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BUREAU INTERNATIONAL DES POIDS ET MESURES
Circular T 100 (1996 May 14)

1 - Coordinated Universal Time UTC. Computed values of UTC-UTC(k).

(From 1996 January 1, 0hUTC, TAI-UTC = 30 s)

Date 1996 0h UTC		Mar 27	Apr 1	Apr 6	Apr 11
MJD		50169	50174	50179	50184
Laboratory k		UTC-UTC(k) (Unit is one nanosecond)			
AOS (Borowiec)		266	228	198	213
APL (Laurel)		2241	2246	2235	2218
AUS (Canberra)		-631	-595	-587	-556
BEV (Wien)		6978	6793	6616	6425
BIRM (Beijing)		-1186	-1189	-1220	-1265
CAO (Cagliari)		-	-	-	-
CH (Bern)		401	388	404	404
CNM (Mexico)	(1)	86	75	35	24
CRL (Tokyo)		27	9	-13	-20
CSAO (Lintong)		-299	-234	-224	-264
CSIR (Pretoria)		5730	5782	5847	5949
DLR (Oberpfaffenhofen)		-2125	-2129	-2133	-2133
FTZ (Darmstadt)		-318	-332	-326	-328
GUM (Warszawa)		-364	-361	-362	-358
IEN (Torino)		184	180	172	162
IFAG (Wettzell)		-4951	-4950	-4919	-4872
IGMA (Buenos Aires)		73	72	84	77
INPL (Jerusalem)		-2309	-2184	-2059	-1915
IPQ (Monte de Caparica)		-9061	-9123	-9178	-9227
JATC (Lintong)		1772	1911	1989	2025
KRIS (Taejon)		173	182	186	172
LDS (Leeds)		142	137	119	122
MSL (Lower Hutt)		-5090	-5131	-5120	-5052
NAOM (Mizusawa)		-3064	-3050	-3045	-3049
NAOT (Tokyo)		-2677	-2550	-2426	-2325
NIM (Beijing)		8285	8290	8302	8314
NIST (Boulder)		7	6	8	3
NPL (Teddington)		24	21	15	12
NRC (Ottawa)		59	51	39	19
NRLM (Tsukuba)		-4105	-4034	-3973	-3899
OMH (Budapest)		16069	16185	16198	16178
ONBA (Buenos Aires)		-8291	-8503	-8657	-8816
ONRJ (Rio de Janeiro)		4702	5331	5983	6845
OP (Paris)		31	30	34	40
ORB (Bruxelles)		165	156	124	98
PTB (Braunschweig)		2157	2149	2147	2135
ROA (San Fernando)		104	106	106	113
SCL (Hong Kong)		126	96	80	60
SO (Shanghai)		1441	1433	1424	1417
SP (Boras)	(2)	-	-6027	-6129	-6217
SU (Moskva)		-7445	-7453	-7472	-7476
TL (Chung-Li)		104	109	117	111
TP (Praha)		-164	-155	-154	-145
TUG (Graz)		23	38	47	61
UME (Gebze-Kocaeli)		-3003	-2991	-2977	-2969
USNO (Washington DC)(USNO MC)		8	7	10	7
VSL (Delft)		-301	-315	-328	-336

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1 - Coordinated Universal Time UTC. (Cont.)

