry in the frequency catalog.
This might be ok because the catalog is not complete.
But be very careful to be sure that the setup is correct.

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: 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) (B1950)	(J2000)	(Date)	Error (mas)
* 0336-019	03 36 58.953148	* 03 39 30.937788	03 40 17.842650	0.00
J0339-0146	-01 56 16.89659	*-01 46 35.80419	-01 43 51.62483	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	115.2
0336-019	130.7

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

rk08lltr

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 30 Dec 2014 Day 364 ---

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	0356+322	09 48 01	27.2	-71.4	5.8		42.4	0	0	02 00 00
02 14 30	---	10 02 33	25.1	-68.8	6.0		41.5	870	28	02 00 01
02 15 00	0356+322	10 03 04	25.0	-68.7	6.0		41.5	24	28	02 15 00
02 29 30	---	10 17 36	23.0	-66.2	6.3		40.6	870	56	02 15 01
02 30 00	0356+322	10 18 06	23.0	-66.1	6.3		40.6	24	56	02 30 00
02 44 30	---	10 32 38	21.0	-63.6	6.5		39.6	870	84	02 30 01
02 45 00	0356+322	10 33 09	20.9	-63.5	6.5		39.5	24	84	02 45 00
03 00 00	---	10 48 11	18.9	-60.9	6.8		38.4	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: 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: 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)
* 0356+322	03 56 34.795463	* 03 59 44.912919	04 00 43.886056	0.00
J0359+3220	32 12 19.24958	* 32 20 47.15555	32 23 15.62998	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)
0356+322	144.6

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

rk08lmtr

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 30 Dec 2014 Day 364 ---

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

07 00 00	0906+430	14 48 50	35.8	-64.2	5.6		47.5	0	0	07 00 00
07 14 30	---	15 03 23	33.9	-62.0	5.9		46.3	870	28	07 00 01
07 15 00	0906+430	15 03 53	33.8	-61.9	5.9		46.3	24	28	07 15 00
07 29 30	---	15 18 25	31.9	-59.7	6.1		45.0	870	56	07 15 01
07 30 00	0906+430	15 18 55	31.8	-59.6	6.1		44.9	24	56	07 30 00
07 44 30	---	15 33 28	30.0	-57.4	6.4		43.6	870	84	07 30 01
07 45 00	0906+430	15 33 58	29.9	-57.3	6.4		43.6	24	84	07 45 00
08 00 00	---	15 49 00	28.0	-55.0	6.6		42.1	900	112	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: 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: 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)	(J2000)	(Date)	Error (mas)
* 0906+430	09 06 17.256145	* 09 09 33.497149	09 10 33.555801	0.00
J0909+4253	43 05 59.00858	* 42 53 46.48205	42 49 47.12702	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)
0906+430	142.8

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

rk08lntr

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/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

--- Tue 30 Dec 2014 Day 364 ---

----- 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
09 00 00 0716+714 16 49 10 37.4 -14.6 9.4 28.1 0 0 09 00 00
09 14 30 --- 17 03 42 36.9 -13.3 9.7 25.5 870 28 09 00 01
09 15 00 0716+714 17 04 13 36.8 -13.2 9.7 25.4 25 28 09 15 00
09 25 00 --- 17 14 14 36.5 -12.3 9.8 23.6 600 47 09 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
09 30 00 0716+714 17 19 15 36.3 -11.9 9.9 22.7 294 47 09 30 00
09 44 30 --- 17 33 47 35.9 -10.5 10.2 20.0 870 75 09 30 01
09 45 00 0716+714 17 34 17 35.9 -10.5 10.2 19.9 25 75 09 45 00
10 00 00 --- 17 49 20 35.5 -9.1 10.4 17.2 900 104 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: ra1cm2.set
Matching groups in ./rk08ln_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: 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: 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= 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)
* 0716+714	07 16 13.029739	* 07 21 53.448474	07 23 39.213718	0.00
J0721+7120	71 26 15.17406	* 71 20 36.36340	71 18 35.85020	0.00

