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BUREAU INTERNATIONAL DES POIDS ET MESURES
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1 - Coordinated Universal Time UTC and its local realizations UTC(k). Computed values of [*UTC-UTC*(*k*)] and uncertainties valid for the period of this Circular. From 2006 January 1, 0h UTC, *TAI-UTC* = 33 s.

Date 2006 0h UTC	OCT 31	NOV 5	NOV 10	NOV 15	NOV 20	NOV 25	NOV 30	Uncertainty/ns			Notes
MJD	54039	54044	54049	54054	54059	54064	54069	u_A	u_B	u	
Laboratory *k*	[*UTC-UTC*(*k*)]/ns										
AOS (Borowiec)	-1.1	1.7	1.6	0.6	5.3	5.0	-9.2	1.5	5.1	5.3	
APL (Laurel)	10.3	8.8	8.8	-10.0	-2.7	4.6	12.4	1.5	5.0	5.2	
AUS (Sydney)	-246.2	-243.5	-247.0	-238.5	-226.1	-207.8	-177.7	1.5	5.1	5.3	
BEV (Wien)	8.5	9.0	14.4	9.6	6.6	-2.2	-8.9	2.0	5.1	5.4	
BIRM (Beijing)	-2295.4	-2316.0	-2337.5	-2362.5	-2374.0	-2392.6	-2413.8	3.5	20.0	20.3	
CAO (Cagliari)	-897.7	-890.8	-879.6	-880.3	-892.1	-887.7	-857.7	1.5	7.1	7.2	
CH (Bern)	-31.5	-30.8	-32.4	-31.4	-29.6	-17.0	-23.3	0.7	5.1	5.1	
CNM (Queretaro)	33.3	7.7	3.6	-2.7	-1.3	-11.5	-5.5	5.0	5.1	7.1	
CNMP (Panama)	-5963.3	-5994.2	-6003.5	-5787.7	-4821.9	-3883.8	-2910.2	3.0	5.1	5.9	
CSIR (Pretoria)	-1777.4	-1844.1	-1906.4	-1977.6	-2040.5	-2119.6	-2174.8	2.5	20.0	20.2	
DLR (Oberpfaffenhofen)	-	-	-	-	-	-	-	-	-	-	
DTAG (Darmstadt)	266.9	280.2	290.8	304.8	319.9	335.6	-	3.0	10.1	10.5	
HKO (Hong Kong)	6.5	3.5	7.4	4.1	-7.1	-13.1	-17.7	2.5	5.1	5.7	
IFAG (Wettzell)	-382.2	-397.2	-391.7	-383.7	-382.3	-370.0	-376.8	0.7	5.1	5.1	
IGMA (Buenos Aires)	768.5	767.6	767.2	756.8	756.8	759.5	756.7	2.5	5.1	5.7	
INPL (Jerusalem)	157.2	156.6	160.8	167.1	170.9	172.6	177.8	5.0	10.0	11.2	
IT (Torino)	-6.6	-8.7	-8.4	-6.8	-3.3	-0.6	2.4	0.6	1.5	1.6	
JATC (Lintong)	-7.2	7.8	9.6	11.4	12.1	11.8	9.7	1.5	5.1	5.3	
JV (Kjeller)	-2274.5	-2184.0	-2095.5	-2039.5	-2002.4	-1930.1	-1857.8	5.0	20.0	20.6	
KRIS (Daejeon)	-8.6	-7.6	-9.6	-10.0	-6.8	-5.5	-13.4	0.7	5.1	5.1	
LDS (Leeds)	849.1	873.6	896.8	926.5	991.7	1016.7	1053.2	3.0	20.0	20.3	
LT (Vilnius)	74.2	74.0	69.0	64.8	74.5	62.2	65.1	1.5	5.1	5.3	
MIKE (Espoo)	-80.3	-92.3	-100.0	-120.3	-98.1	-78.6	-62.8	5.0	19.8	20.5	
MSL (Lower Hutt)	7.8	-12.2	-19.8	-9.0	8.5	-11.7	-10.9	1.0	20.0	20.0	
NAO (Mizusawa)	252.2	246.0	241.4	235.1	237.6	239.0	230.9	3.0	20.0	20.3	
NICT (Tokyo)	2.9	0.8	1.4	-1.2	-2.9	-3.8	-6.0	0.7	4.8	4.8	
NIM (Beijing)	-46.4	-51.7	-47.2	-53.8	-52.2	-48.4	-50.8	1.5	19.8	19.9	
NIMB (Bucharest)	-1067.1	-1078.2	-1098.7	-437.4	-343.3	-352.8	-369.8	2.5	20.0	20.2	(1)
NIMT (Bangkok)	-1158.6	-1164.4	-1168.8	-1164.6	-1167.2	-1165.7	-1178.4	1.0	20.0	20.1	
NIS (Cairo)	245.6	249.3	261.5	268.5	287.9	236.2	159.7	2.5	7.1	7.5	

