

REGISTERED No. M - 302  
L.-7646

**The Gazette**  **of Pakistan**

**EXTRAORDINARY  
PUBLISHED BY AUTHORITY**

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**ISLAMABAD, FRIDAY, DECEMBER 31, 2010**

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**PART II**

**Statutory Notifications (S. R. O.)**

GOVERNMENT OF PAKISTAN

**PAKISTAN TELECOMMUNICATION AUTHORITY**

**NOTIFICATION**

*Islamabad, the 29th November, 2010*

**S. R. O.1184(I)/2010.**— In exercise of the powers conferred under clause (o) of sub-section 2 of section 5 of the Pakistan Telecommunication (Re-organization) Act, 1996 (Act XVII of 1996), the Pakistan Telecommunication Authority is pleased to make the following Regulations:—

**PART - I**

**PRELIMINARY**

1. **Short title and commencement.**—(1) These Regulations shall be called the “Telecommunication System Clock, Time & Date Synchronization Regulations, 2010.”

(2) These Regulations shall come into force from the date of gazette notification of these regulations.

(3947)

*Price: Rs. 5.00*

[3025 (2010)/Ex. Gaz.]

2. **Scope and Applicability.**—These regulations shall apply to all Licensees for the purpose of synchronization of clock, time and date of telecommunication system(s) for error free data recovery, accurate reconciliation of Call Data Record /Internet Protocol Detail Records, as determined by the Authority from time to time.

3. **Definitions.**—(1) In these Regulations, unless there is anything repugnant in the subject or context:—

- (a) **“Act”** means the Pakistan Telecommunication (Re-organization) Act, 1996;
- (b) **“Authority”** means the Pakistan Telecommunication Authority established under section 3 of the Act;
- (c) **“Clock”** means a method to provide timing signals for the purpose of these regulations;
- (d) **“CDR”** means Call Data Record;
- (e) **“GPS”** means Global Positioning System;
- (f) **“ITU-T G.811”** means ITU-T Recommendation on Timing Characteristics of Primary Reference Clock;
- (g) **“ITU-T G.812”** means ITU-T Recommendation on Timing requirements of slave clocks suitable for use as node clocks in synchronization networks;
- (h) **“IPDR”** means Internet Protocol Detail Record that provides information about IP-based service usage, performance, and other activities as Operational Support System (OSS);
- (i) **“Licensee”** means the grantee or holder of license;
- (j) **“Network Synchronization”** means way of distributing a common time and/or frequency to all elements in a telecommunication system/network;
- (k) **“NTP”** means Network Time Protocol use to maintain time and date accuracy and reliability for all network elements including but not limited to work stations, servers, routers, etc. in any network;
- (l) **“NTPv4”** means the NTP version 4 that comes up with added features of algorithms to maintain improved accuracy, handling of network jitter & floating point arithmetic etc .as described in RFC 5905;

- (m) **“Primary Reference Clock”** (PRC) means an autonomous clock, operating independently of other sources that provide the reference synchronization signal to all other clocks within a network and refers as ITU-T G.811 Recommendation, used for the long term accuracy of Primary Reference Clock and is maintained at 1 part in  $10^{11}$  ( $1 \times 10^{-11}$ ) with verification to Coordinated Universal Time (UTC);
- (n) **“SSU”** means Synchronization Supply Unit and refers as a logical function for frequency referencing, processing and distribution having the frequency characteristics as per ITU-T G.812 Recommendation with an accuracy on 1 part in  $10^{10}$  ( $1 \times 10^{-10}$ ),
- (o) **“Telecommunication System”** means any electrical, electromagnetic, electronic, optical or optio-electronic system for the emission, conveyance, switching or reception of any intelligence within, or into, or from, Pakistan, whether or not that intelligence is subjected to re-arrangement, computation or any other process in the course of operation of the system, and includes a cable transmission system, a cable television transmission system and terminal equipment;
- (p) **“Time”** means the time of the day for the purpose of these Regulations;
- (q) **“Timing Signal”** means a normal periodic signal, generated by a clock;
- (r) **“Time Scale”** means a system of unambiguous ordering of events;
- (s) **“Reference Timing Signal”** means a timing signal of specified performance that can be used as timing source for a slave clock;
- (t) **“Regulation”** means all or any regulations issued by the Authority including these Regulations;
- (u) **“Rules”** means all rules issued by the Federal Government pursuant to section 57 of the Act; and
- (v) **“UTC”** means Coordinated Universal Time, the time scale maintained by the *Bureau International des Poids Mesures (BIPM)* and the International Earth Rotation Service (IERS), which forms the basis of a coordinate dissemination of standard frequencies and time signal;

(2) Words and expressions used herein but not defined shall have the same meaning assigned to them in the Act, Rules, and Regulations.

PART-II

**TELECOM SYSTEM CLOCK**

4. **Clock Synchronization.**—(1) All Licensee(s) shall be obliged to align the frequency of their telecommunication system in accordance with the PRC and SSU for provision of error free data of intelligence transmitted among various network nodes.

(2) All Licensee(s) with high speed backhaul networks shall have at least two alternate sources of PRCs.

(3) In case of failure of the system in exceptional circumstances to provide accurate PRC or SSU, the network will be run from a system clock with accuracies of at least 1 part in  $10^6$  ( $1 \times 10^{-6}$ ).

PART - III

**TELECOM SYSTEM DATE AND TIME**

5. **Time and Date Synchronization.**—(1) All Licensee(s) shall be obliged to maintain their telecommunication system(s) containing NTP secondary servers at least NTPv4 compliant wherever applicable.

(2) All Licensee(s) shall be obliged to upgrade their telecommunication systems as and when required by the Authority.

(3) All Licensee(s), while providing telecommunication services, shall be required to ensure the following:

- (i) Up to 100msec accuracy of date and time clock(s) of telecommunication system used for CDR/ IPDR.
- (ii) Periodically synchronize date and time stamps with a standard internationally recognized NTP or GPS source.
- (iii) The other telecom Licensee's network with whom an Interconnect is established or being established also conforms to these regulations.

PART- IV

**GENERAL PROVISIONS**

6. **Submission of Information.**—(1) All Licensee(s) shall provide the information of their telecommunication system to the Authority as follows:

- (i) Clock and 'Time & Date' Synchronization architecture; and
- (ii) Degree of Accuracy.

(2) The Authority will conduct manual test/inspections which may be replaced with an automated process subject to the availability of advanced tools.

(3) On the basis of the Authority's findings and complaints filed against a Licensee, the Authority shall initiate an investigation process.

(4) The Licensee will perform routine test to ensure its Time & Date accuracy, as specified under sub-regulation (1) of regulation 6 above.

(5) All Licensee(s) shall provide access to the authorized representative of the Authority for obtaining information, inspection and audit of telecommunication system(s) / network in order to ensure compliance of parameters as provided in these regulations.

[77/Regs./PTA/2010.]

ERUM LATIF,  
*Deputy Director (Law & Regulations).*