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Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 1: General network design

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Contents

Intellectual Property Rights	13
Foreword.....	13
Modal verbs terminology.....	14
1 Scope	15
2 References	16
2.1 Normative references	16
2.2 Informative references.....	16
3 Definition of terms, symbols and abbreviations.....	17
3.1 Terms.....	17
3.2 Symbols.....	22
3.3 Abbreviations	22
4 Circuit mode reference points	25
5 Packet mode reference points.....	25
6 Protocol architecture for V+D.....	25
7 Addressing and identities	25
7.1 Introduction	25
7.2 Subscriber identities	27
7.2.1 General.....	27
7.2.2 TSI	28
7.2.3 SSI	29
7.2.4 Composition of subscriber identities	29
7.2.5 Allocation principles for subscriber identities	29
7.2.6 Use of subscriber identities.....	30
7.2.7 NSAP addresses.....	30
7.2.8 Installation of TSIs.....	31
7.3 TETRA Management Identity (TMI).....	31
7.3.1 General.....	31
7.3.2 Composition of management identities.....	31
7.3.3 Use of management identities.....	32
7.4 Network layer SAP (NSAP) addresses.....	32
7.4.1 General.....	32
7.4.2 Static binding	32
7.4.3 Dynamic binding	32
7.4.3.1 General	32
7.4.3.2 Structure and contents of NSAP addresses	32
7.4.3.3 Use of NSAP addresses.....	33
7.4.3.4 Binding of NSAP addresses	33
7.5 TETRA Equipment Identity (TEI)	33
7.5.1 General.....	33
7.5.2 Contents of TEI.....	33
7.5.3 Allocation principles for TEI.....	34
7.5.4 Use of TEI.....	34
7.6 Mobile Network Identity (MNI).....	34
7.6.1 Contents of MNI.....	34
7.7 Layer 2 addresses and labels	35
7.7.1 Overview	35
7.7.2 Event labelling.....	35
7.7.3 Scrambling labelling.....	35
7.7.4 Use and implementation of layer 2 addresses.....	35
7.7.4.1 General requirement.....	35
7.7.4.2 Implementation of event labels	36
7.7.4.3 Implementation of scrambling labels	36

7.7.5	Use of identities for V+D control channels	36
7.7.6	Labelling of packet channels	37
7.7.6.0	General	37
7.7.6.1	Use of identities for uplink data transfers	37
7.7.6.2	Use of identities for downlink data transfers.....	37
7.7.7	System information broadcast.....	37
7.7.8	Reserved value of group address for user information broadcast	37
7.8	Use of individual addresses	38
7.8.0	General.....	38
7.8.1	Air interface addressing functions	38
7.8.2	Address placement in primitives and PDUs	38
7.8.2.1	Use of ISSI at layer 2	38
7.8.2.2	Use of ITSI/ISSI at layer 3.....	39
7.8.2.2.1	Void.....	39
7.8.2.2.2	Use of ITSI/ISSI by CMCE.....	39
7.8.3	Routing principles.....	41
7.8.3.1	Routing of intra-TETRA calls (within one TETRA network)	41
7.8.3.2	Routing of inter-TETRA calls (between two TETRA networks).....	41
7.8.3.3	Routing of external calls (to/from non-TETRA networks)	41
7.8.4	Address and identity comparison	41
7.9	Addressing in interworking and roaming with other telecommunication networks	41
8	Circuit mode basic services	42
9	Mobility Management (MM) in MS	42
10	MLE mobility scenarios and functionalities.....	42
11	Technical realization of SDS.....	42
12	Void.....	42
13	Void.....	42
14	General on supplementary services	42
Annex A (informative): Circuit mode reference points.....		43
A.1	Introduction	43
A.2	Reference configuration	43
A.2.0	Configuration examples	43
A.2.1	Configuration examples of TETRA LMNs	44
A.3	TETRA LMN access	45
A.3.1	MS access.....	45
A.3.1.0	General.....	45
A.3.1.1	MS functional groups.....	45
A.3.1.2	MS access points and reference points	46
A.3.2	Void.....	46
A.3.3	Inter System Interface (ISI) access	46
A.3.4	Location of TETRA functionality	46
A.3.5	TETRA terminals	46
Annex B (informative): Protocol architecture for V+D.....		48
B.1	Introduction	48
B.2	Mobile/base protocol architecture	48
B.2.1	Overview	48
B.2.2	Air interface layer 1.....	48
B.2.3	Air interface layer 2.....	49
B.2.3.0	General.....	49
B.2.3.1	Medium Access Control (MAC).....	49
B.2.3.2	Logical Link Control (LLC)	51
B.2.4	Air interface layer 3.....	51

