

# Glossary and Definition of Terms in TETRA

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ACELP	Algebraic Codebook Excited Linear Prediction method for low bit rate voice coding and decoding
ADPCM	Adaptive Differential Pulse Code Modulation
AES	Advanced Encryption Standard
AI	Air Interface
Air Interface encryption	Encryption on the air interface - the vulnerable link between base station and terminal
Air Interface protocol	The protocol, which defines the way in which signals are transmitted between radio terminals and the system infrastructure
AKD	Authentication Key Distribution
AL	Ambience Listening, Supplementary Service in TETRA to allow an authorised user, e.g. a dispatcher, to remotely switch the MS into transmit mode and monitor its environment without the intervention of the MS user
AMR	Adaptive Multi-Rate, Codec, one which in the low-error environments operates at a higher bit rate to give higher quality speech, whilst in higher-error environments, when higher speech quality cannot be sustained, the codec reduces its operational bit rate.
Analysis-by-synthesis	Speech coding technique which aims to minimise the mean-squared error between the input analogue speech and its synthesised version
ANSI	American National Standards Institute, <a href="http://www.ansi.org">www.ansi.org</a>
APCO	Association of Police Communications Officers
API	Application Programming Interface, published software interface specification for designing applications on top of some lower layer software
ARIB	Association of Radio Industries and Businesses, Japanese radio standardisation body, <a href="http://www.arib.or.jp/english/">www.arib.or.jp/english/</a>
ATSI	Alias TETRA Subscriber Identity
Authentication	A security mechanism in TETRA, based on the challenge-response between the MS and the infrastructure, in order to ensure the legitimacy of each party
AVL	Automatic Vehicle Location, service or application showing location of a vehicle, either in terms of its geographical coordinates or by its location on a map
BER	Bit Error Rate
BS	Base Station
C/N	Carrier/Noise power ratio
Carrier	A radio channel which could carry one or more communication channels
CCK	Common Cipher Key, used to protect group downlink calls in class 3 systems
CDMA	Code Division Multiple Access
CEPT	European Conference of Postal and Telecommunications Administrations (Conference Européenne des

	Administration des postes et des telecommunications), <a href="http://www.cept.org">www.cept.org</a> , see also <a href="http://www.ero.dk">www.ero.dk</a>
Channel surveillance	Monitoring of signal strength against a pre-determined threshold level in order to decide if DMO may be allowed
CMCE	Circuit Mode Control Entity
CMD	Circuit Mode Data, a method for data transmission where a continuous connection is required for the lifetime of the session to transmit all the data in a complete burst as opposed to Packet Data where the data can be split into sections or 'packets'
CMIS/P	Common Management Information System/Protocol
CNM	Central Network Management
CNMI	Central Network Management Interface
CODEC	also Codec - Combined Coder and Decoder
COMSEC	Communications Security
Conventional	Non-trunked radio communication where communication resources (RF channels and base station sites) are manually selected.
CORBA	Common Object Request Broker
Covert Secret, hidden	Usually refers to type of equipment, e.g. covert terminals, for use with agencies involved in surveillance and under-cover operations
CRC	Cyclic Redundancy Code (Block coding)
CVO	Clear Voice Override, switching from encrypted to clear voice
DCK	Derived Cipher Key, key produced as a result of authentication, used for uplink and one to one messages
DDI	Direct Dial In
DES	Digital Encryption Standard
DGNA	Dynamic Group Number Assignment, Supplementary Service defined in the TETRA standards which is used for dynamic management (creation and dissolution) of user talkgroups
Dialling	Exchange mechanism between User and Terminal; the act of selecting the called party
Discreet Listening	TETRA Supplementary Service enabling an authorised user like a dispatcher to covertly (secretly) monitor the calls in progress
DM Repeater	A radio device designed to retransmit each call and thus increase the operational area of Direct Mode terminals
DM Direct Mode	(DM or DMO), the facility for TETRA terminals to communicate directly with each other without using TETRA infrastructure
DMO	Direct Mode Operation, the facility for TETRA terminals to communicate directly with each other without using TETRA infrastructure
DMR	Digital Mobile Radio, an ETSI standard being developed for low tier conventional PMR applications.
Downlink	Transmissions from the base station to a radio terminal.

