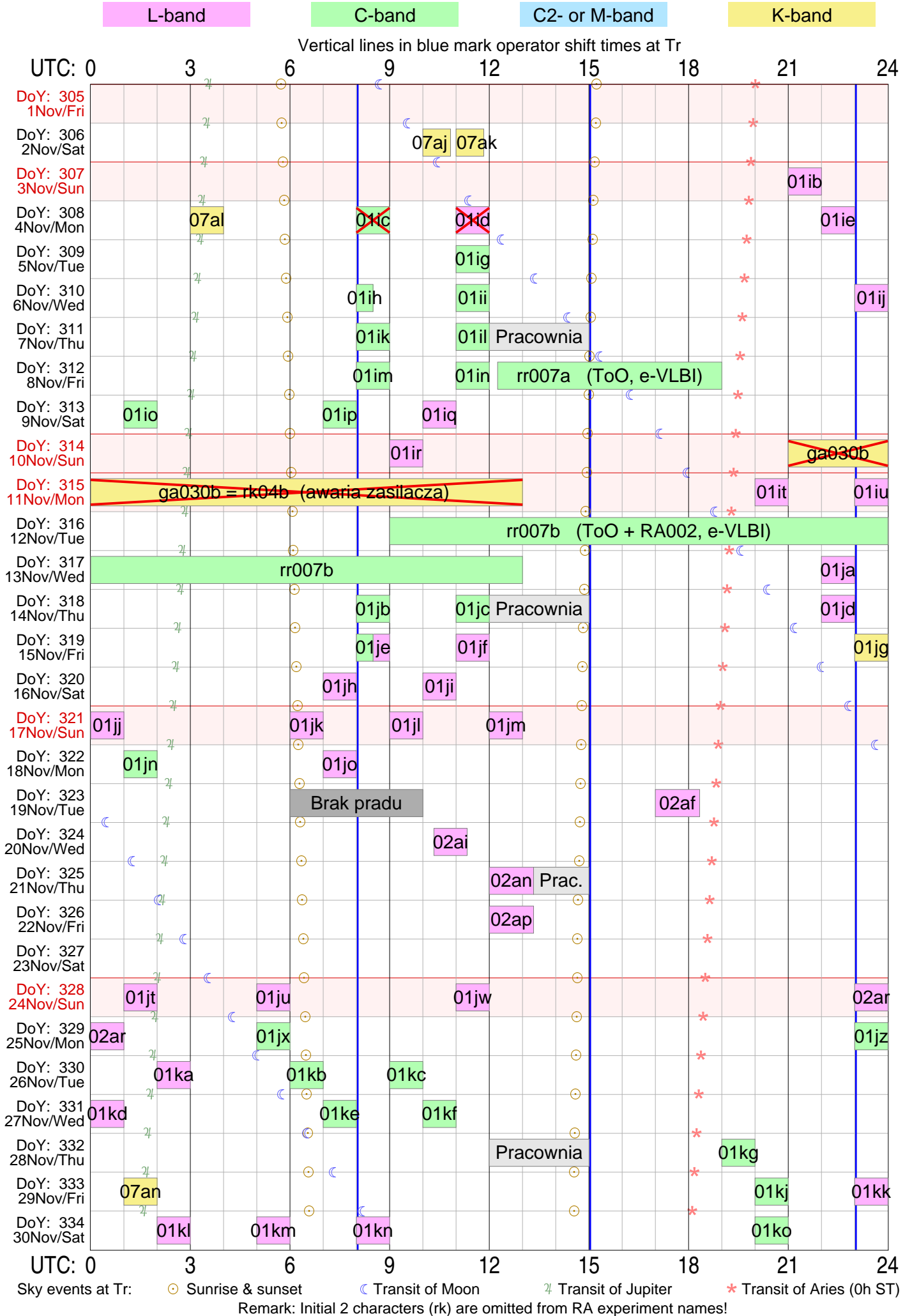


# Tr VLBI schedule for Nov 2013



# RadioAstron and EVN Experiments

## November 2013

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

ftp://webinet.asc.rssi.ru

Przykład dla log files: cd GRT\_log\_files/2013\_08/2013\_08\_01\_raks02aa

Przykład dla sched files: cd schedule/grtsched/RAKS/rk02aa

Name	Band	DoY	DoM	WD	UT_Start		UT_Stop		Uwagi
					h	m	h	m	
rk07aj	K	306	2	Sob	10	00	10	50	
rk07ak	K	306	2	Sob	11	00	11	50	
rk01ib	L	307	3	Nie	21	00	22	00	
rk07al	K	308	4	Pon	3	00	4	00	
rk01ic	C	308	4	Pon	8	00	9	00	
rk01id	L	308	4	Pon	11	00	12	00	
rk01ie	L	308	4	Pon	22	00	23	00	
rk01ig	C	309	5	Wto	11	00	12	00	
rk01ih	C	310	6	Sro	8	00	9	00	
rk01ii	C	310	6	Sro	11	00	12	00	
rk01ij	L	310	6	Sro	23	00	24	00	
rk01ik	C	311	7	Czw	8	00	9	00	
rk01il	C	311	7	Czw	11	00	12	00	
rk01im	C	312	8	Pia	8	00	9	00	
rr007a	C	312	8	Pia	9	15	19	00	eVLBI (z przerwą na RA)
rk01in	C	312	8	Pia	11	00	12	00	
rk01io	C	313	9	Sob	1	00	2	00	
rk01ip	C	313	9	Sob	7	00	8	00	
rk01iq	L	313	9	Sob	10	00	11	00	
rk01ir	L	314	10	Nie	9	00	10	00	
ga030b	K	314	10	Nie	22	00	24+13	00	rk04b
rk01it	L	315	11	Pon	20	00	21	00	
rk01iu	L	315	11	Pon	23	00	24	00	
e-VLBI	C/L	316	12	Wto	9	0	24+13	00	EVN eVLBI
rk01ja	L	317	13	Sro	22	00	23	00	
rk01jb	C	318	14	Czw	8	00	9	00	
rk01jc	C	318	14	Czw	11	00	12	00	
rk01jd	L	318	14	Czw	22	00	23	00	
rk01je	C&L	319	15	Pia	8	00	9	00	Dwa pasma C->L
rk01jf	L	319	15	Pia	11	00	12	00	
rk01jg	K	319	15	Pia	23	00	24	00	
rk01jh	L	320	16	Sob	7	00	8	00	
rk01ji	L	320	16	Sob	10	00	11	00	

rk01jj	L	321	17	Nie	0 00	1 00
rk01jk	L	321	17	Nie	6 00	7 00
rk01jl	L	321	17	Nie	9 00	10 00
rk01jm	L	321	17	Nie	12 00	13 00
rk01jn	C	322	18	Pon	1 00	2 00
rk01jo	L	322	18	Pon	7 00	8 00
rk02af	L	323	19	Wto	17 00	18 20
rk02ai	L	324	20	Sro	10 20	11 20
rk02an	L	325	21	Czw	12 00	13 20
rk02ap	L	326	22	Pia	12 00	13 20
rk01jt	L	328	24	Nie	1 00	2 00
rk01ju	L	328	24	Nie	5 00	6 00
rk01jw	L	328	24	Nie	11 00	12 00
rk02ar	L	328	24	Nie	23 00	24+01 00
rk01jx	C	329	25	Pon	5 00	6 00
rk01jz	C	329	25	Pon	23 00	24 00
rk01ka	L	330	26	Wto	2 00	3 00
rk01kb	C	330	26	Wto	6 00	7 00
rk01kc	C	330	26	Wto	9 00	10 00
rk01kd	L	331	27	Sro	0 00	1 00
rk01ke	C	331	27	Sro	7 00	8 00
rk01kf	C	331	27	Sro	10 00	11 00
rk01kg	C	332	28	Czw	19 00	20 00
rk07an	K	333	29	Pia	1 00	2 00
rk01kj	C	333	29	Pia	20 00	21 00
rk01kk	L	333	29	Pia	23 00	24 00
rk01kl	L	334	30	Sob	2 00	3 00
rk01km	L	334	30	Sob	5 00	6 00
rk01kn	L	334	30	Sob	8 00	9 00
rk01ko	C	334	30	Sob	20 00	21 00

Razem 62 eksperymenty

Do zapisu obserwacji RadioAstronu dedykowany jest dyskpak

TR-00002/1600

montowany w banku A. Gdyby ten się zapełnił, można użyć paka

USN-0203/2000

zamontowanego w banku B obok TR-00002/1600 (lub samego w A). Jeśli zaczęto w Banku B, kolejne eksperymenty trzeba nagrywać także w B.

UWAGA: 1-godzinne eksperymenty RA zwykle wymagają ok. 110 GB wolnego miejsca na dyskpacku (dłuższe odpowiednio więcej).

rk07ajtr

RADIOASTRON MASER OBSERVATIONS

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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
-----										
--- Sat 2 Nov 2013 Day 306 ---										
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										
10 00 00	ON2_H2O	14 01 37	26.4	61.9	-6.3		-41.9	0	0	10 00 00
10 09 30	---	14 11 09	27.6	63.4	-6.2		-42.6	570	18	10 00 01
10 10 00	ON2_H2O	14 11 39	27.7	63.5	-6.2		-42.6	24	18	10 10 00
10 19 30	---	14 21 10	29.0	65.1	-6.0		-43.3	570	36	10 10 01
10 20 00	ON2_H2O	14 21 40	29.0	65.2	-6.0		-43.4	24	36	10 20 00
10 29 30	---	14 31 12	30.4	66.7	-5.9		-44.1	570	55	10 20 01
10 30 00	ON2_H2O	14 31 42	30.4	66.8	-5.8		-44.1	24	55	10 30 00
10 39 30	---	14 41 14	31.7	68.4	-5.7		-44.7	570	73	10 30 01
10 40 00	ON2_H2O	14 41 44	31.8	68.5	-5.7		-44.8	24	73	10 40 00
10 50 00	---	14 51 45	33.2	70.1	-5.5		-45.4	600	92	10 40 01
10 51 00	2013+370	14 52 45	34.1	71.6	-5.4		-45.7	45	92	10 51 00
11 00 00	---	15 01 47	35.4	73.1	-5.2		-46.2	540	109	10 51 01

SETUP FILE INFORMATION:

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

==== Setup file: ra1cm2.set

Matching groups in ./rk07aj.freq.dat:

tr1cm Values from Bob Campbell by email (23-04-2013)

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 pcal sets: 1
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

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set: 1 PCAL = OFF
PCALXB1= S1 S2 S3 S4 OFF OFF OFF OFF
PCALXB2= M1 M2 M3 M4 OFF OFF OFF OFF
PCALFR1= 0 0 0 0 0 0 0 0
PCALFR2= 0 0 0 0 0 0 0 0

```

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)		
* ON2_H2O	20 19 51.905903	* 20 21 44.013000	20 22 15.411030	0.00
	37 17 00.37082	* 37 26 37.97000	37 29 43.72254	0.00
J2015+3710	20 13 37.014489	* 20 15 28.729775	20 15 59.962974	0.16
* 2013+370	37 01 44.45943	* 37 10 59.51531	37 13 58.97615	0.16

#### 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)
ON2_H2O	97.3
2013+370	96.0

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:

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



```

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

```

The following frequency sets based on these setups were used.

```

Frequency Set: 3 Setup file default. Used pcal sets: 1
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

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set: 1 PCAL = OFF
PCALXB1= S1 S2 S3 S4 OFF OFF OFF OFF
PCALXB2= M1 M2 M3 M4 OFF OFF OFF OFF
PCALFR1= 0 0 0 0 0 0 0 0
PCALFR2= 0 0 0 0 0 0 0 0

```

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)		
* ON1_H2O	20 08 09.867525	* 20 10 09.113280	20 10 42.393611	0.00
	31 22 39.68355	* 31 31 34.98240	31 34 27.81462	0.00
J2023+3153	20 21 18.921660	* 20 23 19.017344	20 23 52.640970	0.12
* 2021+317	31 43 19.28847	* 31 53 02.30598	31 56 08.41852	0.11

#### 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)
ON1_H2O	93.5
2021+317	96.3

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:

5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg
43.0 GHz	6. deg

RADIOASTRON AGN SURVEY

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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    3 Nov 2013    Day 307 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00  
 Next BBC frequencies:  632.00  632.00  632.00  632.00  
 Next scan bandwidths:  16.00  16.00  16.00  16.00

21 00 00	2351+456	01 07 22	76.3	245.8	1.2	52.0	0	0	21 00 00
21 09 30	---	01 16 54	75.0	249.9	1.4	54.2	570	18	21 00 01
21 10 00	2351+456	01 17 24	74.9	250.1	1.4	54.3	24	18	21 10 00
21 19 30	---	01 26 55	73.6	253.5	1.5	55.9	570	36	21 10 01
21 20 00	2351+456	01 27 25	73.5	253.7	1.5	56.0	24	36	21 20 00
21 29 30	---	01 36 57	72.1	256.8	1.7	57.3	570	55	21 20 01
21 30 00	2351+456	01 37 27	72.1	256.9	1.7	57.3	24	55	21 30 00
21 39 30	---	01 46 59	70.7	259.7	1.9	58.2	570	73	21 30 01
21 40 00	2351+456	01 47 29	70.6	259.8	1.9	58.3	24	73	21 40 00
21 49 30	---	01 57 00	69.2	262.4	2.0	58.9	570	91	21 40 01
21 50 00	2351+456	01 57 30	69.1	262.5	2.0	58.9	24	91	21 50 00
22 00 00	---	02 07 32	67.6	264.9	2.2	59.4	600	110	21 50 01

SETUP FILE INFORMATION:

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

=====  
 Setup file: ra18cm2.set

Matching groups in ./rk0lib.freq.dat:

tr18cm                      E-mail Borkowski 12Mar98, preferred alternative

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= 2300.00 2300.00 2300.00 2300.00
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 pcal sets: 1
LO sum= 1668.00 1668.00 1668.00 1668.00
BBC fr= 632.00 632.00 632.00 632.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 6

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set: 1 PCAL = 1MHZ
PCALXB1= S1 S3 S1 S3 S1 S2 S3 S4
PCALXB2= S2 S4 S2 S4 M1 M2 M3 M4
PCALFR1= 1000 1000 13000 13000 0 0 0 0
PCALFR2= 1000 1000 13000 13000 0 0 0 0

```

```

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)
J2354+4553	23 51 49.972508	* 23 54 21.680218	23 55 06.153584	0.15
* 2351+456	45 36 22.77744	* 45 53 04.23638	45 57 59.69347	0.10

#### 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)
2351+456    134.5

```

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

For common VLBI bands, this is:

```

327 MHz      117. deg
610 MHz      81. deg
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
43.0 GHz     6. deg

```

rk07altr

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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 4 Nov 2013 Day 308 ---

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

Table with columns: Start UT, Stop UT, Source, LST, EL, AZ, HA, UP, ParA, Early Dwell, Disk GBytes, TPStart SYNC. Contains scan schedule data for NGC2071\_H2O and 0524+034.

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 ./rk07al.freq.dat:

tr1cm Values from Bob Campbell by email (23-04-2013)

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:  1 Setup file default. Used pcal sets:  1
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:  1

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set:  1 PCAL = OFF
PCALXB1=  S1  S2  S3  S4  OFF  OFF  OFF  OFF
PCALXB2=  M1  M2  M3  M4  OFF  OFF  OFF  OFF
PCALFR1=   0   0   0   0   0   0   0   0
PCALFR2=   0   0   0   0   0   0   0   0

```

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)		
* NGC2071_H20	05 44 30.603584	* 05 47 04.758000	05 47 48.964015	0.00
	00 20 40.59526	* 00 21 42.70000	00 21 56.74025	0.00
J0527+0331	05 24 54.913889	* 05 27 32.705446	05 28 18.014138	0.10
* 0524+034	03 29 04.36406	* 03 31 31.51655	03 32 08.77096	0.11

#### 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)
NGC2071_H20	130.8
0524+034	136.4

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:

5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg
43.0 GHz	6. deg

**rk0lictr**

RADIOASTRON AGN SURVEY

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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    4 Nov 2013    Day 308 ---

```
Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies:  636.00  636.00  636.00  636.00
Next scan bandwidths:  16.00  16.00  16.00  16.00

08 00 00 0657+172      12 09 10 21.3 270.4 5.1      38.9    0      0    08 00 00
08 09 30 ---            12 18 42 19.9 272.3 5.3      38.9   570      18   08 00 01

08 10 00 0657+172      12 19 12 19.8 272.4 5.3      38.9    24      18   08 10 00
08 19 30 ---            12 28 44 18.4 274.2 5.5      38.8   570      36   08 10 01

08 20 00 0657+172      12 29 14 18.3 274.3 5.5      38.8    24      36   08 20 00
08 29 30 ---            12 38 45 16.9 276.2 5.6      38.7   570      55   08 20 01

08 30 00 0657+172      12 39 15 16.8 276.3 5.6      38.7    24      55   08 30 00
08 39 30 ---            12 48 47 15.4 278.2 5.8      38.5   570      73   08 30 01

08 40 00 0657+172      12 49 17 15.3 278.2 5.8      38.5    24      73   08 40 00
08 49 30 ---            12 58 49 13.9 280.1 6.0      38.2   570      91   08 40 01

08 50 00 0657+172      12 59 19 13.9 280.2 6.0      38.2    24      91   08 50 00
09 00 00 ---            13 09 20 12.4 282.1 6.1      37.9   600     110   08 50 01
```

SETUP FILE INFORMATION:

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

=====  
Setup file: ra6cm2.set

Matching groups in ./rk0lic.freq.dat:

tr6cm                      E-mail Borkowski 23Apr03 (CR 1May03)

```
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=  4200.00  4200.00  4200.00  4200.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  2  Setup file default.  Used pcal sets:  1
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   636.00   636.00   636.00   636.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  2

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set:  1  PCAL = 1MHZ
PCALXB1=  S1  S3  S1  S3  S1  S2  S3  S4
PCALXB2=  S2  S4  S2  S4  M1  M2  M3  M4
PCALFR1= 1000 1000 13000 13000  0  0  0  0
PCALFR2= 1000 1000 13000 13000  0  0  0  0

```

```

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)
J0700+1709	06 57 07.785942	* 07 00 01.525540	07 00 50.864216	0.11
* 0657+172	17 13 35.02507	* 17 09 21.70126	17 08 02.11917	0.10

#### 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)
FAKERA	101.5
0657+172	117.4

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
610 MHz	81. deg
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
43.0 GHz	6. deg

**rk01idtr**

RADIOASTRON AGN SURVEY

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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
-----
```

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Next scan frequencies: 1668.00 1668.00 1668.00 1668.00  
 Next BBC frequencies:    632.00    632.00    632.00    632.00  
 Next scan bandwidths:    16.00    16.00    16.00    16.00

11 00 00	2135+508	15 09 40	35.2	49.7	-6.5	-46.8	0	0	11 00 00
11 09 30	---	15 19 12	36.3	51.0	-6.3	-48.0	570	18	11 00 01
11 10 00	2135+508	15 19 42	36.4	51.0	-6.3	-48.0	24	18	11 10 00
11 19 30	---	15 29 13	37.5	52.3	-6.1	-49.1	570	36	11 10 01
11 20 00	2135+508	15 29 43	37.5	52.3	-6.1	-49.2	24	36	11 20 00
11 29 30	---	15 39 15	38.7	53.6	-6.0	-50.3	570	55	11 20 01
11 30 00	2135+508	15 39 45	38.8	53.6	-6.0	-50.3	24	55	11 30 00
11 39 30	---	15 49 16	39.9	54.9	-5.8	-51.4	570	73	11 30 01
11 40 00	2135+508	15 49 47	40.0	54.9	-5.8	-51.5	24	73	11 40 00
11 49 30	---	15 59 18	41.2	56.1	-5.6	-52.6	570	91	11 40 01
11 50 00	2135+508	15 59 48	41.2	56.2	-5.6	-52.6	24	91	11 50 00
12 00 00	---	16 09 50	42.5	57.5	-5.5	-53.7	600	110	11 50 01

SETUP FILE INFORMATION:

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

=====  
Setup file: ra18cm2.set

Matching groups in ./rk01id.freq.dat:

tr18cm                      E-mail Borkowski 12Mar98, preferred alternative

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=  2300.00  2300.00  2300.00  2300.00
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 pcal sets:  1
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   632.00  632.00  632.00  632.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  2

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set:  1  PCAL = 1MHZ
PCALXB1=  S1  S3  S1  S3  S1  S2  S3  S4
PCALXB2=  S2  S4  S2  S4  M1  M2  M3  M4
PCALFR1= 1000 1000 13000 13000  0  0  0  0
PCALFR2= 1000 1000 13000 13000  0  0  0  0

```

```

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)
J2137+5101	21 35 15.499566	* 21 37 00.986206	21 37 31.391890	0.56
* 2135+508	50 48 05.19434	* 51 01 36.12904	51 05 47.59028	0.25

#### 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)
2135+508    111.1

```

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:

```

327 MHz      117. deg
610 MHz      81. deg
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
43.0 GHz      6. deg

```

**rk01ietr**

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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    4 Nov 2013    Day 308 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00  
 Next BBC frequencies:  632.00  632.00  632.00  632.00  
 Next scan bandwidths:  16.00  16.00  16.00  16.00

22 00 00	2251+158	02 11 28	36.9	245.3	3.3		34.6	0	0	22 00 00
22 14 30	---	02 26 01	34.9	248.9	3.5		35.7	870	28	22 00 01
22 15 00	2251+158	02 26 31	34.8	249.0	3.5		35.7	24	28	22 15 00
22 29 30	---	02 41 03	32.7	252.4	3.8		36.6	870	56	22 15 01
22 30 00	2251+158	02 41 33	32.7	252.5	3.8		36.6	24	56	22 30 00
22 44 30	---	02 56 06	30.6	255.7	4.0		37.3	870	84	22 30 01
22 45 00	2251+158	02 56 36	30.5	255.9	4.0		37.3	24	84	22 45 00
23 00 00	---	03 11 38	28.3	259.1	4.3		37.9	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

Matching groups in ./rk01ie.freq.dat:

tr18cm                      E-mail Borkowski 12Mar98, preferred alternative

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=  2300.00  2300.00  2300.00  2300.00
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 pcal sets:  1
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   632.00   632.00   632.00   632.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  7

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set:  1  PCAL = 1MHZ
PCALXB1=  S1  S3  S1  S3  S1  S2  S3  S4
PCALXB2=  S2  S4  S2  S4  M1  M2  M3  M4
PCALFR1= 1000 1000 13000 13000  0  0  0  0
PCALFR2= 1000 1000 13000 13000  0  0  0  0

```

```

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)
J2253+1608	22 51 29.519738	* 22 53 57.747937	22 54 40.101100	0.68
* 2251+158	15 52 54.34810	* 16 08 53.56093	16 13 35.78758	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)
2251+158    125.8

```

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:

```

327 MHz      117. deg
610 MHz      81. deg
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
43.0 GHz      6. deg

```



```

1st LO=  4200.00  4200.00  4200.00  4200.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  2  Setup file default.  Used pcal sets:  1
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   636.00   636.00   636.00   636.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  2

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set:  1  PCAL = 1MHZ
PCALXB1=  S1  S3  S1  S3  S1  S2  S3  S4
PCALXB2=  S2  S4  S2  S4  M1  M2  M3  M4
PCALFR1= 1000 1000 13000 13000  0  0  0  0
PCALFR2= 1000 1000 13000 13000  0  0  0  0

```

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)		
J1806+6949	18 07 18.543585	* 18 06 50.680643	18 06 40.170764	0.29
* 1807+698	69 48 57.10463	* 69 49 28.10848	69 49 59.04976	0.10

#### 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)
1807+698    92.7

```

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:

```

327 MHz      117. deg
610 MHz      81. deg
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
43.0 GHz      6. deg

```

rk01ihr

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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

--- Wed 6 Nov 2013 Day 310 ---

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 636.00 636.00 636.00 636.00
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. It lists observation times and parameters for source 0923+392.

SETUP FILE INFORMATION:

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

==== Setup file: ra6cm2.set

Matching groups in ./rk01ih\_freq.dat:

tr6cm E-mail Borkowski 23Apr03 (CR 1May03)

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=  4200.00  4200.00  4200.00  4200.00
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 pcal sets:  1
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   636.00   636.00   636.00   636.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  3

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set:  1  PCAL = 1MHZ
PCALXB1=  S1  S3  S1  S3  S1  S2  S3  S4
PCALXB2=  S2  S4  S2  S4  M1  M2  M3  M4
PCALFR1= 1000 1000 13000 13000  0  0  0  0
PCALFR2= 1000 1000 13000 13000  0  0  0  0

```

```

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)
J0927+3902	09 23 55.319217	* 09 27 03.013938	09 27 55.066901	0.13
* 0923+392	39 15 23.56637	* 39 02 20.85177	38 58 27.22443	0.10

#### 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)
FAKERA      102.2
0923+392    92.3

```

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

For common VLBI bands, this is:

```

327 MHz      117. deg
610 MHz      81. deg
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
43.0 GHz     6. deg

```

**rk01itr**

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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
-----
```

--- Wed    6 Nov 2013    Day 310 ---

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00  
 Next BBC frequencies: 636.00 636.00 636.00 636.00  
 Next scan bandwidths: 16.00 16.00 16.00 16.00

11 00 00	1803+784	15 17 33	61.0	15.6	-2.7	-126.3	0	0	11 00 00
11 09 30	---	15 27 05	61.4	14.9	-2.5	-129.2	570	18	11 00 01
11 10 00	1803+784	15 27 35	61.4	14.9	-2.5	-129.3	25	18	11 10 00
11 19 30	---	15 37 06	61.8	14.3	-2.4	-132.2	570	36	11 10 01
11 20 00	1803+784	15 37 36	61.8	14.2	-2.4	-132.4	25	36	11 20 00
11 29 30	---	15 47 08	62.1	13.5	-2.2	-135.3	570	55	11 20 01
11 30 00	1803+784	15 47 38	62.1	13.5	-2.2	-135.5	25	55	11 30 00
11 39 30	---	15 57 10	62.5	12.7	-2.0	-138.5	570	73	11 30 01
11 40 00	1803+784	15 57 40	62.5	12.7	-2.0	-138.7	25	73	11 40 00
11 49 30	---	16 07 11	62.8	11.9	-1.9	-141.7	570	91	11 40 01
11 50 00	1803+784	16 07 41	62.8	11.9	-1.9	-141.9	25	91	11 50 00
12 00 00	---	16 17 43	63.1	11.0	-1.7	-145.1	600	110	11 50 01

SETUP FILE INFORMATION:

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

=====  
Setup file: ra6cm2.set

Matching groups in ./rk01ii\_freq.dat:

tr6cm                      E-mail Borkowski 23Apr03 (CR 1May03)

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=  4200.00  4200.00  4200.00  4200.00
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 pcal sets:  1
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   636.00   636.00   636.00   636.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  3

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set:  1  PCAL = 1MHZ
PCALXB1=  S1  S3  S1  S3  S1  S2  S3  S4
PCALXB2=  S2  S4  S2  S4  M1  M2  M3  M4
PCALFR1= 1000 1000 13000 13000  0  0  0  0
PCALFR2= 1000 1000 13000 13000  0  0  0  0

```

```

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)
J1800+7828	18 03 39.193525	* 18 00 45.683903	17 59 52.081852	0.50
* 1803+784	78 27 54.29744	* 78 28 04.01838	78 28 26.19442	0.10

#### 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)
FAKERA      102.3
1803+784    98.3

```

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:

```

327 MHz      117. deg
610 MHz      81. deg
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
43.0 GHz     6. deg

```





```

1st LO= 2300.00 2300.00 2300.00 2300.00
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 pcal sets: 1
LO sum= 1668.00 1668.00 1668.00 1668.00
BBC fr= 632.00 632.00 632.00 632.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 8

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set: 1 PCAL = 1MHZ
PCALXB1= S1 S3 S1 S3 S1 S2 S3 S4
PCALXB2= S2 S4 S2 S4 M1 M2 M3 M4
PCALFR1= 1000 1000 13000 13000 0 0 0 0
PCALFR2= 1000 1000 13000 13000 0 0 0 0

```

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)
J0303+4716	03 00 10.111206	* 03 03 35.242224	03 04 35.327120	0.15
* 0300+470	47 04 33.67711	* 47 16 16.27545	47 19 30.54167	0.10

#### 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)
FAKERA	102.5
0300+470	148.8

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:

327 MHz	117. deg
610 MHz	81. deg
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
43.0 GHz	6. deg

**rk0liktr**

RADIOASTRON AGN SURVEY

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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    7 Nov 2013    Day 311 ---

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00  
 Next BBC frequencies:  636.00  636.00  636.00  636.00  
 Next scan bandwidths:  16.00  16.00  16.00  16.00

Start UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
08 00 00	0804+499	12 21 00	52.0	-68.8	4.2		60.1	0	0	08 00 00
08 09 30	---	12 30 32	50.6	-67.5	4.3		59.3	570	18	08 00 01
08 10 00	0804+499	12 31 02	50.6	-67.5	4.4		59.2	24	18	08 10 00
08 19 30	---	12 40 33	49.3	-66.2	4.5		58.4	570	36	08 10 01
08 20 00	0804+499	12 41 03	49.2	-66.2	4.5		58.3	24	36	08 20 00
08 29 30	---	12 50 35	47.9	-64.9	4.7		57.4	570	55	08 20 01
08 30 00	0804+499	12 51 05	47.8	-64.9	4.7		57.4	24	55	08 30 00
08 39 30	---	13 00 37	46.5	-63.6	4.8		56.5	570	73	08 30 01
08 40 00	0804+499	13 01 07	46.5	-63.6	4.9		56.4	24	73	08 40 00
08 49 30	---	13 10 38	45.2	-62.3	5.0		55.5	570	91	08 40 01
08 50 00	0804+499	13 11 08	45.1	-62.3	5.0		55.4	24	91	08 50 00
09 00 00	---	13 21 10	43.8	-61.0	5.2		54.4	600	110	08 50 01

SETUP FILE INFORMATION:

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

=====  
Setup file: ra6cm2.set

Matching groups in ./rk0lik\_freq.dat:

tr6cm                      E-mail Borkowski 23Apr03 (CR 1May03)

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=  4200.00  4200.00  4200.00  4200.00
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 pcal sets:  1
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   636.00   636.00   636.00   636.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  5

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set:  1  PCAL = 1MHZ
PCALXB1=  S1  S3  S1  S3  S1  S2  S3  S4
PCALXB2=  S2  S4  S2  S4  M1  M2  M3  M4
PCALFR1= 1000 1000 13000 13000  0  0  0  0
PCALFR2= 1000 1000 13000 13000  0  0  0  0

```

```

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)
J0808+4950	08 04 58.395748	* 08 08 39.666289	08 09 41.830508	0.16
* 0804+499	49 59 23.07807	* 49 50 36.53037	49 47 49.08900	0.10

#### 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)
FAKERA	102.6
0804+499	109.0

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:

327 MHz	117. deg
610 MHz	81. deg
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
43.0 GHz	6. deg

**rk01iltr**

RADIOASTRON AGN SURVEY

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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    7 Nov 2013    Day 311 ---

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00  
 Next BBC frequencies: 636.00 636.00 636.00 636.00  
 Next scan bandwidths: 16.00 16.00 16.00 16.00

11 00 00	0716+714	15 21 30	41.5	-21.9	8.0	44.3	0	0	11 00 00
11 09 30	---	15 31 01	41.0	-21.1	8.1	42.5	570	18	11 00 01
11 10 00	0716+714	15 31 31	41.0	-21.1	8.1	42.4	25	18	11 10 00
11 19 30	---	15 41 03	40.5	-20.3	8.3	40.6	570	36	11 10 01
11 20 00	0716+714	15 41 33	40.4	-20.3	8.3	40.5	25	36	11 20 00
11 29 30	---	15 51 05	39.9	-19.5	8.5	38.8	570	55	11 20 01
11 30 00	0716+714	15 51 35	39.9	-19.5	8.5	38.7	25	55	11 30 00
11 39 30	---	16 01 06	39.4	-18.7	8.6	36.9	570	73	11 30 01
11 40 00	0716+714	16 01 36	39.4	-18.7	8.6	36.8	25	73	11 40 00
11 49 30	---	16 11 08	39.0	-17.9	8.8	35.1	570	91	11 40 01
11 50 00	0716+714	16 11 38	38.9	-17.8	8.8	35.0	25	91	11 50 00
12 00 00	---	16 21 40	38.5	-17.0	9.0	33.2	600	110	11 50 01

SETUP FILE INFORMATION:

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

=====  
Setup file: ra6cm2.set

Matching groups in ./rk01il\_freq.dat:

tr6cm                      E-mail Borkowski 23Apr03 (CR 1May03)

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=  4200.00  4200.00  4200.00  4200.00
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 pcal sets:  1
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   636.00   636.00   636.00   636.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  4

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set:  1  PCAL = 1MHZ
PCALXB1=  S1  S3  S1  S3  S1  S2  S3  S4
PCALXB2=  S2  S4  S2  S4  M1  M2  M3  M4
PCALFR1= 1000 1000 13000 13000  0  0  0  0
PCALFR2= 1000 1000 13000 13000  0  0  0  0

```

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)
J0721+7120	07 16 13.029741	* 07 21 53.448476	07 23 29.903751	0.31
* 0716+714	71 26 15.17406	* 71 20 36.36340	71 18 35.26380	0.10

#### 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)
FAKERA	102.6
0716+714	112.5

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:

327 MHz	117. deg
610 MHz	81. deg
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
43.0 GHz	6. deg

**rk01imtr**

RADIOASTRON AGN SURVEY

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Observing mode: C-band, dual-pol

Schedule for TORUN                      (Code Tr )    Page    2

RadioAstron AGN survey

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

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

--- Fri    8 Nov 2013    Day 312 ---

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00  
 Next BBC frequencies:  636.00  636.00  636.00  636.00  
 Next scan bandwidths:  16.00  16.00  16.00  16.00

08 00 00	0738+313	12 24 57	35.7	276.0	4.7	44.3	0	0	08 00 00
08 09 30	---	12 34 28	34.3	277.8	4.9	44.1	570	18	08 00 01
08 10 00	0738+313	12 34 58	34.2	277.9	4.9	44.0	24	18	08 10 00
08 19 30	---	12 44 30	32.8	279.6	5.0	43.8	570	36	08 10 01
08 20 00	0738+313	12 45 00	32.7	279.7	5.0	43.8	24	36	08 20 00
08 29 30	---	12 54 32	31.3	281.5	5.2	43.5	570	55	08 20 01
08 30 00	0738+313	12 55 02	31.2	281.6	5.2	43.4	24	55	08 30 00
08 39 30	---	13 04 33	29.8	283.3	5.4	43.1	570	73	08 30 01
08 40 00	0738+313	13 05 03	29.8	283.4	5.4	43.1	24	73	08 40 00
08 49 30	---	13 14 35	28.4	285.1	5.5	42.7	570	91	08 40 01
08 50 00	0738+313	13 15 05	28.3	285.2	5.6	42.6	24	91	08 50 00
09 00 00	---	13 25 07	26.9	287.0	5.7	42.2	600	110	08 50 01