B.2.4.0	General.....	51
B.2.4.1	Mobile/Base Link control Entity (MLE/BLE).....	51
B.2.4.2	Sub-Network Access Functions (SNAF)	52
B.2.4.2.0	SNAF General.....	52
B.2.4.2.1	Mobility Management (MM)	52
B.2.4.2.2	Circuit Mode Control Entity (CMCE).....	52
B.2.4.2.3	Packet data handling	53
B.2.4.2.4	TETRA packet data protocol (PDP).....	53
B.2.4.2.5	Void.....	54
B.2.5	Mobile/base protocol stack.....	54
B.3	Lower Layer Management Entity (LLME) and other layers interaction.....	55
B.3.1	General description.....	55
Annex C (informative): Overview of circuit mode basic services		56
C.1	Introduction	56
C.2	Functional groupings in circuit switched mode calls	56
C.2.1	Circuit switched call control, C-plane	56
C.2.2	Circuit switched call, user data, U-plane	56
C.3	Protocols.....	56
C.3.0	General	56
C.3.1	TNP1	56
C.3.2	Void.....	56
C.3.3	TNP3	56
C.3.4	TNP4	57
C.3.5	AI1	57
C.3.6	AI2.....	57
C.3.7	TLC1	57
C.3.8	V.24T	57
C.4	Example configuration	57
C.4.1	MS to MS	57
C.4.2	Void.....	58
C.4.3	Void.....	58
C.4.4	MS to MS over ISI	58
Annex D (informative): Individual circuit mode call scenarios.....		60
D.1	Introduction	60
D.2	Procedures - message trunked systems	60
D.2.1	Call set-up - on/off hook signalling.....	60
D.2.1.1	Call set-up - on/off hook signalling flow	60
D.2.1.2	Traffic channel assignment.....	61
D.2.2	Call set-up - direct set-up signalling.....	61
D.2.2.1	Call set-up - direct set-up signalling flow	61
D.2.2.2	Traffic channel assignment.....	62
D.2.3	Request-to-transmit	63
D.2.4	Response to request-to-transmit	64
D.2.5	Permission to transmit withdrawn	64
D.2.6	Permission to continue with withdrawn call.....	64
D.2.7	End of transmission	64
D.2.8	Stop-transmission order.....	64
D.2.9	Call clearing	65
D.2.9.1	Mobile originated.....	65
D.2.9.2	SwMI originated	66
D.3	Procedures - transmission trunked systems.....	66
D.3.1	Call set-up - on/off hook signalling.....	66
D.3.1.1	Call set-up - on/off hook signalling flow	66
D.3.1.2	Traffic assignment	67
D.3.2	Call set-up - direct set-up signalling.....	67