DQPSK	Differential Quaternary Phase Shift Keying
DSS 1	Digital Subscriber Signalling 1
E2E	End to End Encryption - Encryption of the total communication link (from one end to the other) without intermediate decryption, required for maximum security
ECC	Electronic Communications Committee, the telecommunications committee of CEPT, producing Decisions, Recommendations and Reports to harmonise European regulation, see <a href="http://www.ero.dk">www.ero.dk</a>
EN	European Norm, a standard like TETRA approved through national voting procedure
Encryption key	A pseudorandom number used "to seed" a key-stream generator
Encryption	Method for coding/ scrambling the information (voice or data) so that it cannot be understood or deciphered without special equipment or software
EPT	ETSI Project TETRA (now changed to Technical Committee (TC) TETRA)
ERC	Earlier name for ECC, documents available via <a href="http://www.ero.dk">www.ero.dk</a>
ERO	European Radiocommunications Office <a href="http://www.ero.dk">www.ero.dk</a>
Es/No	Energy per symbol / Noise power spectral density
ETS	European Telecommunication Standard (ETSI document prefix)
ETS	European Telecommunication Standard, name of standards (earlier) produced by the European Telecommunications Standards Institute (ETSI) available via <a href="http://www.etsi.org">www.etsi.org</a>
ETSI	European Telecommunications Standards Institute, <a href="http://www.etsi.org">www.etsi.org</a>
EU	European Union, <a href="http://www.europa.eu.int">www.europa.eu.int</a>
Excitation generator	Generates pulses of variable amplitudes (and maybe positions) to represent the actions of the lungs and vocal chords
FCC	Federal Communications Commission, (U.S. telecommunications regulator <a href="http://www.fcc.gov">www.fcc.gov</a> )
FDMA	Frequency Division Multiple Access
FEC	Forward Error Correction (Convolutional coding)
Free-running	A device not requiring any human intervention or control in order to function (e.g. free running DM repeater).
Frequency Efficiency DMO	A variant of DMO protocol that uses all four timeslots, thus enabling two conversations on a single carrier
FSSN	Fleet Specific Short Number, one of numbering mechanisms in TETRA
Gateway	A device which interfaces TETRA network with other private or public telecommunications networks, e.g. PSTN, ISDN
GCK	Group Cipher Key, a key used (in conjunction with CCK) to give crypto group separation between groups
GGSN	Gateway GPRS Support Node

GoS	Grade of Service, used to specify the level of access on a radio network.
GPS	Global Positioning System
GPRS	General Packet Radio Service
GTSI	Group TETRA Subscriber Identity
GW	Gateway
HTML	HyperText Mark-up Language
IDEA	International Data Encryption Algorithm
I/F	Interface
IEC	International Electro-technical Commission
IMSI	Individual Mobile Subscriber Identity
Infrastructure	Base stations, switches, links, and various management equipments - all forming the network of equipments that enable mobile radio terminals to operate over a particular geographical area
IOP	Interoperability (of TETRA equipment)
IP	Internet Protocol
IPR	Intellectual Property Rights
ISCTI	Istituto Superiore delle Comunicazioni e tecnologie dell'Informazione, the current certification body for TETRA IOP
ISDN	Integrated Services Digital Network
ISI	Inter-System Interface, open interface standard used to connect two TETRA networks together
ISO	International Standards Organisation
ITSI	Individual TETRA Subscriber Identity
ITU	International Telecommunications Union
ITU-T	International Telecommunications Union-Telecomms
KMC	Key Management Centres, an entity for remotely loading keys to user terminals
Keystream	Pseudorandom data derived from KSG, used to mix with plain text data to produce encrypted data stream
KSG	Key stream generator: produces key stream from inputs of encryption key and synchronisation vectors fed into the encryption algorithm
LAN	Local Area Network
Late Entry	TETRA Supplementary Service which allows a user who has, for example, just switched his/her MS or has finished another call, to join a call in progress between the members of the group he/she is also a member
Lawful Interception	Facility for telecommunications networks like TETRA to be monitored and calls intercepted by government agencies
LNM	Local Network Management
LPC	Linear Predictive Coding
LS	Line Station, a fixed, wireline user terminal, as distinct from a mobile radio terminal, connected to a TETRA network, providing services and facilities available to a

