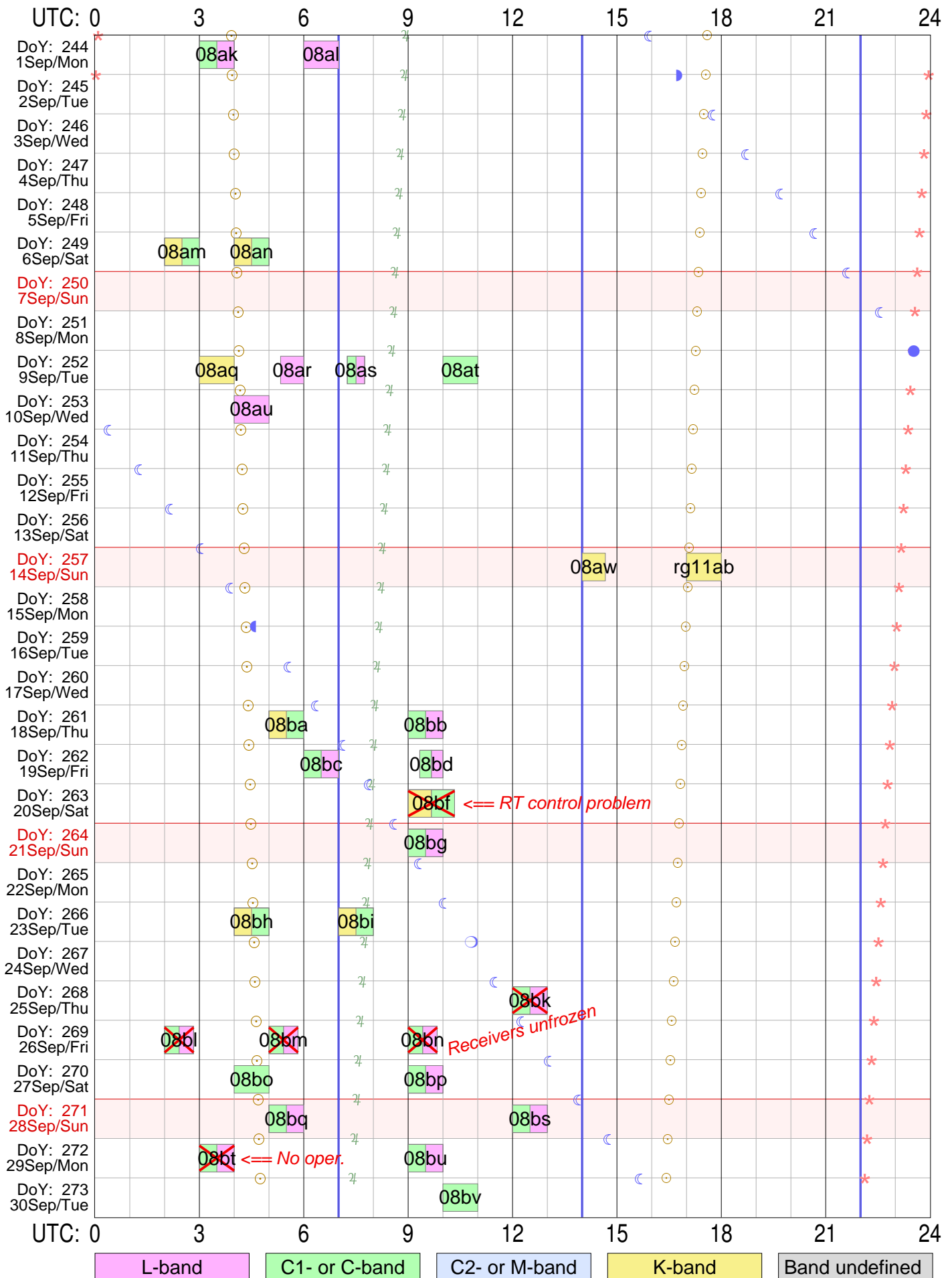


Tr VLBI plan for Sep 2014



Version: 2014.09.30

Sky events at Tr: ○ Sunrise & sunset ○●☾ Transit of Moon ♃ Transit of Jupiter * Transit of Aries (0h ST)

Vertical lines in blue mark operator shift times at Tr Total observing time: 46.7 hours in 30 experiments scheduled

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

Strona zostawiona celowo pusta

RadioAstron & EVN Experiments

September 2014

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

ftp://webinet.asc.rssi.ru

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

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

DoY	DoM	WD	UT_Start		UT_Stop		Experiment	Band	Uwagi
			h	m	h	m	name		
244	1	Pon	3	00	4	00	rk08ak	C->L	104 GB
244	1	Pon	6	00	7	00	rk08al	L	112 GB
249	6	Sob	2	00	3	00	rk08am	K->C	104 GB
249	6	Sob	4	00	5	00	rk08an	K->C	104 GB
252	9	Wto	3	00	4	00	rk08aq	K	112 GB
252	9	Wto	5	20	6	00	rk08ar	L	76 GB
252	9	Wto	7	15	7	45	rk08as	C->L	48 GB
252	9	Wto	10	00	11	00	rk08at	C	112 GB
253	10	Sro	4	00	5	00	rk08au	L	112 GB
257	14	Nie	14	00	14	40	rk08aw	K	76 GB
257	14	Nie	17	00	18	00	rg11ab	K	124 GB
259	16	201	9	00	24+11	15	eh027d	L	e-VLBI <== cancelled, 5 Sep 2014
261	18	Czw	5	00	6	00	rk08ba	K->C	104 GB
261	18	Czw	9	00	10	00	rk08bb	C->L	104 GB
262	19	Pia	6	00	7	00	rk08bc	C->L	104 GB
262	19	Pia	9	20	10	00	rk08bd	C->L	67 GB
263	20	Sob	9	00	10	20	rk08bf	K->C	142 GB
264	21	Nie	9	00	10	00	rk08bg	C->L	104 GB
266	23	Wto	4	00	5	00	rk08bh	K->C	104 GB
266	23	Wto	7	00	8	00	rk08bi	K->C	104 GB
268	25	Czw	12	00	13	00	rk08bk	C->L	104 GB
269	26	Pia	2	00	2	50	rk08bl	C->L	93 GB
269	26	Pia	5	00	5	50	rk08bm	C->L	57 GB
269	26	Pia	9	00	9	50	rk08bn	C->L	84 GB
270	27	Sob	4	00	5	00	rk08bo	C	112 GB
270	27	Sob	9	00	10	00	rk08bp	C->L	104 GB
271	28	Nie	5	00	6	00	rk08bq	C->L	104 GB
271	28	Nie	12	00	13	00	rk08bs	C->L	104 GB
272	29	Pon	3	00	4	00	rk08bt	C->L	104 GB
272	29	Pon	9	00	10	00	rk08bu	C->L	104 GB
273	30	Wto	10	00	11	00	rk08bv	C	112 GB

