The following tables are based on information received at the BIPM in February and March 2010.
AUTHORITIES RESPONSIBLE FOR THE TIME DISSEMINATION SERVICES

AOS  Astrogeodynamical Observatory
     Borowiec near Poznań
     Space Research Centre P.A.S.
     PL 62-035 Kórnik - Poland

AUS  Length, Time and Optical Standards Section
     National Measurement Institute
     PO Box 264
     Lindfield NSW 2070 - Australia

BelGIM  Belarusian State Institute of Metrology
        National Standard for Time, Frequency and
        Time-scale of the Republic of Belarus
        Minsk, Minsk Region – 220053 Belarus

BEV  Bundesamt für Eich- und Vermessungswesen
     Arttgasse 35
     A-1160 Wien, Vienna - Austria

CENAM  Centro Nacional de Metrología
        km. 4.5 Carretera a Los Cués
        El Marqués, Querétaro, C.P. 76246 - México

CENAMEP  Centro Nacional de Metrología de Panamá AIP
         CENAMEP AIP
         Ciudad del Saber
         Edif. 215 Panamá

EIM  Hellenic Institute of Metrology
     Electrical Measurements Department
     Block 45, Industrial Area of Thessaloniki
     PO 57022, Sindos
     Thessaloniki, Greece

GUM  Time and Frequency Laboratory
     Electrical Metrology Division
     Główny Urząd Miar – Central Office of Measures
     ul. Elektoralna 2
     PL 00 – 950 Warszawa P–10, Poland

HKO  Hong Kong Observatory
     134A, Nathan Road
     Kowloon, Hong Kong

INPL  National Physical Laboratory
      Danciger A bldg
      Givat - Ram, The Hebrew university
      91904 Jerusalem, Israel
INRIM  Istituto Nazionale di Ricerca Metrologica  
Strada delle Cacce, 91 
I – 10135 Torino, Italy

KIM  Puslit Kalibrasi, Instrumentasi dan Metrologi -- 
Lembaga Ilmu Pengetahuan Indonesia 
Research Centre for Calibration, Instrumentation and Metrology -- 
Indonesian Institute of Sciences  
(Puslit KIM – LIPI)  
Kawasan PUSPIPTEK 
Serpong Tangerang 15314 Banten - Indonesia

KRISS  Center for Length & Time  
Division of Physical Metrology 
Korea Research Institute of Standards and Science 
P.O. Box 102, Yuseong Daejeon 305-340  
Republic of Korea

KZ  Kazakhstan Institute for Metrology  
Orynbor str., 11 
Astana, Republic of Kazakhstan

LNE-SYRTE  Laboratoire National de Métrologie et d’Essais  
Systèmes de Référence Temps-Espace 
Observatoire de Paris 
61, avenue de l’Observatoire, 75014 Paris – France

LT  Time and Frequency Standard Laboratory  
Semiconductor Physics Institute – State Metrology Service  
A. Goštauto 11 
Vilnius LT01108, Lithuania

METAS  Federal Office of Metrology  
Length, Optics and Time Section  
Lindenweg 50  
CH-3003 Bern-Wabern  
Switzerland

MIKES  Centre for Metrology and Accreditation  
Tekniikantie 1 
FI-02150 Espoo - Finland

MSL  Measurement Standards Laboratory  
Industrial Research  
Gracefield Road  
PO Box 31-310  
Lower Hutt – New Zealand