	mobile user but without the need to be in the operational range of the system
LSI	Line Station Interface
MAC	Medium Access Control
Master DMO terminal/radio	The radio that initiates a DMO conversation and, in the absence of the synchronisation signal from the infrastructure, is acting as a control of the synchronisation timing
MCC	Mobile Country Code, (part of TETRA Number Identity)
ME	Members Enquiry, consultation process in TETRA interoperability specification work
MELPe	Mixed Excitation Linear Predictive, enhanced, the voice codec type adopted by NATO.
MGCK	Modified Group Cipher key, the key used for downlink group calls when GCKs are used. Formed from GCK modified by CCK
MII	Ministry of Information Industry (of the Peoples Republic of China) <a href="http://www.mii.gov.cn">www.mii.gov.cn</a>
MM	Mobility Management
MMI	Man-Machine-Interface
MNC	Mobile Network Code, (part of TETRA Number Identity)
MOPS	Million Operations Per second
MOS	Mean Opinion Score
MPT1327	Analogue trunking standard defined by UK DTI
MS	Mobile Stations are TETRA radio terminals, including hand-held, mobile and fixed ones
MS-PD	Multislot Packet Data, IP data service using multiple timeslots
MTBF	Mean Time Between Failure
MTTR	Mean Time To Repair
NATO	North Atlantic Treaty Organisation, <a href="http://www.nato.int">www.nato.int</a>
NMS	Network Management Subsystem
Number	Decimal digits dialled by the user, decimal representation of air-interface addresses as seen by the user i.e. user visible number
OTAR	Over The Air Re-keying. TETRA facility which allows for change of the encryption keys in the terminals to be done remotely over the air
PAMR	Public Access Mobile Radio
PCM	Pulse Code Modulation
PCN	Personal Communication Network
PD	Packet (Mode) Data, a mode of data transmission where data message is split into small 'chunks' or packets, transmitted packet-by-packet to the end destination (without a need for dedicated connection in between, as for circuit data), and assembled again in the correct order
PDN	Public Data Network
PDO	Packet Data Optimised, another variant of the TETRA

	standards set originally developed, which was not taken up by the market, largely because of its marginal advantage in terms of efficiency of packet-data communications when compared to V+D TETRA combined with a significant disadvantage of not offering the voice service
PEI	Peripheral Equipment Interface, standard interface defined in TETRA for connecting a data terminal to a TETRA radio terminal
PMR	Private Mobile Radio
Portable Radio	An older term for a hand-held radio
PPP	Point to Point Protocol
Priority	A service that in case of system congestion offers one or more levels of "call queue jumping", to those users who are allocated it, on the basis that their communication needs or requests are deemed to be more important. The highest priority call is an Emergency call.
PSS 1	Private integrated Signalling System No. 1
PSTN	Public Switched Telephone Network
QAM	Quadrature Amplitude Modulation, scheme used in TETRA Release 2 for the TETRA Enhanced Data Service (TEDS)
QoS	Quality of Service
Roaming	Facility for offering an MS a service inside a visiting network, i.e. not its own home network
SAR	Specific Absorption Rate
SAP	Service Access Point
SCK	Static Cipher Key, used for protecting Direct mode transmissions where no authentication is possible, for class 2 systems and as a fallback key for use on base stations disconnected from the SwMI
SCN	Switching Control Node
SDS	Short Data Service
SDS	Short Data Service, a service in TETRA standards to deliver short data messages between user terminals. A message is composed of a number of characters and/or numerals, up to a pre-determined maximum
SFPG	Security and Fraud Prevention Group
Secret key (k)	The unique key embedded securely in the terminal, which is used for authentication
SIM	Subscriber Identity Module: A module used for storing personalization information of the user that can be moved from one terminal to another
Slave DMO terminal/radio	The receiving participant radio in a DMO conversation.
SNDCP	Sub Network Dependent Convergence Protocol
SNMP	Simple Network Management Protocol
SSI	Short Subscriber Identity, part of TETRA Subscriber Identity
STANAG	Standardisation Agreement [NATO]