D.3.2.1	Call set-up - direct set-up signalling flow	67
D.3.2.2	Traffic channel assignment	68
D.3.3	Request-to-transmit	68
D.3.4	Response to request-to-transmit	69
D.3.5	Permission to transmit withdrawn	70
D.3.6	Permission to continue with withdrawn call.....	70
D.3.7	End of transmission	70
D.3.8	Stop-transmission order.....	70
D.3.9	Call clearing	70
D.3.9.1	Mobile originated.....	70
D.3.9.2	SwMI originated	71
D.4	Procedures - quasi-transmission trunked systems	72
D.4.1	Call set-up - on/off hook signalling.....	72
D.4.1.1	Call set-up - on/off hook signalling flow	72
D.4.1.2	Traffic assignment	73
D.4.2	Call set-up - direct set-up signalling	73
D.4.2.1	Call set-up - direct set-up signalling flow	73
D.4.2.2	Traffic assignment	74
D.4.3	Request-to-transmit	75
D.4.4	Response to request-to-transmit	76
D.4.5	Permission to transmit withdrawn	76
D.4.6	Permission to continue with withdrawn call.....	77
D.4.7	End of transmission request.....	77
D.4.8	Stop-transmission order.....	77
D.4.9	Call clearing	77
D.4.9.1	Mobile originated.....	77
D.4.9.2	SwMI originated	78
Annex E (informative):	Group voice call scenarios.....	79
E.1	Procedures for message trunked systems	79
E.1.1	General	79
E.1.2	Call set-up	80
E.1.2.1	Call set-up flow.....	80
E.1.2.2	Traffic channel assignment.....	81
E.1.3	Request-to-transmit	81
E.1.4	Response to request-to-transmit	82
E.1.5	Permission to transmit withdrawn	82
E.1.6	Permission to continue with withdrawn call.....	83
E.1.7	End of transmission	83
E.1.8	Stop-transmission order.....	83
E.1.9	Call clearing	83
E.1.9.1	Mobile originated.....	83
E.1.9.2	SwMI originated	84
E.2	Procedures for transmission trunked systems.....	84
E.2.1	General	84
E.2.2	Call set-up	84
E.2.2.1	Call set-up flow.....	84
E.2.2.2	Traffic channel assignment.....	85
E.2.3	Request-to-transmit	85
E.2.4	Response to request-to-transmit	86
E.2.5	Permission to transmit withdrawn	87
E.2.6	Permission to continue with withdrawn call.....	87
E.2.7	End of transmission	87
E.2.8	Stop-transmission order.....	87
E.2.9	Call clearing	87
E.2.9.1	Mobile originated.....	87
E.2.9.2	SwMI originated	88
E.3	Procedures for quasi-transmission trunked systems.....	88
E.3.1	General	88

E.3.2	Call set-up	89
E.3.2.1	Call set-up flow.....	89
E.3.2.2	Traffic channel assignment.....	90
E.3.3	Request-to-transmit	90
E.3.4	Response to request-to-transmit	91
E.3.5	Permission to transmit withdrawn	91
E.3.6	Permission to continue with withdrawn call.....	91
E.3.7	End of transmission	92
E.3.8	Stop-transmission order.....	92
E.3.9	Call clearing	92
E.3.9.1	Mobile originated.....	92
E.3.9.2	SwMI originated	93
Annex F (informative): Priority functions for circuit mode services		94
F.1	Introduction	94
F.2	Priority requirements.....	94
F.2.0	General	94
F.2.1	Access priority.....	94
F.2.2	Call type priority	95
F.2.3	Queue priority	95
F.2.4	Pre-emptive priority	95
F.2.5	Call retention priority	95
F.2.6	Subscriber priority	95
F.3	Mechanisms for supporting priority	95
F.4	Supplementary service activation and invocation	96
Annex G (informative): Mobility Management (MM) in MS.....		97
G.1	Introduction	97
G.2	Overview of MM relations and procedures.....	97
G.3	Stimuli of MM.....	98
G.3.1	Stimulation through TNMM-SAP	98
G.3.2	Stimulation through LMM-SAP	99
G.3.3	Stimulation through peer MM.....	99
G.3.4	Other stimulation.....	99
G.4	Outputs from MM	99
G.4.1	Output through TNMM-SAP	99
G.4.2	Outputs through LMM-SAP.....	100
G.4.3	Output to peer MM.....	100
G.5	Database requirement	100
G.6	MM procedures	100
G.6.1	Registration	100
G.6.1.1	Registration at roaming.....	100
G.6.1.1.1	Implicit registration.....	100
G.6.1.1.2	Registration area	101
G.6.1.1.3	Registration procedure	101
G.6.1.1.4	Registration with authentication.....	102
G.6.1.1.5	Registration with identity exchange	103
G.6.1.2	Registration at migration	104
G.6.1.2.1	Registration with identity exchange.....	104
G.6.1.2.2	Registration with authentication.....	106
G.6.1.3	Network initiated registration	107
G.6.1.4	TEI request.....	107
G.6.2	Authentication	107
G.6.2.0	General.....	107
G.6.2.1	Network initiated authentication.....	107
G.6.2.2	MS initiated authentication	108