Razem 30 eksperymentów RA (28.33 godz.) i 1 EVN

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

<http://cosmo.astro.umk.pl/foswiki/pub/Main/KazB/VLBI2014Sep.pdf>

Disk used to record data.

```

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

```

The following frequency sets based on these setups were used.

```

Frequency Set: 12 Setup file default. Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00   736.00   736.00   736.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets: 12

```

Track assignments are:

```

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

```

==== Setup file: ra18cm2.set

```

Setup group:  14      Station: TORUN      Total bit rate:  256
Format: MKIV1:4      Bits per sample: 2      Sample rate: 32.000
Number of channels:  4      DBE type:      Speedup factor:  1.00

```

Disk used to record data.

```

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

```

The following frequency sets based on these setups were used.

```

Frequency Set: 14 Setup file default. Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00   732.00   732.00   732.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets: 14

```

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)		
* 0422+004	04 22 12.515417	* 04 24 46.842063	04 25 32.587026	0.00
J0424+0036	00 29 16.67918	* 00 36 06.32936	00 38 05.40790	0.00

RADIOASTRON AGN SURVEY

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

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

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

--- Mon 1 Sep 2014 Day 244 ---

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

Table with 11 columns: Start UT, Source, LST, EL, AZ, HA, UP, ParA, Dwell, GBytes, SYNC. It lists observation times and parameters for source 0420+022.

SETUP FILE INFORMATION:

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

==== Setup file: ra18cm2.set

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

Disk used to record data.

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

The following frequency sets based on these setups were used.

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

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

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(Date)	Error (mas)	
* 0420+022	04 20 16.064039	* 04 22 52.214653	04 23 38.523283	0.00
J0422+0219	02 12 29.61654	* 02 19 26.93072	02 21 27.72621	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)
0420+022	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:

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

Disk used to record data.

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

The following frequency sets based on these setups were used.

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

Track assignments are:

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

==== Setup file: ra6cm2.set

```
Setup group:  1      Station: TORUN      Total bit rate:  256
Format: MKIV1:4      Bits per sample:  2      Sample rate: 32.000
Number of channels:  4  DBE type:      Speedup factor:  1.00
```

Disk used to record data.

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

The following frequency sets based on these setups were used.

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

Track assignments are:

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

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 1758+388	17 58 44.703952	* 18 00 24.765361	18 00 54.889313	0.00
J1800+3848	38 48 32.47341	* 38 48 30.69739	38 48 57.06708	0.00

rk08antr

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UWAGA: zmiana pasma w czasie tego eksperymentu!!!

Observing mode: K&C-band, dual-pol #####
#####

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

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are 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 6 Sep 2014 Day 249 ---

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

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

04 00 00	1957+405	04 14 57	15.7	-40.8	8.2	31.2	0	0	04 00 00
04 14 30	---	04 29 29	14.3	-38.4	8.5	29.5	870	28	04 00 01
04 15 00	1957+405	04 29 59	14.2	-38.3	8.5	29.4	24	28	04 15 00
04 25 00	---	04 40 01	13.3	-36.6	8.7	28.2	600	47	04 15 01

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

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

04 30 00	1957+405	04 45 02	12.9	-35.7	8.8	27.6	294	47	04 30 00
04 44 30	---	04 59 34	11.6	-33.2	9.0	25.7	870	75	04 30 01
04 45 00	1957+405	05 00 04	11.6	-33.1	9.0	25.7	24	75	04 45 00
05 00 00	---	05 15 07	10.4	-30.5	9.3	23.7	900	104	04 45 01

SETUP FILE INFORMATION:

==== Setup file: ra1cm2.set Matching groups in ./rk08an_freq.dat: tr1cm

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

Disk used to record data.

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

The following frequency sets based on these setups were used.

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

Track assignments are:

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

==== Setup file: ra6cm2.set

```
Setup group:  1      Station: TORUM      Total bit rate:  256
Format: MKIV1:4      Bits per sample:  2      Sample rate: 32.000
Number of channels:  4  DBE type:      Speedup factor:  1.00
```

Disk used to record data.

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

The following frequency sets based on these setups were used.

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

Track assignments are:

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

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 1957+405	19 57 44.440786	* 19 59 28.356463	20 00 00.582848	0.00
CYGNUS-A	40 35 46.36320	* 40 44 02.09701	40 46 51.66524	0.00

rk08aqtr

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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

--- Tue 9 Sep 2014 Day 252 ---

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

03 00 00	0454-234	03 26 37	11.0	158.8	-1.5		-13.7	0	0	03 00 00
03 14 30	---	03 41 09	11.7	162.1	-1.3		-11.6	870	28	03 00 01
03 15 00	0454-234	03 41 39	11.8	162.2	-1.3		-11.5	24	28	03 15 00
03 29 30	---	03 56 12	12.4	165.6	-1.0		-9.4	870	56	03 15 01
03 30 00	0454-234	03 56 42	12.4	165.7	-1.0		-9.3	24	56	03 30 00
03 44 30	---	04 11 14	12.9	169.1	-0.8		-7.1	870	84	03 30 01
03 45 00	0454-234	04 11 44	12.9	169.2	-0.8		-7.0	24	84	03 45 00
04 00 00	---	04 26 47	13.2	172.7	-0.5		-4.8	900	112	03 45 01

SETUP FILE INFORMATION:

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

=====
Setup file: ra1cm2.set

Matching groups in ./rk08aq_freq.dat:
tr1cm

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

Disk used to record data.

```

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

```

The following frequency sets based on these setups were used.

```

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