SETUP FILE INFORMATION:

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

=====  
Setup file: ra6cm2.set

Matching groups in ./rk01im\_freq.dat:

tr6cm                      E-mail Borkowski 23Apr03 (CR 1May03)

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=  4200.00  4200.00  4200.00  4200.00
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 pcal sets:  1
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   636.00   636.00   636.00   636.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  3

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set:  1  PCAL = 1MHZ
PCALXB1=  S1  S3  S1  S3  S1  S2  S3  S4
PCALXB2=  S2  S4  S2  S4  M1  M2  M3  M4
PCALFR1= 1000 1000 13000 13000  0  0  0  0
PCALFR2= 1000 1000 13000 13000  0  0  0  0

```

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)
J0741+3112	07 38 00.178559	* 07 41 10.703308	07 42 04.614636	0.18
* 0738+313	31 19 02.05925	* 31 12 00.22924	31 09 48.19741	1.24

#### 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)
0738+313    113.8

```

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:

```

327 MHz      117. deg
610 MHz      81. deg
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
43.0 GHz      6. deg

```

**rk01intr**

RADIOASTRON AGN SURVEY

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Observing mode: L-band, dual-pol

Schedule for TORUN                      (Code Tr )                                      Page    2

RadioAstron AGN survey

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

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

--- Fri    8 Nov 2013    Day 312 ---

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00  
 Next BBC frequencies: 636.00 636.00 636.00 636.00  
 Next scan bandwidths: 16.00 16.00 16.00 16.00

Start UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
11 00 00	1357+769	15 25 26	65.0	-11.8	1.5		147.9	0	0	11 00 00
11 09 30	---	15 34 58	64.7	-12.8	1.6		144.7	570	18	11 00 01
11 10 00	1357+769	15 35 28	64.7	-12.9	1.6		144.5	24	18	11 10 00
11 19 30	---	15 44 59	64.4	-13.9	1.8		141.2	570	36	11 10 01
11 20 00	1357+769	15 45 30	64.4	-14.0	1.8		141.1	24	36	11 20 00
11 29 30	---	15 55 01	64.0	-14.9	2.0		137.9	570	55	11 20 01
11 30 00	1357+769	15 55 31	64.0	-15.0	2.0		137.7	24	55	11 30 00
11 39 30	---	16 05 03	63.6	-15.9	2.1		134.6	570	73	11 30 01
11 40 00	1357+769	16 05 33	63.6	-15.9	2.1		134.4	25	73	11 40 00
11 49 30	---	16 15 04	63.2	-16.8	2.3		131.4	570	91	11 40 01
11 50 00	1357+769	16 15 34	63.2	-16.8	2.3		131.2	25	91	11 50 00
12 00 00	---	16 25 36	62.7	-17.6	2.5		128.1	600	110	11 50 01

SETUP FILE INFORMATION:

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

=====  
Setup file: ra6cm2.set

Matching groups in ./rk01in\_freq.dat:

tr6cm                      E-mail Borkowski 23Apr03 (CR 1May03)

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=  4200.00  4200.00  4200.00  4200.00
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 pcal sets:  1
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   636.00   636.00   636.00   636.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  3

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set:  1  PCAL = 1MHZ
PCALXB1=  S1  S3  S1  S3  S1  S2  S3  S4
PCALXB2=  S2  S4  S2  S4  M1  M2  M3  M4
PCALFR1= 1000 1000 13000 13000  0  0  0  0
PCALFR2= 1000 1000 13000 13000  0  0  0  0

```

```

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)
J1357+7643	13 57 42.117007	* 13 57 55.371538	13 57 52.286867	0.44
* 1357+769	76 57 53.35418	* 76 43 21.05098	76 39 14.52771	0.10

#### 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)
FAKERA      103.0
1357+769    93.7

```

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

For common VLBI bands, this is:

```

327 MHz      117. deg
610 MHz      81. deg
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
43.0 GHz     6. deg

```

**rk01iotr**

RADIOASTRON AGN SURVEY

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Observing mode: C-band, dual-pol

Schedule for TORUN                      (Code Tr )                                      Page    2

RadioAstron AGN survey

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

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

Disk: GBytes recorded to this point.

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

SYNC: Time correlator is expected to sync up.

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

--- Sat    9 Nov 2013    Day 313 ---

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00  
 Next BBC frequencies: 636.00 636.00 636.00 636.00  
 Next scan bandwidths: 16.00 16.00 16.00 16.00

Start UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
01 00 00	0607-157	05 27 44	20.6	169.0	-0.7		-6.8	0	0	01 00 00
01 09 30	---	05 37 16	20.8	171.5	-0.6		-5.3	570	18	01 00 01
01 10 00	0607-157	05 37 46	20.8	171.6	-0.5		-5.2	24	18	01 10 00
01 19 30	---	05 47 17	21.0	174.1	-0.4		-3.7	570	36	01 10 01
01 20 00	0607-157	05 47 48	21.0	174.2	-0.4		-3.6	24	36	01 20 00
01 29 30	---	05 57 19	21.1	176.6	-0.2		-2.1	570	55	01 20 01
01 30 00	0607-157	05 57 49	21.1	176.8	-0.2		-2.0	24	55	01 30 00
01 39 30	---	06 07 21	21.2	179.2	-0.0		-0.5	570	73	01 30 01
01 40 00	0607-157	06 07 51	21.2	179.4	-0.0		-0.4	24	73	01 40 00
01 49 30	---	06 17 22	21.2	181.8	0.1		1.1	570	91	01 40 01
01 50 00	0607-157	06 17 52	21.2	181.9	0.1		1.2	24	91	01 50 00
02 00 00	---	06 27 54	21.1	184.5	0.3		2.8	600	110	01 50 01

SETUP FILE INFORMATION:

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

=====  
Setup file: ra6cm2.set

Matching groups in ./rk01io.freq.dat:

tr6cm                      E-mail Borkowski 23Apr03 (CR 1May03)

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=  4200.00  4200.00  4200.00  4200.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  2  Setup file default.  Used pcal sets:  1
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   636.00   636.00   636.00   636.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  2

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set:  1  PCAL = 1MHZ
PCALXB1=  S1  S3  S1  S3  S1  S2  S3  S4
PCALXB2=  S2  S4  S2  S4  M1  M2  M3  M4
PCALFR1= 1000 1000 13000 13000  0  0  0  0
PCALFR2= 1000 1000 13000 13000  0  0  0  0

```

```

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)
J0609-1542	06 07 25.981282	* 06 09 40.949536	06 10 19.871030	0.10
* 0607-157	-15 42 03.30592	*-15 42 40.67272	-15 42 51.39332	0.10

#### 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)
0607-157    122.4

```

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
610 MHz      81. deg
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
43.0 GHz      6. deg

```



```

1st LO=  4200.00  4200.00  4200.00  4200.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  2  Setup file default.  Used pcal sets:  1
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   636.00  636.00  636.00  636.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  2

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set:  1  PCAL = 1MHZ
PCALXB1=  S1  S3  S1  S3  S1  S2  S3  S4
PCALXB2=  S2  S4  S2  S4  M1  M2  M3  M4
PCALFR1= 1000 1000 13000 13000  0  0  0  0
PCALFR2= 1000 1000 13000 13000  0  0  0  0

```

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)
J0725+1425	07 22 26.966165	* 07 25 16.807763	07 26 05.080153	0.11
* 0722+145	14 31 12.28331	* 14 25 13.74656	14 23 25.06841	0.10

#### 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)
FAKERA	103.3
0722+145	115.8

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:

327 MHz	117. deg
610 MHz	81. deg
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
43.0 GHz	6. deg



```

1st LO= 2300.00 2300.00 2300.00 2300.00
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 pcal sets: 1
LO sum= 1668.00 1668.00 1668.00 1668.00
BBC fr= 632.00 632.00 632.00 632.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 3

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set: 1 PCAL = 1MHZ
PCALXB1= S1 S3 S1 S3 S1 S2 S3 S4
PCALXB2= S2 S4 S2 S4 M1 M2 M3 M4
PCALFR1= 1000 1000 13000 13000 0 0 0 0
PCALFR2= 1000 1000 13000 13000 0 0 0 0

```

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)
J0854+2006	08 51 57.250618	* 08 54 48.874930	08 55 37.033323	0.11
* 0851+202	20 17 58.41733	* 20 06 30.64078	20 03 08.88486	0.10

#### 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)
FAKERA	103.3
0851+202	96.5

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

For common VLBI bands, this is:

327 MHz	117. deg
610 MHz	81. deg
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
43.0 GHz	6. deg

**rk01irtr**

RADIOASTRON AGN SURVEY

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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 10 Nov 2013    Day 314 ---

Next scan frequencies:	1668.00	1668.00	1668.00	1668.00						
Next BBC frequencies:	632.00	632.00	632.00	632.00						
Next scan bandwidths:	16.00	16.00	16.00	16.00						
09 00 00	0748+126	13 33 00	12.7	273.9	5.7	37.8	0	0	09 00 00	
09 09 30	---	13 42 31	11.3	275.8	5.8	37.7	570	18	09 00 01	
09 10 00	0748+126	13 43 01	11.2	275.9	5.9	37.7	24	18	09 10 00	
09 19 30	---	13 52 33	9.8	277.7	6.0	37.5	570	36	09 10 01	
09 20 00	0748+126	13 53 03	9.7	277.8	6.0	37.5	24	36	09 20 00	
09 29 30	---	14 02 34	8.3	279.7	6.2	37.3	570	55	09 20 01	
09 30 00	0748+126	14 03 05	8.3	279.8	6.2	37.3	24	55	09 30 00	
09 39 30	---	14 12 36	6.9	281.7	6.3	37.0	570	73	09 30 01	
09 40 00	0748+126	14 13 06	6.8	281.8	6.4	37.0	24	73	09 40 00	
09 49 30	---	14 22 38	5.4	283.7	6.5	36.7	570	91	09 40 01	
09 50 00	0748+126	14 23 08	5.3	283.7	6.5	36.7	24	91	09 50 00	
10 00 00	---	14 33 09	3.9	285.7	6.7	36.3	600	110	09 50 01	

SETUP FILE INFORMATION:

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

=====  
Setup file: ra18cm2.set

Matching groups in ./rk01ir.freq.dat:

tr18cm                      E-mail Borkowski 12Mar98, preferred alternative

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=  2300.00  2300.00  2300.00  2300.00
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 pcal sets:  1
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   632.00  632.00  632.00  632.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  3

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set:  1  PCAL = 1MHZ
PCALXB1=  S1  S3  S1  S3  S1  S2  S3  S4
PCALXB2=  S2  S4  S2  S4  M1  M2  M3  M4
PCALFR1= 1000 1000 13000 13000  0  0  0  0
PCALFR2= 1000 1000 13000 13000  0  0  0  0

```

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)
J0750+1231	07 48 05.060493	* 07 50 52.045731	07 51 39.397668	0.10
* 0748+126	12 38 45.47744	* 12 31 04.82812	12 28 48.26196	0.10

#### 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)
FAKERA	103.6
0748+126	110.4

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
610 MHz	81. deg
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
43.0 GHz	6. deg



Schedule for TORUN (Code Tr )

Page 3

Probing the innermost regions of AGN jets and their magnetic fields

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 10 Nov 2013 Day 314 ---										
21 41 15	2200+420	02 16 20	47.6	281.9	4.2		52.7	32	61	21 41 15
21 45 00	---	02 20 05	47.0	282.5	4.3		52.5	225	68	21 41 16
21 46 15	2155+312	02 21 21	38.9	272.5	4.4		44.7	31	68	21 46 15
21 48 45	---	02 23 51	38.5	273.0	4.4		44.7	150	73	21 46 16
21 49 55	2155+312	02 25 01	38.3	273.3	4.4		44.7	64	73	21 49 55
21 53 45	---	02 28 52	37.8	274.0	4.5		44.6	230	80	21 49 56
21 54 55	2200+420	02 30 02	45.6	284.1	4.4		52.0	26	80	21 54 55
21 59 00	---	02 34 08	45.0	284.8	4.5		51.8	245	88	21 54 56
22 10 00	2200+420	02 45 09	43.4	286.5	4.7		51.2	24	107	22 10 00
22 19 30	---	02 54 41	42.0	288.1	4.9		50.6	570	125	22 10 01
22 20 00	2200+420	02 55 11	42.0	288.1	4.9		50.5	24	125	22 20 00
22 29 30	---	03 04 43	40.6	289.6	5.0		49.9	570	143	22 20 01
22 30 00	2200+420	03 05 13	40.5	289.7	5.0		49.9	24	143	22 30 00
22 39 30	---	03 14 44	39.2	291.2	5.2		49.2	570	161	22 30 01
22 40 00	2200+420	03 15 14	39.1	291.3	5.2		49.2	24	161	22 40 00
22 49 30	---	03 24 46	37.8	292.8	5.4		48.5	570	180	22 40 01
22 50 00	2200+420	03 25 16	37.7	292.8	5.4		48.5	24	180	22 50 00
22 59 30	---	03 34 48	36.4	294.3	5.5		47.8	570	198	22 50 01
23 00 00	2200+420	03 35 18	36.4	294.4	5.5		47.7	24	198	23 00 00
23 09 30	---	03 44 49	35.1	295.9	5.7		47.0	570	216	23 00 01
23 10 00	2200+420	03 45 19	35.0	295.9	5.7		46.9	24	216	23 10 00
23 19 30	---	03 54 51	33.7	297.4	5.9		46.2	570	234	23 10 01
23 20 00	2200+420	03 55 21	33.7	297.5	5.9		46.1	24	234	23 20 00
23 29 30	---	04 04 52	32.4	298.9	6.0		45.3	570	252	23 20 01
23 30 00	2200+420	04 05 23	32.3	299.0	6.0		45.3	24	252	23 30 00
23 39 30	---	04 14 54	31.1	300.5	6.2		44.4	570	271	23 30 01
23 40 00	2200+420	04 15 24	31.0	300.6	6.2		44.4	24	271	23 40 00
23 49 30	---	04 24 56	29.8	302.0	6.4		43.5	570	289	23 40 01
23 50 00	2200+420	04 25 26	29.7	302.1	6.4		43.5	24	289	23 50 00
23 59 30	---	04 34 57	28.5	303.6	6.5		42.6	570	307	23 50 01

Schedule for TORUN (Code Tr )

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Probing the innermost regions of AGN jets and their magnetic fields

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 11 Nov 2013 Day 315 ---										
00 00 00	2200+420	04 35 27	28.5	303.7	6.5		42.6	24	307	00 00 00
00 09 30	---	04 44 59	27.3	305.1	6.7		41.6	570	325	00 00 01
00 10 00	2200+420	04 45 29	27.2	305.2	6.7		41.6	24	325	00 10 00
00 19 30	---	04 55 01	26.1	306.7	6.9		40.7	570	344	00 10 01
00 20 00	2200+420	04 55 31	26.0	306.8	6.9		40.6	24	344	00 20 00
00 29 30	---	05 05 02	24.9	308.3	7.0		39.6	570	362	00 20 01
00 30 00	2200+420	05 05 32	24.8	308.3	7.0		39.6	24	362	00 30 00
00 39 30	---	05 15 04	23.7	309.8	7.2		38.6	570	380	00 30 01
00 40 00	2200+420	05 15 34	23.6	309.9	7.2		38.6	24	380	00 40 00
00 49 30	---	05 25 06	22.6	311.4	7.4		37.5	570	398	00 40 01
00 50 00	2200+420	05 25 36	22.5	311.5	7.4		37.5	24	398	00 50 00
00 59 30	---	05 35 07	21.4	313.0	7.5		36.4	570	417	00 50 01
01 00 00	2200+420	05 35 37	21.4	313.1	7.5		36.4	24	417	01 00 00
01 09 30	---	05 45 09	20.4	314.6	7.7		35.3	570	435	01 00 01
01 10 00	2200+420	05 45 39	20.3	314.7	7.7		35.3	24	435	01 10 00
01 19 30	---	05 55 11	19.3	316.2	7.9		34.2	570	453	01 10 01
01 20 00	2200+420	05 55 41	19.3	316.3	7.9		34.1	24	453	01 20 00
01 29 30	---	06 05 12	18.3	317.9	8.0		33.0	570	471	01 20 01
01 30 00	2200+420	06 05 42	18.2	318.0	8.0		33.0	24	471	01 30 00
01 40 00	---	06 15 44	17.2	319.6	8.2		31.8	600	491	01 30 01
01 41 40	2021+614	06 17 24	27.4	343.9	9.9		20.5	37	491	01 41 40
01 47 00	---	06 22 45	27.2	344.6	10.0		19.7	320	501	01 41 41
01 48 20	1823+568	06 24 05	20.0	360.0	12.0		0.0	34	501	01 48 20
01 53 00	---	06 28 46	20.0	360.6-11.9			-0.7	280	510	01 48 21
01 54 20	2021+614	06 30 06	26.9	345.5	10.1		18.5	35	510	01 54 20
01 59 00	---	06 34 47	26.7	346.1	10.2		17.7	280	519	01 54 21
02 00 20	1823+568	06 36 07	20.0	361.7-11.8			-1.9	34	519	02 00 20
02 05 00	---	06 40 48	20.0	362.4-11.7			-2.6	280	528	02 00 21
02 06 20	2021+614	06 42 08	26.5	347.0	10.3		16.5	34	528	02 06 20
02 11 00	---	06 46 49	26.3	347.6	10.4		15.7	280	537	02 06 21
02 12 20	1823+568	06 48 09	20.1	363.5-11.6			-3.8	34	537	02 12 20
02 17 00	---	06 52 50	20.1	364.1-11.5			-4.5	280	546	02 12 21

Schedule for TORUN (Code Tr )

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Probing the innermost regions of AGN jets and their magnetic fields

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 11 Nov 2013 Day 315 ---										
02 19 25	2200+420	06 55 15	13.7	326.2	8.9		26.9	54	546	02 19 25
02 27 00	---	07 02 52	13.0	327.5	9.0		25.9	455	560	02 19 26
02 28 50	2021+614	07 04 42	25.8	349.9	10.7		12.8	48	560	02 28 50
02 33 00	---	07 08 53	25.7	350.4	10.8		12.1	250	568	02 28 51
02 34 20	1823+568	07 10 13	20.4	366.7-11.2			-7.3	33	568	02 34 20
02 39 30	---	07 15 24	20.5	367.4-11.1			-8.1	310	578	02 34 21
02 40 50	2021+614	07 16 44	25.5	351.5	10.9		10.8	33	578	02 40 50
02 46 00	---	07 21 55	25.4	352.1	11.0		10.0	310	588	02 40 51
02 47 20	1823+568	07 23 15	20.6	368.5-11.0			-9.4	32	588	02 47 20
02 52 30	---	07 28 26	20.7	369.3-10.9			-10.2	310	598	02 47 21
02 53 50	2021+614	07 29 46	25.2	353.1	11.1		8.7	33	598	02 53 50
02 59 00	---	07 34 57	25.1	353.8	11.2		7.8	310	608	02 53 51
03 00 40	2200+420	07 36 37	10.5	333.3	9.6		21.4	31	608	03 00 40
03 08 00	---	07 43 58	10.0	334.6	9.7		20.4	440	622	03 00 41
03 09 30	2021+614	07 45 29	25.0	355.2	11.4		6.1	20	622	03 09 30
03 18 00	---	07 54 00	24.9	356.3	11.5		4.7	510	638	03 09 31
----- Ground-only Subarray: Calibrator scans during Space segment 2 -----										
03 20 00	1823+568	07 56 00	21.5	373.2-10.5			-14.6	71	638	03 20 00
03 30 00	---	08 06 02	21.9	374.7-10.3			-16.1	600	657	03 20 01
03 31 20	2021+614	08 07 22	24.8	358.0	11.8		2.5	32	657	03 31 20
03 40 00	---	08 16 04	24.8	359.2	11.9		1.0	520	674	03 31 21
03 41 20	1823+568	08 17 24	22.4	376.3-10.1			-17.9	31	674	03 41 20
03 50 00	---	08 26 05	22.7	377.5-10.0			-19.3	520	691	03 41 21
03 51 20	2021+614	08 27 25	24.8	360.7-11.9			-0.8	31	691	03 51 20
04 00 00	---	08 36 07	24.8	361.8-11.8			-2.3	520	707	03 51 21
04 01 20	1823+568	08 37 27	23.3	379.1	-9.8		-21.0	31	707	04 01 20
04 10 00	---	08 46 09	23.7	380.3	-9.6		-22.4	520	724	04 01 21
04 11 20	2021+614	08 47 29	24.9	363.3-11.6			-4.2	31	724	04 11 20
04 20 00	---	08 56 10	25.0	364.4-11.4			-5.6	520	741	04 11 21
04 21 20	1823+568	08 57 30	24.3	381.8	-9.4		-24.1	30	741	04 21 20
04 30 00	---	09 06 12	24.8	383.0	-9.3		-25.4	520	757	04 21 21

Schedule for TORUN (Code Tr )

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Probing the innermost regions of AGN jets and their magnetic fields

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 11 Nov 2013 Day 315 ---										
04 31 20	2021+614	09 07 32	25.1	365.9-11.2			-7.5	31	757	04 31 20
04 40 00	---	09 16 13	25.3	367.0-11.1			-8.9	520	774	04 31 21
04 41 20	1823+568	09 17 34	25.5	384.5 -9.1			-27.2	30	774	04 41 20
04 50 00	---	09 26 15	26.1	385.7 -9.0			-28.5	520	791	04 41 21
04 51 20	2021+614	09 27 35	25.5	368.5-10.9			-10.8	30	791	04 51 20
05 00 00	---	09 36 17	25.7	369.6-10.8			-12.2	520	807	04 51 21
05 01 20	1823+568	09 37 37	26.8	387.2 -8.8			-30.2	30	807	05 01 20
05 10 00	---	09 46 18	27.4	388.4 -8.6			-31.5	520	824	05 01 21
05 11 20	2021+614	09 47 39	26.0	371.1-10.6			-14.1	30	824	05 11 20
05 20 00	---	09 56 20	26.3	372.2-10.4			-15.5	520	840	05 11 21
05 21 20	1823+568	09 57 40	28.3	389.9 -8.4			-33.2	30	840	05 21 20
05 30 00	---	10 06 22	28.9	391.0 -8.3			-34.4	520	857	05 21 21
05 31 20	2021+614	10 07 42	26.6	373.6-10.2			-17.3	30	857	05 31 20
05 40 00	---	10 16 23	27.0	374.7-10.1			-18.8	520	874	05 31 21
05 41 20	1823+568	10 17 44	29.8	392.4 -8.1			-36.1	30	874	05 41 20
05 50 00	---	10 26 25	30.5	393.5 -8.0			-37.4	520	890	05 41 21
05 51 20	2021+614	10 27 45	27.4	376.1 -9.9			-20.6	30	890	05 51 20
06 00 00	---	10 36 27	27.8	377.2 -9.8			-22.0	520	907	05 51 21
06 01 20	1823+568	10 37 47	31.5	395.0 -7.8			-39.0	30	907	06 01 20
06 08 40	---	10 45 08	32.1	395.9 -7.7			-40.1	440	921	06 01 21
----- BLOCK 05: K-band VLBI scans, Ground telescope segment 3 -----										
06 11 20	2021+614	10 47 48	28.3	378.6 -9.6			-23.9	110	921	06 11 20
06 17 00	---	10 53 29	28.6	379.3 -9.5			-24.8	340	932	06 11 21
06 18 20	1823+568	10 54 50	33.0	397.1 -7.5			-41.5	30	932	06 18 20
06 24 00	---	11 00 31	33.5	397.8 -7.4			-42.3	340	943	06 18 21
06 25 20	2021+614	11 01 51	29.0	380.4 -9.3			-26.1	30	943	06 25 20
06 31 00	---	11 07 32	29.3	381.1 -9.2			-27.0	340	954	06 25 21
06 32 20	1823+568	11 08 52	34.3	398.8 -7.3			-43.5	30	954	06 32 20
06 38 00	---	11 14 33	34.8	399.4 -7.2			-44.3	340	965	06 32 21
06 39 20	2021+614	11 15 53	29.8	382.1 -9.1			-28.4	30	965	06 39 20
06 45 00	---	11 21 34	30.1	382.7 -9.0			-29.3	340	976	06 39 21

Schedule for TORUN (Code Tr )

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Probing the innermost regions of AGN jets and their magnetic fields

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 11 Nov 2013 Day 315 ---										
06 46 20	1823+568	11 22 54	35.6	400.4	-7.0		-45.4	30	976	06 46 20
06 52 00	---	11 28 35	36.2	401.1	-6.9		-46.2	340	986	06 46 21
06 53 20	2021+614	11 29 55	30.6	383.7	-8.9		-30.6	30	986	06 53 20
06 59 00	---	11 35 36	31.0	384.4	-8.8		-31.5	340	997	06 53 21
07 00 20	1823+568	11 36 57	37.0	402.1	-6.8		-47.4	30	997	07 00 20
07 06 00	---	11 42 37	37.6	402.7	-6.7		-48.2	340	1008	07 00 21
07 07 20	2021+614	11 43 58	31.5	385.4	-8.6		-32.9	30	1008	07 07 20
07 13 00	---	11 49 39	31.9	386.1	-8.5		-33.8	340	1019	07 07 21
07 14 20	1823+568	11 50 59	38.5	403.7	-6.6		-49.4	30	1019	07 14 20
07 20 00	---	11 56 40	39.1	404.3	-6.5		-50.1	340	1030	07 14 21
07 21 20	2021+614	11 58 00	32.4	387.0	-8.4		-35.1	30	1030	07 21 20
07 27 00	---	12 03 41	32.8	387.7	-8.3		-36.0	340	1041	07 21 21
----- BLOCK 06: K-band VLBI scans, Space telescope segment 3a -----										
07 30 00	2200+420	12 06 41	9.1	382.6	-9.9		-18.2	77	1041	07 30 00
07 39 30	---	12 16 13	9.6	384.3	-9.8		-19.5	570	1059	07 30 01
07 40 00	2200+420	12 16 43	9.7	384.3	-9.8		-19.6	24	1059	07 40 00
07 49 30	---	12 26 15	10.3	386.0	-9.6		-20.9	570	1077	07 40 01
07 50 00	2200+420	12 26 45	10.3	386.1	-9.6		-20.9	24	1077	07 50 00
07 59 30	---	12 36 16	11.0	387.8	-9.5		-22.2	570	1096	07 50 01
----- BLOCK 06: K-band VLBI scans, Space telescope segment 3b -----										
08 00 00	2200+420	12 36 46	11.0	387.9	-9.4		-22.3	24	1096	08 00 00
08 09 30	---	12 46 18	11.7	389.5	-9.3		-23.6	570	1114	08 00 01
08 10 00	2200+420	12 46 48	11.7	389.6	-9.3		-23.7	24	1114	08 10 00
08 19 30	---	12 56 20	12.4	391.2	-9.1		-24.9	570	1132	08 10 01
08 20 00	2200+420	12 56 50	12.5	391.3	-9.1		-25.0	24	1132	08 20 00
08 29 30	---	13 06 21	13.2	393.0	-8.9		-26.2	570	1150	08 20 01
08 30 00	2200+420	13 06 51	13.3	393.0	-8.9		-26.3	24	1150	08 30 00
08 39 30	---	13 16 23	14.1	394.7	-8.8		-27.5	570	1168	08 30 01
08 40 00	2200+420	13 16 53	14.1	394.7	-8.8		-27.6	24	1168	08 40 00
08 49 30	---	13 26 24	15.0	396.3	-8.6		-28.8	570	1187	08 40 01

Schedule for TORUN (Code Tr )

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Probing the innermost regions of AGN jets and their magnetic fields

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 11 Nov 2013 Day 315 ---

----- BLOCK 06: K-band VLBI scans, Space telescope segment 3c -----

08 50 00	2200+420	13 26 55	15.0	396.4	-8.6	-28.8	24	1187	08 50 00
08 59 30	---	13 36 26	15.9	398.0	-8.4	-30.0	570	1205	08 50 01
09 00 00	2200+420	13 36 56	15.9	398.1	-8.4	-30.1	24	1205	09 00 00
09 09 30	---	13 46 28	16.8	399.7	-8.3	-31.2	570	1223	09 00 01
09 10 00	2200+420	13 46 58	16.9	399.8	-8.3	-31.3	24	1223	09 10 00
09 19 30	---	13 56 29	17.8	401.3	-8.1	-32.4	570	1241	09 10 01
09 20 00	2200+420	13 56 59	17.8	401.4	-8.1	-32.5	24	1241	09 20 00
09 29 30	---	14 06 31	18.8	403.0	-7.9	-33.6	570	1260	09 20 01
09 30 00	2200+420	14 07 01	18.8	403.0	-7.9	-33.7	24	1260	09 30 00
09 40 00	---	14 17 03	19.9	404.7	-7.8	-34.8	600	1279	09 30 01

----- BLOCK 07: K-band VLBI scans, Ground telescope segment 4 -----

09 43 30	1823+568	14 20 33	56.0	418.7	-4.1	-69.8	61	1279	09 43 30
09 51 00	---	14 28 05	57.0	419.3	-3.9	-70.9	450	1293	09 43 31
09 52 40	2021+614	14 29 45	45.5	402.6	-5.9	-58.9	43	1293	09 52 40
10 00 00	---	14 37 06	46.2	403.2	-5.8	-60.0	440	1307	09 52 41
10 01 40	1823+568	14 38 46	58.4	420.2	-3.8	-72.4	41	1307	10 01 40
10 10 00	---	14 47 08	59.4	420.8	-3.6	-73.6	500	1323	10 01 41
10 11 20	2021+614	14 48 28	47.4	404.2	-5.6	-61.8	21	1323	10 11 20
10 20 00	---	14 57 09	48.3	404.9	-5.4	-63.2	520	1340	10 11 21
10 22 00	2200+420	14 59 10	24.6	411.4	-7.1	-39.4	17	1340	10 22 00
10 29 20	---	15 06 31	25.5	412.5	-6.9	-40.1	440	1354	10 22 01
10 32 00	2021+614	15 09 11	49.6	405.8	-5.2	-65.2	56	1354	10 32 00
10 39 00	---	15 16 12	50.4	406.4	-5.1	-66.3	420	1368	10 32 01
10 40 20	1823+568	15 17 33	63.5	423.0	-3.1	-78.1	17	1368	10 40 20
10 48 00	---	15 25 14	64.5	423.4	-3.0	-79.3	460	1382	10 40 21
10 49 20	2021+614	15 26 34	51.5	407.1	-4.9	-68.0	17	1382	10 49 20
10 56 50	---	15 34 05	52.3	407.6	-4.8	-69.2	450	1397	10 49 21



Schedule for TORUN (Code Tr )

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Probing the innermost regions of AGN jets and their magnetic fields

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 11 Nov 2013 Day 315 ---										
----- BLOCK 08: K-band VLBI scans, Space telescope segment 4 -----										
11 00 00	2200+420	15 37 16	29.2	417.3	-6.4		-43.1	89	1397	11 00 00
11 09 30	---	15 46 47	30.4	418.8	-6.3		-44.0	570	1415	11 00 01
11 10 00	2200+420	15 47 18	30.5	418.8	-6.3		-44.1	24	1415	11 10 00
11 19 30	---	15 56 49	31.7	420.3	-6.1		-44.9	570	1433	11 10 01
11 20 00	2200+420	15 57 19	31.8	420.4	-6.1		-44.9	24	1433	11 20 00
11 29 30	---	16 06 51	33.1	421.8	-5.9		-45.8	570	1451	11 20 01
11 30 00	2200+420	16 07 21	33.1	421.9	-5.9		-45.8	24	1451	11 30 00
11 39 30	---	16 16 52	34.4	423.4	-5.8		-46.6	570	1470	11 30 01
11 40 00	2200+420	16 17 22	34.5	423.5	-5.8		-46.6	24	1470	11 40 00
11 49 30	---	16 26 54	35.8	424.9	-5.6		-47.4	570	1488	11 40 01
11 50 00	2200+420	16 27 24	35.8	425.0	-5.6		-47.4	24	1488	11 50 00
11 59 30	---	16 36 56	37.1	426.5	-5.4		-48.2	570	1506	11 50 01
12 00 00	2200+420	16 37 26	37.2	426.6	-5.4		-48.2	24	1506	12 00 00
12 09 30	---	16 46 57	38.5	428.0	-5.3		-48.9	570	1524	12 00 01
12 10 00	2200+420	16 47 27	38.6	428.1	-5.3		-48.9	24	1524	12 10 00
12 19 30	---	16 56 59	39.9	429.6	-5.1		-49.6	570	1543	12 10 01
12 20 00	2200+420	16 57 29	40.0	429.7	-5.1		-49.6	24	1543	12 20 00
12 29 30	---	17 07 01	41.3	431.2	-4.9		-50.3	570	1561	12 20 01
12 30 00	2200+420	17 07 31	41.4	431.2	-4.9		-50.3	24	1561	12 30 00
12 39 30	---	17 17 02	42.8	432.8	-4.8		-50.9	570	1579	12 30 01
12 40 00	2200+420	17 17 32	42.8	432.8	-4.8		-50.9	24	1579	12 40 00
12 49 30	---	17 27 04	44.2	434.4	-4.6		-51.5	570	1597	12 40 01
12 50 00	2200+420	17 27 34	44.3	434.4	-4.6		-51.5	24	1597	12 50 00
13 00 00	---	17 37 36	45.7	436.1	-4.4		-52.1	600	1616	12 50 01

## SETUP FILE INFORMATION:

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

=====  
Setup file: ralcm2.set

Matching groups in ./ga030b\_freq.sess313rdbe.dat:  
tr1cm

Setup group: 19	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: 25	Setup file default.	Used pcal sets: 1		
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:	25			

The following pulse cal sets were used with this setup:

Pulse cal detection set:	1	PCAL = 1MHZ						
PCALXB1=	S1	S3	S1	S3	S1	S2	S3	S4
PCALXB2=	S2	S4	S2	S4	M1	M2	M3	M4
PCALFR1=	1000	1000	13000	13000	0	0	0	0
PCALFR2=	1000	1000	13000	13000	0	0	0	0

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)
J1824+5651	18 23 14.951494	* 18 24 07.068372	18 24 20.014978	0.18
* 1823+568	56 49 18.07194	* 56 51 01.49075	56 51 53.19192	0.10
J2022+6136	20 21 13.300235	* 20 22 06.681753	20 22 21.338208	0.21
* 2021+614	61 27 18.15575	* 61 36 58.80476	61 40 07.95163	0.10
J2157+3127	21 55 15.930441	* 21 57 28.823886	21 58 06.638673	0.12
* 2155+312	31 12 41.62468	* 31 27 01.35172	31 31 22.41858	0.11
J2202+4216	22 00 39.362504	* 22 02 43.291371	22 03 18.806963	0.14
* 2200+420	42 02 08.59073	* 42 16 39.97987	42 21 06.43229	0.10