G.6.3	De-registration.....	109
G.6.4	Periodic registration	109
G.6.5	Disable/enable	109
G.6.5.1	Temporary disable	109
G.6.5.2	Enable	109
G.6.5.3	Permanently disable.....	110
G.6.6	Energy economy mode change.....	110
G.7	Downloading of group identities.....	110
G.7.0	Overview	110
G.7.1	Add group identity.....	110
G.7.2	Delete group identity	111
G.7.3	Delete all group identities.....	111
G.7.4	Report group identities	112
Annex H (informative): MLE mobility scenarios and functionalities.....		113
H.1	Introduction	113
H.2	Overview	113
H.3	MLE responsibilities	113
H.4	MS-MLE model	114
H.5	MLE functionalities.....	115
H.5.0	Overview	115
H.5.1	Monitoring of neighbour cells (scenario 1)	116
H.5.2	Scanning of neighbour cells (scenario 2)	116
H.5.3	MM activation of the MS-MLE (scenario 3).....	117
H.5.4	Open up MLE service (scenario 4).....	118
H.5.5	Close of MLE service (scenario 5).....	119
H.5.6	Changing to serving cell (scenario 6).....	119
H.5.7	Surveillance of the serving cell (scenario 7)	119
H.5.8	Inviting MM intervention	120
H.5.8.1	No service can be found (scenario 8).....	120
H.5.8.2	LA found outside RA (scenario 9).....	121
H.5.9	Set-up of MAC broadcast (SYNC + SYSINFO) (scenario 10)	122
H.5.10	Set-up of MLE broadcast (NETWORK) (scenario 11)	122
H.5.11	MM registering (scenario 12).....	123
H.5.12	Announce old cell and go-to-channel (scenario 13).....	123
H.5.13	Announce old cell (scenario 14).....	123
H.5.14	Announce new cell and successful restoration (scenario 15)	124
H.5.15	Announce new cell and restoration failure (scenario 16)	125
H.5.16	Path lost to the serving cell (scenario 17).....	125
H.6	Initial cell selection	126
H.6.0	General	126
H.6.1	MLE functions as viewed at the LMM SAP	126
H.6.2	MLE functions.....	126
H.7	Cell re-selection by roaming	127
H.7.0	General	127
H.7.1	Announced cell re-selection	127
H.7.1.0	Overview	127
H.7.1.1	Announced cell re-selection (type-1).....	128
H.7.1.1.0	General	128
H.7.1.1.1	MLE functions as viewed at the LMM SAP	129
H.7.1.1.2	MLE functions as viewed at the LCMC SAP	129
H.7.1.1.3	MLE functions	129
H.7.1.2	Announced cell re-selection (type-2).....	130
H.7.1.3	Announced cell re-selection (type-3).....	131
H.7.1.3.0	General	131
H.7.1.3.1	MLE functions as viewed at the LCMC SAP	131
H.7.1.3.2	MLE functions	132