```

Track assignments are:

```

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

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0454-234	04 54 57.297216	* 04 57 03.179228	04 57 40.483401	0.00
J0457-2324	-23 29 28.31965	*-23 24 52.02024	-23 23 24.94165	0.00

EFFECT OF SOLAR CORONA

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

Source	Sun distance (deg)
3C48	127.8
0454-234	94.9

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

For common VLBI bands, this is:

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

rk08artr

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

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

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

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

--- Tue 9 Sep 2014 Day 252 ---

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

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

05 20 00 0422+004 05 47 00 34.9 205.1 1.4 14.8 0 0 05 20 00
05 39 30 --- 06 06 33 33.5 210.8 1.7 17.9 1170 37 05 20 01
05 40 00 0422+004 06 07 03 33.5 210.9 1.7 18.0 24 37 05 40 00
06 00 00 --- 06 27 06 31.8 216.5 2.0 20.9 1200 76 05 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

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

Setup group: 11 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

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

The following frequency sets based on these setups were used.

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

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

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 0422+004	04 22 12.515417	* 04 24 46.842063	04 25 32.833632	0.00
J0424+0036	00 29 16.67918	* 00 36 06.32936	00 38 06.06527	0.00

EFFECT OF SOLAR CORONA

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

Source	Sun distance (deg)
3C48	127.8
0422+004	101.1

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

For common VLBI bands, this is:

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

rk08astr

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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 LO sum (band edge).
 SYNC: Time correlator is expected to sync up.

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

--- Tue 9 Sep 2014 Day 252 ---

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

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

07 15 00 0430+052    07 42 19 28.8 236.3 3.1    30.1    0    0    07 15 00
07 25 00 ---                      07 52 20 27.6 238.8 3.3    31.0    600    19    07 15 01
```

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

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

07 30 00 0430+052    07 57 21 26.9 240.0 3.4    31.5    293    19    07 30 00
07 45 00 ---                      08 12 24 24.9 243.5 3.6    32.7    900    48    07 30 01
```

SETUP FILE INFORMATION:

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

==== Setup file: ra6cm2.set

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

Disk used to record data.


```

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

```

The following frequency sets based on these setups were used.

```

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

```

```

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

```

==== Setup file: ra18cm2.set

```

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

```

Disk used to record data.

```

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

```

The following frequency sets based on these setups were used.

```

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

```

```

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

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 0430+052	04 30 31.602064	* 04 33 11.095533	04 33 58.595622	0.00
J0433+0521	05 14 59.61638	* 05 21 15.61916	05 23 03.60523	0.00

rk08attr

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

--- Tue 9 Sep 2014 Day 252 ---										
Next scan frequencies: 4836.00 4836.00 4836.00 4836.00										
Next BBC frequencies: 736.00 736.00 736.00 736.00										
Next scan bandwidths: 16.00 16.00 16.00 16.00										
10 00 00	0446+112	10 27 46	12.4	272.5	5.6		37.7	0	0	10 00 00
10 14 30	---	10 42 18	10.2	275.4	5.9		37.6	870	28	10 00 01
10 15 00	0446+112	10 42 48	10.1	275.5	5.9		37.6	24	28	10 15 00
10 29 30	---	10 57 21	8.0	278.3	6.1		37.3	870	56	10 15 01
10 30 00	0446+112	10 57 51	7.9	278.4	6.1		37.3	24	56	10 30 00
10 44 30	---	11 12 23	5.8	281.3	6.4		36.9	870	84	10 30 01
10 45 00	0446+112	11 12 53	5.7	281.4	6.4		36.9	24	84	10 45 00
11 00 00	---	11 27 56	3.5	284.4	6.6		36.4	900	112	10 45 01

SETUP FILE INFORMATION:

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

=====
Setup file: ra6cm2.set

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

Disk used to record data.

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

The following frequency sets based on these setups were used.

Frequency Set: 2 Setup file default. Used with PCAL = 1MHz
 LO sum= 4836.00 4836.00 4836.00 4836.00
 BBC fr= 736.00 736.00 736.00 736.00
 Bandwd= 16.00 16.00 16.00 16.00
 Matching frequency sets: 2

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

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(Date)	Error (mas)	
* 0446+112	04 46 21.217284	* 04 49 07.671104	04 49 57.167098	0.00
J0449+1121	11 16 17.84556	* 11 21 28.59635	11 22 54.84675	0.00

EFFECT OF SOLAR CORONA

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

Source	Sun distance (deg)
0446+112	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:

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

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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 10 Sep 2014 Day 253 ---

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

Table with 11 columns: Start UT, Stop UT, Source, LST, EL, AZ, HA, UP, ParA, Dwell, GBytes, TPStart, SYNC. Contains observation schedule data for 04:00:00 to 05:00:00.

SETUP FILE INFORMATION:

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

==== Setup file: ra18cm2.set

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

Disk used to record data.

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

The following frequency sets based on these setups were used.

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

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

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* 0451-282	04 51 15.126310	* 04 53 14.646791	04 53 50.097537	0.00
J0453-2807	-28 12 29.38806	*-28 07 37.32655	-28 06 04.32397	0.00

EFFECT OF SOLAR CORONA

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

Source	Sun distance (deg)
3C48	128.7
0451-282	96.7

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

For common VLBI bands, this is:

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

rk08awtr

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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
-----
```

--- Sun 14 Sep 2014 Day 257 ---

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

```
14 00 00 1751+288    14 48 08 48.4 106.9 -3.1    -41.0    0    0    14 00 00
14 19 30 ---        15 07 41 51.1 111.9 -2.8    -39.5  1170    37    14 00 01

14 20 00 1751+288    15 08 11 51.2 112.0 -2.8    -39.4    24    37    14 20 00
14 40 00 ---        15 28 15 53.9 117.7 -2.4    -37.4  1200    76    14 20 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 ./rk08aw_freq.dat: tr1cm

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

Disk used to record data.

```

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

```

The following frequency sets based on these setups were used.

```

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

```

```

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

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 1751+288	17 51 45.401873	* 17 53 42.473645	17 54 17.340356	0.00
J1753+2848	28 48 36.64948	* 28 48 04.93876	28 48 21.34748	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)
1751+288    93.8

```

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

For common VLBI bands, this is:

```

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

```



```

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

```

The following frequency sets based on these setups were used.

```

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

```

Track assignments are:

```

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

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* IRC10414	18 20 27.832730	* 18 23 17.866000	18 24 08.567917	0.00
IRC10414_H20	-13 44 23.22075	*-13 42 47.67000	-13 42 05.31371	0.00
* 1730-130	17 30 13.535189	* 17 33 02.705787	17 33 52.924588	0.00
J1733-1304	-13 02 45.83991	*-13 04 49.54838	-13 05 12.14906	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)
IRC10414	103.9
1730-130	91.7

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

For common VLBI bands, this is:

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

Disk used to record data.

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

The following frequency sets based on these setups were used.