RADIOASTRON AGN SURVEY

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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 11 Nov 2013    Day 315 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00  
 Next BBC frequencies: 632.00 632.00 632.00 632.00  
 Next scan bandwidths: 16.00 16.00 16.00 16.00

20 00 00	2010+723	00 38 45	56.4	-30.0	4.5	88.1	0	0	20 00 00
20 09 30	---	00 48 16	55.6	-29.9	4.6	85.9	570	18	20 00 01
20 10 00	2010+723	00 48 46	55.6	-29.9	4.7	85.8	24	18	20 10 00
20 19 30	---	00 58 18	54.9	-29.8	4.8	83.6	570	36	20 10 01
20 20 00	2010+723	00 58 48	54.9	-29.8	4.8	83.5	24	36	20 20 00
20 29 30	---	01 08 19	54.1	-29.6	5.0	81.3	570	55	20 20 01
20 30 00	2010+723	01 08 50	54.1	-29.6	5.0	81.2	24	55	20 30 00
20 39 30	---	01 18 21	53.4	-29.4	5.1	79.1	570	73	20 30 01
20 40 00	2010+723	01 18 51	53.4	-29.4	5.2	79.0	24	73	20 40 00
20 49 30	---	01 28 23	52.7	-29.1	5.3	76.9	570	91	20 40 01
20 50 00	2010+723	01 28 53	52.6	-29.1	5.3	76.8	24	91	20 50 00
21 00 00	---	01 38 54	51.9	-28.8	5.5	74.7	600	110	20 50 01

SETUP FILE INFORMATION:

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

=====  
 Setup file: ra18cm2.set

Matching groups in ./rk01it.freq.dat:

tr18cm                      E-mail Borkowski 12Mar98, preferred alternative

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= 2300.00 2300.00 2300.00 2300.00
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 pcal sets: 1
LO sum= 1668.00 1668.00 1668.00 1668.00
BBC fr= 632.00 632.00 632.00 632.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 3

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set: 1 PCAL = 1MHZ
PCALXB1= S1 S3 S1 S3 S1 S2 S3 S4
PCALXB2= S2 S4 S2 S4 M1 M2 M3 M4
PCALFR1= 1000 1000 13000 13000 0 0 0 0
PCALFR2= 1000 1000 13000 13000 0 0 0 0

```

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)
J2009+7229	20 10 16.209320	* 20 09 52.303863	20 09 44.539526	0.66
* 2010+723	72 20 20.74133	* 72 29 19.35101	72 32 16.14204	0.29

#### 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)
FAKERA	104.1
2010+723	102.5

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:

327 MHz	117. deg
610 MHz	81. deg
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
43.0 GHz	6. deg

**rk01iutr**

RADIOASTRON AGN SURVEY

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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 11 Nov 2013    Day 315 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00  
Next BBC frequencies: 632.00 632.00 632.00 632.00  
Next scan bandwidths: 16.00 16.00 16.00 16.00

23 00 00	0804+499	03 39 14	49.3	66.3	-4.5		-58.4	0	0	23 00 00
23 09 30	---	03 48 46	50.6	67.5	-4.3		-59.3	570	18	23 00 01
23 10 00	0804+499	03 49 16	50.7	67.6	-4.3		-59.3	24	18	23 10 00
23 19 30	---	03 58 47	52.0	68.8	-4.2		-60.2	570	36	23 10 01
23 20 00	0804+499	03 59 17	52.1	68.9	-4.2		-60.2	24	36	23 20 00
23 29 30	---	04 08 49	53.4	70.1	-4.0		-61.0	570	55	23 20 01
23 30 00	0804+499	04 09 19	53.5	70.2	-4.0		-61.1	24	55	23 30 00
23 39 30	---	04 18 51	54.9	71.5	-3.8		-61.9	570	73	23 30 01
23 40 00	0804+499	04 19 21	54.9	71.5	-3.8		-61.9	24	73	23 40 00
23 49 30	---	04 28 52	56.3	72.8	-3.7		-62.7	570	91	23 40 01
23 50 00	0804+499	04 29 22	56.4	72.9	-3.7		-62.7	24	91	23 50 00
23 59 59	---	04 39 24	57.8	74.2	-3.5		-63.5	599	110	23 50 01

SETUP FILE INFORMATION:

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

=====  
Setup file: ra18cm2.set

Matching groups in ./rk01iu.freq.dat:

tr18cm                      E-mail Borkowski 12Mar98, preferred alternative

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=  2300.00  2300.00  2300.00  2300.00
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 pcal sets:  1
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   632.00  632.00  632.00  632.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  3

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set:  1  PCAL = 1MHZ
PCALXB1=  S1  S3  S1  S3  S1  S2  S3  S4
PCALXB2=  S2  S4  S2  S4  M1  M2  M3  M4
PCALFR1= 1000 1000 13000 13000  0  0  0  0
PCALFR2= 1000 1000 13000 13000  0  0  0  0