Date 2006 0h UTC	OCT 31	NOV 5	NOV 10	NOV 15	NOV 20	NOV 25	NOV 30	Uncertainty/ns			Notes
MJD	54039	54044	54049	54054	54059	54064	54069	u_A	u_B	u	
Laboratory *k*				[*UTC*-*UTC*(*k*)]/ns							
NIST (Boulder)	-4.9	-1.9	2.7	6.0	9.8	9.9	11.6	0.5	4.9	4.9	
NMC (Sofiya)	-4878.6	-4877.2	-4881.0	-4898.5	-4941.1	-4915.5	-4902.9	5.0	20.0	20.6	
NMIJ (Tsukuba)	-8.3	-8.4	-6.0	-4.9	-3.9	-2.6	-1.2	0.7	5.1	5.1	
NMLS (Sepang)	-555.3	-565.4	-583.0	-592.9	-598.2	-608.4	-612.5	2.0	20.0	20.1	
NPL (Teddington)	-12.5	2.4	2.6	3.3	10.8	11.3	10.4	1.5	5.1	5.3	
NPLI (New-Delhi)	-44.9	-46.1	-22.4	-6.8	11.4	21.3	43.8	4.0	7.1	8.1	
NRC (Ottawa)	-10.4	-8.5	-0.8	7.5	15.5	29.9	43.6	0.7	5.1	5.2	
NTSC (Lintong)	-4.8	12.2	7.2	10.9	11.4	8.9	9.1	1.5	5.0	5.2	
OMH (Budapest)	11607.9	11615.8	11621.1	11622.2	11615.4	11631.2	11645.0	2.5	20.0	20.2	
ONBA (Buenos Aires)	-12970.7	-12920.0	-13006.0	-12912.0	-12864.8	-12710.6	-12620.4	5.0	5.1	7.2	
ONRJ (Rio de Janeiro)	8797.1	-25.5	-28.1	-31.6	-13.5	-14.4	-20.6	4.0	20.0	20.4	(2)
OP (Paris)	-32.9	-30.3	-24.6	-22.2	-23.5	-29.4	-28.5	0.5	1.4	1.5	
ORB (Bruxelles)	34.0	29.6	26.5	23.0	19.1	13.2	4.6	0.7	5.1	5.1	
PL (Warszawa)	-16.7	-23.2	-22.0	-15.5	1.2	4.9	10.2	1.4	4.9	5.1	
PTB (Braunschweig)	-3.8	-3.8	-3.1	0.1	1.6	7.7	9.2	0.3	1.1	1.1	
ROA (San Fernando)	36.0	24.0	20.8	10.5	0.2	-7.3	-8.9	0.7	5.1	5.1	
SCL (Hong Kong)	-34.9	-36.3	-40.1	-44.2	-38.6	-30.9	-32.0	4.0	9.9	10.7	
SG (Singapore)	56.2	33.2	32.6	35.5	33.1	39.9	42.1	2.0	5.1	5.5	
SMU (Bratislava)	-64.4	-65.8	-76.2	-93.6	-101.2	-102.1	-115.9	5.0	20.0	20.6	
SP (Boras)	11.6	11.3	7.0	6.0	7.4	9.8	17.1	0.5	1.4	1.5	
SU (Moskva)	-11.9	-12.8	-12.3	-11.4	-10.8	-9.9	-8.0	3.0	5.1	5.9	
TCC (Concepcion)	-3398.8	-3413.1	-3433.8	-3476.0	-3506.0	-3543.5	-3535.5	1.5	19.9	20.0	
TL (Chung-Li)	-12.6	-13.3	-10.8	-11.1	-11.0	-6.4	-2.7	0.7	4.9	4.9	
TP (Praha)	-41.4	-38.0	-33.4	-35.6	-29.9	-33.1	-26.8	1.5	5.1	5.3	
UME (Gebze-Kocaeli)	27.2	14.7	6.5	4.6	5.1	7.0	1.3	1.5	7.1	7.2	
USNO (Washington DC)	3.3	4.6	5.3	4.6	5.1	3.8	4.1	0.3	1.3	1.4	
VSL (Delft)	-21.7	-29.6	-35.1	-35.3	-36.9	-43.5	-49.0	0.6	1.5	1.6	
ZMDM (Belgrade)	3922.6	3950.2	3985.4	4020.9	4061.7	4095.9	4127.5	2.0	7.1	7.4	