Date 1996 0h UTC	Apr 16	Apr 21	Apr 26
MJD	50189	50194	50199
Laboratory k	UTC-UTC(k)	(Unit is one	nanosecond)
AOS (Borowiec)	168	161	74
APL (Laurel)	2196	2166	2121
AUS (Canberra)	-506	-478	-458
BEV (Wien)	6245	6066	5890
BIRM (Beijing)	-1308	-1363	-1422
CAO (Cagliari)	-	-	-
CH (Bern)	394	381	362
CNM (Mexico)	-1	-41	-42
CRL (Tokyo)	-19	-22	-22
CSAO (Lintong)	-188	-235	-229
CSIR (Pretoria)	6063	6137	6250
DLR (Oberpfaffenhofen)	-2136	-2136	-2138
FTZ (Darmstadt)	-340	-353	-352
GUM (Warszawa)	-358	-352	-339
IEN (Torino)	159	159	165
IFAG (Wettzell)	-4860	-4847	-4842
IGMA (Buenos Aires)	97	81	87
INPL (Jerusalem)	-1787	-1647	-1492
IPQ (Monte de Caparica)	-9293	-9351	-9404
JATC (Lintong)	2179	2205	2300
KRIS (Taejon)	174	165	160
LDS (Leeds)	129	107	103
MSL (Lower Hutt)	-4948	-4957	-4962
NAOM (Mizusawa)	-3040	-3040	-3037
NAOT (Tokyo)	-2221	-2123	-2004
NIM (Beijing)	8339	8347	8336
NIST (Boulder)	1	-2	0
NPL (Teddington)	10	10	12
NRC (Ottawa)	16	5	-4
NRLM (Tsukuba)	-3831	-3762	-3690
OMH (Budapest)	16225	16055	-
ONBA (Buenos Aires)	-9060	-9559	-9898
ONRJ (Rio de Janeiro)	7549	8160	8704
OP (Paris)	38	35	42
ORB (Bruxelles)	75	96	74
PTB (Braunschweig)	2130	2112	2106
ROA (San Fernando)	107	107	118
SCL (Hong Kong)	22	-5	-41
SO (Shanghai)	1447	1410	1409
SP (Boras)	-6311	-6398	-6490
SU (Moskva)	-	-	-
TL (Chung-Li)	103	101	107
TP (Praha)	-132	-117	-116
TUG (Graz)	64	83	104
UME (Gebze-Kocaeli)	-2964	-2952	-2939
USNO (Washington DC)(USNO MC)	3	2	1
VSL (Delft)	-352	-362	-365

2 - International Atomic Time TAI and local atomic time scales TA(k).

The following tables give the computed values of TAI-TA(k).

Date 1996 0h UTC		Mar 27	Apr 1	Apr 6	Apr 11
MJD		50169	50174	50179	50184
Laboratory k		TAI-TA(k) (Unit is one nanosecond)			
APL (Laurel)		3704	3709	3698	3681
AUS (Canberra)		-68629	-68754	-68897	-69009
CH (Bern)		-61360	-61224	-61059	-60908
CRL (Tokyo)		67317	67525	67730	67943
CSAO (Lintong)		5562	5562	5507	5402
F (Paris)		153417	153579	153736	153910
IEN (Torino)		-258	-242	-242	-236
INPL (Jerusalem)		-330126	-330788	-331458	-332114
JATC (Lintong)		12457	12580	12629	12646
KRIS (Taejon)		2861	2921	2984	3034
NIM (Beijing)		-6308	-6283	-6243	-6214
NISA (Boulder)	(3)	-45142420	-45142638	-45142854	-45143076
NRC (Ottawa)		25940	25971	25998	26017
PTB (Braunschweig)		-361243	-361251	-361253	-361265
SO (Shanghai)		-46031	-46050	-46070	-46078
SU (Moskva)	(4)	27242555	27242547	27242528	27242524
USNO (Washington DC)	(5)	-34744524	-34744855	-34745186	-34745518

Date 1996 0h UTC		Apr 16	Apr 21	Apr 26
MJD		50189	50194	50199
Laboratory k		TAI-TA(k) (Unit is one nanosecond)		
APL (Laurel)		3659	3629	-
AUS (Canberra)		-69102	-69223	-69399
CH (Bern)		-60754	-60603	-60458
CRL (Tokyo)		68154	68362	68571
CSAO (Lintong)		5414	5302	5243
F (Paris)		154085	154258	154433
IEN (Torino)		-208	-170	-151
INPL (Jerusalem)		-332794	-333468	-334133
JATC (Lintong)		12785	12800	12876
KRIS (Taejon)		3096	3148	3201
NIM (Beijing)		-6167	-6145	-6146
NISA (Boulder)	(3)	-45143296	-45143516	-45143732
NRC (Ottawa)		26052	26080	26110
PTB (Braunschweig)		-361270	-361288	-361294
SO (Shanghai)		-46055	-46099	-46043
SU (Moskva)		-	-	-
USNO (Washington DC)	(5)	-34745851	-34746179	-34746507

3 - Notes on sections 1 and 2.

(1) CNM . Centro Nacional de Metrologia, Mexico City, Mexico.

(2) SP . Swedish National Testing and Research Institute, Boras, Sweden.

(3) NIST. TA(NISA) designates the scale AT1 of NIST.