NAO  Time Keeping Office  
Mizusawa VLBI Observatory  
National Astronomical Observatory of Japan  
2-12, Hoshigaoka, Mizusawa, Oshu, Iwate 023-0861  
Japan
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Organization</th>
<th>Address/Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>NICT</td>
<td>National Institute of Information and Communications Technology</td>
<td>4 -2 -1, Nukui-kitamachi, Koganei, Tokyo 184-8795 - Japan</td>
</tr>
<tr>
<td>NIM</td>
<td>National Institute of Metrology</td>
<td>No. 18, Bei San Huan Dong Lu, Beijing 100013 - People’s Republic of China</td>
</tr>
<tr>
<td>NIMB</td>
<td>National Institute of Metrology</td>
<td>Sos. Vitan - Barzesti, 11, 042122 Bucharest Romania</td>
</tr>
<tr>
<td>NIMT</td>
<td>National Institute of Metrology (Thailand)</td>
<td>3/5 Moo 3, Klong 5, Klong Luang, Pathumthani 12120, Thailand</td>
</tr>
<tr>
<td>NIST</td>
<td>National Institute of Standards and Technology</td>
<td>325 Broadway, Boulder, Colorado 80305, USA</td>
</tr>
<tr>
<td>NMIJ</td>
<td>National Me trology Institute of Japan (NMIJ), AIST</td>
<td>Umezono 1-1-1, Tsukuba, Ibaraki 305-8563, Japan</td>
</tr>
<tr>
<td>NMISA</td>
<td>National Metrology Institute of South Africa</td>
<td>Private Bag X34, Lynnwood Ridge 0040 - South Africa</td>
</tr>
<tr>
<td>NMLS</td>
<td>National Metrology Laboratory</td>
<td>SIRIM Berhad, Lot PT 4803, Bandar Baru Salak Tinggi, 43900 Sepang - Malaysia</td>
</tr>
<tr>
<td>NPL</td>
<td>National Physical Laboratory</td>
<td>Hampton Road, Teddington, Middlesex TW11 0LW, United Kingdom</td>
</tr>
<tr>
<td>NPLI</td>
<td>National Physical Laboratory</td>
<td>Dr.K.S.Krishnan Road, New Delhi 110012 - India</td>
</tr>
</tbody>
</table>
NRC  National Research Council of Canada
Institute for National Measurement Standards
Frequency and Time Standards
Bldg M-36, 1200 Montreal Rd.
Ottawa, Ontario, K1A 0R6, Canada

NSC IM  Time and Frequency Section
National Scientific Center "Institute of Metrology"
Kharkov - Ukraine
Region – 61002 Ukraine

NTSC  National Time Service Center
Chinese Academy of Sciences
3 East Shuyuan Rd, Lintong District, Xi’an
Shaanxi 710600, China

ONBA  Servicio de Hidrografía Naval
Observatorio Naval Buenos Aires
Servicio de Hora
Av. España 2099
C1107AMA – Buenos Aires, Argentina

ONRJ  Observatorio Nacional (MCT)
Divisão Serviço da Hora
Rua General José Cristino, 77 São Cristovão
20921-400  Rio de Janeiro, Brasil

ORB  Royal Observatory of Belgium
Avenue Circulaire, 3
B-1180 Brussels, Belgium

PTB  Physikalisch-Technische Bundesanstalt
Time and Frequency Department, WG 4. 42
Bundesallee 100
D-38116 Braunschweig, Germany

ROA  Real Instituto y Observatorio de la Armada
Cecilio Pujazón s/n
11.100 San Fernando
Cádiz, Spain

SG  National Metrology Centre
Agency for Science, Technology and Research (A*STAR)
1 Science Park Drive
118221 Singapore

SIQ  Slovenian Institute of Quality and Metrology
Metrology department
Trzaska ul. 2
1000 Ljubljana
Slovenia
SP  SP Technical Research Institute of Sweden
    Box 857
    S-501 15 Borås
    Sweden

TL  National Standard Time and Frequency Laboratory
    Telecommunication Laboratories
    Chunghwa Telecom. Co., Ltd.
    No. 12, Ln.551, Ming-Tsu Road Sec. 5
    Yang-Mei, Taoyuan, 326 Taiwan, Rep. of China

TP  Institute of Photonics and Electronics
    Academy of Sciences of the Czech Republic
    Chaberská 57
    182 51 Praha 8
    Czech Republic