H.7.2	Unannounced cell re-selection	132
H.7.3	Undeclared cell re-selection	133
H.7.3.0	General.....	133
H.7.3.1	MLE functions as viewed at the LMM SAP.....	133
H.8	MLE service requests during cell re-selection	133
H.8.0	General	133
H.8.1	Undeclared cell re-selection	134
H.9	No MLE recovery.....	134
H.10	Use of LLC.....	134
H.10.0	General	134
H.10.1	MS-MLE using the LLC basic link	135
H.10.1.0	General.....	135
H.10.1.1	Basic link and connectionless MLE service	135
H.10.1.2	Basic link and MLE connections	135
H.10.2	MS-MLE using the LLC advanced link	136
H.10.2.0	General.....	136
H.10.2.1	Advanced link and connectionless MLE service	136
H.10.2.2	Advanced link and MLE connection	137
Annex I (informative):	Void.....	138
Annex J (informative):	Technical realization of SDS and SDS-TL.....	139
J.1	Introduction	139
J.2	General	139
J.3	Internal organization of the network layer	139
J.3.0	General	139
J.3.1	Service model.....	140
J.3.2	Network model.....	140
J.3.2.0	General.....	140
J.3.2.1	Description of the functional entities	141
J.3.2.2	Description of the relationships between functional entities	143
J.3.3	Allocation of functional entities	143
J.3.3.0	General.....	143
J.3.3.1	Point-to-point message transfer within one SwMI.....	143
J.3.3.2	Point-to-multipoint message transfer within one SwMI	144
J.3.3.3	Point-to-point message transfer within two SwMI	144
J.3.3.4	Point-to-multipoint message transfer within two SwMI.....	144
J.3.3.5	Point-to-point message transfer via an outgoing gateway	145
J.3.3.6	Point-to-point message transfer via an incoming gateway.....	145
J.3.3.7	Point-to-multipoint message transfer via an outgoing gateway	145
J.3.3.8	Point-to-multipoint message transfer via an incoming gateway	145
J.4	Protocol architecture.....	146
J.4.0	General	146
J.4.1	MS protocol stack.....	146
J.4.2	BS protocol stack	147
J.5	Addressing.....	147
J.5.1	Uplink addressing on the air interface	147
J.5.2	Downlink addressing on the air interface	148
J.6	Services provided by the air interface protocol.....	148
J.7	Lower layer services used	149
J.7.1	MLE primitives used in the MS and the LS	149
Annex K (informative):	General on supplementary services.....	150
K.1	Introduction	150
K.2	General	150

K.2.1	Framework for the description of supplementary services	150
K.2.2	Alignment with the European Computer Manufacturers Association (ECMA)	150
K.2.3	Methodology	151
K.3	Supplementary service concepts	151
K.3.0	General	151
K.3.1	Concepts associated with supplementary services	151
K.3.1.0	General	151
K.3.1.1	Provision	151
K.3.1.2	Withdrawal	152
K.3.1.3	Activation	152
K.3.1.4	Deactivation	152
K.3.1.5	Definition	152
K.3.1.6	Registration	152
K.3.1.7	Interrogation	152
K.3.1.8	Cancellation	153
K.3.1.9	Invocation	153
K.3.1.10	Operation	153
K.3.1.11	Exceptional procedures	153
K.3.1.12	Interworking considerations	153
K.3.2	Supplementary service invocation order	153
K.3.3	Use of a password option in relation to supplementary services	154
K.3.3.1	Description	154
K.3.3.2	Management - normal procedures	154
K.3.3.2.1	Provision of password option	154
K.3.3.2.2	Withdrawal of the password option	154
K.3.3.2.3	Registration of password	154
K.3.3.2.4	Erasure of password	154
K.3.3.2.5	Password checking	154
K.3.3.3	Management - exceptional procedures	154
K.4	Supported supplementary services	155
K.4.0	Overview	155
K.4.1	Format of description	157
Annex L (informative):	Packet mode reference points	159
L.1	Introduction	159
L.2	Physical interfaces	159
L.3	Configurations	159
L.3.1	Basic configurations	159
L.3.2	Void	159
L.3.3	Interworking	159
L.4	Reference points	159
L.4.1	MS reference points	159
L.4.2	Void	160
L.4.3	Void	160
L.4.4	TETRA to TETRA reference point	160
L.4.5	TETRA to non-TETRA reference point	161
L.5	Protocol stacks	161
L.5.1	Protocol stacks at R1 reference point	161
L.5.2	Protocol stacks at R2 reference point	161
L.5.3	Protocol stacks at R4 reference point	162
Annex M (informative):	Quality of Service (QoS)	163
M.1	Introduction	163
M.2	Quality of network service	163
M.2.0	General	163
M.2.1	Determination of quality of network service	163