```
Frequency Set: 7 Setup file default. Used with PCAL = 1MHz
LO sum= 22236.00 22236.00 22236.00 22236.00
BBC fr= 736.00 736.00 736.00 736.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 7
```

Track assignments are:

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

==== Setup file: ra6cm2.set

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

Disk used to record data.

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

The following frequency sets based on these setups were used.

```
Frequency Set: 9 Setup file default. Used with PCAL = 1MHz
LO sum= 4836.00 4836.00 4836.00 4836.00
BBC fr= 736.00 736.00 736.00 736.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 9
```

Track assignments are:

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

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0420-014	04 20 43.539850	* 04 23 15.800727	04 24 01.426383	0.00
J0423-0120	-01 27 28.70027	*-01 20 33.06557	-01 18 30.66939	0.00

rk08bbtr

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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

--- Thu 18 Sep 2014 Day 261 ---

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

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies: 736.00 736.00 736.00 736.00
Next scan bandwidths: 16.00 16.00 16.00 16.00
09 00 00 0459+135 10 03 05 19.9 266.3 5.0 38.1 0 0 09 00 00
09 14 30 --- 10 17 37 17.7 269.3 5.2 38.2 870 28 09 00 01
09 15 00 0459+135 10 18 07 17.7 269.4 5.2 38.2 24 28 09 15 00
09 25 00 --- 10 28 09 16.2 271.4 5.4 38.2 600 47 09 15 01

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

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00
09 30 00 0459+135 10 33 10 15.4 272.4 5.5 38.1 293 47 09 30 00
09 44 30 --- 10 47 42 13.2 275.2 5.7 38.0 870 75 09 30 01
09 45 00 0459+135 10 48 12 13.1 275.3 5.7 38.0 24 75 09 45 00
10 00 00 --- 11 03 15 10.9 278.3 6.0 37.7 900 104 09 45 01

SETUP FILE INFORMATION:

==== Setup file: ra6cm2.set

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

Disk used to record data.

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

The following frequency sets based on these setups were used.

Frequency Set: 2 Setup file default. Used with PCAL = 1MHz
 LO sum= 4836.00 4836.00 4836.00 4836.00
 BBC fr= 736.00 736.00 736.00 736.00
 Bandwd= 16.00 16.00 16.00 16.00
 Matching frequency sets: 2

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

==== Setup file: ra18cm2.set

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

Disk used to record data.

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

The following frequency sets based on these setups were used.

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

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

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* 0459+135	04 59 43.841322	* 05 02 33.219517	05 03 23.771199	0.00
J0502+1338	13 33 56.42102	* 13 38 10.95887	13 39 19.77482	0.00

rk08bctr

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 19 Sep 2014 Day 262 ---

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

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

```
06 00 00 0459+135                      07 06 32 43.6 223.4 2.1                      25.1      0                      0      06 00 00
06 14 30 ---                      07 21 04 42.1 227.7 2.3                      27.2      870                      28      06 00 01

06 15 00 0459+135                      07 21 34 42.0 227.9 2.3                      27.3      24                      28      06 15 00
06 25 00 ---                      07 31 36 40.9 230.7 2.5                      28.6      600                      47      06 15 01
```

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

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

```
06 30 00 0459+135                      07 36 37 40.3 232.2 2.6                      29.2      293                      47      06 30 00
06 44 30 ---                      07 51 09 38.5 236.1 2.8                      30.9      870                      75      06 30 01

06 45 00 0459+135                      07 51 39 38.5 236.2 2.8                      30.9      24                      75      06 45 00
07 00 00 ---                      08 06 42 36.5 240.2 3.1                      32.4      900                      104      06 45 01
```

SETUP FILE INFORMATION:

==== Setup file: ra6cm2.set

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

Disk used to record data.

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

The following frequency sets based on these setups were used.

Frequency Set: 5 Setup file default. Used with PCAL = 1MHz

LO sum=	4836.00	4836.00	4836.00	4836.00
BBC fr=	736.00	736.00	736.00	736.00
Bandwd=	16.00	16.00	16.00	16.00

Matching frequency sets: 5

Track assignments are:

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

==== Setup file: ra18cm2.set

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

Disk used to record data.

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

The following frequency sets based on these setups were used.

Frequency Set: 7 Setup file default. Used with PCAL = 1MHz

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

Matching frequency sets: 7

Track assignments are:

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

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0459+135	04 59 43.841322	* 05 02 33.219517	05 03 23.797728	0.00
J0502+1338	13 33 56.42102	* 13 38 10.95887	13 39 19.82749	0.00

rk08bdtr

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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 LO sum (band edge).
SYNC: Time correlator 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 19 Sep 2014 Day 262 ---

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

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

09 20 00 0506+056 10 27 05 11.0 264.8 5.3 36.9 0 0 09 20 00
09 35 00 --- 10 42 07 8.8 267.8 5.5 37.1 900 29 09 20 01

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

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

09 40 00 0506+056 10 47 08 8.0 268.8 5.6 37.1 293 29 09 40 00
10 00 00 --- 11 07 11 5.0 272.8 5.9 37.1 1200 67 09 40 01

SETUP FILE INFORMATION:

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

=====
Setup file: ra6cm2.set
Setup group: 2 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.


```

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

```

The following frequency sets based on these setups were used.

```

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

```

```

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

```

==== Setup file: ra18cm2.set

```

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

```

Disk used to record data.

```

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

```

The following frequency sets based on these setups were used.

```

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

```

```

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

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0506+056	05 06 45.765584	* 05 09 25.964476	05 10 13.750170	0.00
J0509+0541	05 37 50.30294	* 05 41 35.33359	05 42 38.18780	0.00

Disk used to record data.

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

The following frequency sets based on these setups were used.

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

Track assignments are:

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

==== Setup file: ra6cm2.set

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

Disk used to record data.

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

The following frequency sets based on these setups were used.

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

Track assignments are:

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

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0528+134	05 28 06.759218	* 05 30 56.416749	05 31 46.924548	0.00
J0530+1331	13 29 42.28878	* 13 31 55.14945	13 32 27.67863	0.00

Disk used to record data.

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

The following frequency sets based on these setups were used.

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

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

==== Setup file: ra18cm2.set

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

Disk used to record data.

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

The following frequency sets based on these setups were used.