UME  Ulusal Metroloji Enstitüsü
    TUBITAK Gebze Yerleskesi,
    National Metrology Institute
    Gebze Kocaeli, Turkey

USNO  U.S. Naval Observatory
    3450 Massachusetts Ave., N.W.
    Washington, D.C. 20392-5420
    USA

VNIIFTRI  All-Russian Scientific Research Institute for Physical
          Technical and Radiotechnical Measurements,
          Moscow Region
          141570 Russia

VSL  VSL Dutch Metrology Institute
    Postbus 654
    2600 AR Delft
    Netherlands
TIME DISSEMINATION SERVICES

AOS
AOS Computer Time Service:
vega.cbk.poznan.pl (150.254.183.15)
Synchronization: NTP V3 primary (Caesium clock), PC Pentium,
RedHat Linux
Service Area: Poland/Europe
Access Policy: open access
Contact: Jerzy Nawrocki (nawrocki@cbk.poznan.pl)
Robert Diak (kondor@cbk.poznan.pl)

Full list of time dissemination services is available on:
http://www.eecis.udel.edu/~mills/ntp/clock1.htm

AUS
Network Time Service
Computers connected to the Internet can be synchronized to UTC(AUS)
using the NTP protocol. The NTP servers are referenced to UTC(AUS)
either directly or via a GPS common view link.
Please see www.measurement.gov.au/time for information on access or
contact time@measurement.gov.au

Dial-up Computer Time Service
Computers can also obtain time via a modem connection to our dialup
timeserver. For further information, please see our web pages as above.

BelGIM
BelGIM operates one time server Stratum 1 using the
“Network Time Protocol” (NTP). The server host name is:
http://www.belgim.by (Stratum 1)

BEV
3 NTP servers are available; addresses:
bevtime1.metrologie.at
bevtime2.metrologie.at
time.metrologie.at
more information on http://www.metrologie.at

Provides a time dissemination service via phone and modem to
synchronize PC clocks.
Uses the Time Distribution System from TUG. It has a baud rate of 1200
and everyone can use it with no cost.
Access phone number is +43 (0) 1 211106381
The system will be updated periodically (DUT1, Leap Second…).

CENAM
CENAM operates a voice automatic system that provides the local time
for three different time zones for México; Central Time, Pacific Time and
Northwest Time as well the UTC(CNM). The access numbers are:
+52 442 211 0506: Central Time
+52 442 211 0507: Pacific Time
+52 442 211 0508: Northwest Time
+52 442 215 3902: UTC(CNM)

Telephone Code
CENAM provides a telephone code for setting time in computers. More
information about this service please contact J. Mauricio López at
jlopez@cenam.mx
Network Time Protocol
Operates one time server using the "Network Time Protocol", it is located at the Centro Nacional de Metrología, Querétaro, México. Further information at http://www.cenam.mx/hora_oficial/

Web-based time-of-day clock that displays local time for México time zones. Referenced to CENAM Internet Time Service. Available at http://www.cenam.mx/hora_oficial/

Transmission of voice by radio in Mexico City to more than 20 million inhabitants. The voice messages are transmitted every minute, 24 hours a day, every day of the year, by the radio station XEQK, whose signal is at 1350 kHz amplitude modulated (AM).

CENAM

Network Time Server
The NTP is used to synchronize computer networks of the government institutions and enterprises in the private sector. For further information send an email to servicios@cenamep.org.pa

Web Clock
A web clock displayed the time of day in real time. To access the Web Clock, enter the link http://horaexacta.cenamep.org.pa/

Voice Time Server
It is a assembly of computers that provides the local time acceding the telephone numbers (507) 5173202 and (507) 5173203

EIM

Internet Time Service
EIM operates a stratum-1 time server using the "Network Time Protocol" (NTP). The DNS electronic address ntp.eim.gr (IP: 194.30.249.20 ) is not operating due to a serious malfunction. At this time our network time server has the host name hercules.eim.gr and is also accessible through IP address 194.30.249.26. This route is offered under an open policy. The server uses the 10 MHz signal from our primary standard as reference and is synchronized with UTC(EIM). The same server is accessible under restrictions through a different IP address by using a dedicated internet connection, for specific organizations.