- Notes on section 1:

(1) NIMB : Time step of UTC(NIMB) between MJD 54049 and 54054 due to cable re-calibration.
(2) ONRJ : Time step of UTC(ONRJ) between MJD 54039 and 54044 due to master clock and GPS receiver changes.

2 - International Atomic Time TAI and Local atomic time scales TA(k). Computed values of [*TAI-TA*(*k*)].

Date 2006 0h UTC	OCT 31	NOV 5	NOV 10	NOV 15	NOV 20	NOV 25	NOV 30	
MJD	54039	54044	54049	54054	54059	54064	54069	
Laboratory *k*				[*TAI-TA*(*k*)]/ns				
CH (Bern)	53624.2	53638.0	53649.5	53663.6	53678.5	53695.4	53702.2	
F (Paris)	168335.1	168333.3	168332.3	168332.7	168333.9	168332.8	168335.7	
IT (Torino)	57702.3	57831.6	57965.2	58096.7	58229.3	58360.1	58489.7	
JATC (Lintong)	-40903.7	-40942.1	-40977.1	-41012.4	-41049.6	-41083.4	-41116.9	
KRIS (Daejeon)	14215.3	14288.9	14360.0	14432.3	14508.4	14582.6	14648.7	
NICT (Tokyo)	9.1	7.7	5.5	4.3	2.8	1.3	-0.2	
NIST (Boulder)	-45299095.2	-45299289.2	-45299481.6	-45299675.3	-45299867.3	-45300061.2	-45300253.5	
NRC (Ottawa)	30150.4	30155.9	30167.6	30179.8	30191.7	30210.1	30227.6	
NTSC (Lintong)	3597.0	3618.1	3641.4	3663.9	3686.5	3711.2	3737.0	
ONRJ (Rio de Janeiro)	-870.0	-923.1	-933.4	-951.5	-1019.5	-1033.9	-1048.8	
PL (Warszawa)	-3931.8	-3951.4	-3963.8	-3973.5	-3980.6	-3991.3	-4002.7	
PTB (Braunschweig)	-358028.5	-358021.3	-358013.1	-358002.3	-357993.2	-357979.4	-357970.4	
SU (Moskva)	27242825.1	27242846.3	27242868.8	27242891.7	27242914.4	27242937.3	27242961.2	(1)
TL (Chung-Li)	509.3	511.2	515.4	520.8	525.7	530.2	535.9	
USNO (Washington DC)	-34986737.3	-34987039.8	-34987343.8	-34987648.6	-34987952.5	-34988257.9	-34988561.0	

- Note on section 2:

(1) SU : Listed values are *TAI-TA*(*SU*) - 2.80 seconds.

3 - Difference between the normalized frequencies of EAL (free atomic time scale) and TAI.

	Interval of validity	*f*(*EAL*)-*f*(*TAI*)	
Steering correction	54039 - 54069	6.817×10^{-13}	(2006 OCT 31 - 2006 NOV 30)
New correction	54069 - 54099	6.812×10^{-13}	(2006 NOV 30 - 2006 DEC 30)
New correction foreseen	54099 - 54129	6.806×10^{-13}	(2006 DEC 30 - 2007 JAN 29)

4 - Duration of the TAI scale interval.

TAI is a realization of coordinate time TT. The following tables give the fractional deviation d of the scale interval of TAI from that of TT (the SI second on the geoid), i.e. the fractional frequency deviation of TAI with the opposite sign: $d = -y_{TAI}$. In this section, a frequency over a time interval is defined as the ratio of the end-point phase difference to the duration of the interval. Whenever needed, the instability of EAL should be expressed as the quadratic sum of three components with τ in days: (1) a white frequency noise of $3.0 \times 10^{-15} / \sqrt{\tau}$, (2) a flicker frequency noise of 0.5×10^{-15} and (3) a random walk frequency noise of $1.0 \times 10^{-16} \times \sqrt{\tau}$. The relation between EAL and TAI is given in *Circular T* and the *Annual Report of the BIPM Time Section*.