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

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

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0536+145	05 36 51.361475	* 05 39 42.365993	05 40 33.244462	0.00
J0539+1433	14 32 10.73038	* 14 33 45.56168	14 34 06.40825	0.00

rk08bhdr

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UWAGA: zmiana pasma w czasie tego eksperymentu!!!

```
#####
##### Observing mode: K&C-band, dual-pol #####
#####
```

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

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are 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 23 Sep 2014 Day 266 ---

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

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

```
04 00 00 1823+568    05 21 58 20.7 -9.0 11.0                    9.9    0            0    04 00 00
04 14 30 ---                    05 36 31 20.4 -6.9 11.2                    7.6    870            28    04 00 01

04 15 00 1823+568    05 37 01 20.4 -6.9 11.2                    7.6    24            28    04 15 00
04 25 00 ---                    05 47 03 20.2 -5.4 11.4                    6.0    600            47    04 15 01
```

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

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

```
04 30 00 1823+568    05 52 03 20.2 -4.7 11.5                    5.2    294            47    04 30 00
04 44 30 ---                    06 06 36 20.0 -2.6 11.7                    2.8    870            75    04 30 01

04 45 00 1823+568    06 07 06 20.0 -2.5 11.7                    2.8    24            75    04 45 00
05 00 00 ---                    06 22 08 20.0 -0.3 12.0                    0.4    900            104    04 45 01
```

SETUP FILE INFORMATION:

===== Setup file: ra1cm2.set Matching groups in ./rk08bh_freq.dat: tr1cm

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

Disk used to record data.

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

The following frequency sets based on these setups were used.

```
Frequency Set: 9 Setup file default. Used with PCAL = 1MHz
LO sum= 22236.00 22236.00 22236.00 22236.00
BBC fr= 736.00 736.00 736.00 736.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 9
```

Track assignments are:

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

==== Setup file: ra6cm2.set

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

Disk used to record data.

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

The following frequency sets based on these setups were used.

```
Frequency Set: 11 Setup file default. Used with PCAL = 1MHz
LO sum= 4836.00 4836.00 4836.00 4836.00
BBC fr= 736.00 736.00 736.00 736.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 11
```

Track assignments are:

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

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 1823+568	18 23 14.951493	* 18 24 07.068371	18 24 22.799809	0.00
J1824+5651	56 49 18.07195	* 56 51 01.49076	56 52 01.00740	0.00

rk08bitr

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UWAGA: zmiana pasma w czasie tego eksperymentu!!!

#####
Observing mode: K&C-band, dual-pol
#####

Schedule for TORUN (Code Tr) Page 2
RadioAstron AGN Survey
UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are 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 23 Sep 2014 Day 266 ---

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

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

Table with 10 columns: Start UT, Stop UT, Source, LST, EL, AZ, HA, UP, ParA, Dwell, GBytes, SYNC. Rows show scan data for K-band VLBI scans.

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

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

Table with 10 columns: Start UT, Stop UT, Source, LST, EL, AZ, HA, UP, ParA, Dwell, GBytes, SYNC. Rows show scan data for C-band VLBI scans.

SETUP FILE INFORMATION:

==== Setup file: ra1cm2.set Matching groups in ./rk08bi_freq.dat: tr1cm

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

Disk used to record data.

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

The following frequency sets based on these setups were used.

```
Frequency Set: 7 Setup file default. Used with PCAL = 1MHz
LO sum= 22236.00 22236.00 22236.00 22236.00
BBC fr= 736.00 736.00 736.00 736.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 7
```

Track assignments are:

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

==== Setup file: ra6cm2.set

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

Disk used to record data.

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

The following frequency sets based on these setups were used.

```
Frequency Set: 8 Setup file default. Used with PCAL = 1MHz
LO sum= 4836.00 4836.00 4836.00 4836.00
BBC fr= 736.00 736.00 736.00 736.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 8
```

Track assignments are:

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

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 1823+568	18 23 14.951493	* 18 24 07.068371	18 24 22.794017	0.00
J1824+5651	56 49 18.07195	* 56 51 01.49076	56 52 01.01058	0.00

Disk used to record data.

```

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

```

The following frequency sets based on these setups were used.

```

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

```

Track assignments are:

```

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

```

==== Setup file: ra18cm2.set

```

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

```

Disk used to record data.

```

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

```

The following frequency sets based on these setups were used.

```

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

```

Track assignments are:

```

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

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0552+398	05 52 01.407174	* 05 55 30.805616	05 56 33.110783	0.00
J0555+3948	39 48 21.94579	* 39 48 49.16494	39 48 40.48548	0.00

rk08bltr

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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 LO sum (band edge).
SYNC: Time correlator 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 26 Sep 2014 Day 269 ---

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

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

02 00 00 0430+052 03 33 28 40.7 160.0 -1.0 -11.9 0 0 02 00 00
02 10 00 --- 03 43 30 41.2 163.2 -0.8 -10.0 600 19 02 00 01

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

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

02 15 00 0430+052 03 48 31 41.4 164.8 -0.8 -9.1 293 19 02 15 00
02 29 30 --- 04 03 03 41.9 169.6 -0.5 -6.2 870 47 02 15 01
02 30 00 0430+052 04 03 33 41.9 169.8 -0.5 -6.1 24 47 02 30 00
02 35 00 --- 04 08 34 42.0 171.5 -0.4 -5.1 300 57 02 30 01

SETUP FILE INFORMATION:

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

==== Setup file: ra6cm2.set

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

Disk used to record data.

```

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

```

The following frequency sets based on these setups were used.

```

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

```

Track assignments are:

```

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

```

==== Setup file: ra18cm2.set

```

Setup group:  10      Station: TORUN      Total bit rate:  256
Format: MKIV1:4      Bits per sample:  2      Sample rate: 32.000
Number of channels:  4  DBE type:          Speedup factor:  1.00

```

Disk used to record data.

```

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

```

The following frequency sets based on these setups were used.