GUM

Telephone Time Service providing the European time code by telephone modem for setting time in computers. Includes provision for compensation of propagation time delay.

Network Time Service
Two NTP servers are available:
tempus1.gum.gov.pl
tempus2.gum.gov.pl
with an open access policy. It provides synchronization to UTC(PL).
Contact: timegum@gum.gov.pl

HKO

Speaking Clock Service
HKO operates an automatic “Dial-a-weather System” that provides voice announcement of Hong Kong Standard Time. (=UTC(HKO) + 8 h). Access phone number: + 852 1878200

Network Time Service
HKO operates two Internet time servers using Network Time Protocol.
Host name of the server: stdtime.gov.hk

Web-based time-of-day clock that displays Hong Kong Standard Time. Requires web browser with Adobe Flash Player 6.0 or above installed.
Available at http://www.hko.gov.hk/gts/time/HKSTime.htm
INPL
INPL is providing two electronic time dissemination services:
1. via telephone. The user must download a program from INPL ftp site (vms.huji.ac.il)
2. NTS via optic fiber to the Hebrew University which provides time on the internet. For details email clock@vms.huji.ac.il

INRIM
CTD Telephone Time Code
Time signals dissemination, according to the European Time code format, available via modem on regular dial-up connection. Access phone numbers: 0039 011 3919 263 and 0039 011 3919 264. Provides a synchronization to UTC(IT) for computer clocks without compensation for the propagation time. Software for the synchronization of computer clocks is available on INRIM home page (www.inrim.it).

Internet Time Service
INRIM operates two time servers using the "Network Time Protocol" (NTP); host names of the servers are ntp1.inrim.it and ntp2.inrim.it. More information on this service can be found on the web pages: www.inrim.it/ntp/index_i.shtml

KIM
Network Time Protocol (NTP) Service
The NTP time information referenced to UTC(KIM) is generated by Stratum-1 NTP server at URL: ntp.kim.lipi.go.id or IP: 203.160.128.178 The server also provide time service using Daytime Protocol, and Time Protocol.

KRISS
Telephone Time Service
Provides digital time code to synchronize computer clocks to Korea Standard Time (=UTC(KRIS) + 9 h) via modem. Access phone numbers: + 82 42 863 7117, + 82 42 868 5116

Network Time Service
KRISS operates three time servers using the NTP to synchronize computer clocks to Korea Standard Time via the Internet. Host name of the server: time.kriss.re.kr (210.98.16.100) Software for the synchronization of computer clocks is available at http://www.kriss.re.kr

KZ
Network Time Service
Stratum-1 time server using the "Network Time Protocol" (NTP). Restricted access. Stratum-2 time server using the "Network Time Protocol" (NTP). Free access. Stratum-2 is available: uakyt.kz

Web-based Time Services:
A real-time clock aligned to UTC(KZ) and corrected for internet transmission delay. Web-page http://uakyt.kz

“Six-pip time signals” are broadcasted by FM radio stations hourly every day.

LNE-SYRTE
LNE-SYRTE operates one primary time server using the “Network Time Protocol” (NTP):
Hostname: ntp-p1.obspm.fr
Further information at: http://lne-syrte.obspm.fr/gen/ntp_infos.html
LT
Network Time Service via NTP protocol
NTP v3
DNS: laikas.pfi.lt
Port 123
Synchronization from caesium clock (1 pps)
System: Datum TymeServe 2100 NTP server
Access policy: free
Contact: Rimantas Miškinis
Mail: Laikas@pfi.lt
http://www.pfi.lt/metrology/

METAS
Telephone Time Service
The coded time string (compliant to the European Time
Code format) is referenced to UTC(CH) and generated by
a TUG type time code generator.
Access phone numbers: +41 31 323 32 25, +41 31 323 47 00.