(4) SU . Listed values are TAI-TA(SU) - 2.80 seconds.

(5) USNO. TA(USNO) designates the scale A1(MEAN) of USNO.

4 - Difference between the normalized frequencies of EAL and TAI.

Interval of validity		f(EAL)-f(TAI)
1996 Feb. 26 - 1996 Apr. 26	50139-50199	7.33×10^{-13}

New steering correction foreseen for May-June 1996

1996 Apr. 26 - 1996 Jun. 30	50199-50264	7.32×10^{-13}

5 - [UTC - GPS time] and [TAI - GPS time].

[UTC - GPS time] = -11 s + C0, [TAI - GPS time] = 19 s + C0.

Daily values of C0 are given in the following table. They are obtained as follows: the GPS data taken at the Paris Observatory, for highest elevation, are first corrected for precise satellite ephemerides and for measured ionospheric delays, and then smoothed to obtain daily values of [UTC(OP) - GPS time] at 0h UTC; daily values of C0 are derived from them using linear interpolation of [UTC - UTC(OP)].

For a given day, where N measurements are used for estimation of C0 :
- the dispersion of individual measurements is characterized by a standard deviation σ,
- the daily C0 value is characterized by the standard deviation of the mean $\sigma/\sqrt{N}$.

Date 1996 0h UTC	MJD	C0 (ns)	σ (ns)	$\sigma/\sqrt{N}$ (ns)
Mar 27	50169	38	34	7
Mar 28	50170	39	44	9
Mar 29	50171	37	51	11
Mar 30	50172	37	32	7
Mar 31	50173	42	43	9
Apr 1	50174	43	60	12
Apr 2	50175	44	34	7
Apr 3	50176	47	49	10
Apr 4	50177	42	42	8
Apr 5	50178	37	42	9
Apr 6	50179	39	47	10
Apr 7	50180	45	42	9
Apr 8	50181	45	57	12
Apr 9	50182	39	48	11
Apr 10	50183	33	26	5
Apr 11	50184	29	39	8
Apr 12	50185	30	45	10
Apr 13	50186	38	61	13
Apr 14	50187	45	37	8
Apr 15	50188	42	40	8
Apr 16	50189	43	43	9
Apr 17	50190	52	51	11
Apr 18	50191	58	45	9
Apr 19	50192	49	36	8
Apr 20	50193	39	40	8
Apr 21	50194	36	53	11
Apr 22	50195	37	42	9
Apr 23	50196	32	52	11
Apr 24	50197	25	38	8
Apr 25	50198	25	33	7
Apr 26	50199	25	36	8

6 - [UTC - GLONASS time].

[UTC - GLONASS time] = C1 (modulo 1 s).

From his current observations of both the GPS and GLONASS satellite systems Prof. P. Daly, University of Leeds, establishes and reports [GPS time - GLONASS time] at five-day intervals, together with the standard deviation σ of his daily GLONASS data. C1 is then derived using [UTC - GPS time] of section 5.

Date 1996 0h UTC	MJD	C1 (ns)	σ (ns)
Mar 27	50169	-27192	47
Apr 1	50174	-27345	40
Apr 6	50179	-27502	52
Apr 11	50184	-27655	38
Apr 16	50189	-27781	42
Apr 21	50194	-27918	50
Apr 26	50199	-28046	41

7 - Duration of the TAI scale interval.

The following table gives the duration uTAI of the TAI scale interval expressed as its departure d from the SI second on the rotating geoid, together with its relative uncertainty σ : uTAI = 1 + d in SI second. This is obtained, on the given period of estimation, by comparison of the TAI frequency :

- with the frequency, corrected for the black-body radiation shift, of a given individual primary frequency standard (σ is then the last communicated estimate of the uncertainty of the standard frequency), and

- with a combination computed by the BIPM of all available measurements from PTB CS2, PTB CS3, NIST-7, SU MCsR 102 and LPTF-F01 consistently corrected for the black-body radiation shift (σ is then estimated by the BIPM taking into account the individual uncertainties and parameters characteristic of TAI stability).

Standard	Period of estimation	d (10^{-14} s)	σ (10^{-14})
NIST-7	50144-50149	+2.1	1.0
PTB-CS2	50139-50199	+2.8	1.5
BIPM estimate	50139-50199	+2.2	1.0