```

Frequency Set:  9  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00   732.00   732.00   732.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  9

```

Track assignments are:

```

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

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0430+052	04 30 31.602064	* 04 33 11.095533	04 33 59.035630	0.00
J0433+0521	05 14 59.61638	* 05 21 15.61916	05 23 04.10687	0.00

rk08bmr

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 26 Sep 2014 Day 269 ---

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

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

05 00 00 0506+056 06 33 58 39.6 207.5 1.4 16.2 0 0 05 00 00
05 10 00 --- 06 44 00 38.9 210.6 1.6 17.9 600 19 05 00 01
```

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

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

05 15 00 0506+056 06 49 00 38.5 212.1 1.6 18.7 293 19 05 15 00
05 29 30 --- 07 03 33 37.3 216.4 1.9 21.0 870 47 05 15 01

05 30 00 0506+056 07 04 03 37.2 216.5 1.9 21.1 24 47 05 30 00
05 35 00 --- 07 09 04 36.8 218.0 2.0 21.8 300 57 05 30 01
```

SETUP FILE INFORMATION:

==== Setup file: ra6cm2.set

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

Disk used to record data.

```

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

```

The following frequency sets based on these setups were used.

```

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

```

```

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

```

==== Setup file: ra18cm2.set

```

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

```

Disk used to record data.

```

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

```

The following frequency sets based on these setups were used.

```

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

```

```

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

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0506+056	05 06 45.765584	* 05 09 25.964476	05 10 13.915604	0.00
J0509+0541	05 37 50.30294	* 05 41 35.33359	05 42 38.30523	0.00

rk08bntr

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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 26 Sep 2014 Day 269 ---

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

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

Start UT	Source	LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	TPStart SYNC
09 00 00	0536+145	10 34 37	21.5	265.8	4.9		38.2	0	0	09 00 00
09 12 00	---	10 46 39	19.7	268.2	5.1		38.3	720	23	09 00 01
09 12 30	0536+145	10 47 09	19.6	268.3	5.1		38.3	24	23	09 12 30
09 20 00	---	10 54 41	18.5	269.8	5.2		38.3	450	37	09 12 31

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

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

Start UT	Source	LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	TPStart SYNC
09 25 00	0536+145	10 59 41	17.7	270.8	5.3		38.3	293	37	09 25 00
09 37 00	---	11 11 43	15.9	273.2	5.5		38.3	720	60	09 25 01
09 37 30	0536+145	11 12 14	15.8	273.3	5.5		38.3	24	60	09 37 30
09 50 00	---	11 24 46	14.0	275.8	5.7		38.1	750	84	09 37 31

SETUP FILE INFORMATION:

==== Setup file: ra6cm2.set

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

Disk used to record data.

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

The following frequency sets based on these setups were used.

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

Track assignments are:

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

==== Setup file: ra18cm2.set

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

Disk used to record data.

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

The following frequency sets based on these setups were used.

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

Track assignments are:

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

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0536+145	05 36 51.361475	* 05 39 42.365993	05 40 33.366163	0.00
J0539+1433	14 32 10.73038	* 14 33 45.56168	14 34 06.43060	0.00

rk08botr

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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 27 Sep 2014 Day 270 ---

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

Next scan frequencies:	4836.00	4836.00	4836.00	4836.00						
Next BBC frequencies:	736.00	736.00	736.00	736.00						
Next scan bandwidths:	16.00	16.00	16.00	16.00						
04 00 00	0602+405	05 37 45	76.5	155.7	-0.5		-19.0	0	0	04 00 00
04 14 30	---	05 52 17	77.2	167.4	-0.2		-9.9	870	28	04 00 01
04 15 00	0602+405	05 52 47	77.2	167.8	-0.2		-9.6	22	28	04 15 00
04 29 30	---	06 07 19	77.4	180.4	0.0		0.3	870	56	04 15 01
04 30 00	0602+405	06 07 50	77.4	180.8	0.0		0.6	22	56	04 30 00
04 44 30	---	06 22 22	77.1	193.3	0.3		10.5	870	84	04 30 01
04 45 00	0602+405	06 22 52	77.1	193.7	0.3		10.8	22	84	04 45 00
05 00 00	---	06 37 54	76.3	205.8	0.5		20.1	900	112	04 45 01

SETUP FILE INFORMATION:

=====
Setup file: ra6cm2.set

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

Disk used to record data.

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

The following frequency sets based on these setups were used.

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

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

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 0602+405	06 02 20.058853	* 06 05 50.855373	06 06 53.524978	0.00
J0605+4030	40 30 26.00787	* 40 30 08.10354	40 29 45.68998	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)
0602+405	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:

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

rk08bptr

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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 LO sum (band edge).
 SYNC: Time correlator 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 27 Sep 2014 Day 270 ---

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

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

Start UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
09 00 00	0536+145	10 38 34	20.9	266.6	5.0		38.3	0	0	09 00 00
09 14 30	---	10 53 06	18.7	269.5	5.2		38.3	870	28	09 00 01
09 15 00	0536+145	10 53 36	18.6	269.6	5.2		38.3	24	28	09 15 00
09 25 00	---	11 03 38	17.1	271.6	5.4		38.3	600	47	09 15 01

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

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

Start UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
09 30 00	0536+145	11 08 39	16.4	272.6	5.5		38.3	293	47	09 30 00
09 44 30	---	11 23 11	14.2	275.5	5.7		38.1	870	75	09 30 01
09 45 00	0536+145	11 23 41	14.1	275.6	5.7		38.1	24	75	09 45 00
10 00 00	---	11 38 44	11.9	278.5	6.0		37.8	900	104	09 45 01

SETUP FILE INFORMATION:

==== Setup file: ra6cm2.set

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

Disk used to record data.

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

The following frequency sets based on these setups were used.

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

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

==== Setup file: ra18cm2.set

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

Disk used to record data.

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

The following frequency sets based on these setups were used.

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

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

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0536+145	05 36 51.361475	* 05 39 42.365993	05 40 33.393477	0.00
J0539+1433	14 32 10.73038	* 14 33 45.56168	14 34 06.39872	0.00

rk08bqtr

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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 LO sum (band edge).
 SYNC: Time correlator 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 28 Sep 2014 Day 271 ---

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

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

```
05 00 00 0605-085    06 41 51 27.9 189.3 0.6            5.6    0        0    05 00 00
05 14 30 ---        06 56 23 27.5 193.3 0.8            8.0    870      28    05 00 01

05 15 00 0605-085    06 56 53 27.5 193.4 0.8            8.1    24      28    05 15 00
05 25 00 ---        07 06 55 27.1 196.2 1.0            9.8    600      47    05 15 01
```

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

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

```
05 30 00 0605-085    07 11 56 26.9 197.6 1.1            10.6    293      47    05 30 00
05 44 30 ---        07 26 28 26.1 201.5 1.3            12.9    870      75    05 30 01