Network Time Protocol
METAS operates public NTP servers in free access.
Host names:
ntp.metas.ch
ntp11.metas.ch
ntp12.metas.ch

MIKES
MIKES provides an official stratum-1 level service to paying
organizations and institutions. Stratum-2 level service, which MIKES
acquires from a commercial service provider, is freely available for
everyone. MIKES does not take responsibility for the public service, but
servers providing the public service are synchonized to the stratum-1
level servers of MIKES.

Stratum-1 NTP servers (official service)
ntp2.mikes.fi 195.255.132.229 Synchronized to UTC(MIKE)
ntp4.mikes.fi 195.255.132.231 Synchronized to UTC(GPS)
ntp1.mikes.funet.fi 193.166.4.49 Synchronized to UTC(MIKE)
ntp2.mikes.funet.fi 193.166.4.50 Synchronized to UTC(GPS)

Stratum-2 NTP servers (public service)
time1.mikes.fi
time2.mikes.fi
Further information can be found from www.mikes.fi

MSL
Network Time Service
Computers connected to the Internet can be synchonized to UTC(MSL)
using the NTP protocol. Access is available for users within New
Zealand. Two servers are available at
msltime1.irl.cri.nz and msltime2.irl.cri.nz

Telephone Time Service
A dial up computer time setting service for linking computers to
UTC(MSL). The service uses a time code specific to New Zealand.
Because it is a pay service, access is restricted to callers within
New Zealand.

Speaking Clock
A speaking clock gives New Zealand time. Because it is a pay service,
access is restricted to callers within New Zealand.
Further information about these services can be found at
http://msl.irl.cri.nz/services/time/index.html
NAO
Network Time Service
Three stratum 2 NTP servers are available. The NTP servers internally refer stratum 1 NTP server that is linked to UTC(NAO). One of the three stratum 2 NTP servers are selected automatically by a round-robin DNS server to reply for an NTP access. The server host name is s2csntp.miz.nao.ac.jp.

NICT
Telephone Time Service (TTS)
NICT provides digital time code accessible by computer at 300/1200/2400 bps, 8 bits, no parity.
Access number to the lines: + 81 42 327 7592.

Network Time Service (NTS)
NICT operates a Stratum 1 NTP time server linked to UTC(NICT) through a leased line.

Internet Time Service (ITS)
NICT operates five Stratum 1 NTP time servers linked to UTC(NICT) through the Internet.
Host name of the servers: ntp.nict.jp (Round robin).

GPS common view data
NICT provides the GPS common view data based on UTC(NICT) to the time business service in Japan.

NIM
Telephone Time Service
The coded time information generated by NIM time code generator, referenced to UTC(NIM). Telephone Code provides digital time code at 1200 to 9600 bauds, 8 bits, no parity, 1 stop bit.
Access phone number: 8610 6422 9086.

Network Time Service
Provides digital time code across the Internet using NTP.

NIMB(1)
2 NTP servers are available:
Addresses: ntp.oraoficiala.ro (STRATUM 2) with an open access policy
ntp.inm.ro (STRATUM 1) with restricted access policy.
Both NTP servers are referenced to UTC (NIMB).

NIMT
3 NTP servers are available:
Addresses: time1.nimt.or.th
time2.nimt.or.th
time3.nimt.or.th
The NTP servers are referenced to UTC(NIMT)

NIST
Automated Computer Time Service (ACTS)
Provides digital time code by telephone modem for setting time in computers. Free software and source code available for download from NIST.
Includes provision for calibration of telephone time delay.
Access phone numbers: +1 303 494 4774 (12 phone lines) and +1 808 335 4721 (4 phone lines).
Further information at http://tf.nist.gov/service/acts.htm

