

<b>GLOSSARY</b>	
$\lambda$	Greek Lambda Symbol used for the wavelength of a WDM channel
1PPS	1 Pulse Per Second
3G	Third Generation Cellular (UMTS)
3GPP	Third Generation Partnership Project
3R	Reamplification, Reshaping and Retiming
AAL	ATM Adaptation Layer
ACR	Adaptive Clock Recovery
ADM	Add Drop Multiplexer
ADEV	Allan Deviation
ADSL	Asymmetric Digital Subscriber Line
AIS	Alarm Indication Signals
AMI	Alternate Mark Inversion
ANSI	American National Standards Institute
ASF	Additional Secondary Factor
ASP	Application Service Provider
ATM	Asynchronous Transfer Mode
AU-4	Administrative Unit Level 4
AUG	Administrative Unit Group
AU-n	Administrative Unit, Level n
AVAR	Allan Variance
B8ZS	Bipolar 8 Zeros Substitution
Beidou	(Compass) Chinese equivalent to GPS
BITS	Building Integrated Timing Source
BSC	Base Station Controller
BTS	Base Transceiver Station
C-4	Container Level 4
C/A Code	Coarse Acquisition Code
CBR	Constant Bit Rate
CCITT	Comité Consultatif International Téléphonique et Télégraphique – former ITU-T
CDMA	Code Division Multiple Access
CDV	Cell Delay Variation
CLEC	Competitive Local Exchange Carrier
CoMP	Coordinated Multipoint
CRC	Cyclic Redundancy Check
CRPA	Controlled Reception Pattern Antenna
Cs	Cesium
CWDM	Coarse Wave Division Multiplexing
CWI	Carrier Wave Interface
DAS	Distributed Antenna System
DWDM	Dense Wave Division Multiplexing
DCN	Dynamic Circuit Network
DDS	Direct Digital Synthesiser
DNU	Do Not Use
DSL	Digital Subscriber Line
Duopoly	A Monopoly of two. i.e. BT and Mercury Communications (Now CWC)
DXC	Digital Cross-Connects
eLORAN	Enhanced LORAN
EDGE	Enhanced Data Rate for GSM Evolution
EDTR	eLoran Differential Timing Receiver

EGNOS	European Geostationary Navigational Orbiting Satellite
eICIC	Enhanced InterCell Interference Coordination
eNB	Evolved Node B
E-OTD	Enhanced Observed Time Difference
ETS	Equipment Timing Source
ETSI	European Telecommunications Standards Institute
Ext	External reference input (T3) and (T4)
False Ticker	Bad clocks
FCAPS	Fault, Configuration, Accounting, Performance and Security
FDD	Frequency Division Duplex
FEC	Forward Error Correction
FFM	Flicker Frequency Modulation
FIFO	First In First Out
FPM	Flicker Phase Modulation
FTTB	Fibre To The Building
FTTCab	Fibre To The Cabinet
FTTC	Fibre To The Curb
FTTH	Fibre To The Home
FTTO	Fibre To The Office
GAGAN	GPS Aided Geo Augmented Navigation – Indian System
Galileo	European equivalent of GPS
Gbit/s	Gigabit per second
GLONASS	Russian equivalent of GPS
GNSS	Global Navigation Satellite System (GPS, GLONASS, Galileo, Beidou)
GPRS	General Packet Radio System
GPS	Global Positioning System
GPSDO	GPS Disciplined Oscillator
GSM	Global System for Mobile Communications
HDB3	High Density Bipolar 3
HTTP	Hyper Text Transfer Protocol
IAD	Integrated Access Device
ILEC	Incumbent Local Exchange Carrier
I/O	Input/Output Interface
IOT	Internet Of Things
IP	Internet Protocol
IPTV	Internet Protocol Television
ISDN	Integrated Services Digital Network
ISP	Internet Service Provider
ITU-T	International Telecommunications Union (Telecom Standards Sector)
IWF	Interworking Function
L1	Layer 1
L2	Layer 2
L3	Layer 3
LCS	Location Services
LCNSS	Low Cost Navigation Satellite System
LDC	Loran Data Channel
LEO	Low Earth Orbit mobile phones e.g. Globalstar and Iridium
Level II Clock	PDH – Non US
LF Transmissions	Usually Caesium stabilized transmissions
LMDS	Local Multipoint Distribution System