In the first table, d is obtained, on the given periods of estimation by comparison of the TAI frequency with that of the given individual Primary Frequency Standards (PFS). In this table: u_A is the uncertainty originating in the instability of the PFS, u_B is the combined uncertainty from systematic effects, Ref(u_B) is a reference giving information on the stated value of u_B or is the *Circular T* where this reference was first given, $u_{l/lab}$ is the uncertainty in the link between the PFS and the clock participating to TAI, including the uncertainty due to the dead-time, $u_{l/TAI}$ is the uncertainty in the link to TAI, u is the quadratic sum of all four uncertainty values. All values are expressed in 10^{-15}.

Standard	Period of Estimation		d	u_A	u_B	Ref(u_B)	$u_{l/lab}$	$u_{l/TAI}$	u	Note
SYRTE-JPO	54039	54069	10.0	0.7	6.3	T160	0.3	0.3	6.4	(1)
SYRTE-FO1	54054	54069	1.1	0.1	0.4	[1]	0.1	0.6	0.8	(2)
SYRTE-FO2	54054	54069	1.0	0.2	0.4	[1]	0.1	0.6	0.8	(3)
PTB-CS1	54039	54069	-2.3	5.0	8.0	T148	0.0	0.2	9.4	(4)
PTB-CS2	54039	54069	-5.4	3.0	12.0	T148	0.0	0.2	12.4	(4)

Notes:
(1) Report 5 Dec. 2006 by LNE-SYRTE.
(2) Report 8 Dec. 2006 by LNE-SYRTE.
(3) Report 11 Dec. 2006 by LNE-SYRTE.
(4) Continuously operating as a clock participating to TAI.
[1] C. Vian et al., IEEE Trans. on Inst. and Meas., 54, 833-836, 2005.

The second table gives the BIPM estimate of d, based on all available PFS measurements over the period MJD 53679-54069, taking into account their individual uncertainties and characterizing the instability of EAL as noted above. u is the computed standard uncertainty of d

Period of estimation	d	u	
54039-54069	1.7×10^{-15}	0.7×10^{-15}	(2006 OCT 31 - 2006 NOV 30)

5 - Relations of UTC and TAI with GPS time and GLONASS time.

[*UTC-GPS time*] = -14 s + C_0, [*TAI-GPS time*] = 19 s + C_0, global uncertainty is of order 10 ns.
[*UTC-GLONASS time*] = 0 s + C_1, [*TAI-GLONASS time*] = 33 s + C_1, global uncertainty is of order hundreds ns.

The C_0 values are obtained using the values [*UTC-UTC*(*OP*)] and the GPS data taken at the Paris Observatory, corrected for IGS precise orbits, clocks and ionosphere maps. The C_1 values are obtained using the values [*UTC-UTC*(*AOS*)] and the GLONASS data taken at the Astrogeodynamical Observatory Borowiec (AOS). N_0 and N_1 are the numbers of measurements, when N_0 or N_1 is 0, the corresponding values of C_0 or C_1 are interpolated.
The standard deviations σ_0 and σ_1 characterize the dispersion of individual measurements. The actual uncertainty of user's access to GPS and GLONASS times may differ from these values.
For this circular, σ_0 = 2.5 ns, σ_1 = 12.9 ns