Internet Time Service (ITS)
Provides digital time code across the Internet using three different protocols: Network Time Protocol, Daytime Protocol, and Time Protocol. (Time Protocol supported by 20 of 22 servers)

Geographically distributed set of 22 time servers at 16 locations within the United States of America. Free software and source code available for download from NIST. Further information at http://tf.nist.gov/service/its.htm

(1) NIMB no longer offers time dissemination services for the moment, due to time servers problems,
Web-based time-of-day clock that displays UTC or local time for United States time zones. Referenced to NIST Internet Time Service. Provides snapshot of time with any web browser, but continuously running time display requires web browser with Java plug-in installed. Available at http://www.time.gov (in cooperation with the United States Naval Observatory), and at http://nist.time.gov

Telephone voice announcement: Audio portions of radio broadcasts from time and frequency stations WWV and WWVH can be heard by telephone: +1 303 499 7111 for WWV and +1 808 335 4363 for WWVH

NMIJ
GPS common-view data
GPS common-view data using CGGTTS format referred to UTC(NMIJ) are available through the NMIJ's web site for the remote frequency calibration service.

NMISA(2) Network Time Service
One open access NTP server is available at address time.nmisa.org. More information is available at http://www.nmisa.org/time.html

NMLS Telephone Time Service
The coded time information is referenced to UTC(NMLS) and generated by a TUG type telephone time code generator using an ASCII-character code. The time protocols are sent in the "European Telephone Time Code" format. The service phone number is +60 3 8778 1674. Current service status is free of charge. Fees are made only on the provision of the software for accessing the service via modem dial-up.

Network Time Protocol (NTP) Service
The NTP time information is referenced to UTC(NMLS) and is currently generated by two Stratum-1 NTP servers, made available for public freely. The NTP server host names are ntp1.sirim.my and ntp2.sirim.my.

NPL Telephone Time Service
A TUG time code generator provides the European Telephone Time Code, referenced to UTC(NPL), by telephone modem. Software for synchronising computers is available from the NPL web site at www.npl.co.uk/time. The service telephone number is 0906 851 6333. Note: this is a premium rate number and can only be accessed from within the UK.

Internet Time Service
Two servers referenced to UTC(NPL) provide Network Time Protocol (NTP) time code across the internet. More information is available from the NPL web site at www.npl.co.uk/time. The server host names are:
ntp1.npl.co.uk
ntp2.npl.co.uk

NPLI Telephone Time Service
The coded time information generated by time code generator of NPLI, referenced to UTC(NPL), Telephone Code provides digital time code (for the current time of Indian standard Time) at 1200 bauds, 8 bits, no parity, 1 stop bit. This service is known as TELECLOCK Service. Accessible by:
- an NPLI-developed Teleclock Receiver already available in the market.
- a Computer through Telephone Modem and NPLI-developed software.

One-way Geostationary Satellite Time Service.

(2) NMISA no longer provides the telephone Time Service for time distribution. Only the Internet Network Time Protocol must remain.
NRC

Telephone Code
Provides digital time code by telephone modem for setting time in computers. Access phone number: +1 613 745 3900.
http://www.nrc-cnrc.gc.ca/eng/services/inms/time-services/time-date.html

Talking Clock Service
Voice announcements of Eastern Time are at ten-second interval followed by a tone to indicate the exact time. The service is available to the public in English at +1 613 745 1576 and in French at +1 613 745 9426. For more information see:
http://www.nrc-cnrc.gc.ca/eng/services/inms/time-services/time-broadcast.html

Web Clock Service
The Web Clock shows dynamic clocks in each Canadian Time zone, for both Standard time and daylight saving time. The web page is at:
http://time5.nrc.ca/webclock_e.shtml

Network Time Protocol
Operates two time servers using the "Network Time Protocol", each one being on different location and network. Host names: time.nrc.ca and time.chu.nrc.ca. Further information at:

NSC IM

Network Time Service.
Computers connected to the Internet can be synchronized to UTC(UA) using NTP protocol. NTP servers are referenced to UTC(UA) directly. Link to Time server: ntpd.metrology.kharkov.ua or IP address: 81.17.128.133. More information on http://www.metrology.kharkov.ua.