```

```

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)
J0808+4950	08 04 58.395748	* 08 08 39.666289	08 09 42.051579	0.16
* 0804+499	49 59 23.07807	* 49 50 36.53037	49 47 48.92982	0.10

#### 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)
FAKERA	104.2
0804+499	112.9

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:

327 MHz	117. deg
610 MHz	81. deg
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
43.0 GHz	6. deg

E-EVN TOO RUNS: RR007B AND RA002

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Observing mode: realtime e-vlbi

Schedule for TORUN                      (Code Tr )                      Page    2

e-EVN ToO runs: RR007B and RA002

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 12 Nov 2013 Day 316 ---										
Next scan frequencies:		4942.49	4942.49	4942.49	4942.49	4974.49	4974.49	4974.49	4974.49	4974.49
		5006.49	5006.49	5006.49	5006.49	5038.49	5038.49	5038.49	5038.49	5038.49
Next BBC frequencies:		742.49	742.49	742.49	742.49	774.49	774.49	774.49	774.49	774.49
		806.49	806.49	806.49	806.49	838.49	838.49	838.49	838.49	838.49
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	16.00	16.00
09 00 00	1548+056	13 40 53	35.4	138.9	-2.2		-23.4	0	0	09 00 00
09 15 00	---	13 55 55	36.8	143.2	-1.9		-21.2	900	116	09 00 01
09 15 40	1548+056	13 56 35	36.9	143.3	-1.9		-21.1	34	116	09 15 40
09 30 00	---	14 10 58	38.1	147.6	-1.7		-18.9	860	227	09 15 41
09 30 40	1548+056	14 11 38	38.1	147.8	-1.7		-18.8	34	227	09 30 40
09 45 00	---	14 26 00	39.2	152.2	-1.4		-16.4	860	338	09 30 41
09 45 40	1548+056	14 26 40	39.3	152.4	-1.4		-16.3	34	338	09 45 40
10 00 00	---	14 41 03	40.2	156.9	-1.2		-13.7	860	449	09 45 41
10 02 00	1749+096	14 43 03	32.4	120.9	-3.2		-31.5	33	449	10 02 00
10 15 00	---	14 56 05	34.0	124.2	-2.9		-30.2	780	550	10 02 01
10 15 40	1749+096	14 56 45	34.1	124.4	-2.9		-30.2	34	550	10 15 40
10 30 00	---	15 11 08	35.9	128.2	-2.7		-28.6	860	661	10 15 41
10 30 40	1749+096	15 11 48	35.9	128.3	-2.7		-28.5	34	661	10 30 40
10 45 00	---	15 26 10	37.6	132.3	-2.4		-26.8	860	772	10 30 41
10 45 40	1749+096	15 26 50	37.7	132.4	-2.4		-26.7	34	772	10 45 40
11 00 00	---	15 41 12	39.2	136.5	-2.2		-24.8	860	883	10 45 41
11 00 40	1749+096	15 41 53	39.3	136.7	-2.2		-24.7	34	883	11 00 40
11 15 00	---	15 56 15	40.7	140.9	-1.9		-22.6	860	993	11 00 41

Schedule for TORUN (Code Tr )

Page 3

e-EVN ToO runs: RR007B and RA002

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 12 Nov 2013 Day 316 ---										
11 15 40	1749+096	15 56 55	40.7	141.1	-1.9		-22.5	34	993	11 15 40
11 30 00	---	16 11 17	42.0	145.5	-1.7		-20.2	860	1104	11 15 41
11 30 40	1749+096	16 11 57	42.1	145.8	-1.7		-20.0	34	1104	11 30 40
11 45 00	---	16 26 20	43.2	150.3	-1.4		-17.6	860	1215	11 30 41
11 45 40	1749+096	16 27 00	43.3	150.5	-1.4		-17.4	34	1215	11 45 40
12 00 00	---	16 41 22	44.3	155.2	-1.2		-14.8	860	1326	11 45 41
12 01 20	J1847+0810	16 42 43	38.5	139.0	-2.1		-23.5	32	1326	12 01 20
12 04 20	=1844+081	16 45 43	38.7	139.8	-2.0		-23.0	180	1350	12 01 21
12 05 20	J1922+0841	16 46 43	35.6	130.0	-2.6		-27.7	25	1350	12 05 20
12 08 20	=1919+086	16 49 44	36.0	130.8	-2.6		-27.4	180	1373	12 05 21
12 09 20	J1905+0952	16 50 44	38.9	135.1	-2.3		-25.5	35	1373	12 09 20
12 12 20	=1903+097	16 53 44	39.3	135.9	-2.2		-25.1	180	1396	12 09 21
12 12 20	XTEJ1908	16 53 44	38.5	135.3	-2.3		-25.4	-15	1396	No stop
12 15 40	---	16 57 05	38.8	136.2	-2.2		-24.9	185	1422	12 12 21
12 15 40	J1905+0952	16 57 05	39.6	136.9	-2.2		-24.6	-15	1422	No stop
12 17 10	=1903+097	16 58 35	39.8	137.3	-2.1		-24.4	75	1433	12 15 41
12 17 10	XTEJ1908	16 58 35	39.0	136.7	-2.2		-24.7	-15	1433	No stop
12 20 40	---	17 02 06	39.3	137.7	-2.1		-24.2	195	1461	12 17 11
12 21 20	J1905+0952	17 02 46	40.2	138.6	-2.1		-23.8	25	1461	12 21 20
12 22 20	=1903+097	17 03 46	40.3	138.9	-2.0		-23.6	60	1468	12 21 21
12 22 20	XTEJ1908	17 03 46	39.5	138.2	-2.1		-24.0	-15	1468	No stop
12 25 40	---	17 07 07	39.8	139.1	-2.0		-23.5	185	1494	12 22 21
12 25 40	J1905+0952	17 07 07	40.6	139.8	-2.0		-23.1	-15	1494	No stop
12 27 10	=1903+097	17 08 37	40.7	140.3	-2.0		-22.9	75	1506	12 25 41
12 27 10	XTEJ1908	17 08 37	40.0	139.6	-2.0		-23.2	-15	1506	No stop
12 30 40	---	17 12 07	40.3	140.6	-2.0		-22.7	195	1533	12 27 11
12 31 20	J1905+0952	17 12 47	41.1	141.6	-1.9		-22.3	25	1533	12 31 20
12 32 20	=1903+097	17 13 48	41.2	141.9	-1.9		-22.1	60	1541	12 31 21
12 32 20	XTEJ1908	17 13 48	40.5	141.1	-1.9		-22.5	-15	1541	No stop
12 35 40	---	17 17 08	40.8	142.1	-1.9		-21.9	185	1566	12 32 21
12 35 40	J1905+0952	17 17 08	41.5	142.9	-1.8		-21.6	-15	1566	No stop
12 37 10	=1903+097	17 18 38	41.7	143.3	-1.8		-21.3	75	1578	12 35 41



Schedule for TORUN (Code Tr )

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e-EVN ToO runs: RR007B and RA002

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 12 Nov 2013 Day 316 ---										
12 37 10	XTEJ1908	17 18 38	40.9	142.6	-1.8		-21.7	-15	1578	No stop
12 40 40	---	17 22 09	41.2	143.7	-1.8		-21.1	195	1605	12 37 11
12 41 20	J1905+0952	17 22 49	42.0	144.6	-1.7		-20.7	25	1605	12 41 20
12 42 20	=1903+097	17 23 49	42.1	144.9	-1.7		-20.5	60	1613	12 41 21
12 42 20	J1907+0907	17 23 49	41.3	144.7	-1.7		-20.6	-16	1613	No stop
12 43 50	=1905+090	17 25 20	41.4	145.1	-1.7		-20.4	74	1624	12 42 21
12 43 50	J1905+0952	17 25 20	42.3	145.4	-1.7		-20.2	-16	1624	No stop
12 45 20	=1903+097	17 26 50	42.4	145.9	-1.7		-20.0	74	1636	12 43 51
12 45 20	J1907+0907	17 26 50	41.5	145.6	-1.7		-20.1	-16	1636	No stop
12 46 50	=1905+090	17 28 20	41.6	146.1	-1.7		-19.9	74	1648	12 45 21
12 47 30	J1905+0952	17 29 00	42.6	146.6	-1.6		-19.6	24	1648	12 47 30
12 48 30	=1903+097	17 30 00	42.6	146.9	-1.6		-19.5	60	1655	12 47 31
12 48 30	J1907+0907	17 30 00	41.8	146.6	-1.6		-19.6	-16	1655	No stop
12 50 00	=1905+090	17 31 31	41.9	147.0	-1.6		-19.3	74	1667	12 48 31
12 50 00	J1905+0952	17 31 31	42.8	147.4	-1.6		-19.2	-16	1667	No stop
12 51 30	=1903+097	17 33 01	42.9	147.8	-1.6		-18.9	74	1679	12 50 01
12 51 30	J1907+0907	17 33 01	42.0	147.5	-1.6		-19.1	-16	1679	No stop
12 53 00	=1905+090	17 34 31	42.1	148.0	-1.6		-18.8	74	1690	12 51 31
12 53 40	J1905+0952	17 35 11	43.1	148.5	-1.5		-18.6	24	1690	12 53 40
12 54 40	=1903+097	17 36 11	43.1	148.8	-1.5		-18.4	60	1698	12 53 41
12 54 40	J1907+0907	17 36 11	42.3	148.5	-1.5		-18.5	-16	1698	No stop
12 56 10	=1905+090	17 37 42	42.4	149.0	-1.5		-18.3	74	1710	12 54 41
12 56 10	J1905+0952	17 37 42	43.3	149.3	-1.5		-18.1	-16	1710	No stop
12 57 40	=1903+097	17 39 12	43.4	149.8	-1.5		-17.8	74	1721	12 56 11
12 57 40	J1907+0907	17 39 12	42.5	149.5	-1.5		-18.0	-16	1721	No stop
12 59 10	=1905+090	17 40 42	42.6	150.0	-1.5		-17.7	74	1733	12 57 41
12 59 50	J1905+0952	17 41 22	43.5	150.5	-1.4		-17.5	24	1733	12 59 50
13 00 50	=1903+097	17 42 22	43.6	150.8	-1.4		-17.3	60	1741	12 59 51
13 00 50	XTEJ1908	17 42 22	42.9	150.0	-1.5		-17.7	-15	1741	No stop
13 04 10	---	17 45 43	43.2	151.1	-1.4		-17.1	185	1766	13 00 51
13 04 10	J1905+0952	17 45 43	43.8	151.9	-1.3		-16.7	-15	1766	No stop
13 05 40	=1903+097	17 47 13	44.0	152.4	-1.3		-16.4	75	1778	13 04 11

Schedule for TORUN (Code Tr )

Page 5

e-EVN ToO runs: RR007B and RA002

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 12 Nov 2013 Day 316 ---										
13 05 40	XTEJ1908	17 47 13	43.3	151.6	-1.4		-16.9	-15	1778	No stop
13 09 10	---	17 50 44	43.5	152.7	-1.3		-16.2	195	1805	13 05 41
13 09 50	J1905+0952	17 51 24	44.2	153.8	-1.2		-15.6	25	1805	13 09 50
13 10 50	=1903+097	17 52 24	44.3	154.1	-1.2		-15.4	60	1813	13 09 51
13 10 50	XTEJ1908	17 52 24	43.6	153.2	-1.3		-15.9	-14	1813	No stop
13 14 10	---	17 55 44	43.8	154.3	-1.2		-15.3	186	1839	13 10 51
13 14 10	J1905+0952	17 55 44	44.5	155.2	-1.2		-14.8	-15	1839	No stop
13 15 40	=1903+097	17 57 15	44.6	155.7	-1.2		-14.5	75	1850	13 14 11
13 15 40	XTEJ1908	17 57 15	43.9	154.8	-1.2		-15.0	-14	1850	No stop
13 19 10	---	18 00 45	44.2	156.0	-1.1		-14.3	196	1877	13 15 41
13 19 50	J1905+0952	18 01 25	44.9	157.2	-1.1		-13.7	26	1877	13 19 50
13 20 50	=1903+097	18 02 26	44.9	157.5	-1.1		-13.5	60	1885	13 19 51
13 20 50	XTEJ1908	18 02 26	44.3	156.6	-1.1		-14.0	-14	1885	No stop
13 24 10	---	18 05 46	44.5	157.7	-1.1		-13.4	186	1911	13 20 51
13 24 10	J1905+0952	18 05 46	45.1	158.6	-1.0		-12.8	-14	1911	No stop
13 25 40	=1903+097	18 07 16	45.2	159.1	-1.0		-12.5	76	1922	13 24 11
13 25 40	XTEJ1908	18 07 16	44.5	158.2	-1.0		-13.1	-14	1922	No stop
13 29 10	---	18 10 47	44.7	159.4	-1.0		-12.4	196	1950	13 25 41
13 29 50	J1905+0952	18 11 27	45.4	160.6	-0.9		-11.7	26	1950	13 29 50
13 30 50	=1903+097	18 12 27	45.5	160.9	-0.9		-11.5	60	1957	13 29 51
13 30 50	XTEJ1908	18 12 27	44.8	159.9	-1.0		-12.0	-14	1957	No stop
13 34 10	---	18 15 48	45.0	161.1	-0.9		-11.4	186	1983	13 30 51
13 34 10	J1905+0952	18 15 48	45.6	162.1	-0.8		-10.8	-14	1983	No stop
13 35 40	=1903+097	18 17 18	45.7	162.6	-0.8		-10.5	76	1995	13 34 11
13 35 40	XTEJ1908	18 17 18	45.1	161.6	-0.9		-11.1	-14	1995	No stop
13 39 10	---	18 20 49	45.2	162.8	-0.8		-10.4	196	2022	13 35 41
13 39 50	J1905+0952	18 21 29	45.9	164.0	-0.7		-9.7	26	2022	13 39 50
13 40 50	=1903+097	18 22 29	45.9	164.4	-0.7		-9.4	60	2030	13 39 51
13 40 50	XTEJ1908	18 22 29	45.3	163.4	-0.8		-10.0	-14	2030	No stop
13 44 10	---	18 25 49	45.4	164.5	-0.7		-9.3	186	2055	13 40 51
13 44 10	J1905+0952	18 25 49	46.0	165.6	-0.7		-8.7	-14	2055	No stop
13 45 40	=1903+097	18 27 20	46.1	166.1	-0.6		-8.4	76	2067	13 44 11

Schedule for TORUN (Code Tr )

Page 6

e-EVN ToO runs: RR007B and RA002

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 12 Nov 2013 Day 316 ---										
13 45 40	XTEJ1908	18 27 20	45.5	165.1	-0.7		-9.0	-14	2067	No stop
13 49 10	---	18 30 50	45.6	166.3	-0.6		-8.3	196	2094	13 45 41
13 49 50	J1905+0952	18 31 30	46.2	167.6	-0.6		-7.5	26	2094	13 49 50
13 50 50	=1903+097	18 32 31	46.3	167.9	-0.6		-7.3	60	2102	13 49 51
13 50 50	XTEJ1908	18 32 31	45.7	166.9	-0.6		-7.9	-14	2102	No stop
13 54 10	---	18 35 51	45.8	168.0	-0.6		-7.2	186	2128	13 50 51
13 54 10	J1905+0952	18 35 51	46.4	169.1	-0.5		-6.6	-14	2128	No stop
13 55 40	=1903+097	18 37 21	46.4	169.6	-0.5		-6.3	76	2139	13 54 11
13 55 40	XTEJ1908	18 37 21	45.8	168.6	-0.5		-6.9	-14	2139	No stop
13 59 10	---	18 40 52	45.9	169.8	-0.5		-6.2	196	2166	13 55 41
13 59 50	J1905+0952	18 41 32	46.5	171.1	-0.4		-5.4	25	2166	13 59 50
14 00 50	=1903+097	18 42 32	46.5	171.5	-0.4		-5.2	60	2174	13 59 51
14 01 50	J1847+0810	18 43 32	45.1	178.5	-0.1		-0.9	31	2174	14 01 50
14 04 50	=1844+081	18 46 33	45.1	179.5	-0.0		-0.3	180	2197	14 01 51
14 05 50	J1922+0841	18 47 33	45.1	167.6	-0.6		-7.5	21	2197	14 05 50
14 08 50	=1919+086	18 50 33	45.2	168.6	-0.5		-6.9	180	2221	14 05 51
14 09 50	J1905+0952	18 51 34	46.7	174.7	-0.2		-3.2	33	2221	14 09 50
14 10 50	=1903+097	18 52 34	46.7	175.1	-0.2		-3.0	60	2228	14 09 51
14 10 50	XTEJ1908	18 52 34	46.2	173.9	-0.3		-3.7	-14	2228	No stop
14 14 10	---	18 55 54	46.2	175.1	-0.2		-3.0	186	2254	14 10 51
14 14 10	J1905+0952	18 55 54	46.7	176.3	-0.2		-2.3	-15	2254	No stop
14 15 40	=1903+097	18 57 25	46.8	176.8	-0.1		-2.0	75	2266	14 14 11
14 15 40	XTEJ1908	18 57 25	46.2	175.7	-0.2		-2.6	-14	2266	No stop
14 19 10	---	19 00 55	46.3	176.9	-0.1		-1.9	196	2293	14 15 41
14 19 50	J1905+0952	19 01 35	46.8	178.3	-0.1		-1.0	25	2293	14 19 50
14 20 50	=1903+097	19 02 35	46.8	178.7	-0.1		-0.8	60	2300	14 19 51
14 20 50	XTEJ1908	19 02 35	46.3	177.5	-0.1		-1.5	-14	2300	No stop
14 24 10	---	19 05 56	46.3	178.7	-0.1		-0.8	186	2326	14 20 51
14 24 10	J1905+0952	19 05 56	46.8	179.9	-0.0		-0.1	-15	2326	No stop
14 25 40	=1903+097	19 07 26	46.8	180.4	0.0		0.2	75	2338	14 24 11
14 25 40	XTEJ1908	19 07 26	46.3	179.2	-0.0		-0.5	-14	2338	No stop
14 29 10	---	19 10 57	46.3	180.5	0.0		0.3	196	2365	14 25 41

Schedule for TORUN (Code Tr )

Page 7

e-EVN ToD runs: RR007B and RA002

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 12 Nov 2013 Day 316 ---										
14 29 50	J1905+0952	19 11 37	46.8	181.9	0.1		1.2	25	2365	14 29 50
14 30 50	=1903+097	19 12 37	46.8	182.3	0.1		1.4	60	2373	14 29 51
14 30 50	XTEJ1908	19 12 37	46.3	181.1	0.1		0.7	-14	2373	No stop
14 34 10	---	19 15 58	46.3	182.3	0.1		1.4	186	2399	14 30 51
14 34 10	J1905+0952	19 15 58	46.8	183.5	0.2		2.1	-15	2399	No stop
14 35 40	=1903+097	19 17 28	46.7	184.0	0.2		2.4	75	2410	14 34 11
14 35 40	XTEJ1908	19 17 28	46.3	182.8	0.1		1.7	-14	2410	No stop
14 39 10	---	19 20 58	46.3	184.1	0.2		2.5	196	2437	14 35 41
14 39 50	J1905+0952	19 21 39	46.7	185.5	0.3		3.4	25	2437	14 39 50
14 40 50	=1903+097	19 22 39	46.7	185.9	0.3		3.6	60	2445	14 39 51
14 40 50	XTEJ1908	19 22 39	46.2	184.7	0.2		2.8	-15	2445	No stop
14 44 10	---	19 25 59	46.2	185.9	0.3		3.6	185	2471	14 40 51
14 44 10	J1905+0952	19 25 59	46.6	187.1	0.3		4.3	-15	2471	No stop
14 45 40	=1903+097	19 27 30	46.6	187.6	0.4		4.6	75	2482	14 44 11
14 45 40	XTEJ1908	19 27 30	46.2	186.4	0.3		3.9	-15	2482	No stop
14 49 10	---	19 31 00	46.1	187.6	0.4		4.6	195	2510	14 45 41
14 49 50	J1905+0952	19 31 40	46.5	189.1	0.4		5.5	25	2510	14 49 50
14 50 50	=1903+097	19 32 40	46.5	189.4	0.4		5.7	60	2517	14 49 51
14 50 50	XTEJ1908	19 32 40	46.1	188.2	0.4		5.0	-15	2517	No stop
14 54 10	---	19 36 01	46.0	189.4	0.4		5.7	185	2543	14 50 51
14 54 10	J1905+0952	19 36 01	46.4	190.6	0.5		6.5	-15	2543	No stop
14 55 40	=1903+097	19 37 31	46.3	191.2	0.5		6.8	75	2555	14 54 11
14 55 40	XTEJ1908	19 37 31	46.0	189.9	0.5		6.0	-15	2555	No stop
14 59 10	---	19 41 02	45.9	191.2	0.5		6.8	195	2582	14 55 41
14 59 50	J1905+0952	19 41 42	46.2	192.6	0.6		7.7	25	2582	14 59 50
15 00 50	=1903+097	19 42 42	46.2	193.0	0.6		7.9	60	2590	14 59 51
15 00 50	XTEJ1908	19 42 42	45.8	191.8	0.6		7.1	-15	2590	No stop
15 04 10	---	19 46 03	45.7	192.9	0.6		7.8	185	2615	15 00 51
15 04 10	J1905+0952	19 46 03	46.1	194.2	0.7		8.6	-15	2615	No stop
15 05 40	=1903+097	19 47 33	46.0	194.7	0.7		8.9	75	2627	15 04 11

Schedule for TORUN (Code Tr )

Page 8

e-EVN ToD runs: RR007B and RA002

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 12 Nov 2013 Day 316 ---										
15 05 40	XTEJ1908	19 47 33	45.6	193.5	0.6		8.2	-15	2627	No stop
15 09 10	---	19 51 03	45.5	194.7	0.7		8.9	195	2654	15 05 41
15 09 50	J1905+0952	19 51 43	45.8	196.2	0.8		9.8	25	2654	15 09 50
15 10 50	=1903+097	19 52 44	45.8	196.5	0.8		10.0	60	2662	15 09 51
15 10 50	J1907+0907	19 52 44	45.1	195.6	0.7		9.4	-14	2662	No stop
15 12 20	=1905+090	19 54 14	45.1	196.1	0.8		9.7	76	2673	15 10 51
15 12 20	J1905+0952	19 54 14	45.7	197.0	0.8		10.3	-14	2673	No stop
15 13 50	=1903+097	19 55 44	45.7	197.6	0.8		10.6	76	2685	15 12 21
15 13 50	J1907+0907	19 55 44	45.0	196.7	0.8		10.0	-14	2685	No stop
15 15 20	=1905+090	19 57 14	45.0	197.2	0.8		10.3	76	2697	15 13 51
15 16 00	J1905+0952	19 57 55	45.6	198.3	0.9		11.0	26	2697	15 16 00
15 17 00	=1903+097	19 58 55	45.5	198.7	0.9		11.2	60	2704	15 16 01
15 17 00	J1907+0907	19 58 55	44.9	197.7	0.8		10.7	-14	2704	No stop
15 18 30	=1905+090	20 00 25	44.8	198.3	0.9		11.0	76	2716	15 17 01
15 18 30	J1905+0952	20 00 25	45.4	199.2	0.9		11.5	-14	2716	No stop
15 20 00	=1903+097	20 01 55	45.4	199.7	0.9		11.8	76	2728	15 18 31
15 20 00	J1907+0907	20 01 55	44.7	198.8	0.9		11.3	-14	2728	No stop
15 21 30	=1905+090	20 03 25	44.7	199.3	0.9		11.6	76	2739	15 20 01
15 22 10	J1905+0952	20 04 06	45.3	200.4	1.0		12.3	26	2739	15 22 10
15 23 10	=1903+097	20 05 06	45.2	200.8	1.0		12.5	60	2747	15 22 11
15 23 10	J1907+0907	20 05 06	44.6	199.9	0.9		11.9	-14	2747	No stop
15 24 40	=1905+090	20 06 36	44.5	200.4	1.0		12.2	76	2759	15 23 11
15 24 40	J1905+0952	20 06 36	45.1	201.3	1.0		12.8	-14	2759	No stop
15 26 10	=1903+097	20 08 06	45.0	201.8	1.0		13.1	76	2770	15 24 41
15 26 10	J1907+0907	20 08 06	44.4	200.9	1.0		12.5	-14	2770	No stop
15 27 40	=1905+090	20 09 36	44.3	201.4	1.0		12.8	76	2782	15 26 11
15 28 20	J1905+0952	20 10 17	44.9	202.5	1.1		13.5	26	2782	15 28 20
15 29 20	=1903+097	20 11 17	44.9	202.9	1.1		13.7	60	2789	15 28 21
15 29 20	XTEJ1908	20 11 17	44.6	201.6	1.0		13.0	-15	2789	No stop
15 32 40	---	20 14 37	44.4	202.8	1.1		13.6	185	2815	15 29 21

Schedule for TORUN (Code Tr )

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e-EVN ToD runs: RR007B and RA002

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 12 Nov 2013 Day 316 ---										
15 32 40	J1905+0952	20 14 37	44.7	204.0	1.1		14.4	-15	2815	No stop
15 34 10	=1903+097	20 16 07	44.6	204.5	1.2		14.6	75	2827	15 32 41
15 34 10	XTEJ1908	20 16 07	44.3	203.3	1.1		13.9	-15	2827	No stop
15 37 40	---	20 19 38	44.1	204.4	1.2		14.6	195	2854	15 34 11
15 38 20	J1905+0952	20 20 18	44.3	205.9	1.2		15.4	25	2854	15 38 20
15 39 20	=1903+097	20 21 18	44.2	206.2	1.2		15.6	60	2862	15 38 21
15 39 20	XTEJ1908	20 21 18	44.0	205.0	1.2		14.9	-15	2862	No stop
15 42 40	---	20 24 39	43.8	206.1	1.3		15.5	185	2888	15 39 21
15 42 40	J1905+0952	20 24 39	44.0	207.3	1.3		16.2	-15	2888	No stop
15 44 10	=1903+097	20 26 09	43.9	207.8	1.3		16.5	75	2899	15 42 41
15 44 10	XTEJ1908	20 26 09	43.7	206.6	1.3		15.8	-15	2899	No stop
15 47 40	---	20 29 40	43.4	207.7	1.3		16.4	195	2926	15 44 11
15 48 20	J1905+0952	20 30 20	43.6	209.2	1.4		17.3	25	2926	15 48 20
15 49 20	=1903+097	20 31 20	43.5	209.5	1.4		17.5	60	2934	15 48 21
15 49 20	XTEJ1908	20 31 20	43.3	208.3	1.4		16.8	-15	2934	No stop
15 52 40	---	20 34 41	43.1	209.3	1.4		17.4	185	2960	15 49 21
15 52 40	J1905+0952	20 34 41	43.3	210.6	1.5		18.1	-15	2960	No stop
15 54 10	=1903+097	20 36 11	43.2	211.1	1.5		18.3	75	2971	15 52 41
15 54 10	XTEJ1908	20 36 11	42.9	209.8	1.4		17.6	-15	2971	No stop
15 57 40	---	20 39 41	42.7	211.0	1.5		18.2	195	2999	15 54 11
15 58 20	J1905+0952	20 40 21	42.8	212.4	1.6		19.1	25	2999	15 58 20
15 59 20	=1903+097	20 41 22	42.8	212.7	1.6		19.2	60	3006	15 58 21
15 59 20	XTEJ1908	20 41 22	42.6	211.5	1.5		18.5	-15	3006	No stop
16 02 40	---	20 44 42	42.3	212.5	1.6		19.1	185	3032	15 59 21
16 02 40	J1905+0952	20 44 42	42.5	213.8	1.6		19.8	-15	3032	No stop
16 04 10	=1903+097	20 46 12	42.4	214.2	1.7		20.1	75	3044	16 02 41
16 04 10	XTEJ1908	20 46 12	42.2	213.0	1.6		19.4	-15	3044	No stop
16 07 40	---	20 49 43	41.9	214.1	1.7		20.0	195	3071	16 04 11
16 08 20	J1905+0952	20 50 23	42.0	215.5	1.7		20.8	25	3071	16 08 20
16 09 20	=1903+097	20 51 23	41.9	215.9	1.8		20.9	60	3079	16 08 21

Schedule for TORUN (Code Tr )

Page 10

e-EVN ToD runs: RR007B and RA002

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 12 Nov 2013 Day 316 ---										
16 09 20	XTEJ1908	20 51 23	41.7	214.6	1.7		20.2	-15	3079	No stop
16 12 40	---	20 54 44	41.4	215.7	1.8		20.8	185	3104	16 09 21
16 12 40	J1905+0952	20 54 44	41.6	216.9	1.8		21.5	-15	3104	No stop
16 14 10	=1903+097	20 56 14	41.5	217.3	1.8		21.7	75	3116	16 12 41
16 14 10	XTEJ1908	20 56 14	41.3	216.1	1.8		21.0	-15	3116	No stop
16 17 40	---	20 59 45	41.0	217.2	1.8		21.6	195	3143	16 14 11
16 18 20	J1905+0952	21 00 25	41.1	218.6	1.9		22.4	25	3143	16 18 20
16 19 20	=1903+097	21 01 25	41.0	218.9	1.9		22.5	60	3151	16 18 21
16 19 20	XTEJ1908	21 01 25	40.8	217.7	1.9		21.9	-15	3151	No stop
16 22 40	---	21 04 45	40.5	218.7	1.9		22.4	185	3177	16 19 21
16 22 40	J1905+0952	21 04 45	40.7	219.9	2.0		23.0	-15	3177	No stop
16 24 10	=1903+097	21 06 16	40.5	220.4	2.0		23.3	75	3188	16 22 41
16 24 10	XTEJ1908	21 06 16	40.4	219.2	1.9		22.6	-15	3188	No stop
16 27 40	---	21 09 46	40.1	220.2	2.0		23.1	195	3215	16 24 11
16 28 20	J1905+0952	21 10 26	40.1	221.6	2.1		23.9	25	3215	16 28 20
16 29 20	=1903+097	21 11 27	40.0	221.9	2.1		24.0	60	3223	16 28 21
16 30 20	J1847+0810	21 12 27	36.4	226.5	2.4		26.1	33	3223	16 30 20
16 33 20	=1844+081	21 15 27	36.1	227.4	2.5		26.5	180	3246	16 30 21
16 34 20	J1922+0841	21 16 27	40.1	217.9	1.9		21.9	26	3246	16 34 20
16 37 20	=1919+086	21 19 28	39.8	218.8	1.9		22.4	180	3269	16 34 21
16 38 20	J1905+0952	21 20 28	39.1	224.5	2.2		25.3	34	3269	16 38 20
16 39 20	=1903+097	21 21 28	39.0	224.8	2.3		25.4	60	3277	16 38 21
16 39 20	XTEJ1908	21 21 28	38.9	223.6	2.2		24.8	-15	3277	No stop
16 42 40	---	21 24 49	38.5	224.6	2.3		25.3	185	3303	16 39 21
16 42 40	J1905+0952	21 24 49	38.6	225.8	2.3		25.9	-15	3303	No stop
16 44 10	=1903+097	21 26 19	38.5	226.2	2.3		26.1	75	3315	16 42 41
16 44 10	XTEJ1908	21 26 19	38.4	225.0	2.3		25.5	-15	3315	No stop
16 47 40	---	21 29 50	38.0	226.0	2.3		26.0	195	3342	16 44 11
16 48 20	J1905+0952	21 30 30	38.0	227.4	2.4		26.6	25	3342	16 48 20
16 49 20	=1903+097	21 31 30	37.9	227.6	2.4		26.8	60	3349	16 48 21

Schedule for TORUN (Code Tr )

Page 11

e-EVN ToD runs: RR007B and RA002

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 12 Nov 2013 Day 316 ---										
16 49 20	XTEJ1908	21 31 30	37.8	226.5	2.4		26.2	-14	3349	No stop
16 52 40	---	21 34 50	37.4	227.4	2.4		26.6	186	3375	16 49 21
16 52 40	J1905+0952	21 34 50	37.5	228.6	2.5		27.2	-15	3375	No stop
16 54 10	=1903+097	21 36 21	37.4	229.0	2.5		27.4	75	3387	16 52 41
16 54 10	XTEJ1908	21 36 21	37.3	227.8	2.4		26.8	-14	3387	No stop
16 57 40	---	21 39 51	36.9	228.8	2.5		27.2	196	3414	16 54 11
16 58 20	J1905+0952	21 40 31	36.9	230.1	2.6		27.9	25	3414	16 58 20
16 59 20	=1903+097	21 41 31	36.8	230.4	2.6		28.0	60	3422	16 58 21
16 59 20	XTEJ1908	21 41 31	36.7	229.2	2.5		27.5	-14	3422	No stop
17 02 40	---	21 44 52	36.3	230.1	2.6		27.9	186	3448	16 59 21
17 02 40	J1905+0952	21 44 52	36.4	231.3	2.6		28.4	-15	3448	No stop
17 04 10	=1903+097	21 46 22	36.2	231.7	2.7		28.6	75	3459	17 02 41
17 04 10	XTEJ1908	21 46 22	36.1	230.6	2.6		28.0	-14	3459	No stop
17 07 40	---	21 49 53	35.7	231.5	2.7		28.4	196	3486	17 04 11
17 08 20	J1905+0952	21 50 33	35.7	232.8	2.7		29.1	25	3486	17 08 20
17 09 20	=1903+097	21 51 33	35.6	233.1	2.8		29.2	60	3494	17 08 21
17 09 20	XTEJ1908	21 51 33	35.5	231.9	2.7		28.6	-14	3494	No stop
17 12 40	---	21 54 54	35.1	232.8	2.8		29.0	186	3520	17 09 21
17 12 40	J1905+0952	21 54 54	35.2	234.0	2.8		29.5	-15	3520	No stop
17 14 10	=1903+097	21 56 24	35.0	234.4	2.8		29.7	75	3531	17 12 41
17 14 10	XTEJ1908	21 56 24	35.0	233.2	2.8		29.2	-14	3531	No stop
17 17 40	---	21 59 54	34.5	234.1	2.8		29.6	196	3558	17 14 11
17 18 20	J1905+0952	22 00 35	34.5	235.4	2.9		30.1	25	3558	17 18 20
17 19 20	=1903+097	22 01 35	34.4	235.7	2.9		30.2	60	3566	17 18 21
17 19 20	XTEJ1908	22 01 35	34.3	234.6	2.9		29.7	-14	3566	No stop
17 22 40	---	22 04 55	33.9	235.4	2.9		30.1	186	3592	17 19 21
17 22 40	J1905+0952	22 04 55	33.9	236.6	3.0		30.6	-15	3592	No stop
17 24 10	=1903+097	22 06 26	33.7	236.9	3.0		30.7	75	3604	17 22 41
17 24 10	XTEJ1908	22 06 26	33.7	235.8	2.9		30.2	-14	3604	No stop
17 27 40	---	22 09 56	33.3	236.7	3.0		30.6	196	3631	17 24 11



Schedule for TORUN (Code Tr )

Page 12

e-EVN ToD runs: RR007B and RA002

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 12 Nov 2013 Day 316 ---										
17 28 20	J1905+0952	22 10 36	33.2	238.0	3.1		31.1	25	3631	17 28 20
17 29 20	=1903+097	22 11 36	33.1	238.3	3.1		31.2	60	3638	17 28 21
17 29 20	XTEJ1908	22 11 36	33.1	237.1	3.0		30.8	-14	3638	No stop
17 32 40	---	22 14 57	32.7	238.0	3.1		31.1	186	3664	17 29 21
17 32 40	J1905+0952	22 14 57	32.7	239.1	3.1		31.5	-15	3664	No stop
17 34 10	=1903+097	22 16 27	32.5	239.5	3.2		31.7	75	3676	17 32 41
17 34 10	XTEJ1908	22 16 27	32.5	238.4	3.1		31.2	-14	3676	No stop
17 37 40	---	22 19 58	32.0	239.2	3.2		31.5	196	3703	17 34 11
17 38 20	J1905+0952	22 20 38	31.9	240.5	3.2		32.0	25	3703	17 38 20
17 39 20	=1903+097	22 21 38	31.8	240.7	3.3		32.1	60	3711	17 38 21
17 39 20	J1907+0907	22 21 38	31.4	239.8	3.2		31.7	-14	3711	No stop
17 40 50	=1905+090	22 23 08	31.2	240.1	3.2		31.8	76	3722	17 39 21
17 40 50	J1905+0952	22 23 08	31.6	241.1	3.3		32.3	-14	3722	No stop
17 42 20	=1903+097	22 24 39	31.4	241.5	3.3		32.4	76	3734	17 40 51
17 42 20	J1907+0907	22 24 39	31.0	240.5	3.3		32.0	-14	3734	No stop
17 43 50	=1905+090	22 26 09	30.8	240.9	3.3		32.1	76	3746	17 42 21
17 44 30	J1905+0952	22 26 49	31.1	242.0	3.3		32.6	26	3746	17 44 30
17 45 30	=1903+097	22 27 49	31.0	242.3	3.4		32.6	60	3753	17 44 31
17 45 30	J1907+0907	22 27 49	30.6	241.3	3.3		32.2	-14	3753	No stop
17 47 00	=1905+090	22 29 19	30.4	241.7	3.3		32.4	76	3765	17 45 31
17 47 00	J1905+0952	22 29 19	30.8	242.6	3.4		32.8	-14	3765	No stop
17 48 30	=1903+097	22 30 50	30.6	243.0	3.4		32.9	76	3777	17 47 01
17 48 30	J1907+0907	22 30 50	30.2	242.0	3.4		32.5	-14	3777	No stop
17 50 00	=1905+090	22 32 20	30.0	242.4	3.4		32.6	76	3788	17 48 31
17 50 40	J1905+0952	22 33 00	30.3	243.5	3.4		33.1	26	3788	17 50 40
17 51 40	=1903+097	22 34 00	30.1	243.7	3.5		33.1	60	3796	17 50 41
17 51 40	J1907+0907	22 34 00	29.8	242.8	3.4		32.7	-14	3796	No stop
17 53 10	=1905+090	22 35 30	29.6	243.1	3.5		32.9	76	3807	17 51 41
17 53 10	J1905+0952	22 35 30	29.9	244.1	3.5		33.3	-14	3807	No stop
17 54 40	=1903+097	22 37 01	29.7	244.5	3.5		33.4	76	3819	17 53 11

Schedule for TORUN (Code Tr )

Page 13

e-EVN ToD runs: RR007B and RA002

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 12 Nov 2013 Day 316 ---										
17 54 40	J1907+0907	22 37 01	29.4	243.5	3.5		33.0	-14	3819	No stop
17 56 10	=1905+090	22 38 31	29.2	243.9	3.5		33.1	76	3831	17 54 41
17 56 50	J1905+0952	22 39 11	29.4	245.0	3.5		33.5	26	3831	17 56 50
17 57 50	=1903+097	22 40 11	29.3	245.2	3.6		33.6	60	3838	17 56 51
17 57 50	XTEJ1908	22 40 11	29.3	244.1	3.5		33.2	-14	3838	No stop
18 01 10	---	22 43 32	28.9	244.9	3.6		33.5	186	3864	17 57 51
18 01 10	J1905+0952	22 43 32	28.9	246.0	3.6		33.8	-14	3864	No stop
18 02 40	=1903+097	22 45 02	28.6	246.3	3.6		33.9	76	3876	18 01 11
18 02 40	XTEJ1908	22 45 02	28.7	245.3	3.6		33.6	-14	3876	No stop
18 06 10	---	22 48 32	28.2	246.1	3.6		33.8	196	3903	18 02 41
18 06 50	J1905+0952	22 49 13	28.1	247.3	3.7		34.2	26	3903	18 06 50
18 07 50	=1903+097	22 50 13	27.9	247.5	3.7		34.3	60	3911	18 06 51
18 07 50	XTEJ1908	22 50 13	28.0	246.5	3.7		33.9	-14	3911	No stop
18 11 10	---	22 53 33	27.5	247.3	3.7		34.1	186	3937	18 07 51
18 11 10	J1905+0952	22 53 33	27.5	248.3	3.8		34.5	-14	3937	No stop
18 12 40	=1903+097	22 55 04	27.3	248.6	3.8		34.6	76	3948	18 11 11
18 12 40	XTEJ1908	22 55 04	27.3	247.6	3.8		34.2	-14	3948	No stop
18 16 10	---	22 58 34	26.8	248.4	3.8		34.5	196	3975	18 12 41
18 16 50	J1905+0952	22 59 14	26.7	249.6	3.9		34.8	26	3975	18 16 50
18 17 50	=1903+097	23 00 14	26.5	249.8	3.9		34.9	60	3983	18 16 51
18 17 50	XTEJ1908	23 00 14	26.6	248.8	3.8		34.6	-14	3983	No stop
18 21 10	---	23 03 35	26.1	249.5	3.9		34.8	186	4009	18 17 51
18 21 10	J1905+0952	23 03 35	26.1	250.6	4.0		35.1	-14	4009	No stop
18 22 40	=1903+097	23 05 05	25.8	250.9	4.0		35.2	76	4020	18 21 11
18 22 40	XTEJ1908	23 05 05	25.9	249.9	3.9		34.9	-14	4020	No stop
18 26 10	---	23 08 36	25.4	250.7	4.0		35.1	196	4047	18 22 41
18 26 50	J1905+0952	23 09 16	25.3	251.8	4.0		35.4	26	4047	18 26 50
18 27 50	=1903+097	23 10 16	25.1	252.1	4.1		35.4	60	4055	18 26 51
18 27 50	XTEJ1908	23 10 16	25.2	251.0	4.0		35.1	-14	4055	No stop
18 31 10	---	23 13 37	24.7	251.8	4.1		35.3	186	4081	18 27 51

Schedule for TORUN (Code Tr )

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e-EVN ToD runs: RR007B and RA002

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 12 Nov 2013 Day 316 ---										
18 31 10	J1905+0952	23 13 37	24.6	252.8	4.1		35.6	-14	4081	No stop
18 32 40	=1903+097	23 15 07	24.4	253.1	4.1		35.7	76	4093	18 31 11
18 32 40	XTEJ1908	23 15 07	24.5	252.1	4.1		35.4	-14	4093	No stop
18 36 10	---	23 18 37	24.0	252.9	4.2		35.6	196	4120	18 32 41
18 36 50	J1905+0952	23 19 17	23.8	254.0	4.2		35.9	26	4120	18 36 50
18 37 50	=1903+097	23 20 18	23.7	254.3	4.2		35.9	60	4127	18 36 51
18 37 50	XTEJ1908	23 20 18	23.7	253.3	4.2		35.7	-14	4127	No stop
18 41 10	---	23 23 38	23.3	254.0	4.2		35.8	186	4153	18 37 51
18 41 10	J1905+0952	23 23 38	23.2	255.0	4.3		36.1	-14	4153	No stop
18 42 40	=1903+097	23 25 08	23.0	255.3	4.3		36.1	76	4165	18 41 11
18 42 40	XTEJ1908	23 25 08	23.0	254.3	4.3		35.9	-14	4165	No stop
18 46 10	---	23 28 39	22.5	255.1	4.3		36.0	196	4192	18 42 41
18 46 50	J1905+0952	23 29 19	22.4	256.2	4.4		36.3	26	4192	18 46 50
18 47 50	=1903+097	23 30 19	22.2	256.4	4.4		36.3	60	4200	18 46 51
18 52 10	3C454.3	23 34 40	52.3	195.8	0.7		9.8	122	4200	18 52 10
19 00 00	---	23 42 31	52.0	198.8	0.8		11.7	470	4260	18 52 11
19 03 00	3C48	23 45 32	61.7	123.3	-1.9		-36.9	14	4260	19 03 00
19 15 00	---	23 57 34	63.2	127.7	-1.7		-34.6	720	4353	19 03 01
19 17 00	0234+285	23 59 34	52.2	113.9	-2.7		-38.8	64	4353	19 17 00
19 30 00	---	00 12 36	54.0	117.6	-2.4		-37.4	780	4454	19 17 01
19 30 40	0234+285	00 13 16	54.0	117.8	-2.4		-37.3	34	4454	19 30 40
19 45 00	---	00 27 39	55.9	122.2	-2.2		-35.4	860	4565	19 30 41
19 45 40	0234+285	00 28 19	56.0	122.5	-2.2		-35.4	34	4565	19 45 40
20 00 00	---	00 42 41	57.8	127.2	-1.9		-33.1	860	4676	19 45 41
20 00 40	0234+285	00 43 21	57.8	127.4	-1.9		-33.0	34	4676	20 00 40
20 15 00	---	00 57 44	59.5	132.6	-1.7		-30.3	860	4787	20 00 41
20 15 40	0234+285	00 58 24	59.6	132.8	-1.7		-30.2	34	4787	20 15 40
20 30 00	---	01 12 46	61.1	138.4	-1.4		-27.1	860	4898	20 15 41
20 30 40	0234+285	01 13 26	61.2	138.7	-1.4		-26.9	33	4898	20 30 40
20 45 00	---	01 27 49	62.5	144.7	-1.2		-23.3	860	5009	20 30 41

Schedule for TORUN (Code Tr )

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e-EVN To0 runs: RR007B and RA002

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 12 Nov 2013 Day 316 ---										
20 45 40	0234+285	01 28 29	62.5	145.0	-1.2		-23.1	33	5009	20 45 40
21 00 00	---	01 42 51	63.7	151.5	-0.9		-19.1	860	5120	20 45 41
21 06 00	0528+134	01 48 52	31.1	110.3	-3.7		-35.4	222	5120	21 06 00
21 15 00	---	01 57 53	32.3	112.4	-3.6		-34.8	540	5189	21 06 01
21 15 40	0528+134	01 58 34	32.4	112.6	-3.6		-34.8	34	5189	21 15 40
21 30 00	---	02 12 56	34.4	116.0	-3.3		-33.7	860	5300	21 15 41
21 30 40	0528+134	02 13 36	34.5	116.2	-3.3		-33.7	34	5300	21 30 40
21 45 00	---	02 27 58	36.4	119.8	-3.1		-32.4	860	5411	21 30 41
21 45 40	0528+134	02 28 39	36.5	120.0	-3.1		-32.4	34	5411	21 45 40
22 00 00	---	02 43 01	38.3	123.7	-2.8		-30.9	860	5522	21 45 41
22 00 40	0528+134	02 43 41	38.4	123.9	-2.8		-30.8	34	5522	22 00 40
22 15 00	---	02 58 03	40.1	127.8	-2.6		-29.2	860	5633	22 00 41
22 15 40	0528+134	02 58 43	40.2	128.0	-2.6		-29.1	34	5633	22 15 40
22 30 00	---	03 13 06	41.9	132.1	-2.3		-27.3	860	5744	22 15 41
22 30 40	0528+134	03 13 46	41.9	132.2	-2.3		-27.2	34	5744	22 30 40
22 45 00	---	03 28 08	43.5	136.5	-2.1		-25.2	860	5855	22 30 41
22 45 40	0528+134	03 28 48	43.6	136.7	-2.0		-25.1	34	5855	22 45 40
23 00 00	---	03 43 11	45.0	141.2	-1.8		-22.8	860	5966	22 45 41
23 00 40	0528+134	03 43 51	45.0	141.4	-1.8		-22.7	34	5966	23 00 40
23 15 00	---	03 58 13	46.3	146.0	-1.6		-20.2	860	6077	23 00 41
23 15 40	0528+134	03 58 53	46.4	146.3	-1.5		-20.1	34	6077	23 15 40
23 30 00	---	04 13 16	47.5	151.1	-1.3		-17.4	860	6188	23 15 41
23 32 00	3C138	04 15 16	51.3	153.9	-1.1		-16.0	92	6188	23 32 00
23 45 00	---	04 28 18	52.1	158.8	-0.9		-13.1	780	6289	23 32 01
23 49 00	OJ287	04 32 19	30.3	96.8	-4.4		-39.4	100	6289	23 49 00
23 59 59	---	04 43 21	32.0	99.1	-4.2		-39.1	659	6374	23 49 01
--- Wed 13 Nov 2013 Day 317 ---										
00 00 40	OJ287	04 44 01	32.1	99.3	-4.2		-39.1	34	6374	00 00 40
00 15 00	---	04 58 23	34.2	102.4	-4.0		-38.6	860	6485	00 00 41

Schedule for TORUN (Code Tr )

Page 16

e-EVN To0 runs: RR007B and RA002

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 13 Nov 2013 Day 317 ---										
00 15 40	OJ287	04 59 03	34.3	102.5	-3.9		-38.6	34	6485	00 15 40
00 30 00	---	05 13 26	36.4	105.8	-3.7		-38.0	860	6596	00 15 41
00 30 40	OJ287	05 14 06	36.5	105.9	-3.7		-37.9	34	6596	00 30 40
00 45 00	---	05 28 28	38.5	109.3	-3.5		-37.1	860	6707	00 30 41
00 45 40	OJ287	05 29 08	38.6	109.5	-3.4		-37.1	34	6707	00 45 40
01 00 00	---	05 43 30	40.6	113.0	-3.2		-36.0	860	6818	00 45 41
01 00 40	OJ287	05 44 11	40.7	113.2	-3.2		-36.0	34	6818	01 00 40
01 15 00	---	05 58 33	42.7	116.9	-3.0		-34.8	860	6929	01 00 41
01 15 40	OJ287	05 59 13	42.8	117.0	-2.9		-34.7	34	6929	01 15 40
01 30 00	---	06 13 35	44.7	120.9	-2.7		-33.3	860	7040	01 15 41
01 30 40	OJ287	06 14 15	44.8	121.1	-2.7		-33.2	34	7040	01 30 40
01 45 00	---	06 28 38	46.6	125.2	-2.4		-31.5	860	7150	01 30 41
01 45 40	OJ287	06 29 18	46.6	125.4	-2.4		-31.4	34	7150	01 45 40
02 00 00	---	06 43 40	48.4	129.7	-2.2		-29.5	860	7261	01 45 41
02 03 00	1038+064	06 46 41	23.2	112.2	-3.9		-34.0	71	7261	02 03 00
02 15 00	---	06 58 43	24.9	115.0	-3.7		-33.2	720	7354	02 03 01
02 16 00	REFJ1023	06 59 43	22.4	122.6	-3.4		-30.4	30	7354	02 16 00
02 20 00	---	07 03 44	22.9	123.5	-3.3		-30.0	240	7385	02 16 01
02 20 00	PSRJ1023	07 03 44	23.1	123.4	-3.3		-30.1	-10	7385	No stop
02 23 20	---	07 07 04	23.5	124.2	-3.3		-29.8	190	7411	02 20 01
02 23 20	REFJ1023	07 07 04	23.3	124.3	-3.3		-29.7	-10	7411	No stop
02 24 50	---	07 08 34	23.5	124.7	-3.3		-29.6	80	7423	02 23 21
02 24 50	PSRJ1023	07 08 34	23.7	124.5	-3.3		-29.7	-10	7423	No stop
02 28 20	---	07 12 05	24.1	125.3	-3.2		-29.3	200	7450	02 24 51
02 29 00	REFJ1023	07 12 45	24.0	125.7	-3.2		-29.2	30	7450	02 29 00
02 30 00	---	07 13 45	24.2	125.9	-3.2		-29.1	60	7458	02 29 01
02 30 00	PSRJ1023	07 13 45	24.3	125.7	-3.2		-29.2	-10	7458	No stop
02 33 20	---	07 17 06	24.7	126.5	-3.1		-28.8	190	7483	02 30 01
02 33 20	REFJ1023	07 17 06	24.6	126.7	-3.1		-28.8	-10	7483	No stop
02 34 50	---	07 18 36	24.7	127.1	-3.1		-28.6	80	7495	02 33 21

Schedule for TORUN (Code Tr )

Page 17

e-EVN ToD runs: RR007B and RA002

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 13 Nov 2013 Day 317 ---										
02 34 50	PSRJ1023	07 18 36	24.9	126.9	-3.1		-28.7	-10	7495	No stop
02 38 20	---	07 22 07	25.3	127.8	-3.0		-28.3	200	7522	02 34 51
02 39 00	REFJ1023	07 22 47	25.2	128.1	-3.0		-28.2	30	7522	02 39 00
02 40 00	---	07 23 47	25.4	128.3	-3.0		-28.1	60	7530	02 39 01
02 40 00	PSRJ1023	07 23 47	25.5	128.2	-3.0		-28.2	-10	7530	No stop
02 43 20	---	07 27 07	25.9	129.0	-3.0		-27.8	190	7556	02 40 01
02 43 20	REFJ1023	07 27 07	25.7	129.2	-3.0		-27.8	-10	7556	No stop
02 44 50	---	07 28 38	25.9	129.5	-2.9		-27.6	80	7567	02 43 21
02 44 50	PSRJ1023	07 28 38	26.1	129.4	-2.9		-27.7	-10	7567	No stop
02 48 20	---	07 32 08	26.5	130.2	-2.9		-27.3	200	7594	02 44 51
02 49 00	REFJ1023	07 32 48	26.4	130.6	-2.9		-27.1	30	7594	02 49 00
02 50 00	---	07 33 49	26.5	130.8	-2.8		-27.0	60	7602	02 49 01
02 50 00	J1015+0109	07 33 49	28.0	132.4	-2.7		-26.3	-19	7602	No stop
02 51 20	=1013+014	07 35 09	28.2	132.7	-2.7		-26.2	61	7612	02 50 01
02 51 20	REFJ1023	07 35 09	26.7	131.1	-2.8		-26.9	-19	7612	No stop
02 52 50	---	07 36 39	26.8	131.5	-2.8		-26.7	71	7624	02 51 21
02 52 50	J1015+0109	07 36 39	28.4	133.1	-2.7		-26.0	-19	7624	No stop
02 54 10	=1013+014	07 37 59	28.5	133.4	-2.6		-25.9	61	7634	02 52 51
02 55 00	REFJ1023	07 38 49	27.1	132.1	-2.8		-26.5	31	7634	02 55 00
02 56 00	---	07 39 49	27.2	132.3	-2.7		-26.4	60	7642	02 55 01
02 56 00	J1015+0109	07 39 49	28.7	133.9	-2.6		-25.6	-19	7642	No stop
02 57 20	=1013+014	07 41 10	28.8	134.2	-2.6		-25.5	61	7652	02 56 01
02 57 20	REFJ1023	07 41 10	27.3	132.6	-2.7		-26.2	-19	7652	No stop
02 58 50	---	07 42 40	27.5	133.0	-2.7		-26.0	71	7664	02 57 21
02 58 50	J1015+0109	07 42 40	29.0	134.6	-2.6		-25.3	-19	7664	No stop
03 00 10	=1013+014	07 44 00	29.2	135.0	-2.5		-25.1	61	7674	02 58 51
03 01 00	REFJ1023	07 44 50	27.7	133.6	-2.7		-25.8	31	7674	03 01 00
03 02 00	---	07 45 50	27.8	133.8	-2.6		-25.7	60	7682	03 01 01
03 02 00	J1015+0109	07 45 50	29.3	135.4	-2.5		-24.9	-19	7682	No stop
03 03 20	=1013+014	07 47 11	29.5	135.8	-2.5		-24.8	61	7692	03 02 01

Schedule for TORUN (Code Tr )

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e-EVN ToD runs: RR007B and RA002

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 13 Nov 2013 Day 317 ---										
03 03 20	REFJ1023	07 47 11	28.0	134.2	-2.6		-25.5	-19	7692	No stop
03 04 50	---	07 48 41	28.2	134.6	-2.6		-25.3	71	7704	03 03 21
03 04 50	J1015+0109	07 48 41	29.6	136.2	-2.5		-24.6	-19	7704	No stop
03 06 10	=1013+014	07 50 01	29.8	136.5	-2.4		-24.4	61	7714	03 04 51
03 07 00	REFJ1023	07 50 51	28.4	135.1	-2.6		-25.1	31	7714	03 07 00
03 08 00	---	07 51 51	28.5	135.4	-2.5		-24.9	60	7722	03 07 01
03 08 00	PSRJ1023	07 51 51	28.7	135.2	-2.5		-25.0	-10	7722	No stop
03 11 20	---	07 55 12	29.0	136.1	-2.5		-24.6	190	7748	03 08 01
03 11 20	REFJ1023	07 55 12	28.8	136.2	-2.5		-24.5	-10	7748	No stop
03 12 50	---	07 56 42	29.0	136.6	-2.5		-24.4	80	7759	03 11 21
03 12 50	PSRJ1023	07 56 42	29.2	136.5	-2.5		-24.4	-10	7759	No stop
03 16 20	---	08 00 13	29.6	137.4	-2.4		-24.0	200	7787	03 12 51
03 17 00	REFJ1023	08 00 53	29.4	137.7	-2.4		-23.8	30	7787	03 17 00
03 18 00	---	08 01 53	29.5	138.0	-2.4		-23.7	60	7794	03 17 01
03 18 00	PSRJ1023	08 01 53	29.7	137.8	-2.4		-23.8	-10	7794	No stop
03 21 20	---	08 05 14	30.1	138.7	-2.3		-23.3	190	7820	03 18 01
03 21 20	REFJ1023	08 05 14	29.9	138.9	-2.3		-23.3	-10	7820	No stop
03 22 50	---	08 06 44	30.0	139.3	-2.3		-23.1	80	7832	03 21 21
03 22 50	PSRJ1023	08 06 44	30.2	139.1	-2.3		-23.1	-10	7832	No stop
03 26 20	---	08 10 14	30.6	140.1	-2.2		-22.7	200	7859	03 22 51
03 27 00	REFJ1023	08 10 55	30.4	140.4	-2.2		-22.5	30	7859	03 27 00
03 28 00	---	08 11 55	30.5	140.7	-2.2		-22.4	60	7867	03 27 01