LMU	Local Measurement Unit
LORAN	LONg RANge navigational system
LOS	Line of Sight
LTE	Long Term Evolution
LW/LE	Line West/East
Mcps	Mega-chips per second
MDEV	Modified Allan Deviation
MAMIL	Middle Aged Man In Lycra
MNO	Mobile Network Operator
MMF	Multi-Mode Fibre
MML	Man-Machine Language
MRTIE	Maximum Relative Time Interval Error
MSAN	Multi-Service Access Node
MS-AIS	Multiplex Section Alarm Indication
MSC	Mobile Switching Centre
MSOH	Multiplex Section Overhead
MTIE	Maximum Time Interval Error
MUX	Multiplexer
MVNO	Mobile Virtual Network Operator
NCO	Numerically Controlled Oscillator
NE	Network Element
NGN	Next Generation Network
NNI	Network Interface
ns/ $\mu$	Nanosecond
NTP	Network Timing Protocol
OAN	Optical Access Network
OCh	Optical Channel
OC-N	Optical Container – level N
ODUk	Optical Channel Data Unit-k
OLT	Optical Line Termination
OUT	Optical Transport Unit
OPUk	Optical Channel Payload Unit-k
OXCO	Oven Controlled Crystal Oscillator
OTN	Optical Transport Network
OTUk	Optical Channel Transport Unit-k
PBT	Provider Backbone Technology
PCM	Pulse Code Modulation
PJE	Pointer Justification Event
PDH	Plesiochronous Digital Hierarchy
pk-pk	Peak-to-Peak
PLL	Phase Locked Loop
PNT	Positioning Navigation & Timing
PON	Passive Optical Network
PPM	Pulse Position Modulation
PRC	Primary Reference Clock
PRTC	Primary Reference Time Clock
PRS	Primary Reference Source
PSTN	Public Switched Telephone Network
PTP	Precision Time Protocol
QL	Quality Level

QL-PRC	Quality Level - PRC
QL-SSU L	Quality Level – SSU Local
QL-SSU T	Quality Level – SSU Transit
QL-DNU	Quality Level – Do Not Use
QoS	Quality of Service
QPSK	Quadrature Phase Shift Keying
QZSS	Quasi Zenith Satellite System (Japanese Enhancement to GPS)
Rb	Rubidium
Rms	Root Mean Square
RNS	Radio Network Controller
RoW	Rest of the World
RPNT	Resilient Positioning, Navigation & Timing
RTG	Retiming Generator
SASE	Stand Alone Synchronisation Equipment
SDH	Synchronous Digital Hierarchy
SEC	SDH Equipment Clock
SETG	Synchronous Equipment Timing Generator
SETS	Synchronous Equipment Timing Source
SMC	SONET Minimum Clock
SMS	Short Message Service
SNR	Signal-to-Noise Ratio
SONET	Synchronous Optical Network (US equivalent of SDH)
SSE	Synchronisation Source Element
SSM	Synchronisation Status Message
SSU	Synchronisation Source Unit
STM	Synchronous Transfer Mode
STM-16 – OC48	2.488320 Gbit/s
STM-256 – OC768	39.813120 Gbit/s
STM-64 – OC192	9.953280 Gbit/s
STM-N	Synchronous Transport Mode layer (SDH)
Stratum II Clock	US
Stratum IIE Clock	US
Symbiosis	Where two or more entities rely on each other for efficient operation
TAI	International Atomic Time
T-BC	Telecom Boundary Clock
TCP/IP	Transmission Control Protocol / Internet Protocol
TDEV	Time Deviation
Telstar	One of the first telephony satellites
Terabit/sec	One million million bits per second ( $10^{12}$ bit/s)
TETRA	Terrestrial Trunked Radio
T-GM	Telecom GrandMaster
TIE	Time Interval Error
TM	Terminal Multiplexer
TOD	Time of Day
Transit Node Clock	Non US
Trib	Tributary (SDH or PDH)
True chimer	Good Clocks
T-TC	Telecom Transparent Clock
T-TSC	Telecom Time Slave Clock
TU-12	Tributary Unit Level 1 Option 2

TUG-3	Tributary Unit Group Level 3
UI	Unit Interval
UMTS	Universal Mobile Telecommunications System
UTC	Universal Co-ordinated Time
UTRA	UMTS Terrestrial Radio Access
UTRAN	UMTS Terrestrial Radio Access Network
VC-12	Virtual Container aligning E1 with the STM-1 SDH rate
VC-12 PJE	3.6 $\mu$ sec
VC-12	Virtual Container Level 1 Option 2
VC-4	Virtual Container Level 4
VCXO	Voltage Controlled Oscillator
VFO	Variable Frequency Oscillator
WAAS	Wide Area Augmentation System
WAP	Wireless Application Protocol
WDM	Wave Division Multiplexing
WiMAX	Worldwide Interoperability for Microwave Access
WWV, MSF, DC & Droitwich	US, UK & Euro radio transmissions
<u>Unit Intervals</u>	
64 kbit/s	1 UI = 15.6 ns
2,048 kbit/s	1 UI = 488 ns
8,448 kbit/s	1 UI = 118 ns
34,368 kbit/s	1 UI = 29.1 ns
139,264 kbit/s	1 UI = 7.18 ns
STM-1	1 UI = 6.43 ns
STM-4	1 UI = 1.61 ns
STM-16	1 UI = 0.402 ns
STM-64	1 UI = 0.100 ns