Date 2006 0h UTC	MJD	C_0/ns	N_0	C_1/ns	N_1
OCT 31	54039	-2.5	48	-303.8	88
NOV 1	54040	-6.1	47	-314.3	78
NOV 2	54041	-5.6	48	-316.5	74
NOV 3	54042	-6.8	48	-314.1	83
NOV 4	54043	-7.3	48	-317.4	75
NOV 5	54044	-5.4	47	-321.8	82
NOV 6	54045	-2.4	44	-327.3	83
NOV 7	54046	-2.2	48	-335.1	84
NOV 8	54047	-3.3	47	-338.6	86
NOV 9	54048	-2.5	43	-336.1	69
NOV 10	54049	-3.1	45	-340.8	65
NOV 11	54050	-2.6	45	-350.8	80
NOV 12	54051	-4.0	47	-352.4	82
NOV 13	54052	-3.2	46	-350.3	81
NOV 14	54053	-4.1	45	-346.8	80
NOV 15	54054	-2.0	47	-345.3	88
NOV 16	54055	-0.1	47	-351.6	86
NOV 17	54056	-0.4	46	-353.8	84
NOV 18	54057	-1.7	41	-354.9	76
NOV 19	54058	-2.0	46	-364.3	89
NOV 20	54059	-3.2	46	-371.0	88
NOV 21	54060	-2.1	46	-378.6	83
NOV 22	54061	-2.4	46	-394.6	89
NOV 23	54062	-1.0	46	-405.7	83
NOV 24	54063	-1.0	35	-402.7	86
NOV 25	54064	-3.8	44	-400.1	80
NOV 26	54065	-5.0	45	-396.7	85
NOV 27	54066	-6.2	45	-382.8	89
NOV 28	54067	-4.8	44	-381.6	75
NOV 29	54068	-4.1	47	-397.3	73
NOV 30	54069	-3.5	46	-413.4	68

6 - Time links used for the computation of TAI and their uncertainties.

The time links used in the elaboration of this *Circular T* are listed in this section. The technique for the link is indicated as follows: GPS SC for GPS all-in-view single-channel C/A data; GPS MC for GPS all-in-view multi-channel C/A data; GPS P3 for GPS all-in-view multi-channel dual-frequency P code data; GPS GT for 'GPS time' observations; INT LK for internal cable link and TWSTFT for two-way satellite time and frequency transfer data.

For each link, the following uncertainties are provided: u_A is the statistical uncertainty evaluated by taking into account the level of phase noise in the raw data, the interpolation interval between data points and the effects with typical duration between 5 and 30 days. U_B is the estimated uncertainty on the calibration.

The calibration type of the link is indicated as: GPS EC for GPS equipment calibration; TW EC for two-way equipment calibration; LC (technique) for a link calibrated using 'technique'; BC (technique) for a link calibrated using 'technique' to transfer a past equipment calibration through a discontinuity of link operation.

The calibration dates indicate: the most recent calibration results for the two laboratories in the case of EC and the most recent calibration of the link in the case of LC and BC, NA stands for not available, in this case estimated values are provided

Link	Type	u_A/ns	u_B/ns	Calibration Type	Calibration Dates
AOS /PTB	GPS MC	1.5	5.0	GPS EC/GPS EC	2003 Sep/2004 Jul
APL /PTB	GPS MC	1.5	5.0	GPS EC/GPS EC	2003 Dec/2004 Jul
AUS /PTB	GPS MC	1.5	5.0	GPS EC/GPS EC	2004 Nov/2004 Jul
BEV /PTB	GPS MC	2.0	5.0	GPS EC/GPS EC	2001 Dec/2004 Jul
BIRM/PTB	GPS SC	3.5	20.0	NA /GPS EC	NA /2004 Jul
CAO /PTB	GPS MC	1.5	7.0	GPS EC/GPS EC	2004 Nov/2004 Jul
CH /PTB	GPS P3	0.7	5.0	GPS EC/GPS EC	2004 Nov/2004 Aug
CNM /PTB	GPS SC	5.0	5.0	GPS EC/GPS EC	2005 Nov/2004 Jul
CNMP/PTB	GPS MC	3.0	5.0	GPS EC/GPS EC	2004 May/2004 Jul
CSIR/PTB	GPS MC	2.5	20.0	NA /GPS EC	NA /2004 Jul
DLR /PTB	GPS P3	0.7	5.0	GPS EC/GPS EC	2003 Apr/2004 Aug
DTAG/PTB	GPS MC	3.0	10.0	GPS EC/GPS EC	1998 May/2004 Jul
HKO /PTB	GPS MC	2.5	5.0	GPS EC/GPS EC	2004 Sep/2004 Jul
IFAG/PTB	GPS P3	0.7	5.0	GPS EC/GPS EC	2003 Jun/2004 Aug
IGMA/PTB	GPS MC	2.5	5.0	GPS EC/GPS EC	2004 Aug/2004 Jul
INPL/PTB	GPS SC	5.0	10.0	GPS EC/GPS EC	1987 Jun/2004 Jul
IT /PTB	TWSTFT	0.5	1.0	LC (TWSTFT)	2005 Nov
JATC/NTSC	INT LK	0.2	1.0	NA	/2002 Aug
JV /PTB	GPS GT	5.0	20.0	NA /GPS EC	NA /2003 Aug
KRIS/PTB	GPS P3	0.7	5.0	GPS EC/GPS EC	2005 Aug/2004 Aug