03 28 00	PSRJ1023	08 11 55	30.7	140.5	-2.2		-22.5	-10	7867	No stop
03 31 20	---	08 15 15	31.0	141.4	-2.2		-22.0	190	7892	03 28 01
03 31 20	REFJ1023	08 15 15	30.8	141.6	-2.2		-21.9	-10	7892	No stop
03 32 50	---	08 16 46	31.0	142.0	-2.1		-21.7	80	7904	03 31 21
03 32 50	PSRJ1023	08 16 46	31.2	141.8	-2.1		-21.8	-10	7904	No stop
03 36 20	---	08 20 16	31.5	142.8	-2.1		-21.3	200	7931	03 32 51
03 37 00	REFJ1023	08 20 56	31.3	143.1	-2.1		-21.1	30	7931	03 37 00
03 38 00	---	08 21 56	31.4	143.4	-2.0		-21.0	60	7939	03 37 01

Schedule for TORUN (Code Tr )

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e-EVN ToD runs: RR007B and RA002

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 13 Nov 2013 Day 317 ---										
03 39 00	J1028+0255	08 22 57	33.4	141.3	-2.1		-22.1	39	7939	03 39 00
03 43 00	=1025+031	08 26 57	33.8	142.4	-2.0		-21.5	240	7970	03 39 01
03 44 00	REFJ1023	08 27 57	32.0	145.0	-1.9		-20.1	39	7970	03 44 00
03 45 00	---	08 28 58	32.0	145.3	-1.9		-20.0	60	7978	03 44 01
03 45 00	PSRJ1023	08 28 58	32.3	145.2	-1.9		-20.1	-10	7978	No stop
03 48 20	---	08 32 18	32.5	146.1	-1.9		-19.6	190	8003	03 45 01
03 48 20	REFJ1023	08 32 18	32.3	146.2	-1.9		-19.5	-10	8003	No stop
03 49 50	---	08 33 48	32.5	146.7	-1.8		-19.3	80	8015	03 48 21
03 49 50	PSRJ1023	08 33 48	32.7	146.5	-1.8		-19.3	-10	8015	No stop
03 53 20	---	08 37 19	33.0	147.5	-1.8		-18.8	200	8042	03 49 51
03 54 00	REFJ1023	08 37 59	32.8	147.8	-1.8		-18.6	30	8042	03 54 00
03 55 00	---	08 38 59	32.9	148.1	-1.8		-18.5	60	8050	03 54 01
03 55 00	PSRJ1023	08 38 59	33.1	148.0	-1.8		-18.6	-10	8050	No stop
03 58 20	---	08 42 20	33.4	148.9	-1.7		-18.1	190	8076	03 55 01
03 58 20	REFJ1023	08 42 20	33.1	149.1	-1.7		-18.0	-10	8076	No stop
03 59 50	---	08 43 50	33.2	149.5	-1.7		-17.8	80	8087	03 58 21
03 59 50	PSRJ1023	08 43 50	33.5	149.3	-1.7		-17.8	-10	8087	No stop
04 03 20	---	08 47 21	33.7	150.4	-1.6		-17.3	200	8114	03 59 51
04 04 00	REFJ1023	08 48 01	33.6	150.7	-1.6		-17.1	30	8114	04 04 00
04 05 00	---	08 49 01	33.6	151.0	-1.6		-16.9	60	8122	04 04 01
04 05 00	PSRJ1023	08 49 01	33.9	150.8	-1.6		-17.0	-10	8122	No stop
04 08 20	---	08 52 21	34.1	151.8	-1.5		-16.5	190	8148	04 05 01
04 08 20	REFJ1023	08 52 21	33.9	151.9	-1.5		-16.4	-10	8148	No stop
04 09 50	---	08 53 52	34.0	152.4	-1.5		-16.2	80	8159	04 08 21
04 09 50	PSRJ1023	08 53 52	34.2	152.2	-1.5		-16.2	-10	8159	No stop
04 13 20	---	08 57 22	34.4	153.3	-1.5		-15.7	200	8187	04 09 51
04 14 00	REFJ1023	08 58 02	34.3	153.6	-1.4		-15.5	30	8187	04 14 00
04 15 00	---	08 59 02	34.3	153.9	-1.4		-15.3	60	8194	04 14 01
04 15 00	PSRJ1023	08 59 02	34.6	153.7	-1.4		-15.4	-11	8194	No stop
04 18 20	---	09 02 23	34.8	154.7	-1.4		-14.9	189	8220	04 15 01



Schedule for TORUN (Code Tr )

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e-EVN To0 runs: RR007B and RA002

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 13 Nov 2013 Day 317 ---										
04 18 20	REFJ1023	09 02 23	34.5	154.8	-1.4		-14.8	-10	8220	No stop
04 19 50	---	09 03 53	34.6	155.3	-1.3		-14.5	80	8232	04 18 21
04 19 50	PSRJ1023	09 03 53	34.9	155.2	-1.3		-14.6	-11	8232	No stop
04 23 20	---	09 07 24	35.1	156.2	-1.3		-14.0	199	8259	04 19 51
04 24 00	REFJ1023	09 08 04	34.9	156.5	-1.3		-13.8	30	8259	04 24 00
04 25 00	---	09 09 04	35.0	156.8	-1.3		-13.7	60	8267	04 24 01
04 25 00	PSRJ1023	09 09 04	35.2	156.7	-1.3		-13.7	-11	8267	No stop
04 28 20	---	09 12 25	35.4	157.7	-1.2		-13.2	189	8292	04 25 01
04 28 20	REFJ1023	09 12 25	35.2	157.8	-1.2		-13.1	-10	8292	No stop
04 29 50	---	09 13 55	35.2	158.3	-1.2		-12.9	80	8304	04 28 21
04 29 50	PSRJ1023	09 13 55	35.5	158.1	-1.2		-12.9	-11	8304	No stop
04 33 20	---	09 17 25	35.7	159.2	-1.1		-12.3	199	8331	04 29 51
04 34 00	REFJ1023	09 18 06	35.5	159.5	-1.1		-12.1	30	8331	04 34 00
04 35 00	---	09 19 06	35.5	159.8	-1.1		-12.0	60	8339	04 34 01
04 35 00	PSRJ1023	09 19 06	35.7	159.7	-1.1		-12.0	-11	8339	No stop
04 38 20	---	09 22 26	35.9	160.7	-1.0		-11.4	189	8365	04 35 01
04 38 20	REFJ1023	09 22 26	35.7	160.8	-1.0		-11.4	-10	8365	No stop
04 39 50	---	09 23 57	35.8	161.3	-1.0		-11.1	80	8376	04 38 21
04 39 50	PSRJ1023	09 23 57	36.0	161.2	-1.0		-11.2	-11	8376	No stop
04 43 20	---	09 27 27	36.2	162.2	-1.0		-10.6	199	8403	04 39 51
04 44 00	REFJ1023	09 28 07	36.0	162.5	-0.9		-10.4	30	8403	04 44 00
04 45 00	---	09 29 07	36.0	162.8	-0.9		-10.2	60	8411	04 44 01
04 45 00	PSRJ1023	09 29 07	36.2	162.7	-0.9		-10.3	-11	8411	No stop
04 48 20	---	09 32 28	36.4	163.8	-0.9		-9.7	189	8437	04 45 01
04 48 20	REFJ1023	09 32 28	36.1	163.9	-0.9		-9.6	-10	8437	No stop
04 49 50	---	09 33 58	36.2	164.3	-0.8		-9.3	80	8448	04 48 21
04 49 50	PSRJ1023	09 33 58	36.4	164.2	-0.8		-9.4	-11	8448	No stop
04 53 20	---	09 37 29	36.6	165.3	-0.8		-8.8	199	8476	04 49 51
04 54 00	REFJ1023	09 38 09	36.4	165.6	-0.8		-8.6	29	8476	04 54 00
04 55 00	---	09 39 09	36.4	165.9	-0.8		-8.4	60	8483	04 54 01

Schedule for TORUN (Code Tr )

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e-EVN ToD runs: RR007B and RA002

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 13 Nov 2013 Day 317 ---										
04 55 00	PSRJ1023	09 39 09	36.6	165.8	-0.8		-8.5	-11	8483	No stop
04 58 20	---	09 42 30	36.8	166.8	-0.7		-7.9	189	8509	04 55 01
04 58 20	REFJ1023	09 42 30	36.5	166.9	-0.7		-7.8	-11	8509	No stop
04 59 50	---	09 44 00	36.6	167.4	-0.7		-7.5	79	8521	04 58 21
04 59 50	PSRJ1023	09 44 00	36.8	167.3	-0.7		-7.6	-11	8521	No stop
05 03 20	---	09 47 30	36.9	168.4	-0.6		-6.9	199	8548	04 59 51
05 04 00	REFJ1023	09 48 11	36.7	168.7	-0.6		-6.8	29	8548	05 04 00
05 05 00	---	09 49 11	36.7	169.0	-0.6		-6.6	60	8556	05 04 01
05 05 00	PSRJ1023	09 49 11	37.0	168.9	-0.6		-6.6	-11	8556	No stop
05 08 20	---	09 52 31	37.1	170.0	-0.5		-6.0	189	8581	05 05 01
05 08 20	REFJ1023	09 52 31	36.8	170.0	-0.5		-6.0	-11	8581	No stop
05 09 50	---	09 54 01	36.9	170.5	-0.5		-5.7	79	8593	05 08 21
05 09 50	PSRJ1023	09 54 01	37.1	170.4	-0.5		-5.7	-11	8593	No stop
05 13 20	---	09 57 32	37.2	171.5	-0.4		-5.1	199	8620	05 09 51
05 14 00	REFJ1023	09 58 12	37.0	171.8	-0.4		-4.9	29	8620	05 14 00
05 15 00	---	09 59 12	37.0	172.1	-0.4		-4.7	60	8628	05 14 01
05 15 00	J1015+0109	09 59 12	37.9	174.5	-0.3		-3.3	-19	8628	No stop
05 16 20	=1013+014	10 00 33	37.9	174.9	-0.3		-3.1	61	8638	05 15 01
05 16 20	REFJ1023	10 00 33	37.0	172.5	-0.4		-4.5	-19	8638	No stop
05 17 50	---	10 02 03	37.0	173.0	-0.4		-4.2	71	8650	05 16 21
05 17 50	J1015+0109	10 02 03	37.9	175.4	-0.2		-2.8	-19	8650	No stop
05 19 10	=1013+014	10 03 23	37.9	175.8	-0.2		-2.5	61	8660	05 17 51
05 20 00	REFJ1023	10 04 13	37.1	173.7	-0.3		-3.8	31	8660	05 20 00
05 21 00	---	10 05 13	37.1	174.0	-0.3		-3.6	60	8668	05 20 01
05 21 00	J1015+0109	10 05 13	37.9	176.4	-0.2		-2.2	-19	8668	No stop
05 22 20	=1013+014	10 06 34	37.9	176.8	-0.2		-1.9	61	8678	05 21 01
05 22 20	REFJ1023	10 06 34	37.1	174.4	-0.3		-3.3	-19	8678	No stop
05 23 50	---	10 08 04	37.1	174.9	-0.3		-3.1	71	8690	05 22 21
05 23 50	J1015+0109	10 08 04	38.0	177.3	-0.1		-1.6	-19	8690	No stop
05 25 10	=1013+014	10 09 24	38.0	177.7	-0.1		-1.4	61	8700	05 23 51

Schedule for TORUN (Code Tr )

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e-EVN ToD runs: RR007B and RA002

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 13 Nov 2013 Day 317 ---										
05 26 00	REFJ1023	10 10 14	37.2	175.6	-0.2		-2.7	31	8700	05 26 00
05 27 00	---	10 11 14	37.2	175.9	-0.2		-2.5	60	8708	05 26 01
05 27 00	J1015+0109	10 11 14	38.0	178.3	-0.1		-1.0	-19	8708	No stop
05 28 20	=1013+014	10 12 35	38.0	178.7	-0.1		-0.8	61	8718	05 27 01
05 28 20	REFJ1023	10 12 35	37.2	176.3	-0.2		-2.2	-19	8718	No stop
05 29 50	---	10 14 05	37.2	176.8	-0.2		-1.9	71	8730	05 28 21
05 29 50	J1015+0109	10 14 05	38.0	179.2	-0.0		-0.5	-19	8730	No stop
05 31 10	=1013+014	10 15 25	38.0	179.6	-0.0		-0.2	61	8740	05 29 51
05 32 00	REFJ1023	10 16 15	37.2	177.5	-0.1		-1.5	31	8740	05 32 00
05 33 00	---	10 17 15	37.2	177.8	-0.1		-1.3	60	8748	05 32 01
05 33 00	PSRJ1023	10 17 15	37.5	177.7	-0.1		-1.4	-11	8748	No stop
05 36 20	---	10 20 36	37.5	178.8	-0.1		-0.7	189	8774	05 33 01
05 36 20	REFJ1023	10 20 36	37.2	178.8	-0.1		-0.7	-11	8774	No stop
05 37 50	---	10 22 06	37.2	179.3	-0.0		-0.4	79	8785	05 36 21
05 37 50	PSRJ1023	10 22 06	37.5	179.2	-0.0		-0.5	-11	8785	No stop
05 41 20	---	10 25 37	37.5	180.3	0.0		0.2	199	8812	05 37 51
05 42 00	REFJ1023	10 26 17	37.2	180.6	0.0		0.4	29	8812	05 42 00
05 43 00	---	10 27 17	37.2	180.9	0.0		0.6	60	8820	05 42 01
05 43 00	PSRJ1023	10 27 17	37.5	180.9	0.0		0.5	-11	8820	No stop
05 46 20	---	10 30 37	37.5	181.9	0.1		1.2	189	8846	05 43 01
05 46 20	REFJ1023	10 30 37	37.2	182.0	0.1		1.2	-11	8846	No stop
05 47 50	---	10 32 08	37.2	182.4	0.1		1.5	79	8857	05 46 21
05 47 50	PSRJ1023	10 32 08	37.5	182.4	0.1		1.4	-11	8857	No stop
05 51 20	---	10 35 38	37.4	183.5	0.2		2.1	199	8885	05 47 51
05 52 00	REFJ1023	10 36 18	37.2	183.7	0.2		2.3	29	8885	05 52 00
05 53 00	---	10 37 19	37.2	184.1	0.2		2.4	60	8892	05 52 01
05 53 00	PSRJ1023	10 37 19	37.4	184.0	0.2		2.4	-11	8892	No stop
05 56 20	---	10 40 39	37.4	185.1	0.3		3.0	189	8918	05 53 01
05 56 20	REFJ1023	10 40 39	37.1	185.1	0.3		3.1	-11	8918	No stop
05 57 50	---	10 42 09	37.1	185.6	0.3		3.3	79	8930	05 56 21

Schedule for TORUN (Code Tr )

Page 23

e-EVN To0 runs: RR007B and RA002

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 13 Nov 2013 Day 317 ---										
05 57 50	PSRJ1023	10 42 09	37.3	185.6	0.3		3.3	-11	8930	No stop
06 01 20	---	10 45 40	37.3	186.7	0.4		4.0	199	8957	05 57 51
06 02 00	REFJ1023	10 46 20	37.0	186.9	0.4		4.1	29	8957	06 02 00
06 03 00	---	10 47 20	37.0	187.2	0.4		4.3	60	8965	06 02 01
06 03 00	PSRJ1023	10 47 20	37.3	187.2	0.4		4.3	-11	8965	No stop
06 06 20	---	10 50 41	37.2	188.2	0.4		4.9	189	8990	06 03 01
06 06 20	REFJ1023	10 50 41	37.0	188.2	0.4		4.9	-11	8990	No stop
06 07 50	---	10 52 11	36.9	188.7	0.5		5.2	79	9002	06 06 21
06 07 50	PSRJ1023	10 52 11	37.2	188.7	0.5		5.2	-11	9002	No stop
06 11 20	---	10 55 42	37.1	189.8	0.5		5.9	199	9029	06 07 51
06 12 00	REFJ1023	10 56 22	36.8	190.0	0.5		6.0	29	9029	06 12 00
06 13 00	---	10 57 22	36.8	190.3	0.6		6.2	60	9037	06 12 01
06 13 00	PSRJ1023	10 57 22	37.0	190.3	0.5		6.2	-11	9037	No stop
06 16 20	---	11 00 42	36.9	191.3	0.6		6.8	189	9063	06 13 01
06 16 20	REFJ1023	11 00 42	36.7	191.4	0.6		6.8	-11	9063	No stop
06 17 50	---	11 02 13	36.7	191.8	0.6		7.1	79	9074	06 16 21
06 17 50	PSRJ1023	11 02 13	36.9	191.8	0.6		7.1	-11	9074	No stop
06 21 20	---	11 05 43	36.8	192.9	0.7		7.7	199	9101	06 17 51
06 22 00	REFJ1023	11 06 23	36.5	193.1	0.7		7.8	29	9101	06 22 00
06 23 00	---	11 07 24	36.5	193.4	0.7		8.0	60	9109	06 22 01
06 23 00	PSRJ1023	11 07 24	36.7	193.4	0.7		8.0	-11	9109	No stop
06 26 20	---	11 10 44	36.6	194.4	0.8		8.6	189	9135	06 23 01
06 26 20	REFJ1023	11 10 44	36.4	194.5	0.8		8.6	-11	9135	No stop
06 27 50	---	11 12 14	36.3	194.9	0.8		8.9	79	9146	06 26 21
06 27 50	PSRJ1023	11 12 14	36.5	194.9	0.8		8.9	-11	9146	No stop
06 31 20	---	11 15 45	36.4	196.0	0.9		9.5	199	9174	06 27 51
06 32 00	REFJ1023	11 16 25	36.1	196.2	0.9		9.6	29	9174	06 32 00
06 33 00	---	11 17 25	36.1	196.5	0.9		9.8	60	9181	06 32 01
06 34 00	J1028+0255	11 18 25	38.7	195.9	0.8		9.5	36	9181	06 34 00
06 38 00	=1025+031	11 22 26	38.6	197.1	0.9		10.2	240	9212	06 34 01
06 39 00	REFJ1023	11 23 26	35.8	198.3	1.0		10.9	36	9212	06 39 00
06 40 00	---	11 24 26	35.8	198.6	1.0		11.1	60	9220	06 39 01

Schedule for TORUN (Code Tr )

Page 24

e-EVN To0 runs: RR007B and RA002

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 13 Nov 2013 Day 317 ---										
06 40 00	PSRJ1023	11 24 26	36.0	198.6	1.0		11.1	-11	9220	No stop
06 43 20	---	11 27 47	35.9	199.7	1.1		11.7	189	9246	06 40 01
06 43 20	REFJ1023	11 27 47	35.6	199.6	1.1		11.6	-11	9246	No stop
06 44 50	---	11 29 17	35.5	200.1	1.1		11.9	79	9257	06 43 21
06 44 50	PSRJ1023	11 29 17	35.8	200.1	1.1		11.9	-11	9257	No stop
06 48 20	---	11 32 48	35.6	201.2	1.1		12.5	199	9285	06 44 51
06 49 00	REFJ1023	11 33 28	35.3	201.3	1.2		12.6	29	9285	06 49 00
06 50 00	---	11 34 28	35.3	201.6	1.2		12.8	60	9292	06 49 01
06 50 00	PSRJ1023	11 34 28	35.5	201.7	1.2		12.8	-11	9292	No stop
06 53 20	---	11 37 48	35.3	202.7	1.2		13.4	189	9318	06 50 01
06 53 20	REFJ1023	11 37 48	35.1	202.6	1.2		13.4	-11	9318	No stop
06 54 50	---	11 39 19	35.0	203.1	1.2		13.6	79	9330	06 53 21
06 54 50	PSRJ1023	11 39 19	35.2	203.1	1.2		13.6	-11	9330	No stop
06 58 20	---	11 42 49	35.0	204.1	1.3		14.2	199	9357	06 54 51
06 59 00	REFJ1023	11 43 29	34.7	204.3	1.3		14.3	29	9357	06 59 00
07 00 00	---	11 44 30	34.7	204.6	1.3		14.5	60	9365	06 59 01
07 00 00	PSRJ1023	11 44 30	34.9	204.6	1.3		14.5	-11	9365	No stop
07 03 20	---	11 47 50	34.7	205.6	1.4		15.1	189	9390	07 00 01
07 03 20	REFJ1023	11 47 50	34.5	205.6	1.4		15.0	-11	9390	No stop
07 04 50	---	11 49 20	34.4	206.0	1.4		15.3	79	9402	07 03 21
07 04 50	PSRJ1023	11 49 20	34.6	206.1	1.4		15.3	-11	9402	No stop
07 08 20	---	11 52 51	34.4	207.1	1.5		15.9	199	9429	07 04 51
07 09 00	REFJ1023	11 53 31	34.1	207.3	1.5		16.0	29	9429	07 09 00
07 10 00	---	11 54 31	34.0	207.5	1.5		16.1	60	9437	07 09 01
07 10 00	PSRJ1023	11 54 31	34.2	207.6	1.5		16.1	-11	9437	No stop
07 13 20	---	11 57 52	34.0	208.5	1.6		16.7	189	9463	07 10 01
07 13 20	REFJ1023	11 57 52	33.8	208.5	1.6		16.7	-11	9463	No stop
07 14 50	---	11 59 22	33.7	208.9	1.6		16.9	79	9474	07 13 21
07 14 50	PSRJ1023	11 59 22	33.9	209.0	1.6		16.9	-11	9474	No stop
07 18 20	---	12 02 53	33.6	210.0	1.6		17.5	199	9501	07 14 51
07 19 00	REFJ1023	12 03 33	33.4	210.1	1.7		17.5	29	9501	07 19 00
07 20 00	---	12 04 33	33.3	210.4	1.7		17.7	60	9509	07 19 01

Schedule for TORUN (Code Tr )

Page 25

e-EVN ToO runs: RR007B and RA002

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 13 Nov 2013 Day 317 ---										
07 20 00	PSRJ1023	12 04 33	33.5	210.5	1.7		17.7	-11	9509	No stop
07 23 20	---	12 07 53	33.3	211.4	1.7		18.2	189	9535	07 20 01
07 23 20	REFJ1023	12 07 53	33.0	211.4	1.7		18.2	-11	9535	No stop
07 24 50	---	12 09 24	32.9	211.8	1.8		18.4	79	9546	07 23 21
07 24 50	PSRJ1023	12 09 24	33.1	211.8	1.7		18.5	-11	9546	No stop
07 28 20	---	12 12 54	32.9	212.8	1.8		19.0	199	9574	07 24 51
07 29 00	REFJ1023	12 13 34	32.6	213.0	1.8		19.1	29	9574	07 29 00
07 30 00	---	12 14 35	32.5	213.3	1.8		19.2	60	9581	07 29 01
07 30 00	PSRJ1023	12 14 35	32.7	213.3	1.8		19.3	-11	9581	No stop
07 33 20	---	12 17 55	32.4	214.2	1.9		19.7	189	9607	07 30 01
07 33 20	REFJ1023	12 17 55	32.2	214.2	1.9		19.7	-11	9607	No stop
07 34 50	---	12 19 25	32.1	214.6	1.9		19.9	79	9619	07 33 21
07 34 50	PSRJ1023	12 19 25	32.3	214.7	1.9		20.0	-11	9619	No stop
07 38 20	---	12 22 56	32.0	215.6	2.0		20.5	199	9646	07 34 51
07 39 00	REFJ1023	12 23 36	31.7	215.8	2.0		20.5	29	9646	07 39 00
07 40 00	---	12 24 36	31.6	216.0	2.0		20.7	60	9654	07 39 01
07 40 00	J1015+0109	12 24 36	31.6	218.5	2.1		21.9	-19	9654	No stop
07 41 20	=1013+014	12 25 56	31.5	218.8	2.2		22.1	61	9664	07 40 01
07 41 20	REFJ1023	12 25 56	31.5	216.4	2.0		20.9	-19	9664	No stop
07 42 50	---	12 27 27	31.4	216.8	2.1		21.1	71	9675	07 41 21
07 42 50	J1015+0109	12 27 27	31.4	219.2	2.2		22.3	-19	9675	No stop
07 44 10	=1013+014	12 28 47	31.2	219.6	2.2		22.5	61	9686	07 42 51
07 45 00	REFJ1023	12 29 37	31.2	217.4	2.1		21.4	31	9686	07 45 00
07 46 00	---	12 30 37	31.1	217.7	2.1		21.5	60	9694	07 45 01
07 46 00	J1015+0109	12 30 37	31.1	220.1	2.2		22.8	-19	9694	No stop
07 47 20	=1013+014	12 31 57	30.9	220.4	2.3		22.9	61	9704	07 46 01
07 47 20	REFJ1023	12 31 57	31.0	218.0	2.1		21.7	-19	9704	No stop
07 48 50	---	12 33 28	30.8	218.4	2.2		21.9	71	9715	07 47 21
07 48 50	J1015+0109	12 33 28	30.8	220.8	2.3		23.1	-19	9715	No stop
07 50 10	=1013+014	12 34 48	30.6	221.2	2.3		23.3	61	9726	07 48 51
07 51 00	REFJ1023	12 35 38	30.6	219.0	2.2		22.2	31	9726	07 51 00
07 52 00	---	12 36 38	30.5	219.3	2.2		22.4	60	9734	07 51 01

Schedule for TORUN (Code Tr )

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e-EVN ToO runs: RR007B and RA002

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 13 Nov 2013 Day 317 ---										
07 52 00	J1015+0109	12 36 38	30.5	221.7	2.3		23.5	-19	9734	No stop
07 53 20	=1013+014	12 37 58	30.3	222.1	2.4		23.7	61	9744	07 52 01
07 53 20	REFJ1023	12 37 58	30.4	219.7	2.2		22.5	-19	9744	No stop
07 54 50	---	12 39 29	30.2	220.1	2.3		22.7	71	9755	07 53 21
07 54 50	J1015+0109	12 39 29	30.2	222.4	2.4		23.9	-19	9755	No stop
07 56 10	=1013+014	12 40 49	30.0	222.8	2.4		24.1	61	9766	07 54 51
07 57 00	REFJ1023	12 41 39	30.0	220.6	2.3		23.0	31	9766	07 57 00
07 58 00	---	12 42 39	29.9	220.9	2.3		23.2	60	9774	07 57 01
07 58 00	PSRJ1023	12 42 39	30.2	221.0	2.3		23.2	-10	9774	No stop
08 01 20	---	12 46 00	29.8	221.9	2.4		23.6	190	9799	07 58 01
08 01 20	REFJ1023	12 46 00	29.6	221.8	2.4		23.6	-11	9799	No stop
08 02 50	---	12 47 30	29.5	222.2	2.4		23.8	79	9811	08 01 21
08 02 50	PSRJ1023	12 47 30	29.7	222.3	2.4		23.8	-10	9811	No stop
08 06 20	---	12 51 00	29.3	223.2	2.4		24.3	200	9838	08 02 51
08 07 00	REFJ1023	12 51 41	29.0	223.3	2.5		24.3	29	9838	08 07 00
08 08 00	---	12 52 41	28.9	223.5	2.5		24.4	60	9846	08 07 01
08 08 00	PSRJ1023	12 52 41	29.2	223.6	2.5		24.5	-10	9846	No stop
08 11 20	---	12 56 01	28.8	224.5	2.5		24.9	190	9872	08 08 01
08 11 20	REFJ1023	12 56 01	28.6	224.4	2.5		24.8	-11	9872	No stop
08 12 50	---	12 57 32	28.4	224.8	2.6		25.0	79	9883	08 11 21
08 12 50	PSRJ1023	12 57 32	28.7	224.9	2.6		25.1	-10	9883	No stop
08 16 20	---	13 01 02	28.3	225.8	2.6		25.5	200	9910	08 12 51
08 17 00	REFJ1023	13 01 42	28.0	225.9	2.6		25.5	29	9910	08 17 00
08 18 00	---	13 02 42	27.9	226.1	2.6		25.6	60	9918	08 17 01
08 18 00	PSRJ1023	13 02 42	28.1	226.2	2.6		25.7	-10	9918	No stop
08 21 20	---	13 06 03	27.7	227.1	2.7		26.1	190	9944	08 18 01
08 21 20	REFJ1023	13 06 03	27.5	227.0	2.7		26.0	-11	9944	No stop
08 22 50	---	13 07 33	27.3	227.4	2.7		26.2	79	9955	08 21 21
08 22 50	PSRJ1023	13 07 33	27.6	227.4	2.7		26.2	-10	9955	No stop
08 26 20	---	13 11 04	27.2	228.3	2.8		26.6	200	9983	08 22 51
08 27 00	REFJ1023	13 11 44	26.9	228.4	2.8		26.7	29	9983	08 27 00
08 28 00	---	13 12 44	26.8	228.7	2.8		26.8	60	9990	08 27 01

Schedule for TORUN (Code Tr )

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e-EVN ToD runs: RR007B and RA002

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 13 Nov 2013 Day 317 ---										
08 28 00	PSRJ1023	13 12 44	27.0	228.7	2.8		26.8	-10	9990	No stop
08 31 20	---	13 16 05	26.6	229.6	2.9		27.2	190	10016	08 28 01
08 31 20	REFJ1023	13 16 05	26.4	229.5	2.9		27.2	-11	10016	No stop
08 32 50	---	13 17 35	26.2	229.9	2.9		27.3	79	10028	08 31 21
08 32 50	PSRJ1023	13 17 35	26.4	229.9	2.9		27.4	-10	10028	No stop
08 36 20	---	13 21 05	26.0	230.8	2.9		27.7	200	10055	08 32 51
08 37 00	REFJ1023	13 21 46	25.7	230.9	3.0		27.8	29	10055	08 37 00
08 38 00	---	13 22 46	25.6	231.1	3.0		27.9	60	10063	08 37 01
08 38 00	PSRJ1023	13 22 46	25.8	231.2	3.0		27.9	-10	10063	No stop
08 41 20	---	13 26 06	25.4	232.0	3.0		28.3	190	10088	08 38 01
08 41 20	REFJ1023	13 26 06	25.2	232.0	3.0		28.2	-11	10088	No stop
08 42 50	---	13 27 36	25.0	232.3	3.1		28.4	79	10100	08 41 21
08 42 50	PSRJ1023	13 27 36	25.3	232.4	3.1		28.4	-10	10100	No stop
08 46 20	---	13 31 07	24.8	233.3	3.1		28.8	200	10127	08 42 51
08 47 00	REFJ1023	13 31 47	24.5	233.3	3.1		28.8	29	10127	08 47 00
08 48 00	---	13 32 47	24.4	233.6	3.1		28.9	60	10135	08 47 01
08 48 00	PSRJ1023	13 32 47	24.6	233.7	3.1		28.9	-10	10135	No stop
08 51 20	---	13 36 08	24.2	234.5	3.2		29.3	190	10161	08 48 01
08 51 20	REFJ1023	13 36 08	24.0	234.4	3.2		29.2	-11	10161	No stop
08 52 50	---	13 37 38	23.8	234.7	3.2		29.4	79	10172	08 51 21
08 52 50	PSRJ1023	13 37 38	24.1	234.8	3.2		29.4	-10	10172	No stop
08 56 20	---	13 41 09	23.6	235.7	3.3		29.7	200	10199	08 52 51
08 57 00	REFJ1023	13 41 49	23.3	235.7	3.3		29.7	29	10199	08 57 00
08 58 00	---	13 42 49	23.2	236.0	3.3		29.8	60	10207	08 57 01
08 59 00	J1028+0255	13 43 49	25.8	236.5	3.2		30.1	36	10207	08 59 00
09 03 00	=1025+031	13 47 50	25.3	237.4	3.3		30.4	240	10238	08 59 01
09 04 00	REFJ1023	13 48 50	22.4	237.4	3.4		30.4	36	10238	09 04 00
09 05 00	---	13 49 50	22.3	237.6	3.4		30.5	60	10246	09 04 01
09 05 00	PSRJ1023	13 49 50	22.5	237.7	3.4		30.5	-10	10246	No stop
09 08 20	---	13 53 11	22.1	238.5	3.5		30.8	190	10272	09 05 01



Schedule for TORUN (Code Tr )

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e-EVN ToD runs: RR007B and RA002

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 13 Nov 2013 Day 317 ---										
09 08 20	REFJ1023	13 53 11	21.9	238.4	3.5		30.8	-11	10272	No stop
09 09 50	---	13 54 41	21.7	238.7	3.5		30.9	79	10283	09 08 21
09 09 50	PSRJ1023	13 54 41	21.9	238.8	3.5		30.9	-10	10283	No stop
09 13 20	---	13 58 11	21.5	239.6	3.6		31.2	200	10310	09 09 51
09 14 00	REFJ1023	13 58 52	21.1	239.7	3.6		31.2	29	10310	09 14 00
09 15 00	---	13 59 52	21.0	239.9	3.6		31.3	60	10318	09 14 01
09 15 00	PSRJ1023	13 59 52	21.2	240.0	3.6		31.3	-10	10318	No stop
09 18 20	---	14 03 12	20.8	240.8	3.6		31.6	190	10344	09 15 01
09 18 20	REFJ1023	14 03 12	20.6	240.7	3.6		31.6	-11	10344	No stop
09 19 50	---	14 04 43	20.4	241.0	3.7		31.7	79	10355	09 18 21
09 19 50	PSRJ1023	14 04 43	20.6	241.1	3.7		31.7	-10	10355	No stop
09 23 20	---	14 08 13	20.1	241.9	3.7		32.0	200	10383	09 19 51
09 24 00	REFJ1023	14 08 53	19.8	242.0	3.7		32.0	29	10383	09 24 00
09 25 00	---	14 09 53	19.7	242.2	3.8		32.1	60	10390	09 24 01
09 25 00	PSRJ1023	14 09 53	19.9	242.3	3.8		32.1	-10	10390	No stop
09 28 20	---	14 13 14	19.5	243.0	3.8		32.4	190	10416	09 25 01
09 28 20	REFJ1023	14 13 14	19.3	242.9	3.8		32.3	-11	10416	No stop
09 29 50	---	14 14 44	19.1	243.3	3.8		32.4	79	10428	09 28 21
09 29 50	PSRJ1023	14 14 44	19.3	243.4	3.8		32.5	-10	10428	No stop
09 33 20	---	14 18 15	18.8	244.2	3.9		32.7	200	10455	09 29 51
09 34 00	REFJ1023	14 18 55	18.5	244.2	3.9		32.7	29	10455	09 34 00
09 35 00	---	14 19 55	18.4	244.4	3.9		32.8	60	10463	09 34 01
09 35 00	PSRJ1023	14 19 55	18.6	244.5	3.9		32.8	-10	10463	No stop
09 38 20	---	14 23 16	18.1	245.3	4.0		33.1	190	10488	09 35 01
09 38 20	REFJ1023	14 23 16	17.9	245.2	4.0		33.0	-11	10488	No stop
09 39 50	---	14 24 46	17.7	245.5	4.0		33.1	79	10500	09 38 21
09 39 50	PSRJ1023	14 24 46	17.9	245.6	4.0		33.2	-10	10500	No stop
09 43 20	---	14 28 16	17.4	246.4	4.1		33.4	200	10527	09 39 51
09 44 00	REFJ1023	14 28 57	17.1	246.4	4.1		33.4	29	10527	09 44 00
09 45 00	---	14 29 57	17.0	246.6	4.1		33.5	60	10535	09 44 01
09 48 00	1156+295	14 32 57	53.3	244.6	2.5		38.4	30	10535	09 48 00
09 55 00	---	14 39 58	52.3	246.6	2.7		39.1	420	10589	09 48 01

Schedule for TORUN (Code Tr )

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e-EVN ToO runs: RR007B and RA002

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 13 Nov 2013 Day 317 ---										
09 57 00	3C286	14 41 59	64.0	216.4	1.2		24.4	44	10589	09 57 00
10 05 00	---	14 50 00	63.2	219.9	1.3		26.5	480	10651	09 57 01
10 10 00	J1847+0810	14 55 01	25.3	111.5	-3.9		-34.4	68	10651	10 10 00
10 13 00	=1844+081	14 58 01	25.7	112.2	-3.8		-34.2	180	10674	10 10 01
10 14 00	J1922+0841	14 59 01	21.3	104.3	-4.4		-36.1	29	10674	10 14 00
10 17 00	=1919+086	15 02 02	21.7	105.0	-4.3		-35.9	180	10697	10 14 01
10 18 00	J1905+0952	15 03 02	25.2	108.1	-4.1		-35.4	33	10697	10 18 00
10 21 00	=1903+097	15 06 03	25.6	108.8	-4.0		-35.3	180	10721	10 18 01
10 21 00	XTEJ1908	15 06 03	24.8	108.3	-4.1		-35.3	-16	10721	No stop
10 24 20	---	15 09 23	25.3	109.1	-4.0		-35.1	184	10746	10 21 01
10 24 20	J1905+0952	15 09 23	26.1	109.5	-3.9		-35.1	-16	10746	No stop
10 25 50	=1903+097	15 10 53	26.3	109.8	-3.9		-35.0	74	10758	10 24 21
10 25 50	XTEJ1908	15 10 53	25.5	109.4	-4.0		-35.0	-15	10758	No stop
10 29 20	---	15 14 24	26.0	110.2	-3.9		-34.8	195	10785	10 25 51
10 30 00	J1905+0952	15 15 04	26.9	110.8	-3.9		-34.7	24	10785	10 30 00
10 31 00	=1903+097	15 16 04	27.0	111.0	-3.8		-34.7	60	10793	10 30 01
10 31 00	XTEJ1908	15 16 04	26.2	110.6	-3.9		-34.7	-15	10793	No stop
10 34 20	---	15 19 25	26.7	111.3	-3.8		-34.5	185	10819	10 31 01
10 34 20	J1905+0952	15 19 25	27.5	111.8	-3.8		-34.5	-16	10819	No stop
10 35 50	=1903+097	15 20 55	27.7	112.1	-3.8		-34.4	74	10830	10 34 21
10 35 50	XTEJ1908	15 20 55	26.9	111.7	-3.8		-34.4	-15	10830	No stop
10 39 20	---	15 24 26	27.4	112.5	-3.8		-34.2	195	10857	10 35 51
10 40 00	J1905+0952	15 25 06	28.3	113.1	-3.7		-34.1	24	10857	10 40 00
10 41 00	=1903+097	15 26 06	28.4	113.3	-3.7		-34.0	60	10865	10 40 01
10 41 00	XTEJ1908	15 26 06	27.6	112.9	-3.7		-34.1	-15	10865	No stop
10 44 20	---	15 29 26	28.1	113.6	-3.7		-33.9	185	10891	10 41 01
10 44 20	J1905+0952	15 29 26	28.9	114.1	-3.6		-33.8	-16	10891	No stop
10 45 50	=1903+097	15 30 57	29.1	114.4	-3.6		-33.7	74	10903	10 44 21
10 45 50	XTEJ1908	15 30 57	28.3	114.0	-3.6		-33.8	-15	10903	No stop
10 49 20	---	15 34 27	28.7	114.8	-3.6		-33.5	195	10930	10 45 51
10 50 00	J1905+0952	15 35 07	29.7	115.4	-3.5		-33.4	24	10930	10 50 00
10 51 00	=1903+097	15 36 08	29.8	115.7	-3.5		-33.3	60	10937	10 50 01

Schedule for TORUN (Code Tr )

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e-EVN ToO runs: RR007B and RA002

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 13 Nov 2013 Day 317 ---										
10 51 00	XTEJ1908	15 36 08	29.0	115.2	-3.6		-33.4	-15	10937	No stop
10 54 20	---	15 39 28	29.4	116.0	-3.5		-33.2	185	10963	10 51 01
10 54 20	J1905+0952	15 39 28	30.3	116.5	-3.4		-33.1	-16	10963	No stop
10 55 50	=1903+097	15 40 58	30.5	116.8	-3.4		-33.0	74	10975	10 54 21
10 55 50	XTEJ1908	15 40 58	29.6	116.4	-3.5		-33.1	-15	10975	No stop
10 59 20	---	15 44 29	30.1	117.2	-3.4		-32.8	195	11002	10 55 51
11 00 00	J1905+0952	15 45 09	31.0	117.8	-3.4		-32.6	24	11002	11 00 00
11 01 00	=1903+097	15 46 09	31.2	118.1	-3.3		-32.5	60	11010	11 00 01
11 01 00	J1907+0907	15 46 09	30.3	118.0	-3.4		-32.5	-16	11010	No stop
11 02 30	=1905+090	15 47 39	30.5	118.4	-3.3		-32.3	74	11021	11 01 01
11 02 30	J1905+0952	15 47 39	31.4	118.4	-3.3		-32.4	-16	11021	No stop
11 04 00	=1903+097	15 49 10	31.6	118.8	-3.3		-32.3	74	11033	11 02 31
11 04 00	J1907+0907	15 49 10	30.6	118.8	-3.3		-32.2	-16	11033	No stop
11 05 30	=1905+090	15 50 40	30.8	119.1	-3.3		-32.1	74	11044	11 04 01
11 06 10	J1905+0952	15 51 20	31.8	119.3	-3.2		-32.1	24	11044	11 06 10
11 07 10	=1903+097	15 52 20	32.0	119.6	-3.2		-32.0	60	11052	11 06 11
11 07 10	J1907+0907	15 52 20	31.1	119.5	-3.3		-31.9	-16	11052	No stop
11 08 40	=1905+090	15 53 50	31.3	119.9	-3.2		-31.8	74	11064	11 07 11
11 08 40	J1905+0952	15 53 50	32.2	120.0	-3.2		-31.9	-16	11064	No stop
11 10 10	=1903+097	15 55 21	32.4	120.3	-3.2		-31.7	74	11075	11 08 41
11 10 10	J1907+0907	15 55 21	31.5	120.3	-3.2		-31.7	-16	11075	No stop
11 11 40	=1905+090	15 56 51	31.7	120.7	-3.2		-31.5	74	11087	11 10 11
11 12 20	J1905+0952	15 57 31	32.6	120.9	-3.1		-31.5	24	11087	11 12 20
11 13 20	=1903+097	15 58 31	32.8	121.1	-3.1		-31.5	60	11095	11 12 21
11 13 20	J1907+0907	15 58 31	31.9	121.1	-3.2		-31.4	-16	11095	No stop
11 14 50	=1905+090	16 00 01	32.1	121.4	-3.1		-31.3	74	11106	11 13 21
11 14 50	J1905+0952	16 00 01	33.0	121.5	-3.1		-31.3	-16	11106	No stop
11 16 20	=1903+097	16 01 32	33.2	121.9	-3.1		-31.2	74	11118	11 14 51
11 16 20	J1907+0907	16 01 32	32.3	121.8	-3.1		-31.1	-16	11118	No stop
11 17 50	=1905+090	16 03 02	32.4	122.2	-3.1		-31.0	74	11130	11 16 21
11 18 30	J1905+0952	16 03 42	33.4	122.4	-3.0		-31.0	24	11130	11 18 30
11 19 30	=1903+097	16 04 42	33.6	122.7	-3.0		-30.9	60	11137	11 18 31

Schedule for TORUN (Code Tr )

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e-EVN ToO runs: RR007B and RA002

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 13 Nov 2013 Day 317 ---										
11 19 30	XTEJ1908	16 04 42	32.7	122.2	-3.1		-31.0	-15	11137	No stop
11 22 50	---	16 08 03	33.2	123.0	-3.0		-30.7	185	11163	11 19 31
11 22 50	J1905+0952	16 08 03	34.0	123.5	-3.0		-30.5	-16	11163	No stop
11 24 20	=1903+097	16 09 33	34.2	123.9	-2.9		-30.4	74	11175	11 22 51
11 24 20	XTEJ1908	16 09 33	33.3	123.4	-3.0		-30.5	-15	11175	No stop
11 27 50	---	16 13 04	33.8	124.3	-2.9		-30.2	195	11202	11 24 21
11 28 30	J1905+0952	16 13 44	34.7	125.0	-2.9		-30.0	24	11202	11 28 30
11 29 30	=1903+097	16 14 44	34.8	125.2	-2.9		-29.9	60	11210	11 28 31
11 29 30	XTEJ1908	16 14 44	34.0	124.7	-2.9		-30.0	-15	11210	No stop
11 32 50	---	16 18 04	34.4	125.6	-2.9		-29.7	185	11235	11 29 31
11 32 50	J1905+0952	16 18 04	35.2	126.1	-2.8		-29.5	-16	11235	No stop
11 34 20	=1903+097	16 19 35	35.4	126.5	-2.8		-29.3	74	11247	11 32 51
11 34 20	XTEJ1908	16 19 35	34.6	126.0	-2.8		-29.5	-15	11247	No stop
11 37 50	---	16 23 05	35.0	126.9	-2.8		-29.1	195	11274	11 34 21
11 38 30	J1905+0952	16 23 45	35.9	127.6	-2.7		-28.9	24	11274	11 38 30
11 39 30	=1903+097	16 24 45	36.0	127.9	-2.7		-28.8	60	11282	11 38 31
11 39 30	XTEJ1908	16 24 45	35.2	127.3	-2.7		-28.9	-15	11282	No stop
11 42 50	---	16 28 06	35.6	128.2	-2.7		-28.6	185	11308	11 39 31
11 42 50	J1905+0952	16 28 06	36.4	128.8	-2.6		-28.4	-15	11308	No stop
11 44 20	=1903+097	16 29 36	36.6	129.2	-2.6		-28.2	75	11319	11 42 51
11 44 20	XTEJ1908	16 29 36	35.8	128.6	-2.7		-28.4	-15	11319	No stop
11 47 50	---	16 33 07	36.2	129.6	-2.6		-28.0	195	11346	11 44 21
11 48 30	J1905+0952	16 33 47	37.1	130.3	-2.5		-27.7	25	11346	11 48 30
11 49 30	=1903+097	16 34 47	37.2	130.6	-2.5		-27.6	60	11354	11 48 31
11 49 30	XTEJ1908	16 34 47	36.4	130.0	-2.6		-27.8	-15	11354	No stop
11 52 50	---	16 38 08	36.8	130.9	-2.5		-27.4	185	11380	11 49 31
11 52 50	J1905+0952	16 38 08	37.6	131.5	-2.5		-27.2	-15	11380	No stop
11 54 20	=1903+097	16 39 38	37.7	131.9	-2.4		-27.0	75	11392	11 52 51
11 54 20	XTEJ1908	16 39 38	36.9	131.3	-2.5		-27.2	-15	11392	No stop
11 57 50	---	16 43 09	37.3	132.3	-2.4		-26.8	195	11419	11 54 21
11 58 30	J1905+0952	16 43 49	38.2	133.1	-2.4		-26.4	25	11419	11 58 30
11 59 30	=1903+097	16 44 49	38.3	133.4	-2.4		-26.3	60	11426	11 58 31

## SETUP FILE INFORMATION:

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

=====  
Setup file: sess313.C1024

Matching groups in /aps3/opt/share/sched\_10.2/catalogs/freq.dat:  
tr6cm           E-mail Borkowski 23Apr03 (CR 1May03)

Setup group:    2           Station: TORUN           Total bit rate: 1024  
Format: MKIV1:2       Bits per sample: 2       Sample rate: 32.000  
Number of channels: 16   DBE type:           Speedup factor:  0.50

Disk used to record data.

1st LO=	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00
	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00
Net SB=	L	L	U	U	L	L	U	U	
	L	L	U	U	L	L	U	U	
Pol. =	RCP	LCP	RCP	LCP	RCP	LCP	RCP	LCP	
	RCP	LCP	RCP	LCP	RCP	LCP	RCP	LCP	
BBC =	1	2	1	2	3	4	3	4	
	5	6	5	6	7	8	7	8	
BBC SB=	L	L	U	U	L	L	U	U	
	L	L	U	U	L	L	U	U	
IF =	C	A	C	A	C	A	C	A	
	C	A	C	A	C	A	C	A	

The following frequency sets based on these setups were used.

Frequency Set:  6   Setup file default.   Used pcal sets:  1  
LO sum=   4942.49  4942.49  4942.49  4942.49  4974.49  4974.49  4974.49  4974.49  
          5006.49  5006.49  5006.49  5006.49  5038.49  5038.49  5038.49  5038.49  
BBC fr=    742.49  742.49  742.49  742.49  774.49  774.49  774.49  774.49  
          806.49  806.49  806.49  806.49  838.49  838.49  838.49  838.49  
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

The following pulse cal sets were used with this setup:

Pulse cal detection set:  1   PCAL = OFF  
PCALXB1=  S1   S2   S3   S4   S5   S6   S7   S8  
PCALXB2=  M1   M2   M3   M4   M5   M6   M7   M8  
PCALFR1=   0    0    0    0    0    0    0    0  
PCALFR2=   0    0    0    0    0    0    0    0

Track assignments are:

track1=  2, 10, 18, 26,  3, 11, 19, 27, 66, 74, 82, 90, 67, 75, 83, 91  
barrel=roll\_off

## SOURCES USED IN RECORDING SCANS --

e-EVN ToO runs: RR007B and RA002

Catalog positions marked with \*.

Precession of date coordinates is based on stop time of first scan.

Names used in schedule marked with \*.

Short names used in VLA and SNAP files marked with +.

Observation date used in B1950/J2000 coordinate conversion (PRECDATE): 1979.900

No adjustments are made for rates (DRA, DDEC).

Scan hours are for recording scans only.

Baseline hours are only counted for scans above horizon at both ends.

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* XTEJ1908	19 06 29.804976	* 19 08 53.076000	19 09 32.537457	0.00
	09 18 13.11538	* 09 23 04.84000	09 24 43.43370	0.00
* PSRJ1023	10 21 13.565427	* 10 23 47.688600	10 24 30.664375	0.00
	00 53 53.55925	* 00 38 40.76900	00 34 25.49587	0.00
* REFJ1023	10 21 04.762645	* 10 23 38.770640	10 24 21.717305	0.00
	00 39 29.19375	* 00 24 16.66900	00 20 01.54777	0.00
J0137+3309	01 34 49.826374	* 01 37 41.299440	01 38 31.287547	0.52
* 3C48	32 54 20.25881	* 33 09 35.13299	33 13 57.78919	0.50
J0237+2848	02 34 55.589591	* 02 37 52.405678	02 38 43.875631	0.11
* 0234+285	28 35 11.40773	* 28 48 08.98998	28 51 48.09038	0.10
J0521+1638	05 18 16.514078	* 05 21 09.885960	05 21 59.879271	0.12
* 3C138	16 35 26.83399	* 16 38 22.05146	16 39 04.07459	0.12
J0530+1331	05 28 06.759218	* 05 30 56.416749	05 31 45.304977	0.10
* 0528+134	13 29 42.28877	* 13 31 55.14944	13 32 25.63637	0.10
J0854+2006	08 51 57.250618	* 08 54 48.874930	08 55 37.129927	0.11
* 0J287	20 17 58.41733	* 20 06 30.64078	20 03 08.52451	0.10
* J1015+0109	10 13 22.642342	* 10 15 57.055116	10 16 40.150908	0.48
1013+014	01 24 11.84452	* 01 09 13.74679	01 05 02.12884	0.70
* J1028+0255	10 25 45.244075	* 10 28 20.401270	10 29 03.618820	0.21
1025+031	03 10 43.25780	* 02 55 22.47212	02 51 04.33865	0.55
J1041+0610	10 38 40.885155	* 10 41 17.162502	10 42 00.587553	0.10
* 1038+064	06 25 58.53276	* 06 10 16.92354	06 05 52.33938	0.11
J1159+2914	11 56 57.786211	* 11 59 31.833912	12 00 13.843519	0.11
* 1156+295	29 31 25.73868	* 29 14 43.82678	29 09 59.01688	0.10
J1331+3030	13 28 49.657778	* 13 31 08.288070	13 31 45.588497	0.20
* 3C286	30 45 58.64061	* 30 30 32.95925	30 26 15.79291	0.19
J1550+0527	15 48 06.931010	* 15 50 35.269243	15 51 15.594293	0.10
* 1548+056	05 36 11.23067	* 05 27 10.44821	05 24 51.75869	0.10
J1751+0939	17 49 10.387929	* 17 51 32.818572	17 52 11.710168	0.10
* 1749+096	09 39 42.82574	* 09 39 00.72829	09 39 05.20085	0.10
* J1847+0810	18 44 48.246328	* 18 47 12.660418	18 47 52.338919	0.24
1844+081	08 07 15.53478	* 08 10 35.38871	08 11 47.91668	0.43

* J1905+0952	19 03 17.231805	* 19 05 39.898867	19 06 19.174920	1.72
1903+097	09 47 30.15838	* 09 52 08.40772	09 53 43.34507	1.97
1905+090	19 05 18.406173	* 19 07 41.963333	19 08 21.499056	0.20
* J1907+0907	09 02 25.64166	* 09 07 12.39478	09 08 49.52964	0.38
* J1922+0841	19 19 54.380458	* 19 22 18.633671	19 22 58.438402	1.26
1919+086	08 36 10.05269	* 08 41 57.37333	08 43 51.34038	2.92
J2253+1608	22 51 29.519738	* 22 53 57.747937	22 54 40.025976	0.68
* 3C454.3	15 52 54.34810	* 16 08 53.56093	16 13 35.92271	0.72

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)
XTEJ1908	64.4
PSRJ1023	73.2
REFJ1023	73.2
3C48	153.9
0234+285	166.5
3C138	149.2
0528+134	146.4
OJ287	100.0
J1015+0109	75.2
J1028+0255	72.9
1038+064	71.0
1156+295	66.2
3C286	54.2
1548+056	25.2
1749+096	48.0
J1847+0810	59.1
J1905+0952	63.9
J1907+0907	64.1
J1922+0841	67.2
3C454.3	118.5

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:

327 MHz	117. deg
610 MHz	81. deg
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
43.0 GHz	6. deg

rk01jatr

RADIOASTRON AGN SURVEY

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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 13 Nov 2013 Day 317 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00

Next BBC frequencies: 632.00 632.00 632.00 632.00

Next scan bandwidths: 16.00 16.00 16.00 16.00

22 00 00	0633+734	02 46 57	58.8	28.1	-3.9	-98.0	0	0	22 00 00
22 09 30	---	02 56 29	59.5	27.9	-3.7	-100.4	570	18	22 00 01
22 10 00	0633+734	02 56 59	59.6	27.9	-3.7	-100.6	24	18	22 10 00
22 19 30	---	03 06 31	60.2	27.6	-3.6	-103.1	570	36	22 10 01
22 20 00	0633+734	03 07 01	60.3	27.6	-3.6	-103.2	24	36	22 20 00
22 29 30	---	03 16 32	60.9	27.2	-3.4	-105.8	570	55	22 20 01
22 30 00	0633+734	03 17 02	61.0	27.2	-3.4	-105.9	24	55	22 30 00
22 39 30	---	03 26 34	61.6	26.8	-3.2	-108.6	570	73	22 30 01
22 40 00	0633+734	03 27 04	61.6	26.8	-3.2	-108.7	24	73	22 40 00
22 49 30	---	03 36 36	62.3	26.3	-3.1	-111.5	570	91	22 40 01
22 50 00	0633+734	03 37 06	62.3	26.3	-3.1	-111.6	24	91	22 50 00
23 00 00	---	03 47 07	63.0	25.6	-2.9	-114.5	600	110	22 50 01

SETUP FILE INFORMATION:

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

==== Setup file: ra18cm2.set

Matching groups in ./rk01ja\_freq.dat:

tr18cm E-mail Borkowski 12Mar98, preferred alternative

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=  2300.00  2300.00  2300.00  2300.00
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 pcal sets:  1
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   632.00  632.00  632.00  632.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  5

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set:  1  PCAL = 1MHZ
PCALXB1=  S1  S3  S1  S3  S1  S2  S3  S4
PCALXB2=  S2  S4  S2  S4  M1  M2  M3  M4
PCALFR1= 1000 1000 13000 13000  0  0  0  0
PCALFR2= 1000 1000 13000 13000  0  0  0  0