M.2.1.0	General.....	163
M.2.1.1	Connection oriented quality of network service	164
M.2.1.2	Connectionless quality of network service	164
M.2.2	QoS negotiation and non-negotiation.....	164
M.2.3	QoS parameter set for connection oriented services.....	164
M.2.3.1	Summary.....	164
M.2.3.2	NC establishment delay	165
M.2.3.3	NC establishment failure probability	165
M.2.4	Throughput (User information transfer rate).....	165
M.2.4.1	Throughput for constant delay services	165
M.2.4.2	Throughput for variable delay services.....	166
M.2.5	Transit delay.....	166
M.2.5.1	Transit delay for constant delay services	166
M.2.5.2	Transit delay for voice services	166
M.2.5.3	Transit delay for variable delay services.....	166
M.2.6	Residual error rate	167
M.2.7	Transfer failure probability.....	167
M.2.8	NC resilience	167
M.2.8.0	Overview	167
M.2.8.1	NC release delay	168
M.2.8.1.1	NC release delay at the peer user	168
M.2.8.1.2	NC release delay at the invoking user.....	168
M.2.8.2	NC release failure probability.....	168
M.2.8.3	NC protection.....	168
M.2.8.4	NC priority.....	169
M.2.9	Maximum acceptable cost	169
M.2.10	Air interface parameters	169
M.2.10.0	General.....	169
M.2.10.1	Duration of interruption of user traffic due to call restoration	169
M.2.10.2	Call restoration success rate.....	169
M.2.10.3	Interruption of user traffic due to slot stealing.....	169
M.2.11	Supplementary service parameters	170
M.2.11.1	Maximum time to activate a supplementary service.....	170
M.2.12	Connection oriented QoS negotiation.....	170
M.2.13	QoS parameter set for connectionless services.....	170
M.2.13.1	Summary.....	170
M.2.13.2	Transit delay	171
M.2.13.3	Protection from unauthorized access	171
M.2.13.4	Cost determinants	171
M.2.13.5	Residual error probability	171
M.2.13.6	Priority	172
M.2.13.7	Connectionless QoS negotiation.....	172
M.3	Applicability of QoS parameters to TETRA services	172
Annex N (normative): TETRA type approval code information element.....		174
N.1	Encoding of the TAC information element	174
N.2	Application for the TAC value.....	174
Annex O (normative): TETRA final assembly code (FAC) information element		177
O.1	Encoding of the FAC information element	177
O.2	Application for the FAC value	177
O.3	WEB page contents for FAC data base.....	177
Annex P (normative): TETRA electronic serial number (ESN) information element		180
P.1	Encoding of the ESN information element	180
P.2	Usage of the ESN	180

P.3 Usage of check sum of the equipment identity	180
Annex Q (informative): Change requests.....	181
History	182

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Foreword

This European Standard (EN) has been produced by ETSI Technical Committee TETRA and Critical Communications Evolution (TCCE).