Link	Type	u_A/ns	u_B/ns	Calibration Type	Calibration Dates
LDS /PTB	GPS SC	3.0	20.0	NA /GPS EC	NA /2004 Jul
LT /PTB	GPS MC	1.5	5.0	GPS EC/GPS EC	2001 Nov/2004 Jul
MIKE/PTB	GPS MC	5.0	20.0	NA /GPS EC	NA /2004 Jul
MSL /PTB	GPS P3	1.0	20.0	NA /GPS EC	NA /2004 Aug
NAO /PTB	GPS SC	3.0	20.0	NA /GPS EC	NA /2004 Jul
NICT/PTB	GPS P3	0.7	5.0	GPS EC/GPS EC	2005 Jun/2004 Aug
NIM /PTB	GPS MC	1.5	20.0	NA /GPS EC	NA /2004 Jul
NIMB/PTB	GPS MC	2.5	20.0	NA /GPS EC	NA /2004 Jul
NIMT/PTB	GPS P3	1.0	20.0	NA /GPS EC	NA /2004 Aug
NIS /PTB	GPS MC	2.5	7.0	GPS EC/GPS EC	2005 May/2004 Jul
NIST/PTB	TWSTFT	0.5	5.0	BC(GPS P3)	2005 May
NMC /PTB	GPS SC	5.0	20.0	NA /GPS EC	NA /2004 Jul
NMIJ/PTB	GPS P3	0.7	5.0	GPS EC/GPS EC	2002 Apr/2004 Aug
NMLS/PTB	GPS MC	2.0	20.0	NA /GPS EC	NA /2004 Jul
NPL /PTB	GPS MC	1.5	5.0	GPS EC/GPS EC	2002 Jun/2004 Jul
NPLI/PTB	GPS MC	4.0	7.0	GPS EC/GPS EC	2005 Jul/2004 Jul
NRC /PTB	GPS P3	0.7	5.0	GPS EC/GPS EC	2003 Nov/2004 Aug
NTSC/PTB	GPS MC	1.5	5.0	GPS EC/GPS EC	2004 Sep/2004 Jul
OMH /PTB	GPS SC	2.5	20.0	NA /GPS EC	NA /2004 Jul
ONBA/PTB	GPS MC	5.0	5.0	GPS EC/GPS EC	2004 Jul/2004 Jul
ONRJ/PTB	GPS MC	4.0	20.0	NA /GPS EC	NA /2004 Jul
OP /PTB	TWSTFT	0.5	1.0	LC(TWSTFT)	2005 Nov
ORB /PTB	GPS P3	0.7	5.0	GPS EC/GPS EC	2003 Jul/2004 Aug
PL /PTB	GPS MC	1.5	5.0	GPS EC/GPS EC	2001 Oct/2004 Jul
ROA /PTB	TWSTFT	0.7	5.0	BC(GPS P3)	2005 May
SCL /PTB	GPS SC	4.0	10.0	GPS EC/GPS EC	1993 May/2004 Jul
SG /PTB	GPS MC	2.0	5.0	GPS EC/GPS EC	2004 Nov/2004 Jul
SMU /PTB	GPS SC	5.0	20.0	NA /GPS EC	NA /2004 Jul
SP /PTB	TWSTFT	0.5	1.0	LC(TWSTFT)	2005 Nov
SU /PTB	GPS SC	3.0	5.0	GPS EC/GPS EC	2003 Apr/2004 Jul
TCC /PTB	GPS P3	1.5	20.0	NA /GPS EC	NA /2004 Aug
TL /PTB	GPS P3	0.7	5.0	GPS EC/GPS EC	2005 May/2004 Aug
TP /PTB	GPS MC	1.5	5.0	LC(GPS SC)	2004 Jul
UME /PTB	GPS MC	1.5	7.0	GPS EC/GPS EC	2005 Dec/2004 Jul
USNO/PTB	TWSTFT	0.5	2.0	BC(TW X-Band)	2005 May
VSL /PTB	TWSTFT	0.5	1.0	LC(TWSTFT)	2005 Nov
ZMDM/PTB	GPS MC	2.0	7.0	GPS EC/GPS EC	2005 Mar/2004 Jul