```

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)
J0639+7324	06 33 06.424960	* 06 39 21.961218	06 41 10.169228	0.86
* 0633+734	73 27 35.83982	* 73 24 58.04032	73 23 49.22102	0.28

#### 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)
FAKERA	104.8
0633+734	118.0

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:

327 MHz	117. deg
610 MHz	81. deg
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
43.0 GHz	6. deg

rk01jbtr

RADIOASTRON AGN SURVEY

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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  
-----

--- Thu 14 Nov 2013 Day 318 ---

Next scan frequencies:	4836.00	4836.00	4836.00	4836.00						
Next BBC frequencies:	636.00	636.00	636.00	636.00						
Next scan bandwidths:	16.00	16.00	16.00	16.00						
08 00 00	0748+126	12 48 36	19.4 265.0	4.9		37.8	0	0	08 00 00	
08 09 30	---	12 58 08	18.0 266.9	5.1		37.9	570	18	08 00 01	
08 10 00	0748+126	12 58 38	17.9 267.0	5.1		37.9	24	18	08 10 00	
08 19 30	---	13 08 09	16.5 269.0	5.3		37.9	570	36	08 10 01	
08 20 00	0748+126	13 08 39	16.4 269.1	5.3		37.9	24	36	08 20 00	
08 29 30	---	13 18 11	15.0 271.0	5.4		37.9	570	55	08 20 01	
08 30 00	0748+126	13 18 41	14.9 271.1	5.5		37.9	24	55	08 30 00	
08 39 30	---	13 28 12	13.5 272.9	5.6		37.9	570	73	08 30 01	
08 40 00	0748+126	13 28 43	13.4 273.0	5.6		37.9	24	73	08 40 00	
08 49 30	---	13 38 14	12.0 274.9	5.8		37.8	570	91	08 40 01	
08 50 00	0748+126	13 38 44	11.9 275.0	5.8		37.8	24	91	08 50 00	
09 00 00	---	13 48 46	10.4 277.0	6.0		37.6	600	110	08 50 01	

SETUP FILE INFORMATION:

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

=====  
Setup file: ra6cm2.set

Matching groups in ./rk01jb\_freq.dat:

tr6cm E-mail Borkowski 23Apr03 (CR 1May03)

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=  4200.00  4200.00  4200.00  4200.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  2  Setup file default.  Used pcal sets:  1
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   636.00   636.00   636.00   636.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  2

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set:  1  PCAL = 1MHZ
PCALXB1=  S1   S3   S1   S3   S1   S2   S3   S4
PCALXB2=  S2   S4   S2   S4   M1   M2   M3   M4
PCALFR1= 1000 1000 13000 13000   0   0   0   0
PCALFR2= 1000 1000 13000 13000   0   0   0   0

```

```

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)
J0750+1231	07 48 05.060493	* 07 50 52.045731	07 51 39.499670	0.10
* 0748+126	12 38 45.47744	* 12 31 04.82812	12 28 47.84239	0.10

#### 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)
0748+126    114.3

```

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:

```

327 MHz      117. deg
610 MHz      81. deg
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
43.0 GHz     6. deg

```

rk01jctr

RADIOASTRON AGN SURVEY

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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

--- Thu 14 Nov 2013 Day 318 ---

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 636.00 636.00 636.00 636.00
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 schedule data for 0917+449.

SETUP FILE INFORMATION:

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

==== Setup file: ra6cm2.set
Matching groups in ./rk01jc\_freq.dat:
tr6cm E-mail Borkowski 23Apr03 (CR 1May03)

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=  4200.00  4200.00  4200.00  4200.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  2  Setup file default.  Used pcal sets:  1
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   636.00   636.00   636.00   636.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  2

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set:  1  PCAL = 1MHZ
PCALXB1=  S1  S3  S1  S3  S1  S2  S3  S4
PCALXB2=  S2  S4  S2  S4  M1  M2  M3  M4
PCALFR1= 1000 1000 13000 13000  0  0  0  0
PCALFR2= 1000 1000 13000 13000  0  0  0  0

```

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)
J0920+4441	09 17 41.919222	* 09 20 58.458485	09 21 53.270639	0.14
* 0917+449	44 54 39.62449	* 44 41 53.98501	44 38 01.87681	0.10

#### 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)
FAKERA	105.0
0917+449	102.3

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:

327 MHz	117. deg
610 MHz	81. deg
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
43.0 GHz	6. deg

rk01jdr

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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 14 Nov 2013 Day 318 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00  
Next BBC frequencies: 632.00 632.00 632.00 632.00  
Next scan bandwidths: 16.00 16.00 16.00 16.00

22 00 00	0016+731	02 50 54	64.4 -23.6	2.5	122.1	0	0	22 00 00
22 09 30	---	03 00 26	63.8 -24.3	2.7	119.1	570	18	22 00 01
22 10 00	0016+731	03 00 56	63.8 -24.4	2.7	119.0	24	18	22 10 00
22 19 30	---	03 10 27	63.2 -25.1	2.8	116.1	570	36	22 10 01
22 20 00	0016+731	03 10 57	63.1 -25.1	2.8	115.9	24	36	22 20 00
22 29 30	---	03 20 29	62.5 -25.7	3.0	113.1	570	55	22 20 01
22 30 00	0016+731	03 20 59	62.5 -25.8	3.0	113.0	24	55	22 30 00
22 39 30	---	03 30 30	61.9 -26.3	3.2	110.2	570	73	22 30 01
22 40 00	0016+731	03 31 01	61.8 -26.3	3.2	110.1	24	73	22 40 00
22 49 30	---	03 40 32	61.2 -26.8	3.3	107.4	570	91	22 40 01
22 50 00	0016+731	03 41 02	61.2 -26.8	3.3	107.2	24	91	22 50 00
23 00 00	---	03 51 04	60.5 -27.2	3.5	104.5	600	110	22 50 01

SETUP FILE INFORMATION:

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

=====  
Setup file: ra18cm2.set

Matching groups in ./rk01jd\_freq.dat:

tr18cm E-mail Borkowski 12Mar98, preferred alternative

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= 2300.00 2300.00 2300.00 2300.00
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 pcal sets: 1
LO sum= 1668.00 1668.00 1668.00 1668.00
BBC fr= 632.00 632.00 632.00 632.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 5

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set: 1 PCAL = 1MHZ
PCALXB1= S1 S3 S1 S3 S1 S2 S3 S4
PCALXB2= S2 S4 S2 S4 M1 M2 M3 M4
PCALFR1= 1000 1000 13000 13000 0 0 0 0
PCALFR2= 1000 1000 13000 13000 0 0 0 0

```

```

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)
J0019+7327	00 16 54.195081	* 00 19 45.786359	00 20 39.246231	0.35
* 0016+731	73 10 51.40714	* 73 27 30.01758	73 32 26.10124	0.10

#### 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)
FAKERA	105.2
0016+731	119.5

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:

327 MHz	117. deg
610 MHz	81. deg
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
43.0 GHz	6. deg

**rk01jetr**

RADIOASTRON AGN SURVEY

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UWAGA: zmiana pasma w czasie tego eksperymentu!!!

#####  
##### 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  
-----

--- Fri 15 Nov 2013    Day 319 ---

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

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00  
Next BBC frequencies: 636.00 636.00 636.00 636.00  
Next scan bandwidths: 16.00 16.00 16.00 16.00

08 00 00	0754+100	12 52 33	17.7	262.9	4.9	37.2	0	0	08 00 00
08 09 30	---	13 02 04	16.3	264.8	5.1	37.4	570	18	08 00 01
08 10 00	0754+100	13 02 34	16.2	264.9	5.1	37.4	24	18	08 10 00
08 19 30	---	13 12 06	14.8	266.9	5.2	37.5	570	36	08 10 01
08 20 00	0754+100	13 12 36	14.7	267.0	5.2	37.5	24	36	08 20 00
08 25 00	---	13 17 37	13.9	268.0	5.3	37.5	300	46	08 20 01

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

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00  
Next BBC frequencies: 632.00 632.00 632.00 632.00

08 30 00	0754+100	13 22 37	13.2	269.0	5.4	37.6	293	46	08 30 00
08 39 30	---	13 32 09	11.8	270.9	5.6	37.6	570	64	08 30 01
08 40 00	0754+100	13 32 39	11.7	271.0	5.6	37.6	24	64	08 40 00
08 49 30	---	13 42 11	10.3	272.9	5.7	37.5	570	83	08 40 01
08 50 00	0754+100	13 42 41	10.2	273.0	5.7	37.5	24	83	08 50 00
09 00 00	---	13 52 42	8.7	275.0	5.9	37.4	600	102	08 50 01



## SETUP FILE INFORMATION:

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

=====  
Setup file: ra6cm2.set

Matching groups in ./rk01je\_freq.dat:

tr6cm E-mail Borkowski 23Apr03 (CR 1May03)

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=	4200.00	4200.00	4200.00	4200.00
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 pcal sets:	1
LO sum=	4836.00	4836.00	4836.00	4836.00
BBC fr=	636.00	636.00	636.00	636.00
Bandwd=	16.00	16.00	16.00	16.00
Matching frequency sets:	3			

The following pulse cal sets were used with this setup:

Pulse cal detection set:	1	PCAL = 1MHZ
PCALXB1=	S1 S3 S1 S3	S1 S2 S3 S4
PCALXB2=	S2 S4 S2 S4	M1 M2 M3 M4
PCALFR1=	1000 1000 13000 13000	0 0 0 0
PCALFR2=	1000 1000 13000 13000	0 0 0 0

Track assignments are:

track1= 2, 18, 3, 19  
barrel=roll\_off

=====  
Setup file: ra18cm2.set

Matching groups in ./rk01je\_freq.dat:

tr18cm E-mail Borkowski 12Mar98, preferred alternative

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=	2300.00	2300.00	2300.00	2300.00
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 pcal sets:  1
LO sum=    1668.00  1668.00  1668.00  1668.00
BBC fr=     632.00   632.00   632.00   632.00
Bandwd=     16.00   16.00   16.00   16.00
Matching frequency sets:  4

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set:  1  PCAL = 1MHZ
PCALXB1=  S1   S3   S1   S3   S1   S2   S3   S4
PCALXB2=  S2   S4   S2   S4   M1   M2   M3   M4
PCALFR1= 1000 1000 13000 13000   0   0   0   0
PCALFR2= 1000 1000 13000 13000   0   0   0   0

```

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)
J0757+0956	07 54 22.579229	* 07 57 06.642950	07 57 53.274706	0.10
* 0754+100	10 04 39.66684	* 09 56 34.85224	09 54 11.87534	0.10

#### 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)
FAKERA	105.3
0754+100	113.2

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:

327 MHz	117. deg
610 MHz	81. deg
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
43.0 GHz	6. deg

**rk01jfr**

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Observing mode: L-band, dual-pol

Schedule for TORUN                      (Code Tr )    Page    2

RadioAstron AGN survey

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

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

--- Fri 15 Nov 2013    Day 319 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00  
Next BBC frequencies:    632.00    632.00    632.00    632.00  
Next scan bandwidths:    16.00    16.00    16.00    16.00

11 00 00	1928+738	15 53 02	60.1	26.4	-3.6	-104.2	0	0	11 00 00
11 09 30	---	16 02 34	60.7	26.1	-3.4	-106.8	570	18	11 00 01
11 10 00	1928+738	16 03 04	60.8	26.0	-3.4	-106.9	24	18	11 10 00
11 19 30	---	16 12 35	61.4	25.6	-3.2	-109.6	570	36	11 10 01
11 20 00	1928+738	16 13 05	61.4	25.6	-3.2	-109.7	24	36	11 20 00
11 29 30	---	16 22 37	62.0	25.1	-3.1	-112.4	570	55	11 20 01
11 30 00	1928+738	16 23 07	62.1	25.1	-3.1	-112.6	24	55	11 30 00
11 39 30	---	16 32 39	62.7	24.5	-2.9	-115.4	570	73	11 30 01
11 40 00	1928+738	16 33 09	62.7	24.5	-2.9	-115.5	24	73	11 40 00
11 49 30	---	16 42 40	63.3	23.8	-2.7	-118.4	570	91	11 40 01
11 50 00	1928+738	16 43 10	63.3	23.8	-2.7	-118.6	24	91	11 50 00
12 00 00	---	16 53 12	63.9	23.0	-2.6	-121.7	600	110	11 50 01

SETUP FILE INFORMATION:

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

=====  
Setup file: ra18cm2.set

Matching groups in ./rk01jf\_freq.dat:

tr18cm                      E-mail Borkowski 12Mar98, preferred alternative

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=	2300.00	2300.00	2300.00	2300.00
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 pcal sets: 1  
 LO sum= 1668.00 1668.00 1668.00 1668.00  
 BBC fr= 632.00 632.00 632.00 632.00  
 Bandwd= 16.00 16.00 16.00 16.00  
 Matching frequency sets: 5

The following pulse cal sets were used with this setup:

Pulse cal detection set: 1 PCAL = 1MHZ  
 PCALXB1= S1 S3 S1 S3 S1 S2 S3 S4  
 PCALXB2= S2 S4 S2 S4 M1 M2 M3 M4  
 PCALFR1= 1000 1000 13000 13000 0 0 0 0  
 PCALFR2= 1000 1000 13000 13000 0 0 0 0

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)
J1927+7358	19 28 49.350195	* 19 27 48.495148	19 27 28.940848	0.37
* 1928+738	73 51 44.92742	* 73 58 01.56986	74 00 10.96921	0.10

#### 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)
FAKERA	105.3
1928+738	100.4

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
610 MHz	81. deg
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
43.0 GHz	6. deg

rk01jgtr

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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  
-----

--- Fri 15 Nov 2013 Day 319 ---

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

23 00 00	0528+134	03 55 00	46.0	145.0	-1.6	-20.8	0	0	23 00 00
23 09 30	---	04 04 32	46.8	148.1	-1.5	-19.0	570	18	23 00 01
23 10 00	0528+134	04 05 02	46.9	148.3	-1.4	-18.9	24	18	23 10 00
23 19 30	---	04 14 34	47.6	151.6	-1.3	-17.1	570	36	23 10 01
23 20 00	0528+134	04 15 04	47.6	151.7	-1.3	-17.0	24	36	23 20 00
23 29 30	---	04 24 35	48.3	155.0	-1.1	-15.1	570	55	23 20 01
23 30 00	0528+134	04 25 05	48.3	155.2	-1.1	-15.0	24	55	23 30 00
23 39 30	---	04 34 37	48.8	158.6	-1.0	-13.0	570	73	23 30 01
23 40 00	0528+134	04 35 07	48.9	158.8	-0.9	-12.9	24	73	23 40 00
23 49 30	---	04 44 39	49.4	162.3	-0.8	-10.8	570	91	23 40 01
23 50 00	0528+134	04 45 09	49.4	162.4	-0.8	-10.7	24	91	23 50 00
23 59 59	---	04 55 10	49.8	166.2	-0.6	-8.5	599	110	23 50 01

SETUP FILE INFORMATION:

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

=====  
Setup file: ra1cm2.set

Matching groups in ./rk01jg\_freq.dat:

tr1cm Values from Bob Campbell by email (23-04-2013)

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 pcal sets:  1
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

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set:  1  PCAL = 1MHZ
PCALXB1=  S1  S3  S1  S3  S1  S2  S3  S4
PCALXB2=  S2  S4  S2  S4  M1  M2  M3  M4
PCALFR1= 1000 1000 13000 13000  0  0  0  0
PCALFR2= 1000 1000 13000 13000  0  0  0  0

```

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)		
J0530+1331	05 28 06.759218	* 05 30 56.416749	05 31 45.361412	0.10
* 0528+134	13 29 42.28877	* 13 31 55.14944	13 32 25.33048	0.10

#### 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)
0528+134    149.3

```

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:

```

327 MHz      117. deg
610 MHz      81. deg
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
43.0 GHz      6. deg

```

rk01jhtr

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Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr ) Page 2

RadioAstron AGN survey

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

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

Disk: GBytes recorded to this point.

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

SYNC: Time correlator is expected to sync up.

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

--- Sat 16 Nov 2013 Day 320 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00

Next BBC frequencies: 632.00 632.00 632.00 632.00

Next scan bandwidths: 16.00 16.00 16.00 16.00

07 00 00	0945+408	11 56 19	65.3	252.4	2.1	48.9	0	0	07 00 00
07 09 30	---	12 05 51	63.9	255.2	2.3	49.9	570	18	07 00 01
07 10 00	0945+408	12 06 21	63.9	255.3	2.3	49.9	24	18	07 10 00
07 19 30	---	12 15 52	62.5	257.9	2.4	50.6	570	36	07 10 01
07 20 00	0945+408	12 16 23	62.4	258.0	2.4	50.7	24	36	07 20 00
07 29 30	---	12 25 54	61.0	260.4	2.6	51.2	570	55	07 20 01
07 30 00	0945+408	12 26 24	60.9	260.5	2.6	51.3	24	55	07 30 00
07 39 30	---	12 35 56	59.5	262.8	2.8	51.7	570	73	07 30 01
07 40 00	0945+408	12 36 26	59.4	262.9	2.8	51.7	24	73	07 40 00
07 49 30	---	12 45 57	58.0	265.0	2.9	52.0	570	91	07 40 01
07 50 00	0945+408	12 46 27	57.9	265.2	2.9	52.0	24	91	07 50 00
08 00 00	---	12 56 29	56.4	267.3	3.1	52.2	600	110	07 50 01

SETUP FILE INFORMATION:

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

==== Setup file: ra18cm2.set

Matching groups in ./rk01jh\_freq.dat:

tr18cm E-mail Borkowski 12Mar98, preferred alternative

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=	2300.00	2300.00	2300.00	2300.00
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 pcal sets: 1  
 LO sum= 1668.00 1668.00 1668.00 1668.00  
 BBC fr= 632.00 632.00 632.00 632.00  
 Bandwd= 16.00 16.00 16.00 16.00  
 Matching frequency sets: 3

The following pulse cal sets were used with this setup:

Pulse cal detection set: 1 PCAL = 1MHZ  
 PCALXB1= S1 S3 S1 S3 S1 S2 S3 S4  
 PCALXB2= S2 S4 S2 S4 M1 M2 M3 M4  
 PCALFR1= 1000 1000 13000 13000 0 0 0 0  
 PCALFR2= 1000 1000 13000 13000 0 0 0 0

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)		
J0948+4039	09 45 50.078219	* 09 48 55.338151	09 49 46.861995	0.13
* 0945+408	40 53 43.38093	* 40 39 44.58692	40 35 33.91143	0.10

#### 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	97.9

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:

327 MHz	117. deg
610 MHz	81. deg
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
43.0 GHz	6. deg



**rk01jitr**

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Observing mode: L-band, dual-pol

Schedule for TORUN                      (Code Tr )    Page    2

RadioAstron AGN survey

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

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

--- Sat 16 Nov 2013    Day 320 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00  
Next BBC frequencies: 632.00 632.00 632.00 632.00  
Next scan bandwidths: 16.00 16.00 16.00 16.00

10 00 00	2007+777	14 56 49	54.1	20.3	-5.1	-86.5	0	0	10 00 00
10 09 30	---	15 06 20	54.6	20.4	-5.0	-88.8	570	18	10 00 01
10 10 00	2007+777	15 06 50	54.6	20.4	-5.0	-88.9	25	18	10 10 00
10 19 30	---	15 16 22	55.1	20.4	-4.8	-91.3	570	36	10 10 01
10 20 00	2007+777	15 16 52	55.2	20.4	-4.8	-91.4	25	36	10 20 00
10 29 30	---	15 26 24	55.7	20.3	-4.6	-93.8	570	55	10 20 01
10 30 00	2007+777	15 26 54	55.7	20.3	-4.6	-93.9	25	55	10 30 00
10 39 30	---	15 36 25	56.2	20.3	-4.5	-96.3	570	73	10 30 01
10 40 00	2007+777	15 36 55	56.2	20.3	-4.5	-96.4	25	73	10 40 00
10 49 30	---	15 46 27	56.7	20.1	-4.3	-98.8	570	91	10 40 01
10 50 00	2007+777	15 46 57	56.7	20.1	-4.3	-99.0	25	91	10 50 00
11 00 00	---	15 56 59	57.2	20.0	-4.1	-101.6	600	110	10 50 01

SETUP FILE INFORMATION:

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

=====  
Setup file: ra18cm2.set

Matching groups in ./rk01ji\_freq.dat:

tr18cm                      E-mail Borkowski 12Mar98, preferred alternative

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=  2300.00  2300.00  2300.00  2300.00
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 pcal sets:  1
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   632.00   632.00   632.00   632.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  3

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set:  1  PCAL = 1MHZ
PCALXB1=  S1  S3  S1  S3  S1  S2  S3  S4
PCALXB2=  S2  S4  S2  S4  M1  M2  M3  M4
PCALFR1= 1000 1000 13000 13000  0  0  0  0
PCALFR2= 1000 1000 13000 13000  0  0  0  0

```

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)		
J2005+7752	20 07 20.430170	* 20 05 30.998498	20 04 57.812763	0.48
* 2007+777	77 43 58.12300	* 77 52 43.24753	77 55 34.82526	0.10

#### 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)
2007+777    104.2

```

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:

```

327 MHz      117. deg
610 MHz      81. deg
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
43.0 GHz      6. deg

```

**rk01jjtr**

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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 17 Nov 2013    Day 321 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00  
Next BBC frequencies:    632.00    632.00    632.00    632.00  
Next scan bandwidths:    16.00    16.00    16.00    16.00

00 00 00	0403-132	04 59 07	22.8	194.0	0.9		8.6	0	0	00 00 00
00 09 30	---	05 08 38	22.5	196.5	1.0		10.1	570	18	00 00 01
00 10 00	0403-132	05 09 08	22.4	196.6	1.0		10.1	24	18	00 10 00
00 19 30	---	05 18 40	22.0	199.1	1.2		11.6	570	36	00 10 01
00 20 00	0403-132	05 19 10	22.0	199.2	1.2		11.7	24	36	00 20 00
00 29 30	---	05 28 42	21.5	201.6	1.4		13.1	570	55	00 20 01
00 30 00	0403-132	05 29 12	21.5	201.7	1.4		13.2	24	55	00 30 00
00 39 30	---	05 38 43	20.9	204.2	1.5		14.6	570	73	00 30 01
00 40 00	0403-132	05 39 13	20.9	204.3	1.5		14.7	24	73	00 40 00
00 49 30	---	05 48 45	20.2	206.7	1.7		16.1	570	91	00 40 01
00 50 00	0403-132	05 49 15	20.2	206.8	1.7		16.1	24	91	00 50 00
01 00 00	---	05 59 17	19.5	209.3	1.9		17.6	600	110	00 50 01

SETUP FILE INFORMATION:

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

=====  
Setup file: ra18cm2.set

Matching groups in ./rk01jj\_freq.dat:

tr18cm                      E-mail Borkowski 12Mar98, preferred alternative

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=	2300.00	2300.00	2300.00	2300.00
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 pcal sets: 1  
 LO sum= 1668.00 1668.00 1668.00 1668.00  
 BBC fr= 632.00 632.00 632.00 632.00  
 Bandwd= 16.00 16.00 16.00 16.00  
 Matching frequency sets: 5

The following pulse cal sets were used with this setup:

Pulse cal detection set: 1 PCAL = 1MHZ  
 PCALXB1= S1 S3 S1 S3 S1 S2 S3 S4  
 PCALXB2= S2 S4 S2 S4 M1 M2 M3 M4  
 PCALFR1= 1000 1000 13000 13000 0 0 0 0  
 PCALFR2= 1000 1000 13000 13000 0 0 0 0

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)
J0405-1308	04 03 13.979059	* 04 05 34.003394	04 06 14.694649	0.11
* 0403-132	-13 16 18.08449	*-13 08 13.69083	-13 06 01.05349	0.11

#### 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)
0403-132	146.7

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:

327 MHz	117. deg
610 MHz	81. deg
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
43.0 GHz	6. deg

rk01jctr

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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 17 Nov 2013 Day 321 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00  
Next BBC frequencies: 632.00 632.00 632.00 632.00  
Next scan bandwidths: 16.00 16.00 16.00 16.00

06 00 00	0552+398	11 00 06	38.6 -72.5	5.1	48.2	0	0	06 00 00
06 09 30	---	11 09 38	37.3 -71.0	5.2	47.6	570	18	06 00 01
06 10 00	0552+398	11 10 08	37.2 -70.9	5.2	47.6	24	18	06 10 00
06 19 30	---	11 19 39	35.9 -69.3	5.4	47.0	570	36	06 10 01
06 20 00	0552+398	11 20 09	35.8 -69.2	5.4	47.0	24	36	06 20 00
06 29 30	---	11 29 41	34.5 -67.7	5.6	46.3	570	55	06 20 01
06 30 00	0552+398	11 30 11	34.4 -67.6	5.6	46.3	24	55	06 30 00
06 39 30	---	11 39 42	33.1 -66.1	5.7	45.6	570	73	06 30 01
06 40 00	0552+398	11 40 13	33.0 -66.0	5.7	45.6	24	73	06 40 00
06 49 30	---	11 49 44	31.7 -64.5	5.9	44.9	570	91	06 40 01
06 50 00	0552+398	11 50 14	31.6 -64.4	5.9	44.8	24	91	06 50 00
07 00 00	---	12 00 16	30.3 -62.8	6.1	44.1	600	110	06 50 01

SETUP FILE INFORMATION:

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

==== Setup file: ra18cm2.set

Matching groups in ./rk01jk\_freq.dat:

tr18cm E-mail Borkowski 12Mar98, preferred alternative

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=	2300.00	2300.00	2300.00	2300.00
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 pcal sets: 1  
 LO sum= 1668.00 1668.00 1668.00 1668.00  
 BBC fr= 632.00 632.00 632.00 632.00  
 Bandwd= 16.00 16.00 16.00 16.00  
 Matching frequency sets: 5

The following pulse cal sets were used with this setup:

Pulse cal detection set: 1 PCAL = 1MHZ  
 PCALXB1= S1 S3 S1 S3 S1 S2 S3 S4  
 PCALXB2= S2 S4 S2 S4 M1 M2 M3 M4  
 PCALFR1= 1000 1000 13000 13000 0 0 0 0  
 PCALFR2= 1000 1000 13000 13000 0 0 0 0

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)
J0555+3948	05 52 01.407174	* 05 55 30.805616	05 56 31.178949	0.13
* 0552+398	39 48 21.94578	* 39 48 49.16493	39 48 43.30577	0.10

#### 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)
0552+398	142.5

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

For common VLBI bands, this is:

327 MHz	117. deg
610 MHz	81. deg
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
43.0 GHz	6. deg

rk01ltr

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Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr ) Page 2

RadioAstron AGN survey

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

```
-----  
Start UT Source Start / Stop Early Disk TPStart  
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC  
-----  
  
--- Sun 17 Nov 2013 Day 321 ---  
  
Next scan frequencies: 1668.00 1668.00 1668.00 1668.00  
Next BBC frequencies: 632.00 632.00 632.00 632.00  
Next scan bandwidths: 16.00 16.00 16.00 16.00  
  
09 00 00 0953+254 14 00 36 37.3 262.9 4.0 41.2 0 0 09 00 00  
09 09 30 --- 14 10 07 35.9 264.9 4.2 41.4 570 18 09 00 01  
  
09 10 00 0953+254 14 10 37 35.8 265.0 4.2 41.4 24 18 09 10 00  
09 19 30 --- 14 20 09 34.4 267.0 4.4 41.5 570 36 09 10 01  
  
09 20 00 0953+254 14 20 39 34.3 267.1 4.4 41.5 24 36 09 20 00  
09 29 30 --- 14 30 10 32.9 269.0 4.5 41.6 570 55 09 20 01  
  
09 30 00 0953+254 14 30 40 32.8 269.2 4.6 41.6 24 55 09 30 00  
09 39 30 --- 14 40 12 31.4 271.1 4.7 41.6 570 73 09 30 01  
  
09 40 00 0953+254 14 40 42 31.3 271.2 4.7 41.6 24 73 09 40 00  
09 49 30 --- 14 50 14 29.9 273.0 4.9 41.5 570 91 09 40 01  
  
09 50 00 0953+254 14 50 44 29.8 273.1 4.9 41.5 24 91 09 50 00  
10 00 00 --- 15 00 45 28.3 275.1 5.1 41.4 600 110 09 50 01
```

SETUP FILE INFORMATION:

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

=====  
Setup file: ra18cm2.set

Matching groups in ./rk01jl\_freq.dat:

tr18cm E-mail Borkowski 12Mar98, preferred alternative

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=	2300.00	2300.00	2300.00	2300.00
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 pcal sets: 1  
 LO sum= 1668.00 1668.00 1668.00 1668.00  
 BBC fr= 632.00 632.00 632.00 632.00  
 Bandwd= 16.00 16.00 16.00 16.00  
 Matching frequency sets: 5

The following pulse cal sets were used with this setup:

Pulse cal detection set: 1 PCAL = 1MHZ  
 PCALXB1= S1 S3 S1 S3 S1 S2 S3 S4  
 PCALXB2= S2 S4 S2 S4 M1 M2 M3 M4  
 PCALFR1= 1000 1000 13000 13000 0 0 0 0  
 PCALFR2= 1000 1000 13000 13000 0 0 0 0

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)		
J0956+2515	09 53 59.738481	* 09 56 49.875375	09 57 37.367643	0.41
* 0953+254	25 29 33.58581	* 25 15 16.04991	25 11 05.53071	0.38

#### 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	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:

327 MHz	117. deg
610 MHz	81. deg
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
43.0 GHz	6. deg



rk01jmtr

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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 17 Nov 2013 Day 321 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 632.00 632.00 632.00 632.00
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 multiple scans on Nov 17, 2013.

SETUP FILE INFORMATION:

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

==== Setup file: ra18cm2.set
Matching groups in ./rk01jm\_freq.dat:
tr18cm E-mail Borkowski 12Mar98, preferred alternative

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=  2300.00  2300.00  2300.00  2300.00
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 pcal sets:  1
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   632.00   632.00   632.00   632.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  7

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set:  1  PCAL = 1MHZ
PCALXB1=  S1  S3  S1  S3  S1  S2  S3  S4
PCALXB2=  S2  S4  S2  S4  M1  M2  M3  M4
PCALFR1= 1000 1000 13000 13000  0  0  0  0
PCALFR2= 1000 1000 13000 13000  0  0  0  0

```

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)		
J1153+8058	11 50 23.482384	* 11 53 12.499223	11 53 51.534273	0.64
* 1150+812	81 15 10.31174	* 80 58 29.15457	80 53 30.88514	0.10

#### EFFECT OF SOLAR CORONA

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

```

Source      Sun distance (deg)
1150+812    103.7

```

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:

```

327 MHz      117. deg
610 MHz      81. deg
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
43.0 GHz     6. deg

```

rk01jnr

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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 18 Nov 2013 Day 322 ---

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00  
Next BBC frequencies: 636.00 636.00 636.00 636.00  
Next scan bandwidths: 16.00 16.00 16.00 16.00

01 00 00	0059+581	06 03 13	49.8 -51.4	5.0	63.9	0	0	01 00 00
01 09 30	---	06 12 45	48.7 -50.5	5.2	62.5	570	18	01 00 01
01 10 00	0059+581	06 13 15	48.6 -50.5	5.2	62.4	24	18	01 10 00
01 19 30	---	06 22 46	47.5 -49.6	5.3	61.0	570	36	01 10 01
01 20 00	0059+581	06 23 17	47.5 -49.6	5.3	61.0	24	36	01 20 00
01 29 30	---	06 32 48	46.4 -48.7	5.5	59.6	570	55	01 20 01
01 30 00	0059+581	06 33 18	46.3 -48.6	5.5	59.5	24	55	01 30 00
01 39 30	---	06 42 50	45.2 -47.7	5.7	58.1	570	73	01 30 01
01 40 00	0059+581	06 43 20	45.2 -47.6	5.7	58.1	24	73	01 40 00
01 49 30	---	06 52 51	44.1 -46.7	5.8	56.7	570	91	01 40 01
01 50 00	0059+581	06 53 21	44.1 -46.6	5.8	56.6	24	91	01 50 00
02 00 00	---	07 03 23	43.0 -45.6	6.0	55.2	600	110	01 50 01

SETUP FILE INFORMATION:

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

==== Setup file: ra6cm2.set

Matching groups in ./rk01jn\_freq.dat:

tr6cm E-mail Borkowski 23Apr03 (CR 1May03)

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=	4200.00	4200.00	4200.00	4200.00
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 pcal sets: 1  
 LO sum= 4836.00 4836.00 4836.00 4836.00  
 BBC fr= 636.00 636.00 636.00 636.00  
 Bandwd= 16.00 16.00 16.00 16.00  
 Matching frequency sets: 3

The following pulse cal sets were used with this setup:

Pulse cal detection set: 1 PCAL = 1MHZ  
 PCALXB1= S1 S3 S1 S3 S1 S2 S3 S4  
 PCALXB2= S2 S4 S2 S4 M1 M2 M3 M4  
 PCALFR1= 1000 1000 13000 13000 0 0 0 0  
 PCALFR2= 1000 1000 13000 13000 0 0 0 0

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)
J0102+5824	00 59 43.470972	* 01 02 45.762380	01 03 40.006053	0.19
* 0059+581	58 08 04.84744	* 58 24 11.13659	58 28 54.19863	0.10

#### 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)
0059+581	132.2

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:

327 MHz	117. deg
610 MHz	81. deg
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
43.0 GHz	6. deg

rk01jotr

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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 18 Nov 2013 Day 322 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 632.00 632.00 632.00 632.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

Table with 11 columns: Start UT, Stop UT, Source, LST, EL, AZ, HA, UP, ParA, Dwell, GBytes, TPStart, SYNC. Contains scan schedule data for 07:00:00 to 08:00:00.

SETUP FILE INFORMATION:

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

==== Setup file: ra18cm2.set
Matching groups in ./rk01jo\_freq.dat:
tr18cm E-mail Borkowski 12Mar98, preferred alternative

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=	2300.00	2300.00	2300.00	2300.00
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 pcal sets: 1  
 LO sum= 1668.00 1668.00 1668.00 1668.00  
 BBC fr= 632.00 632.00 632.00 632.00  
 Bandwd= 16.00 16.00 16.00 16.00  
 Matching frequency sets: 4

The following pulse cal sets were used with this setup:

Pulse cal detection set: 1 PCAL = 1MHZ  
 PCALXB1= S1 S3 S1 S3 S1 S2 S3 S4  
 PCALXB2= S2 S4 S2 S4 M1 M2 M3 M4  
 PCALFR1= 1000 1000 13000 13000 0 0 0 0  
 PCALFR2= 1000 1000 13000 13000 0 0 0 0

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)		
J0956+2515	09 53 59.738481	* 09 56 49.875375	09 57 37.400346	0.41
* 0953+254	25 29 33.58581	* 25 15 16.04991	25 11 05.33757	0.38

#### 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	93.3

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:

327 MHz	117. deg
610 MHz	81. deg
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
43.0 GHz	6. deg

**rk02aftr**

RADIOASTRON PULSAR OBSERVATIONS

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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  
-----

--- Tue 19 Nov 2013    Day 323 ---

Next scan frequencies:	1668.00	1668.00	1668.00	1668.00						
Next BBC frequencies:	632.00	632.00	632.00	632.00						
Next scan bandwidths:	16.00	16.00	16.00	16.00						
16 58 00	B2021+51	22 07 47	74.1 276.5	1.7		75.6	0	0	Stopped	
16 59 00	---	22 08 47	74.0 276.6	1.8		75.5	60	0		
17 00 00	B2021+51	22 09 47	73.8 276.7	1.8		75.4	54	0	17 00 00	
17 19 30	---	22 29 21	70.9 279.3	2.1		74.1	1170	37	17 00 01	
17 20 00	B2021+51	22 29 51	70.9 279.4	2.1		74.0	24	37	17 20 00	
17 39 30	---	22 49 24	68.0 281.9	2.4		72.5	1170	75	17 20 01	
17 40 00	B2021+51	22 49 54	67.9 281.9	2.4		72.5	24	75	17 40 00	
17 59 30	---	23 09 27	65.0 284.3	2.8		70.8	1170	112	17 40 01	
18 00 00	B2021+51	23 09 57	65.0 284.4	2.8		70.8	24	112	18 00 00	
18 20 00	---	23 30 01	62.1 286.8	3.1		68.9	1200	151	18 00 01	

SETUP FILE INFORMATION:

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

=====  
Setup file: ra18cm2\_autolevel.set

Matching groups in ./rk02af.freq.dat:

tr18cm                      E-mail Borkowski 12Mar98, preferred alternative

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:

Disk used to record data.

```

1st LO= 2300.00 2300.00 2300.00 2300.00
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 pcal sets: 1
LO sum= 1668.00 1668.00 1668.00 1668.00
BBC fr= 632.00 632.00 632.00 632.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 2

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set: 1 PCAL = OFF
PCALXB1= S1 S2 S3 S4 OFF OFF OFF OFF
PCALXB2= M1 M2 M3 M4 OFF OFF OFF OFF
PCALFR1= 0 0 0 0 0 0 0 0
PCALFR2= 0 0 0 0 0 0 0 0

```

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)		
* B2021+51	20 21 25.246729	* 20 22 49.873000	20 23 13.122627	0.00
	51 45 07.93328	* 51 54 50.23300	51 57 58.42632	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)
B2021+51    94.1

```

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:

```

327 MHz      117. deg
610 MHz      81. deg
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
43.0 GHz      6. deg

```



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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 20 Nov 2013    Day 324 ---

```
Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies:  632.00  632.00  632.00  632.00
Next scan bandwidths:  16.00  16.00  16.00  16.00

10 18 00  B2021+51      15 30 38  47.5 60.8 -4.9      -58.3    0       0    Stopped
10 19 00  ---            15 31 38  47.6 60.9 -4.9      -58.4    60       0

10 20 00  B2021+51      15 32 38  47.7 61.0 -4.8      -58.5    54       0    10 20 00
10 39 30  ---            15 52 12  50.3 63.3 -4.5      -60.6  1170      37    10 20 01

10 40 00  B2021+51      15 52 42  50.4 63.4 -4.5      -60.6    24       37    10 40 00
10 59 30  ---            16 12 15  53.1 65.7 -4.2      -62.7  1170      75    10 40 01

11 00 00  B2021+51      16 12 45  53.1 65.8 -4.2      -62.7    24       75    11 00 00
11 20 00  ---            16 32 48  55.9 68.1 -3.8      -64.7  1200     113    11 00 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

Matching groups in ./rk02ai.freq.dat:

tr18cm                      E-mail Borkowski 12Mar98, preferred alternative

```
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= 2300.00 2300.00 2300.00 2300.00
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 pcal sets: 1
LO sum= 1668.00 1668.00 1668.00 1668.00
BBC fr= 632.00 632.00 632.00 632.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 6

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set: 1 PCAL = OFF
PCALXB1= S1 S2 S3 S4 OFF OFF OFF OFF
PCALXB2= M1 M2 M3 M4 OFF OFF OFF OFF
PCALFR1= 0 0 0 0 0 0 0 0
PCALFR2= 0 0 0 0 0 0 0 0

```

```

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)		
* B2021+51	20 21 25.246729	* 20 22 49.873000	20 23 13.103767	0.00
	51 45 07.93328	* 51 54 50.23300	51 57 58.35737	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)
B2021+51	93.8
FAKERA	106.9

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:

327 MHz	117. deg
610 MHz	81. deg
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
43.0 GHz	6. deg

**rk02antr**

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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  
-----

--- Thu 21 Nov 2013    Day 325 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00  
Next BBC frequencies: 632.00 632.00 632.00 632.00  
Next scan bandwidths: 16.00 16.00 16.00 16.00

11 58 00	B2217+47	17 14 51	43.5	63.8	-5.1		-53.6	0	0	Stopped
11 59 00	---	17 15 51	43.7	63.9	-5.1		-53.7	60	0	
12 00 00	B2217+47	17 16 51	43.8	64.1	-5.1		-53.8	54	0	12 00 00
12 19 30	---	17 36 25	46.5	66.7	-4.7		-55.5	1170	37	12 00 01
12 20 00	B2217+47	17 36 55	46.5	66.8	-4.7		-55.6	24	37	12 20 00
12 39 30	---	17 56 28	49.3	69.5	-4.4		-57.2	1170	75	12 20 01
12 40 00	B2217+47	17 56 58	49.3	69.6	-4.4		-57.2	24	75	12 40 00
12 59 30	---	18 16 31	52.1	72.3	-4.1		-58.7	1170	112	12 40 01
13 00 00	B2217+47	18 17 01	52.2	72.4	-4.1		-58.8	24	112	13 00 00
13 20 00	---	18 37 04	55.1	75.3	-3.7		-60.2	1200	151	13 00 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

Matching groups in ./rk02an.freq.dat:

tr18cm                      E-mail Borkowski 12Mar98, preferred alternative

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= 2300.00 2300.00 2300.00 2300.00
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 pcal sets: 1
LO sum= 1668.00 1668.00 1668.00 1668.00
BBC fr= 632.00 632.00 632.00 632.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 4

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set: 1 PCAL = OFF
PCALXB1= S1 S2 S3 S4 OFF OFF OFF OFF
PCALXB2= M1 M2 M3 M4 OFF OFF OFF OFF
PCALFR1= 0 0 0 0 0 0 0 0
PCALFR2= 0 0 0 0 0 0 0 0

```

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)
* B2217+47	22 17 45.834113	* 22 19 48.139000	22 20 23.236847	0.00
	47 39 48.13454	* 47 54 53.93000	47 59 30.67817	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)
B2217+47    109.9

```

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:

```

327 MHz      117. deg
610 MHz      81. deg
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
43.0 GHz      6. deg

```

**rk02aptr**

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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 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  
-----

--- Fri 22 Nov 2013    Day 326 ---

Next scan frequencies:	1668.00	1668.00	1668.00	1668.00						
Next BBC frequencies:	632.00	632.00	632.00	632.00						
Next scan bandwidths:	16.00	16.00	16.00	16.00						
11 58 00	B2217+47	17 18 48	44.1	64.3	-5.0		-54.0	0	0	Stopped
11 59 00	---	17 19 48	44.2	64.5	-5.0		-54.1	60	0	
12 00 00	B2217+47	17 20 48	44.3	64.6	-5.0		-54.2	54	0	12 00 00
12 19 30	---	17 40 21	47.0	67.3	-4.7		-55.9	1170	37	12 00 01
12 20 00	B2217+47	17 40 51	47.1	67.4	-4.7		-55.9	24	37	12 20 00
12 39 30	---	18 00 24	49.8	70.1	-4.3		-57.5	1170	75	12 20 01
12 40 00	B2217+47	18 00 54	49.9	70.1	-4.3		-57.6	24	75	12 40 00
12 59 30	---	18 20 28	52.7	72.9	-4.0		-59.0	1170	112	12 40 01
13 00 00	B2217+47	18 20 58	52.7	73.0	-4.0		-59.1	24	112	13 00 00
13 20 00	---	18 41 01	55.6	75.8	-3.7		-60.5	1200	151	13 00 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

Matching groups in ./rk02ap.freq.dat:

tr18cm                      E-mail Borkowski 12Mar98, preferred alternative

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=   2300.00   2300.00   2300.00   2300.00
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 pcal sets:   1
LO sum=   1668.00  1668.00  1668.00  1668.00
BBC fr=    632.00  632.00  632.00  632.00
Bandwd=    16.00  16.00  16.00  16.00
Matching frequency sets:   6

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set:   1  PCAL = OFF
PCALXB1=  S1   S2   S3   S4   OFF  OFF  OFF  OFF
PCALXB2=  M1   M2   M3   M4   OFF  OFF  OFF  OFF
PCALFR1=   0   0   0   0   0   0   0   0
PCALFR2=   0   0   0   0   0   0   0   0

```

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)		
* B2217+47	22 17 45.834113	* 22 19 48.139000	22 20 23.212789	0.00
	47 39 48.13454	* 47 54 53.93000	47 59 30.69814	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)
B2217+47    109.4

```

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

For common VLBI bands, this is:

```

327 MHz      117. deg
610 MHz      81. deg
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
43.0 GHz      6. deg

```

rk01jttr

RADIOASTRON AGN SURVEY

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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 24 Nov 2013 Day 328 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00  
Next BBC frequencies: 632.00 632.00 632.00 632.00  
Next scan bandwidths: 16.00 16.00 16.00 16.00

01 00 00	1044+719	06 26 53	56.8	31.6	-4.4	-88.3	0	0	01 00 00
01 09 30	---	06 36 24	57.6	31.6	-4.2	-90.5	570	18	01 00 01
01 10 00	1044+719	06 36 54	57.6	31.6	-4.2	-90.6	24	18	01 10 00
01 19 30	---	06 46 26	58.4	31.6	-4.1	-92.9	570	36	01 10 01
01 20 00	1044+719	06 46 56	58.4	31.6	-4.0	-93.0	24	36	01 20 00
01 29 30	---	06 56 27	59.1	31.5	-3.9	-95.4	570	55	01 20 01
01 30 00	1044+719	06 56 57	59.2	31.5	-3.9	-95.5	24	55	01 30 00
01 39 30	---	07 06 29	59.9	31.3	-3.7	-97.9	570	73	01 30 01
01 40 00	1044+719	07 06 59	60.0	31.3	-3.7	-98.1	24	73	01 40 00
01 49 30	---	07 16 31	60.7	31.0	-3.5	-100.5	570	91	01 40 01
01 50 00	1044+719	07 17 01	60.7	31.0	-3.5	-100.7	24	91	01 50 00
02 00 00	---	07 27 02	61.5	30.7	-3.4	-103.3	600	110	01 50 01

SETUP FILE INFORMATION:

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

=====  
Setup file: ra18cm2.set

Matching groups in ./rk01jt\_freq.dat:

tr18cm E-mail Borkowski 12Mar98, preferred alternative

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=	2300.00	2300.00	2300.00	2300.00
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 pcal sets: 1  
 LO sum= 1668.00 1668.00 1668.00 1668.00  
 BBC fr= 632.00 632.00 632.00 632.00  
 Bandwd= 16.00 16.00 16.00 16.00  
 Matching frequency sets: 5

The following pulse cal sets were used with this setup:

Pulse cal detection set: 1 PCAL = 1MHZ  
 PCALXB1= S1 S3 S1 S3 S1 S2 S3 S4  
 PCALXB2= S2 S4 S2 S4 M1 M2 M3 M4  
 PCALFR1= 1000 1000 13000 13000 0 0 0 0  
 PCALFR2= 1000 1000 13000 13000 0 0 0 0

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)
J1048+7143	10 44 49.735110	* 10 48 27.619926	10 49 26.171227	0.32
* 1044+719	71 59 26.88535	* 71 43 35.93838	71 38 46.87647	0.10

#### 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)
1044+719	105.6

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

For common VLBI bands, this is:

327 MHz	117. deg
610 MHz	81. deg
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
43.0 GHz	6. deg



rk01jutr

RADIOASTRON AGN SURVEY

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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 24 Nov 2013 Day 328 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00  
Next BBC frequencies: 632.00 632.00 632.00 632.00  
Next scan bandwidths: 16.00 16.00 16.00 16.00

05 00 00	0836+710	10 27 32	68.8 -23.6	1.7	132.9	0	0	05 00 00
05 09 30	---	10 37 04	68.2 -25.0	1.9	129.4	570	18	05 00 01
05 10 00	0836+710	10 37 34	68.2 -25.1	1.9	129.2	24	18	05 10 00
05 19 30	---	10 47 05	67.5 -26.3	2.1	125.8	570	36	05 10 01
05 20 00	0836+710	10 47 35	67.5 -26.4	2.1	125.6	24	36	05 20 00
05 29 30	---	10 57 07	66.9 -27.5	2.2	122.3	570	55	05 20 01
05 30 00	0836+710	10 57 37	66.8 -27.6	2.2	122.2	24	55	05 30 00
05 39 30	---	11 07 08	66.2 -28.6	2.4	119.0	570	73	05 30 01
05 40 00	0836+710	11 07 39	66.1 -28.6	2.4	118.8	24	73	05 40 00
05 49 30	---	11 17 10	65.4 -29.5	2.6	115.8	570	91	05 40 01
05 50 00	0836+710	11 17 40	65.4 -29.5	2.6	115.6	24	91	05 50 00
06 00 00	---	11 27 42	64.6 -30.3	2.7	112.5	600	110	05 50 01

SETUP FILE INFORMATION:

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

=====  
Setup file: ra18cm2.set

Matching groups in ./rk01ju\_freq.dat:

tr18cm E-mail Borkowski 12Mar98, preferred alternative

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=   2300.00   2300.00   2300.00   2300.00
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 pcal sets:   1
LO sum=   1668.00  1668.00  1668.00  1668.00
BBC fr=    632.00   632.00   632.00   632.00
Bandwd=    16.00   16.00   16.00   16.00
Matching frequency sets:   5

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set:   1   PCAL = 1MHZ
PCALXB1=  S1   S3   S1   S3   S1   S2   S3   S4
PCALXB2=  S2   S4   S2   S4   M1   M2   M3   M4
PCALFR1= 1000 1000 13000 13000   0   0   0   0
PCALFR2= 1000 1000 13000 13000   0   0   0   0

```

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)
J0841+7053	08 36 21.556645	* 08 41 24.365283	08 42 49.592364	0.31
* 0836+710	71 04 22.42740	* 70 53 42.17302	70 50 16.53939	0.10

#### 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)
0836+710    115.7

```

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:

```

327 MHz      117. deg
610 MHz      81. deg
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
43.0 GHz      6. deg

```

rk01jwtr

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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 24 Nov 2013 Day 328 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 632.00 632.00 632.00 632.00
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 1357+769.

SETUP FILE INFORMATION:

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

==== Setup file: ra18cm2.set
Matching groups in ./rk01jw\_freq.dat:
tr18cm E-mail Borkowski 12Mar98, preferred alternative

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=	2300.00	2300.00	2300.00	2300.00
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 pcal sets: 1  
 LO sum= 1668.00 1668.00 1668.00 1668.00  
 BBC fr= 632.00 632.00 632.00 632.00  
 Bandwd= 16.00 16.00 16.00 16.00  
 Matching frequency sets: 5

The following pulse cal sets were used with this setup:

Pulse cal detection set: 1 PCAL = 1MHZ  
 PCALXB1= S1 S3 S1 S3 S1 S2 S3 S4  
 PCALXB2= S2 S4 S2 S4 M1 M2 M3 M4  
 PCALFR1= 1000 1000 13000 13000 0 0 0 0  
 PCALFR2= 1000 1000 13000 13000 0 0 0 0

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)
J1357+7643	13 57 42.117007	* 13 57 55.371538	13 57 52.822476	0.44
* 1357+769	76 57 53.35418	* 76 43 21.05098	76 39 08.60912	0.10

#### 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)
1357+769	99.0

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:

327 MHz	117. deg
610 MHz	81. deg
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
43.0 GHz	6. deg

**rk02artr**

RADIOASTRON PULSAR OBSERVATIONS

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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
-----
```

--- Sun 24 Nov 2013    Day 328 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00  
 Next BBC frequencies: 632.00 632.00 632.00 632.00  
 Next scan bandwidths: 16.00 16.00 16.00 16.00

```
22 58 00  B0809+74      04 28 29  59.1 26.0 -3.8   -101.2    0    0  Stopped
22 59 00  ---              04 29 29  59.2 26.0 -3.8   -101.5   60    0
23 00 00  B0809+74      04 30 29  59.2 25.9 -3.8   -101.8   54    0  23 00 00
23 19 30  ---              04 50 03  60.5 25.3 -3.4   -107.0  1170   37  23 00 01
23 20 00  B0809+74      04 50 33  60.5 25.3 -3.4   -107.2   24   37  23 20 00
23 39 30  ---              05 10 06  61.8 24.3 -3.1   -112.7  1170   75  23 20 01
23 40 00  B0809+74      05 10 36  61.8 24.3 -3.1   -112.8   24   75  23 40 00
23 59 30  ---              05 30 09  63.0 23.1 -2.8   -118.6  1170  112  23 40 01
```

--- Mon 25 Nov 2013    Day 329 ---

```
00 00 00  B0809+74      05 30 39  63.0 23.1 -2.8   -118.8   24  112  00 00 00
00 19 30  ---              05 50 12  64.1 21.5 -2.4   -124.9  1170  150  00 00 01
00 20 00  B0809+74      05 50 43  64.1 21.5 -2.4   -125.0   25  150  00 20 00
00 39 30  ---              06 10 16  65.2 19.6 -2.1   -131.5  1170  187  00 20 01
00 40 00  B0809+74      06 10 46  65.2 19.5 -2.1   -131.6   24  187  00 40 00
01 00 00  ---              06 30 49  66.1 17.2 -1.8   -138.6  1200  226  00 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

Matching groups in ./rk02ar\_freq.dat:

tr18cm                      E-mail Borkowski 12Mar98, preferred alternative

```
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=  2300.00  2300.00  2300.00  2300.00
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 pcal sets:  1
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   632.00   632.00   632.00   632.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  7

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set:  1  PCAL = OFF
PCALXB1=  S1  S2  S3  S4  OFF  OFF  OFF  OFF
PCALXB2=  M1  M2  M3  M4  OFF  OFF  OFF  OFF
PCALFR1=   0   0   0   0   0   0   0   0
PCALFR2=   0   0   0   0   0   0   0   0

```

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)		
* B0809+74	08 09 02.949544	* 08 14 59.500000	08 16 40.519214	0.00
	74 38 11.46089	* 74 29 05.70000	74 26 05.79792	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)
B0809+74    117.0

```

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:

```

327 MHz      117. deg
610 MHz      81. deg
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
43.0 GHz     6. deg

```

rk01jxtr

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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 25 Nov 2013 Day 329 ---

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00  
Next BBC frequencies: 636.00 636.00 636.00 636.00  
Next scan bandwidths: 16.00 16.00 16.00 16.00

05 00 00	0906+015	10 31 29	35.5	205.3	1.4	14.9	0	0	05 00 00
05 09 30	---	10 41 00	34.9	208.1	1.5	16.5	570	18	05 00 01
05 10 00	0906+015	10 41 30	34.8	208.3	1.5	16.5	24	18	05 10 00
05 19 30	---	10 51 02	34.1	211.0	1.7	18.0	570	36	05 10 01
05 20 00	0906+015	10 51 32	34.1	211.2	1.7	18.1	24	36	05 20 00
05 29 30	---	11 01 03	33.3	213.9	1.9	19.6	570	55	05 20 01
05 30 00	0906+015	11 01 33	33.3	214.0	1.9	19.6	24	55	05 30 00
05 39 30	---	11 11 05	32.4	216.7	2.0	21.0	570	73	05 30 01
05 40 00	0906+015	11 11 35	32.4	216.8	2.0	21.1	24	73	05 40 00
05 49 30	---	11 21 07	31.5	219.4	2.2	22.4	570	91	05 40 01
05 50 00	0906+015	11 21 37	31.5	219.6	2.2	22.5	24	91	05 50 00
06 00 00	---	11 31 38	30.5	222.3	2.4	23.8	600	110	05 50 01

SETUP FILE INFORMATION:

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

=====  
Setup file: ra6cm2.set

Matching groups in ./rk01jx\_freq.dat:

tr6cm E-mail Borkowski 23Apr03 (CR 1May03)

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=	4200.00	4200.00	4200.00	4200.00
Net SB=	L	L	U	U
IF SB =	U	U	U	U
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	L	L	U	U
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 2 Setup file default. Used pcal sets: 1

LO sum=	4836.00	4836.00	4836.00	4836.00
BBC fr=	636.00	636.00	636.00	636.00
Bandwd=	16.00	16.00	16.00	16.00

Matching frequency sets: 2

The following pulse cal sets were used with this setup:

Pulse cal detection set: 1 PCAL = 1MHZ

PCALXB1=	S1	S3	S1	S3	S1	S2	S3	S4
PCALXB2=	S2	S4	S2	S4	M1	M2	M3	M4
PCALFR1=	1000	1000	13000	13000	0	0	0	0
PCALFR2=	1000	1000	13000	13000	0	0	0	0

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)
J0909+0121	09 06 35.181593	* 09 09 10.091599	09 09 54.106135	0.11
* 0906+015	01 33 48.12922	* 01 21 35.61774	01 18 05.89507	0.14

#### 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+015	103.2

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:

327 MHz	117. deg
610 MHz	81. deg
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
43.0 GHz	6. deg



rk01jztr

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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 25 Nov 2013 Day 329 ---

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 636.00 636.00 636.00 636.00
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, Early, Disk, GBytes, TPStart, SYNC. Contains multiple rows of observation data for source 0917+624.