rk08lotr

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 30 Dec 2014 Day 364 ---

----- 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 0333+321 04 51 08 65.4 219.9 1.2 27.1 0 0 21 00 00
21 14 30 --- 05 05 41 63.9 226.1 1.5 30.8 870 28 21 00 01
21 15 00 0333+321 05 06 11 63.9 226.4 1.5 31.0 24 28 21 15 00
21 25 00 --- 05 16 12 62.7 230.3 1.6 33.2 600 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 0333+321 05 21 13 62.1 232.3 1.7 34.2 292 47 21 30 00
21 44 30 --- 05 35 46 60.4 237.4 2.0 36.8 870 75 21 30 01
21 45 00 0333+321 05 36 16 60.3 237.6 2.0 36.9 24 75 21 45 00
22 00 00 --- 05 51 18 58.3 242.5 2.2 39.1 900 104 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: 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

```

==== 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)
* 0333+321	03 33 22.404692	* 03 36 30.107611	03 37 28.283287	0.00
J0336+3218	32 08 36.66043	* 32 18 29.34220	32 21 24.96401	0.00

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
	(B1950)	(J2000)		(mas)
* 0322+222	03 22 41.745721	* 03 25 36.814357	03 26 30.921792	0.00
J0325+2224	22 13 30.30088	* 22 24 00.36553	22 27 05.69254	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	135.6

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

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
	(B1950)	(J2000)		(mas)
* 1642+690	16 42 18.064877	* 16 42 07.848507	16 42 00.964668	0.00
J1642+6856	69 02 13.21708	* 68 56 39.75636	68 54 58.26885	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	94.5

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

rk08lrtr

RADIOASTRON AGN SURVEY

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Observing mode: L-band, dual-pol

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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 31 Dec 2014 Day 365 ---

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: 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: 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
	(B1950)	(J2000)		(mas)
* 1324+574	13 24 54.934679	* 13 26 50.572337	13 27 23.898260	0.00
J1326+5712	57 27 39.04145	* 57 12 06.74540	57 07 11.66389	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:

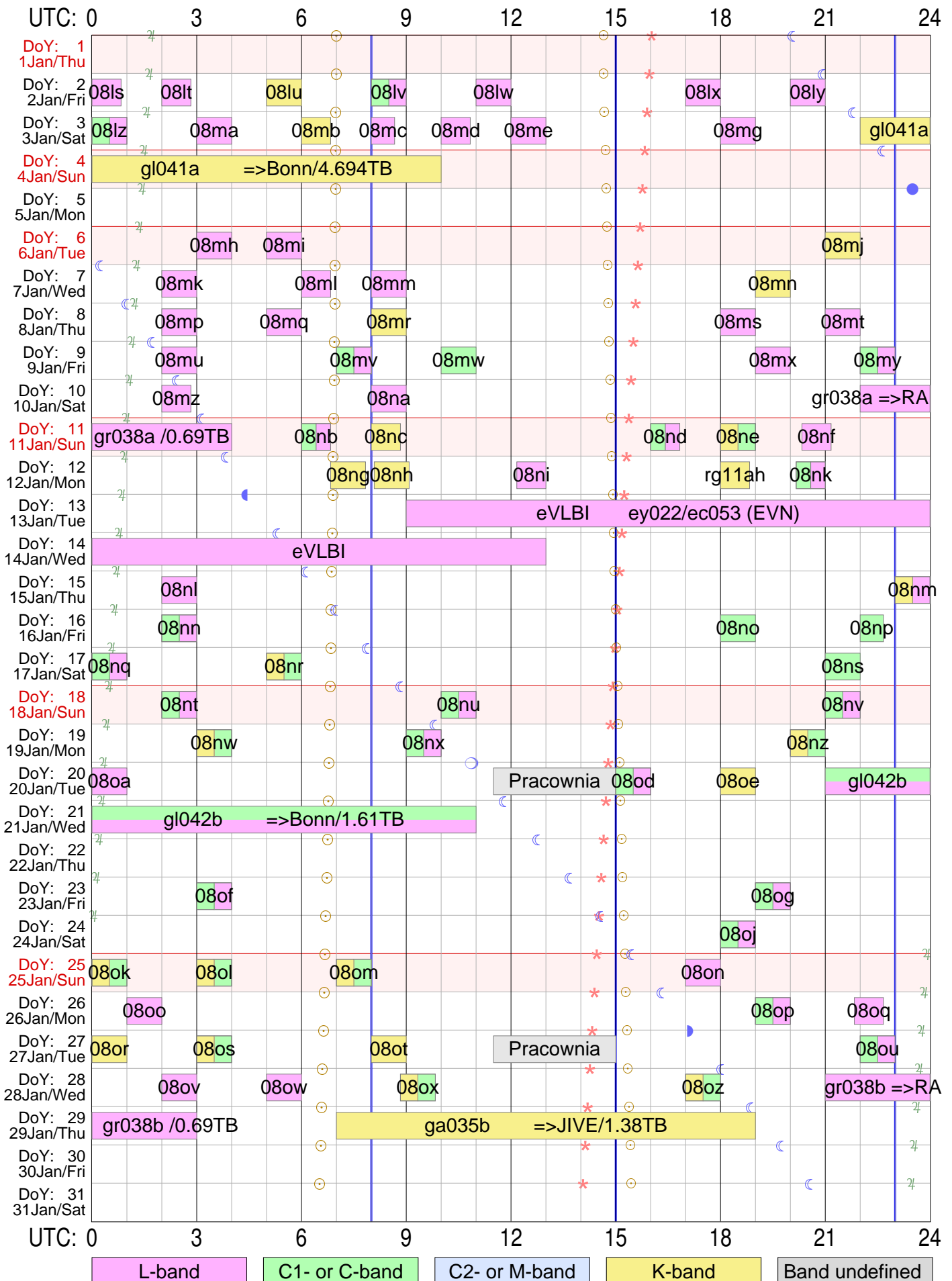
Source	Sun distance (deg)
1324+574	103.3

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

Tr VLBI plan for Jan 2015



Version: 2014.12.31

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: 153.0 hours in 84 experiments scheduled

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

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