05 45 00 0605-085    07 26 58 26.1 201.6 1.3            12.9    24      75    05 45 00
06 00 00 ---        07 42 01 25.2 205.6 1.6            15.2    900     104    05 45 01
```

SETUP FILE INFORMATION:

===== Setup file: ra6cm2.set

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

Disk used to record data.

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

The following frequency sets based on these setups were used.

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

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

==== Setup file: ra18cm2.set

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

Disk used to record data.

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

The following frequency sets based on these setups were used.

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

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

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* 0605-085	06 05 36.027963	* 06 07 59.699233	06 08 42.456764	0.00
J0607-0834	-08 34 20.29746	*-08 34 49.97823	-08 34 58.19601	0.00

rk08bstr

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
-----
```

--- Sun 28 Sep 2014 Day 271 ---

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

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

```
12 00 00 0602+405        13 43 00 19.5 -47.5 7.6        35.6    0        0    12 00 00
12 14 30 ---             13 57 32 17.9 -45.1 7.8        34.0    870     28    12 00 01

12 15 00 0602+405        13 58 02 17.8 -45.0 7.9        33.9    24     28    12 15 00
12 25 00 ---             14 08 04 16.8 -43.3 8.0        32.8    600     47    12 15 01
```

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

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

```
12 30 00 0602+405        14 13 05 16.3 -42.5 8.1        32.2    294     47    12 30 00
12 44 30 ---             14 27 37 14.8 -40.0 8.3        30.5    870     75    12 30 01

12 45 00 0602+405        14 28 07 14.8 -39.9 8.4        30.5    24     75    12 45 00
13 00 00 ---             14 43 10 13.4 -37.4 8.6        28.6    900    104    12 45 01
```

SETUP FILE INFORMATION:

==== Setup file: ra6cm2.set

```
Setup group:    1                    Station: TORUN                    Total bit rate:    256
Format: MKIV1:4                    Bits per sample: 2                Sample rate: 32.000
Number of channels: 4                DBE type:                         Speedup factor:    1.00
```


Disk used to record data.

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

The following frequency sets based on these setups were used.

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

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

==== Setup file: ra18cm2.set

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

Disk used to record data.

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

The following frequency sets based on these setups were used.

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

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

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0602+405	06 02 20.058853	* 06 05 50.855373	06 06 53.575521	0.00
J0605+4030	40 30 26.00787	* 40 30 08.10354	40 29 45.63739	0.00

rk08bttr

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

--- Mon 29 Sep 2014 Day 272 ---

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

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

03 00 00	0607-157	04 45 28	18.8	158.4	-1.4	-13.3	0	0	03 00 00
03 14 30	---	05 00 00	19.5	162.0	-1.2	-11.1	870	28	03 00 01
03 15 00	0607-157	05 00 30	19.6	162.1	-1.2	-11.0	24	28	03 15 00
03 25 00	---	05 10 32	20.0	164.7	-1.0	-9.5	600	47	03 15 01

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

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

03 30 00	0607-157	05 15 33	20.2	165.9	-0.9	-8.7	293	47	03 30 00
03 44 30	---	05 30 05	20.6	169.6	-0.7	-6.4	870	75	03 30 01
03 45 00	0607-157	05 30 35	20.7	169.8	-0.7	-6.4	24	75	03 45 00
04 00 00	---	05 45 38	21.0	173.6	-0.4	-4.0	900	104	03 45 01

SETUP FILE INFORMATION:

=====
Setup file: ra6cm2.set

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

Disk used to record data.

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

The following frequency sets based on these setups were used.

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

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

==== Setup file: ra18cm2.set

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

Disk used to record data.

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

The following frequency sets based on these setups were used.

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

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

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(Date)	Error (mas)	
* 0607-157	06 07 25.981282	* 06 09 40.949536	06 10 21.148570	0.00
J0609-1542	-15 42 03.30591	*-15 42 40.67271	-15 42 49.03283	0.00

Disk used to record data.

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

The following frequency sets based on these setups were used.

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

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

==== Setup file: ra18cm2.set

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

Disk used to record data.

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

The following frequency sets based on these setups were used.

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

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

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 0602+405	06 02 20.058853	* 06 05 50.855373	06 06 53.610844	0.00
J0605+4030	40 30 26.00787	* 40 30 08.10354	40 29 45.60846	0.00

rk08bvtr

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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 30 Sep 2014 Day 273 ---

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

Table with columns: Start UT, Stop UT, Source, LST, EL, AZ, HA, UP, ParA, Early Dwell, Disk GBytes, TPStart SYNC. Contains observation schedule data for 0602+405.

SETUP FILE INFORMATION:

==== Setup file: ra6cm2.set

Setup group: 1 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

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

The following frequency sets based on these setups were used.

```

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