SETUP FILE INFORMATION:

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

==== Setup file: ra6cm2.set
Matching groups in ./rk01jz\_freq.dat:
tr6cm E-mail Borkowski 23Apr03 (CR 1May03)

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=	4200.00	4200.00	4200.00	4200.00
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 pcal sets: 1

LO sum=	4836.00	4836.00	4836.00	4836.00
BBC fr=	636.00	636.00	636.00	636.00
Bandwd=	16.00	16.00	16.00	16.00

Matching frequency sets: 4

The following pulse cal sets were used with this setup:

Pulse cal detection set: 1 PCAL = 1MHZ

PCALXB1=	S1	S3	S1	S3	S1	S2	S3	S4
PCALXB2=	S2	S4	S2	S4	M1	M2	M3	M4
PCALFR1=	1000	1000	13000	13000	0	0	0	0
PCALFR2=	1000	1000	13000	13000	0	0	0	0

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)
J0921+6215	09 17 40.306860	* 09 21 36.231074	09 22 42.282964	0.22
* 0917+624	62 28 38.64009	* 62 15 52.18031	62 11 53.58129	0.10

#### 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+624	113.6

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:

327 MHz	117. deg
610 MHz	81. deg
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
43.0 GHz	6. deg

**rk01katr**

RADIOASTRON AGN SURVEY

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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 26 Nov 2013    Day 330 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00  
 Next BBC frequencies: 632.00 632.00 632.00 632.00  
 Next scan bandwidths: 16.00 16.00 16.00 16.00

02 00 00	0149+218	07 34 56	20.2	-79.7	5.7	39.6	0	0	02 00 00
02 09 30	---	07 44 27	18.8	-77.9	5.9	39.3	570	18	02 00 01
02 10 00	0149+218	07 44 57	18.8	-77.8	5.9	39.3	24	18	02 10 00
02 19 30	---	07 54 29	17.4	-76.0	6.0	39.0	570	36	02 10 01
02 20 00	0149+218	07 54 59	17.3	-75.9	6.0	39.0	24	36	02 20 00
02 29 30	---	08 04 30	15.9	-74.1	6.2	38.6	570	55	02 20 01
02 30 00	0149+218	08 05 00	15.9	-74.0	6.2	38.6	24	55	02 30 00
02 39 30	---	08 14 32	14.5	-72.2	6.4	38.1	570	73	02 30 01
02 40 00	0149+218	08 15 02	14.4	-72.1	6.4	38.1	24	73	02 40 00
02 49 30	---	08 24 34	13.1	-70.3	6.5	37.6	570	91	02 40 01
02 50 00	0149+218	08 25 04	13.0	-70.2	6.5	37.6	24	91	02 50 00
03 00 00	---	08 35 05	11.6	-68.3	6.7	37.1	600	110	02 50 01

SETUP FILE INFORMATION:

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

=====  
Setup file: ra18cm2.set

Matching groups in ./rk01ka\_freq.dat:

tr18cm                      E-mail Borkowski 12Mar98, preferred alternative

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=  2300.00  2300.00  2300.00  2300.00
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 pcal sets:  1
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   632.00  632.00  632.00  632.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  5

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set:  1  PCAL = 1MHZ
PCALXB1=  S1  S3  S1  S3  S1  S2  S3  S4
PCALXB2=  S2  S4  S2  S4  M1  M2  M3  M4
PCALFR1= 1000 1000 13000 13000  0  0  0  0
PCALFR2= 1000 1000 13000 13000  0  0  0  0

```

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)
J0152+2207	01 49 31.744133	* 01 52 18.059044	01 53 06.329917	0.11
* 0149+218	21 52 20.74785	* 22 07 07.69973	22 11 20.90594	0.10

#### 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)
0149+218    148.7

```

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:

```

327 MHz      117. deg
610 MHz      81. deg
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
43.0 GHz      6. deg

```

rk01kbtr

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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

--- Tue 26 Nov 2013 Day 330 ---

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 636.00 636.00 636.00 636.00
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 multiple scans.

SETUP FILE INFORMATION:

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

==== Setup file: ra6cm2.set

Matching groups in ./rk01kb\_freq.dat:

tr6cm E-mail Borkowski 23Apr03 (CR 1May03)

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=  4200.00  4200.00  4200.00  4200.00
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 pcal sets:  1
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   636.00   636.00   636.00   636.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  4

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set:  1  PCAL = 1MHZ
PCALXB1=  S1  S3  S1  S3  S1  S2  S3  S4
PCALXB2=  S2  S4  S2  S4  M1  M2  M3  M4
PCALFR1= 1000 1000 13000 13000  0  0  0  0
PCALFR2= 1000 1000 13000 13000  0  0  0  0

```

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)
J1008+0621	10 05 23.466063	* 10 08 00.816156	10 08 45.155649	0.12
* 1005+066	06 36 03.30799	* 06 21 21.21595	06 17 09.41583	0.17

#### 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)
1005+066    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:

```

327 MHz      117. deg
610 MHz      81. deg
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
43.0 GHz      6. deg

```

rk01kctr

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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

--- Tue 26 Nov 2013 Day 330 ---

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 636.00 636.00 636.00 636.00
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 1101+384.

SETUP FILE INFORMATION:

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

==== Setup file: ra6cm2.set

Matching groups in ./rk01kc\_freq.dat:

tr6cm E-mail Borkowski 23Apr03 (CR 1May03)

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=	4200.00	4200.00	4200.00	4200.00
Net SB=	L	L	U	U
IF SB =	U	U	U	U
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	L	L	U	U
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 2 Setup file default. Used pcal sets: 1  
 LO sum= 4836.00 4836.00 4836.00 4836.00  
 BBC fr= 636.00 636.00 636.00 636.00  
 Bandwd= 16.00 16.00 16.00 16.00  
 Matching frequency sets: 2

The following pulse cal sets were used with this setup:

Pulse cal detection set: 1 PCAL = 1MHZ  
 PCALXB1= S1 S3 S1 S3 S1 S2 S3 S4  
 PCALXB2= S2 S4 S2 S4 M1 M2 M3 M4  
 PCALFR1= 1000 1000 13000 13000 0 0 0 0  
 PCALFR2= 1000 1000 13000 13000 0 0 0 0

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)		
J1104+3812	11 01 40.567856	* 11 04 27.313945	11 05 13.465366	0.13
* 1101+384	38 28 42.95188	* 38 12 31.79895	38 07 46.12787	0.10

#### 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	92.5

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:

327 MHz	117. deg
610 MHz	81. deg
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
43.0 GHz	6. deg



rk01kdtr

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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 27 Nov 2013 Day 331 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 632.00 632.00 632.00 632.00
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, GBytes, TPStart, SYNC. Contains scan schedule data for 0202+319.

SETUP FILE INFORMATION:

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

==== Setup file: ra18cm2.set

Matching groups in ./rk01kd\_freq.dat:

tr18cm E-mail Borkowski 12Mar98, preferred alternative

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=	2300.00	2300.00	2300.00	2300.00
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 pcal sets: 1  
 LO sum= 1668.00 1668.00 1668.00 1668.00  
 BBC fr= 632.00 632.00 632.00 632.00  
 Bandwd= 16.00 16.00 16.00 16.00  
 Matching frequency sets: 4

The following pulse cal sets were used with this setup:

Pulse cal detection set: 1 PCAL = 1MHZ  
 PCALXB1= S1 S3 S1 S3 S1 S2 S3 S4  
 PCALXB2= S2 S4 S2 S4 M1 M2 M3 M4  
 PCALFR1= 1000 1000 13000 13000 0 0 0 0  
 PCALFR2= 1000 1000 13000 13000 0 0 0 0

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)
J0205+3212	02 02 09.652797	* 02 05 04.925360	02 05 56.007658	0.12
* 0202+319	31 58 10.39518	* 32 12 30.09540	32 16 36.35583	0.10

#### EFFECT OF SOLAR CORONA

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

Source	Sun distance (deg)
0202+319	149.9

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:

327 MHz	117. deg
610 MHz	81. deg
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
43.0 GHz	6. deg

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Observing mode: C-band, dual-pol

Schedule for TORUN (Code Tr ) Page 2

RadioAstron AGN survey

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; 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 27 Nov 2013 Day 331 ---

Next scan frequencies:	4836.00	4836.00	4836.00	4836.00						
Next BBC frequencies:	636.00	636.00	636.00	636.00						
Next scan bandwidths:	16.00	16.00	16.00	16.00						
07 00 00	0923+392	12 39 41	54.7	266.2	3.2		50.4	0	0	07 00 00
07 09 30	---	12 49 13	53.2	268.2	3.4		50.5	570	18	07 00 01
07 10 00	0923+392	12 49 43	53.2	268.3	3.4		50.5	24	18	07 10 00
07 19 30	---	12 59 15	51.7	270.2	3.5		50.6	570	36	07 10 01
07 20 00	0923+392	12 59 45	51.6	270.3	3.5		50.6	24	36	07 20 00
07 29 30	---	13 09 16	50.2	272.2	3.7		50.5	570	55	07 20 01
07 30 00	0923+392	13 09 46	50.1	272.3	3.7		50.5	24	55	07 30 00
07 39 30	---	13 19 18	48.7	274.1	3.9		50.4	570	73	07 30 01
07 40 00	0923+392	13 19 48	48.6	274.2	3.9		50.4	24	73	07 40 00
07 49 30	---	13 29 19	47.2	275.9	4.0		50.2	570	91	07 40 01
07 50 00	0923+392	13 29 50	47.1	276.0	4.0		50.2	24	91	07 50 00
08 00 00	---	13 39 51	45.6	277.8	4.2		49.9	600	110	07 50 01

## SETUP FILE INFORMATION:

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

==== Setup file: ra6cm2.set

Matching groups in ./rk01ke\_freq.dat:

tr6cm E-mail Borkowski 23Apr03 (CR 1May03)

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=  4200.00  4200.00  4200.00  4200.00
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 pcal sets:  1
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   636.00   636.00   636.00   636.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  4

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set:  1  PCAL = 1MHZ
PCALXB1=  S1  S3  S1  S3  S1  S2  S3  S4
PCALXB2=  S2  S4  S2  S4  M1  M2  M3  M4
PCALFR1= 1000 1000 13000 13000  0  0  0  0
PCALFR2= 1000 1000 13000 13000  0  0  0  0

```

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)
J0927+3902	09 23 55.319217	* 09 27 03.013938	09 27 55.881732	0.13
* 0923+392	39 15 23.56637	* 39 02 20.85177	38 58 24.22096	0.10

#### 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)
0923+392    111.7

```

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:

```

327 MHz      117. deg
610 MHz      81. deg
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
43.0 GHz      6. deg

```

rk01kfr

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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

--- Wed 27 Nov 2013 Day 331 ---

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 636.00 636.00 636.00 636.00
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 0955+476.

SETUP FILE INFORMATION:

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

==== Setup file: ra6cm2.set

Matching groups in ./rk01kf\_freq.dat:

tr6cm E-mail Borkowski 23Apr03 (CR 1May03)

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=	4200.00	4200.00	4200.00	4200.00
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 pcal sets: 1  
 LO sum= 4836.00 4836.00 4836.00 4836.00  
 BBC fr= 636.00 636.00 636.00 636.00  
 Bandwd= 16.00 16.00 16.00 16.00  
 Matching frequency sets: 3

The following pulse cal sets were used with this setup:

Pulse cal detection set: 1 PCAL = 1MHZ  
 PCALXB1= S1 S3 S1 S3 S1 S2 S3 S4  
 PCALXB2= S2 S4 S2 S4 M1 M2 M3 M4  
 PCALFR1= 1000 1000 13000 13000 0 0 0 0  
 PCALFR2= 1000 1000 13000 13000 0 0 0 0

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)
J0958+4725	09 55 08.528429	* 09 58 19.671644	09 59 13.098574	0.15
* 0955+476	47 39 28.28168	* 47 25 07.84237	47 20 47.56711	0.10

#### 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)
0955+476	107.8

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:

327 MHz	117. deg
610 MHz	81. deg
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
43.0 GHz	6. deg

**rk01kgtr**

RADIOASTRON AGN SURVEY

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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  
-----

--- Thu 28 Nov 2013    Day 332 ---

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00  
Next BBC frequencies: 636.00 636.00 636.00 636.00  
Next scan bandwidths: 16.00 16.00 16.00 16.00

19 00 00	2200+420	00 45 36	61.1	264.7	2.7	54.0	0	0	19 00 00
19 09 30	---	00 55 08	59.7	266.8	2.9	54.2	570	18	19 00 01
19 10 00	2200+420	00 55 38	59.6	266.9	2.9	54.2	24	18	19 10 00
19 19 30	---	01 05 09	58.2	268.9	3.0	54.3	570	36	19 10 01
19 20 00	2200+420	01 05 39	58.1	269.0	3.0	54.3	24	36	19 20 00
19 29 30	---	01 15 11	56.7	270.9	3.2	54.3	570	55	19 20 01
19 30 00	2200+420	01 15 41	56.6	271.0	3.2	54.3	24	55	19 30 00
19 39 30	---	01 25 13	55.2	272.9	3.4	54.2	570	73	19 30 01
19 40 00	2200+420	01 25 43	55.1	273.0	3.4	54.2	24	73	19 40 00
19 49 30	---	01 35 14	53.7	274.7	3.5	54.1	570	91	19 40 01
19 50 00	2200+420	01 35 44	53.6	274.8	3.5	54.1	24	91	19 50 00
20 00 00	---	01 45 46	52.1	276.6	3.7	53.8	600	110	19 50 01

SETUP FILE INFORMATION:

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

=====  
Setup file: ra6cm2.set

Matching groups in ./rk01kg\_freq.dat:

tr6cm                      E-mail Borkowski 23Apr03 (CR 1May03)

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=  4200.00  4200.00  4200.00  4200.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  1  Setup file default.  Used pcal sets:  1
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   636.00   636.00   636.00   636.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  1

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set:  1  PCAL = 1MHZ
PCALXB1=  S1   S3   S1   S3   S1   S2   S3   S4
PCALXB2=  S2   S4   S2   S4   M1   M2   M3   M4
PCALFR1= 1000 1000 13000 13000   0   0   0   0
PCALFR2= 1000 1000 13000 13000   0   0   0   0

```

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)
J2202+4216	22 00 39.362504	* 22 02 43.291371	22 03 18.393773	0.14
* 2200+420	42 02 08.59073	* 42 16 39.97987	42 21 06.18957	0.10

#### 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)
2200+420    101.4

```

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
610 MHz      81. deg
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
43.0 GHz     6. deg

```



**rk07antr**

RADIOASTRON MASER OBSERVATIONS

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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
-----
```

--- Fri 29 Nov 2013    Day 333 ---

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

01 00 00	ORION_H2O	06 46 35	29.7	200.3	1.2	12.1	0	0	01 00 00
01 09 30	---	06 56 07	29.1	203.0	1.3	13.6	570	18	01 00 01
01 10 00	ORION_H2O	06 56 37	29.1	203.1	1.3	13.7	24	18	01 10 00
01 19 30	---	07 06 09	28.5	205.8	1.5	15.2	570	36	01 10 01
01 20 00	ORION_H2O	07 06 39	28.5	205.9	1.5	15.3	24	36	01 20 00
01 29 30	---	07 16 10	27.8	208.5	1.7	16.7	570	55	01 20 01
01 30 00	ORION_H2O	07 16 40	27.8	208.6	1.7	16.8	24	55	01 30 00
01 39 30	---	07 26 12	27.1	211.2	1.8	18.2	570	73	01 30 01
01 40 00	ORION_H2O	07 26 42	27.0	211.3	1.8	18.3	24	73	01 40 00
01 49 30	---	07 36 13	26.3	213.8	2.0	19.6	570	91	01 40 01
01 50 00	ORION_H2O	07 36 44	26.2	213.9	2.0	19.7	24	91	01 50 00
02 00 00	---	07 46 45	25.4	216.5	2.2	21.0	600	110	01 50 01
02 01 00	0539-057	07 47 45	25.5	215.0	2.1	20.3	43	110	02 01 00
02 10 00	---	07 56 47	24.7	217.3	2.2	21.5	540	128	02 01 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 ./rk07an.freq.dat:

tr1cm                      Values from Bob Campbell by email (23-04-2013)

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 pcal sets: 1
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
```

The following pulse cal sets were used with this setup:

```
Pulse cal detection set: 1 PCAL = OFF
PCALXB1= S1 S2 S3 S4 OFF OFF OFF OFF
PCALXB2= M1 M2 M3 M4 OFF OFF OFF OFF
PCALFR1= 0 0 0 0 0 0 0 0
PCALFR2= 0 0 0 0 0 0 0 0
```

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)		
* ORION_H20	05 32 46.647965	* 05 35 14.125500	05 35 57.011655	0.00
	-05 24 29.93190	*-05 22 36.47500	-05 22 10.58852	0.00
J0541-0541	05 39 10.994581	* 05 41 38.083369	05 42 20.850251	0.11
* 0539-057	-05 43 15.02848	*-05 41 49.42861	-05 41 31.32837	0.12

#### 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)
ORION_H20	147.4
0539-057	146.3

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
43.0 GHz	6. deg

rk01kjtr

RADIOASTRON AGN SURVEY

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Observing mode: C-band, dual-pol

Schedule for TORUN (Code Tr ) Page 2

RadioAstron AGN survey

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

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

--- Fri 29 Nov 2013 Day 333 ---

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00  
Next BBC frequencies: 636.00 636.00 636.00 636.00  
Next scan bandwidths: 16.00 16.00 16.00 16.00

20 00 00	2200+420	01 49 43	51.5	277.3	3.8	53.7	0	0	20 00 00
20 09 30	---	01 59 14	50.1	279.0	3.9	53.4	570	18	20 00 01
20 10 00	2200+420	01 59 44	50.0	279.1	3.9	53.4	24	18	20 10 00
20 19 30	---	02 09 16	48.6	280.7	4.1	53.0	570	36	20 10 01
20 20 00	2200+420	02 09 46	48.6	280.8	4.1	53.0	24	36	20 20 00
20 29 30	---	02 19 17	47.2	282.4	4.3	52.5	570	55	20 20 01
20 30 00	2200+420	02 19 48	47.1	282.4	4.3	52.5	24	55	20 30 00
20 39 30	---	02 29 19	45.7	284.0	4.4	52.0	570	73	20 30 01
20 40 00	2200+420	02 29 49	45.6	284.1	4.4	52.0	24	73	20 40 00
20 49 30	---	02 39 21	44.2	285.6	4.6	51.5	570	91	20 40 01
20 50 00	2200+420	02 39 51	44.2	285.7	4.6	51.5	24	91	20 50 00
21 00 00	---	02 49 52	42.7	287.3	4.8	50.9	600	110	20 50 01

SETUP FILE INFORMATION:

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

=====  
Setup file: ra6cm2.set

Matching groups in ./rk01kj\_freq.dat:

tr6cm E-mail Borkowski 23Apr03 (CR 1May03)

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=	4200.00	4200.00	4200.00	4200.00
Net SB=	L	L	U	U
IF SB =	U	U	U	U
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	L	L	U	U
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 2 Setup file default. Used pcal sets: 1

LO sum=	4836.00	4836.00	4836.00	4836.00
BBC fr=	636.00	636.00	636.00	636.00
Bandwd=	16.00	16.00	16.00	16.00

Matching frequency sets: 2

The following pulse cal sets were used with this setup:

Pulse cal detection set: 1 PCAL = 1MHZ

PCALXB1=	S1	S3	S1	S3	S1	S2	S3	S4
PCALXB2=	S2	S4	S2	S4	M1	M2	M3	M4
PCALFR1=	1000	1000	13000	13000	0	0	0	0
PCALFR2=	1000	1000	13000	13000	0	0	0	0

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)
J2202+4216	22 00 39.362504	* 22 02 43.291371	22 03 18.369766	0.14
* 2200+420	42 02 08.59073	* 42 16 39.97987	42 21 06.12843	0.10

#### 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)
2200+420	100.7

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:

327 MHz	117. deg
610 MHz	81. deg
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
43.0 GHz	6. deg

rk01ktr

RADIOASTRON AGN SURVEY

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Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr ) Page 2

RadioAstron AGN survey

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

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

--- Fri 29 Nov 2013 Day 333 ---

Next scan frequencies:	1668.00	1668.00	1668.00	1668.00							
Next BBC frequencies:	632.00	632.00	632.00	632.00							
Next scan bandwidths:	16.00	16.00	16.00	16.00							
23 00 00	2328+107	04 50 12	15.0	268.5	5.3	37.7	0	0	23 00 00		
23 09 30	---	04 59 44	13.6	270.4	5.5	37.7	570	18	23 00 01		
23 10 00	2328+107	05 00 14	13.5	270.5	5.5	37.7	24	18	23 10 00		
23 19 30	---	05 09 45	12.1	272.4	5.6	37.7	570	36	23 10 01		
23 20 00	2328+107	05 10 15	12.0	272.5	5.6	37.7	24	36	23 20 00		
23 29 30	---	05 19 47	10.6	274.4	5.8	37.6	570	55	23 20 01		
23 30 00	2328+107	05 20 17	10.5	274.5	5.8	37.6	24	55	23 30 00		
23 39 30	---	05 29 49	9.1	276.4	6.0	37.5	570	73	23 30 01		
23 40 00	2328+107	05 30 19	9.0	276.5	6.0	37.4	24	73	23 40 00		
23 49 30	---	05 39 50	7.6	278.4	6.1	37.3	570	91	23 40 01		
23 50 00	2328+107	05 40 20	7.5	278.5	6.1	37.2	24	91	23 50 00		
23 59 59	---	05 50 22	6.0	280.4	6.3	37.0	599	110	23 50 01		

SETUP FILE INFORMATION:

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

=====  
Setup file: ra18cm2.set

Matching groups in ./rk01kk\_freq.dat:

tr18cm E-mail Borkowski 12Mar98, preferred alternative

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=   2300.00   2300.00   2300.00   2300.00
Net SB=       L       L       U       U
IF SB =       L       L       L       L
Pol.  =       RCP      LCP      RCP      LCP
BBC   =         1         2         1         2
BBC SB=        U        U        L        L
IF    =         C         A         C         A

```

The following frequency sets based on these setups were used.

```

Frequency Set:   1  Setup file default.  Used pcal sets:   1
LO sum=   1668.00  1668.00  1668.00  1668.00
BBC fr=    632.00   632.00   632.00   632.00
Bandwd=    16.00   16.00   16.00   16.00
Matching frequency sets:   1

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set:   1  PCAL = 1MHZ
PCALXB1=  S1   S3   S1   S3   S1   S2   S3   S4
PCALXB2=  S2   S4   S2   S4   M1   M2   M3   M4
PCALFR1= 1000 1000 13000 13000   0   0   0   0
PCALFR2= 1000 1000 13000 13000   0   0   0   0

```

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)		
J2330+1100	23 28 08.785997	* 23 30 40.852261	23 31 24.128620	0.11
* 2328+107	10 43 45.52194	* 11 00 18.70967	11 05 06.66466	0.13

#### 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    109.5

```

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:

```

327 MHz      117. deg
610 MHz      81. deg
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
43.0 GHz     6. deg

```

rk01kltr

RADIOASTRON AGN SURVEY

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Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr ) Page 2

RadioAstron AGN survey

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

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

--- Sat 30 Nov 2013 Day 334 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 632.00 632.00 632.00 632.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

Table with 10 columns: Start UT, Stop UT, Source, LST, EL, AZ, HA, UP, ParA, Dwell, GBytes, TPStart, SYNC. It lists observation times and parameters for various scans on Nov 30, 2013.

SETUP FILE INFORMATION:

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

==== Setup file: ra18cm2.set

Matching groups in ./rk01kl\_freq.dat:

tr18cm E-mail Borkowski 12Mar98, preferred alternative

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=	2300.00	2300.00	2300.00	2300.00
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 pcal sets: 1  
 LO sum= 1668.00 1668.00 1668.00 1668.00  
 BBC fr= 632.00 632.00 632.00 632.00  
 Bandwd= 16.00 16.00 16.00 16.00  
 Matching frequency sets: 3

The following pulse cal sets were used with this setup:

Pulse cal detection set: 1 PCAL = 1MHZ  
 PCALXB1= S1 S3 S1 S3 S1 S2 S3 S4  
 PCALXB2= S2 S4 S2 S4 M1 M2 M3 M4  
 PCALFR1= 1000 1000 13000 13000 0 0 0 0  
 PCALFR2= 1000 1000 13000 13000 0 0 0 0

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)
J1823+6857	18 23 51.691231	* 18 23 32.853903	18 23 24.172965	0.28
* 1823+689	68 56 09.10321	* 68 57 52.61249	68 58 38.76020	0.10

#### 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)
1823+689	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:

327 MHz	117. deg
610 MHz	81. deg
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
43.0 GHz	6. deg



**rk01kmtr**

RADIOASTRON AGN SURVEY

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Observing mode: L-band, dual-pol

Schedule for TORUN                      (Code Tr )    Page    2

RadioAstron AGN survey

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

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

--- Sat 30 Nov 2013    Day 334 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00  
Next BBC frequencies: 632.00 632.00 632.00 632.00  
Next scan bandwidths: 16.00 16.00 16.00 16.00

05 00 00	1023+131	10 51 11	49.4	189.2	0.4		5.7	0	0	05 00 00
05 09 30	---	11 00 43	49.2	192.7	0.6		7.8	570	18	05 00 01
05 10 00	1023+131	11 01 13	49.1	192.9	0.6		7.9	24	18	05 10 00
05 19 30	---	11 10 45	48.8	196.4	0.7		10.0	570	36	05 10 01
05 20 00	1023+131	11 11 15	48.8	196.6	0.7		10.1	24	36	05 20 00
05 29 30	---	11 20 46	48.3	200.0	0.9		12.2	570	55	05 20 01
05 30 00	1023+131	11 21 16	48.3	200.2	0.9		12.3	24	55	05 30 00
05 39 30	---	11 30 48	47.8	203.6	1.1		14.3	570	73	05 30 01
05 40 00	1023+131	11 31 18	47.7	203.8	1.1		14.4	24	73	05 40 00
05 49 30	---	11 40 49	47.1	207.1	1.2		16.3	570	91	05 40 01
05 50 00	1023+131	11 41 20	47.1	207.3	1.2		16.4	24	91	05 50 00
06 00 00	---	11 51 21	46.3	210.7	1.4		18.3	600	110	05 50 01

SETUP FILE INFORMATION:

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

=====  
Setup file: ra18cm2.set

Matching groups in ./rk01km\_freq.dat:

tr18cm                      E-mail Borkowski 12Mar98, preferred alternative

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=	2300.00	2300.00	2300.00	2300.00
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 pcal sets: 1  
 LO sum= 1668.00 1668.00 1668.00 1668.00  
 BBC fr= 632.00 632.00 632.00 632.00  
 Bandwd= 16.00 16.00 16.00 16.00  
 Matching frequency sets: 4

The following pulse cal sets were used with this setup:

Pulse cal detection set: 1 PCAL = 1MHZ  
 PCALXB1= S1 S3 S1 S3 S1 S2 S3 S4  
 PCALXB2= S2 S4 S2 S4 M1 M2 M3 M4  
 PCALFR1= 1000 1000 13000 13000 0 0 0 0  
 PCALFR2= 1000 1000 13000 13000 0 0 0 0

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)		
J1025+1253	10 23 16.285230	* 10 25 56.285371	10 26 41.302575	0.11
* 1023+131	13 09 05.49473	* 12 53 49.02185	12 49 25.14232	0.11

#### 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)
1023+131	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:

327 MHz	117. deg
610 MHz	81. deg
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
43.0 GHz	6. deg

rk01knt

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Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr ) Page 2

RadioAstron AGN survey

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

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

--- Sat 30 Nov 2013 Day 334 ---

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 632.00 632.00 632.00 632.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

Table with 11 columns: Start UT, Stop UT, Source, LST, EL, AZ, HA, UP, ParA, Dwell, GBytes, TPStart, SYNC. It lists observation times and parameters for source 0925+504.

SETUP FILE INFORMATION:

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

==== Setup file: ra18cm2.set

Matching groups in ./rk01kn\_freq.dat:

tr18cm E-mail Borkowski 12Mar98, preferred alternative

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=	2300.00	2300.00	2300.00	2300.00
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 pcal sets: 1  
 LO sum= 1668.00 1668.00 1668.00 1668.00  
 BBC fr= 632.00 632.00 632.00 632.00  
 Bandwd= 16.00 16.00 16.00 16.00  
 Matching frequency sets: 5

The following pulse cal sets were used with this setup:

Pulse cal detection set: 1 PCAL = 1MHZ  
 PCALXB1= S1 S3 S1 S3 S1 S2 S3 S4  
 PCALXB2= S2 S4 S2 S4 M1 M2 M3 M4  
 PCALFR1= 1000 1000 13000 13000 0 0 0 0  
 PCALFR2= 1000 1000 13000 13000 0 0 0 0

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)
J0929+5013	09 25 51.973728	* 09 29 15.440209	09 30 12.701574	0.21
* 0925+504	50 26 44.31058	* 50 13 35.98960	50 09 34.22670	0.17

#### EFFECT OF SOLAR CORONA

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

Source	Sun distance (deg)
0925+504	115.3

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

For common VLBI bands, this is:

327 MHz	117. deg
610 MHz	81. deg
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
43.0 GHz	6. deg

rk01kotr

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Observing mode: C-band, dual-pol

Schedule for TORUN (Code Tr ) Page 2

RadioAstron AGN survey

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

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

--- Sat 30 Nov 2013 Day 334 ---

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 636.00 636.00 636.00 636.00
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, GBytes, TPStart, SYNC. Contains scan schedule data for 0003-066 source.

SETUP FILE INFORMATION:

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

==== Setup file: ra6cm2.set

Matching groups in ./rk01ko\_freq.dat:
tr6cm E-mail Borkowski 23Apr03 (CR 1May03)

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=  4200.00  4200.00  4200.00  4200.00
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 pcal sets:  1
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   636.00   636.00   636.00   636.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  5

```

The following pulse cal sets were used with this setup:

```

Pulse cal detection set:  1  PCAL = 1MHZ
PCALXB1=  S1  S3  S1  S3  S1  S2  S3  S4
PCALXB2=  S2  S4  S2  S4  M1  M2  M3  M4
PCALFR1= 1000 1000 13000 13000  0  0  0  0
PCALFR2= 1000 1000 13000 13000  0  0  0  0

```

Track assignments are:

```

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

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)			Error (mas)
	(B1950)	(J2000)	(Date)	
J0006-0623	00 03 40.288767	* 00 06 13.892888	00 06 57.601490	0.10
* 0003-066	-06 40 17.30000	*-06 23 35.33543	-06 18 52.46178	0.10

#### 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)
0003-066    110.1

```

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.

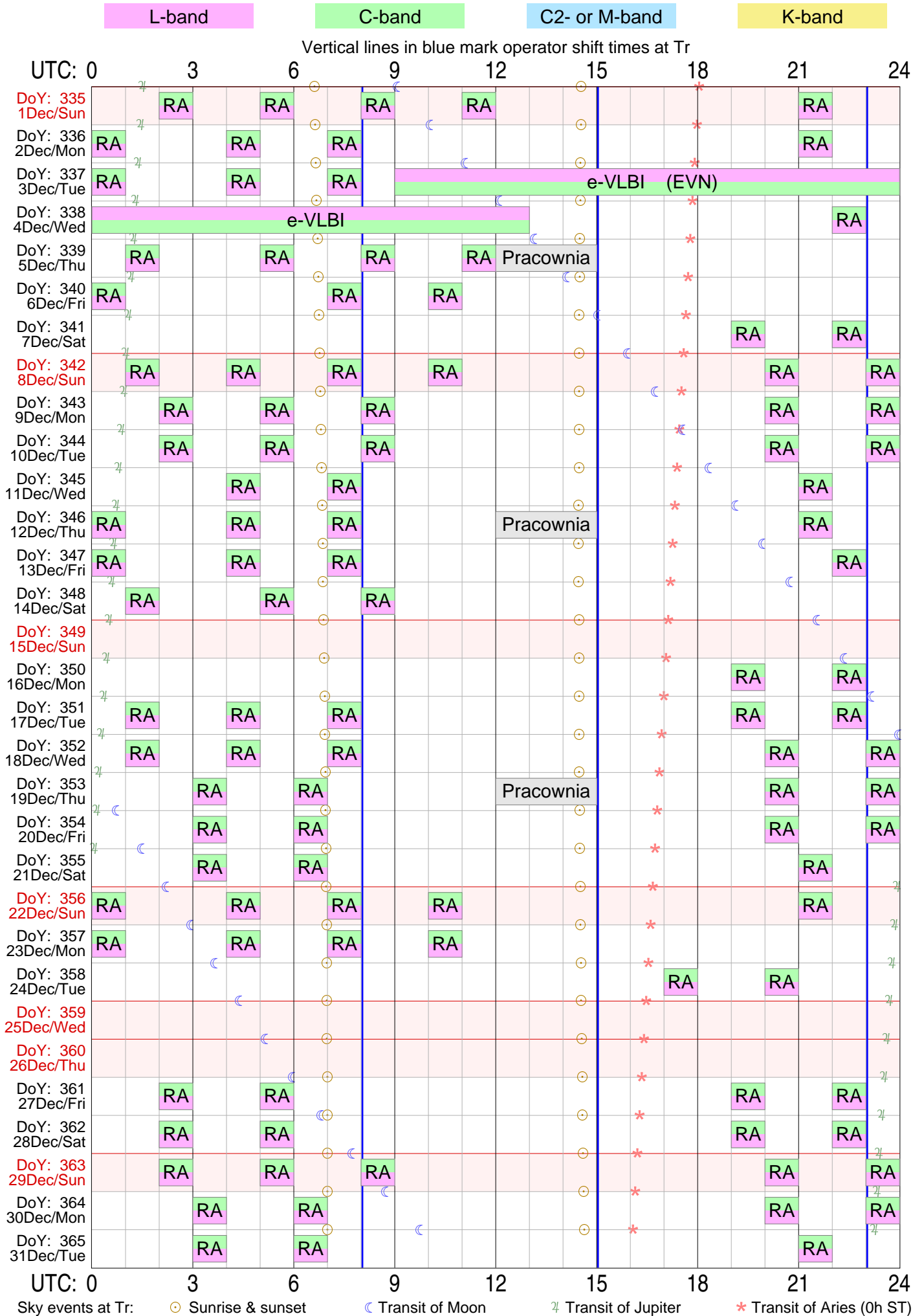
For common VLBI bands, this is:

```

327 MHz      117. deg
610 MHz      81. deg
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
43.0 GHz     6. deg

```

# Tr VLBI schedule for Dec 2013



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