The present document is part 1 of a multi-part deliverable covering the Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D), as identified below:

- Part 1: "General network design";**
- Part 2: "Air Interface (AI)";
- Part 3: "Interworking at the Inter-System Interface (ISI)";
- Part 4: "Gateways basic operation";
- Part 5: "Peripheral Equipment Interface (PEI)";
- Part 7: "Security";
- Part 9: "General requirements for supplementary services";
- Part 10: "Supplementary services stage 1";
- Part 11: "Supplementary services stage 2";
- Part 12: "Supplementary services stage 3";
- Part 13: "SDL model of the Air Interface (AI)";
- Part 14: "Protocol Implementation Conformance Statement (PICS) proforma specification";
- Part 15: "TETRA frequency bands, duplex spacings and channel numbering";
- Part 16: "Network Performance Metrics";
- Part 17: "TETRA V+D and DMO specifications";
- Part 18: "Air interface optimized applications";
- Part 19: "Interworking between TETRA and Broadband systems".

NOTE 1: Part 3, sub-parts 6 and 7 (Speech format implementation), part 4, sub-part 3 (Data networks gateway), part 10, sub-part 15 (Transfer of control), part 13 (SDL) and part 14 (PICS) of this multi-part deliverable are in status "historical" and are not maintained.

NOTE 2: Some parts are also published as Technical Specifications such as ETSI TS 100 392-2 and those may be the latest version of the document.

National transposition dates	
Date of adoption of this EN:	13 November 2019
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Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](#) (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

1 Scope

The present document defines addressing for Terrestrial Trunked Radio system (TETRA) supporting Voice plus Data (V+D). It also gives background information of the air interface, the interworking between TETRA systems and to other systems via gateways, the terminal equipment interface on the Mobile Station (MS), the security aspects in TETRA networks, the management services offered to the operator, the performance objectives, and the supplementary services that come in addition to the basic and tele-services used as a basis for TETRA standardization.

The present document defines and specifies the TETRA addressing and identities and their organization in groups corresponding to the different functions.

It establishes the background of the TETRA general network design for standardization purposes:

- it gives information about the circuit mode and packet mode reference points for the MS and switching and management infrastructure;
- it gives information about a model of the air interface protocol stack, different functions of layers and sublayers;
- it gives information about the functions provided by the circuit mode teleservices used for speech and basic services used for data transfer;
- it gives information about the functions related to the management of the users' mobility across networks and inside a network including roaming and migration;
- it gives information about the functions related to the transport of short data messages as a service specific to TETRA;
- it gives information about the functions related to the support of packet data service in a way specific to TETRA;
- it gives information about the supplementary services that mainly extend the capabilities of the circuit mode basic and teleservices;
- it gives information about the various possibilities of individual circuit mode call scenarios and provides guidance on priority concepts for packet data and circuit mode services and on the service quality.

NOTE: This part of the multi-part document may, by its nature as a general design statement, require updating when later parts of the multi-part document are completed and maintained (in order to avoid any non-alignment). If a discrepancy occurs between this part and any other part of the multi-part document, then the other part will take precedence. The present document may be maintained mainly on those clauses, which are referred from other parts or standards.

2 References

2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

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NOTE 1: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

NOTE 2: Note that for the TETRA standards, the reference is always to a European Standard (ETSI EN 300 xxx) if such has been published, but the latest version of that standard can be either an EN or a Technical Specification (ETSI TS 100 xxx), even if this is not visible in the reference list.

The following referenced documents are necessary for the application of the present document.

- [1] Recommendation ITU-T E.164: "The international public telecommunication numbering plan".
- [2] Recommendation ITU-T E.218: "Management of the allocation of terrestrial trunk radio Mobile Country Codes".
- [3] Recommendation ITU-T E.213: "Telephone and ISDN numbering plan for land mobile stations in public land mobile networks (PLMN)".
- [4] ETSI EN 300 392-2: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 2: Air Interface (AI)".
- [5] ETSI EN 300 392-7: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 7: Security".
- [6] ETSI EN 300 392-10-22: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 10: Supplementary services stage 1; Sub-part 22: Dynamic Group Number Assignment (DGNA)".
- [7] Void.

2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

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The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

- [i.1] Recommendation ITU-T I.130: "Method for the characterization of telecommunication services supported by an ISDN and network capabilities of an ISDN".
- [i.2] Recommendation ITU-T I.411: "ISDN user-network interfaces - Reference configurations".

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