```

```

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

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 0602+405	06 02 20.058853	* 06 05 50.855373	06 06 53.656648	0.00
J0605+4030	40 30 26.00787	* 40 30 08.10354	40 29 45.58529	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)
0602+405	95.6

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

For common VLBI bands, this is:

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

RadioAstron Mission

http://www.asc.rssi.ru/radioastron/description/intro_eng.htm

RadioAstron project is an international collaborative mission to launch a free flying satellite carrying a 10-meter radio telescope in high apogee orbit around the Earth. The aim of the mission is to use the space telescope to conduct interferometer observations in conjunction with the global ground radio telescope network in order to obtain images, coordinates, motions and evolution of angular structure of different radio emitting objects in the Universe with the extraordinary high angular resolution.

The orbit of RadioAstron satellite will have apogee radius in the range up to 350 000 km. The spacecraft's operational lifetime will be no less than five years. Space-ground Very Long Baseline Interferometer (VLBI) measurements with this orbit will provide morphological and coordinate information on galactic and extragalactic radio sources with fringe size up to 8 micro arc second at the shortest wavelength 1.35 cm.

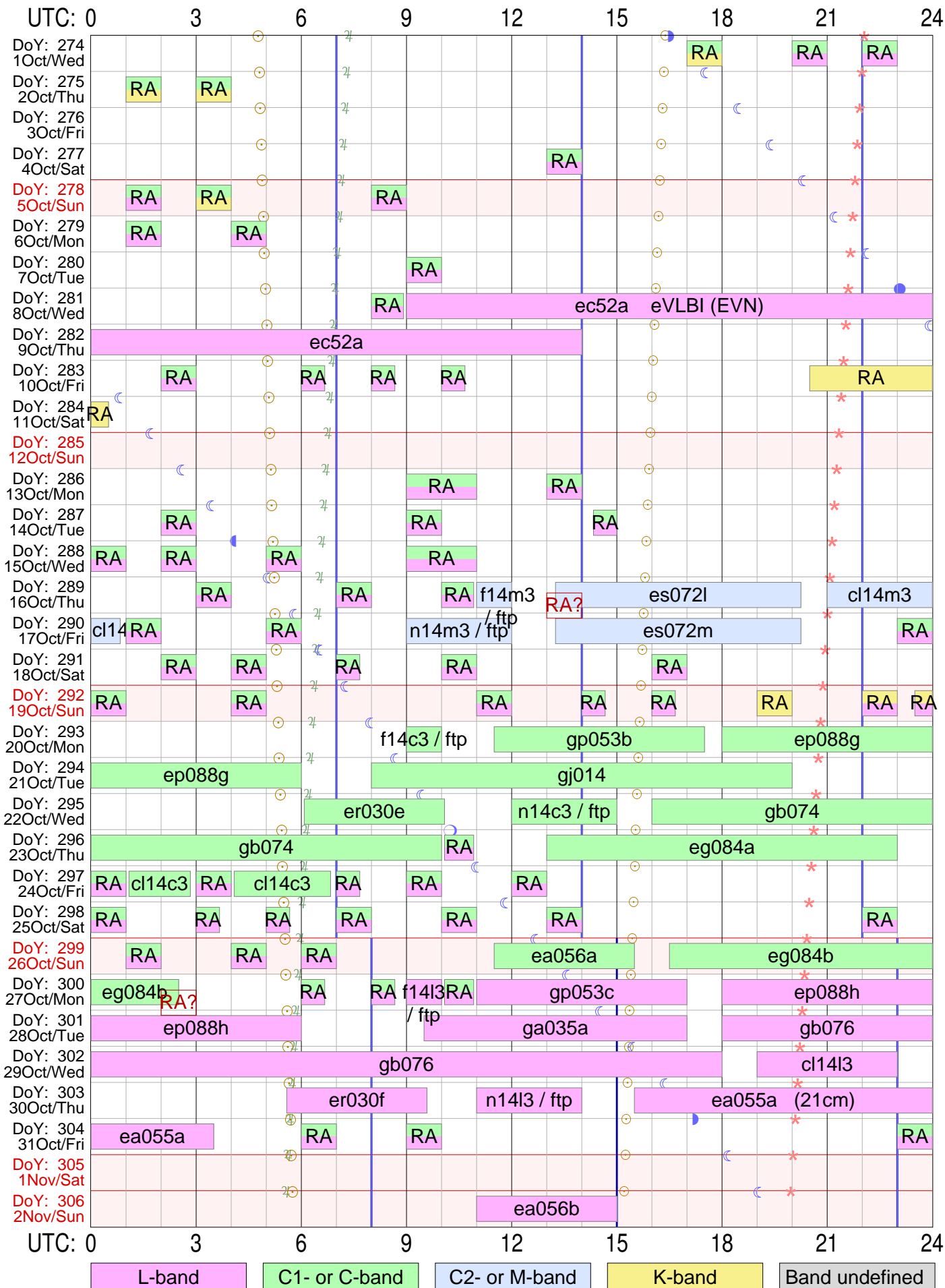
The RadioAstron program, initiated by Astro Space Center (ASC) of Lebedev Physical Institute of Russian Academy of Sciences (RAS) in collaboration with other institutions of RAS and Federal Space Agency (FSA), has expanded into a broad international collaboration: scientists from over 20 countries are constructing the instruments, planning the mission profile, and assuring ground radio telescopes support for RadioAstron. Russia will provide the satellite, most of the on-board hardware, interferometer integration and all kinds of the tests. General designer of satellite and SRT construction is Lavochkin Association (LA) of the RosKosmos.

Several other countries contribute to the on-board scientific payload. The 92-cm receiver is being built in India - National Center for Radio Astrophysics (NCRA) and Russia (Nizhny Novgorod, OAO KB "Gorizont"), the 18-cm receiver in Australia (CSIRO - Commonwealth Scientific and Industrial Research Organization), the 6-cm receiver by Russia, the 1.35-cm receiver by Finland (HUT - Helsinki University of Technology) and upgraded in USA (National Radio Astronomy Observatory- NRAO) and Russia (Moscow Institute of Radioengineering and Electronics - IRE), rubidium on-board frequency standard was built by the European Space Agency (ESA) at Neuchatel observatory in Switzerland. H-maser on-board frequency standard is being developed in Russia (Nizhny Novgorod, ZAO "Vremya-CH"). Russian (ASC) recording system on 6-system HDD and tapes will be able to accept a digital data stream at a maximum data rate of 128 Mbit/s. The correlator will be able to process the data from up to 5 interferometer stations (including the space element) at a maximum data rate of 128 Mbit/s. European Space Agency (ESA) participated in testing of the space radio telescope antenna. On board operating spacecraft system and command communication centers at Bear Lake (near Moscow) and near Ussuriisk (Eastern Russia), and also a tracking station at Pushchino are under preparation.

Main scientific goal of the mission is the study of various astronomical objects with unprecedented angular resolution up to few millionth of an arcsecond. The resolution achieved with RadioAstron will allow us in principle to study the following phenomena and problems:

- central engine of AGN and physical processes near super massive black holes providing an acceleration of cosmic rays — size, velocity and shape of emitting region in the core, spectrum, polarization and variability of emitting components;
- cosmological models, dark matter and dark energy - by studying dependence of above mentioned AGN's parameters with redshift, and by observing gravitational lensing;
- structure and dynamics of star and planets forming regions in our Galaxy and in AGN — by studying maser and Mega maser radio emission;
- neutron (quark?) stars and black holes in our Galaxy, their structure and dynamics — by VLBI and measurements of visibility scintillations, proper motions and parallaxes;
- structure and distribution of interstellar and interplanetary plasma — by fringe visibility scintillations of pulsars;
- building of high accuracy astronomical reference system of coordinates;
- building of high accuracy model of the Earth gravity field.

Tr VLBI plan for Oct/Nov 2014



Sky events at Tr: ○ Sunrise & sunset ○●◐◑ Transit of Moon ⌋ Transit of Jupiter ★ Transit of Aries (0h ST)

Vertical lines in blue mark operator shift times at Tr

Total observing time: 282.4 hours in 95 experiments scheduled

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