Standard DMO	Direct Mode Operation using two out of the four timeslots available in a frame (one for uplink and other for downlink), thus enabling a single conversation on the carrier
Status Messages	Words or concise phrases selected from a pre-determined list that is resident in the terminal, which are transmitted as a simple code reference, and then decoded by the receiving device and displayed as the word message, e.g. "At the scene"
Status Service	mechanism to deliver short messages between user terminals in compact form by transferring only an integer number with textual interpretation provided by the terminals, e.g. 09 could be interpreted as 'off-watch', and 08 as "at the scene".
SwMI	Switching and Management Infrastructure
TC	Technical Committee, an ETSI body formed to develop standards such as TETRA
TCP	Transmission Control Protocol
TCP/IP	Terminal Control Protocol/ Internet Protocol
TDMA	Time Division Multiple Access
TDMA	Time Division Multiple Access, a technology for delivering digital wireless service that works by dividing a radio frequency into time slots and then allocating slots to multiple calls. In this way, a single frequency can support multiple, simultaneous, communication channels.
TEA1/2/3/4	TETRA Encryption Algorithm(s) 1,2,3 and 4
TEK	Traffic Encryption Key End to end keys used to protect the user traffic payload
Temporary/permanent disabling	The process by which the network disables terminals which have been reported as lost or stolen or have fallen into unauthorised hands.
Terminal	also radio terminal or a mobile radio terminal or a TETRA mobile station (MS) - a hand-held, mobile or fixed radio unit connected to the TETRA system via air interface
TETRA MoU Association	The TETRA MoU Association founded in 1994 to support promotion of ETSI TETRA standard worldwide, now known as the TETRA Association
TETRA V+D	TETRA Voice + Data, the suite of TETRA standards normally referred to as "TETRA"
TETRA	Terrestrial Trunked Radio, the ETSI standard for digital trunked radio communications (earlier known as Trans-European Trunked Radio and before that MDTRS Mobile Digital Trunked Radio System)
TIA	Telecommunications Industry Association, a U.S. standardisation body, <a href="http://www.tiaonline.org">www.tiaonline.org</a>
TIP	TETRA Interoperability Profile, a test specification produced under the TETRA Association for testing TETRA equipment from different suppliers
TM	Trunked Mode
TMN	Telecommunications Management Network
TMO	abbreviation standing in for Trunked Mode Operation, as



	distinct from DMO, direct mode operation
TNP 1	TETRA Network Protocol 1
Trunked Radio Communications	A computer controlled communications system, which allocates communication channel for a call (either voice or data) from a "common pool" of available channels, and at the end of that call, returns them to the same "pool" to be reallocated for another call.
TS	Time Slot
TSI	TETRA Subscriber Identity
TTR	TETRA Association Technical Report, publication series for TETRA interoperability specifications
UDP	User Datagram Protocol
UMTS	Universal Mobile Radio System
Uplink	Connection from radio terminal to the base station
V. 24	ITU-T Recommendation V. 24
V. 28	ITU-T Recommendation V. 28
V+D	Voice plus Data
VATSI	Alias TETRA Subscriber Identity allocated in the visiting Network
VGTSs	Group TETRA Subscriber Identity(ies) allocated in the visiting Network
Vocoder	Voice coder
WAP	Wireless Application Protocol, open protocol for delivery of Internet content over radio path in a condensed format
WG	Working Group, usually a small team formed as part of an ETSI TC to produce a specific ETSI deliverable
WML	Wireless Mark-up Language
X.121	ITU Recommendation - Numbering Plan for Data Networks
X.25	ITU-T Recommendation X. 25
X.75	ITU-T Recommendation X. 75