NTSC

Network Time Service (NTS)
NTSC operates a time server directly referenced to China Standard Time (=UTC(NTSC) + 8 h). Software for the synchronization of computer clocks is available on the NTSC Time and Frequency web page:
http://time.ntsc.ac.cn
Access Policy: free
Contact: Shaowu DONG (sdong@ntsc.ac.cn).

ONBA

Speaking clock access phone number 113 (only accessible in Argentina).
Hourly and half hourly radio-broadcast time signal.
Internet time service at web site www.hidro.gov.ar/hora/hora.asp

ONRJ

Telephone Voice Announcer (55) 21 25806037.
Telephone Code (55) 21 25800677 provides digital time code at 300 bauds, 8 bits, no parity, 1 stop bit (Leitch CSD5300)

Internet Time Service at the address: 200.20.186.75 and 200.20.186.94
SNTP at port 123
Time/UDP at port 37
Time/TCP at port 37
Daytime/TCP at port 13

WEB-based Time Services:
1) A real-time clock aligned to UTC(ONRJ) and corrected for internet transmission delay.
Further information at: http://200.20.186.71/asp/relogio/horainicial.asp
Broadcast brazilian legal time (UTC – 3 hours) announced by a lady voice starting with “Observatório Nacional” followed by the current time (hh:mm:ss) each ten seconds with a beep for each second with a 1KHz modulation during 5ms and a long beep with 1KHz modulation during 200ms at the 58, 59 and 00 seconds. The signal is transmitted every day of the year by the radio station PPE, whose signal is at 10 MHz with kind of modulation A3H and HF transmission power of 1 kW.

ORB

Network Time Service via NTP protocol
Hostname: ntp1.oma.be and ntp2.oma.be
Access policy: free
Synchronization to UTC(ORB)
Contact: f.roosbeek@oma.be
Information on the web pages

ORB provides a time dissemination via phone and modem to synchronize PC clocks on UTC(ORB). The system used is the Time Distribution System from TUG, which produces the telephone time code mostly used in Europe. The baud rate used is 1200. The access phone number is 32 (0) 2 373 03 20. The system is updated periodically with DUT1 and leap seconds.

PTB

Telephone Time Service
The coded time information is referenced to UTC(PTB) and generated by a TUG type time code generator using an ASCII-character code. The time protocols are sent in a common format, the "European Telephone Time Code". Access phone number: +49 531 51 20 38.

Internet Time Service
The PTB operates three time servers using the “Network Time Protocol” (NTP), see http://www.ptb.de/en/org/q/q4/q42/_index.htm for details and explanations.

Host names of the servers:
ptbtime1.ptb.de
ptbtime2.ptb.de
ptbtime3.ptb.de

ROA

Telephone Code
The coded time information is referenced to UTC(ROA) and generated by a TUG type time code generator using an ASCII-character code. The time protocols are sent in a common format, the "European Telephone Time Code". Access phone number: +34 956 599 429

Network Time Protocol
Server: hora.roa.es
Synchronized to UTC(ROA) better than 10 microseconds
Service policy: free

Server: ntp0.roa.es
Synchronized to UTC(ROA) better than 10 microseconds
Service policy: restricted
Note: server used as prototype to check new software, hardware, etc.

SG

Website: http://www.SingaporeStandardTime.org.sg

Automated Computer Time Service (ACTS)
Transmits digital time code (NIST format) via telephone modem for setting time in computers. The coded time information is referenced to UTC(SG). Includes provision for correcting telephone time delay. Free software available for downloading from the website.
Access phone number: +65 67799978.
Network Time Service (NeTS)
Free software available for downloading from the website. Operates two time servers at addresses nets.org.sg and 203.117.180.35.

Web-based time service:
Displays a real time clock referenced to NeTS. User-selectable display of local time (adjusted for daylight saving) of any major city worldwide and time difference information between any two cities.
Further information is available at the website.

SiQ
Internet Time Service (Network Time Protocol)
One server referenced to UTC(SIQ) provides Network Time Protocol (NTP) time code across the internet.
There is a free access to the server for all users.
The server host names are: ntp.siq.si or time.siq.si
(two URL’s for the same server; IP: 194.249.234.70)

SP
Telephone Time Service
The coded time information is referenced to UTC(SP) and generated by two TUG type time code generators using an ASCII-character code.
The time protocols are sent in a common format, the "European Telephone Time Code".
Access phone number: +46 33 41 57 83

Internet Time Service
The coded time information is referenced to UTC(SP) and generated by two NTP servers using the Network Time Protocol (NTP). Access host names: ntp1.sp.se and ntp2.sp.se

Speaking Clock
The speaking clock service is operated by Telia AB in Sweden.
The time announcement is referenced to UTC(SP) and disseminated from a computer based system operated and maintained at SP.
Access phone number: 90510 (only accessible in Sweden).
Access phone number: +4633 90510 (from outside Sweden).

More information about these services are found at the web site www.sp.se

TL
Speaking Clock Service
Traceable to UTC(TL). Broadcast through PSTN (Public Switching Telephone Network) automatically and provides accurate voice time signal to public users.

The Computer Time Service
Provides digital time code by telephone modem for setting time in computers. Access phone number: +886 3 4245117.

IRIG-B time code service
Provides IRIG-B Modulated time code via a dial-up phone connection.
No need of any kind of modem. Access phone number: +886 3 4203090

NTP Service
TL operates a time server using the "Network Time Protocol" (NTP).
Host name of the server: time.stdtime.gov.tw
Further information at http://www.stdtime.gov.tw/engli sh/e-home.htm

TP
Internet Time Service
IPE operates a time server directly referenced to UTC(TP).
Time information is accessible through Network Time Protocol (NTP).
Server host name: time.ufe.cz
More information at http://www.ufe.cz/time
UME  
Telephone Time Service  
Providing the European time code that is referenced to UTC(UME) by telephone modem for setting computer time. Includes compensation of propagation time delay. More information for this service please contact to eml@ume.tubitak.gov.tr.  
Access phone number: +90 262 679 50 24  
Network Time Service  
UME operates an NTP server referenced to UTC(UME).  
Host server name: time.ume.tubitak.gov.tr

USNO  
Telephone Voice Announcer +1 202 762-1401  
Backup voice announcer: +1 719 567-6742  
Telephone Code +1 202 762-1594  
provides digital time code at 1200 baud, 8 bits, no parity  
GPS via subframe 4 page 18 of the GPS broadcast navigation message  
Web site for time and for data files: http://tycho.usno.navy.mil  
Network Time Protocol (NTP) see http://www.usno.navy.mil/USNO/time/ntp for software and site closest to you.

VNIIFTRI  
Internet Time Service  
VNIIFTRI operates three time servers Stratum 1 and one time server Stratum 2 using the “Network Time Protocol” (NTP).  
The server host names are:  
ntp1.imvp.ru (Stratum 1)  
ntp2.imvp.ru (Stratum 1)  
ntp3.imvp.ru (Stratum 1)  
ntp21.imvp.ru (Stratum 2).

VSL(3)  
Telephone Time Service  
The coded time information is referenced to UTC(VSL) and generated by a TUG type time code generator using an ASCII-character code. The time protocols are sent in a common format, the "European Telephone Time Code". The access phone number is 0900 6171819. This is a toll number and therefore can only be accessed in the Netherlands.  
VSL operates a time server directly referenced to UTC(VSL).  
Time information is accessible through Network Time Protocol (NTP).  
The URL for the NTP server is: ntp.vsl.nl

(3) The telephone time service has been discontinued from December 31st, 2009.