



**SLOVENSKI STANDARD  
SIST EN 300 392-1 V1.4.1:2009  
01-april-2009**

Prizemni snopovni radio (TETRA) - Govor in podatki (V+D) - 1. del: Splošna zasnova omrežja

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

# iTeh STANDARD PREVIEW

## (standards.iteh.ai)

**Ta slovenski standard je istoveten z:** EN 300 392-1 V1.4.1-2009  
<https://standards.iec.ch/catalog/standards/sist/9aa9019e-bf93-4c9d-b04e-5895b5b214c8/sist-en-300-392-1-v1-4-1-2009>

ICS:

33.070.10	Prizemni snopovni radio (TETRA)	Terrestrial Trunked Radio (TETRA)
-----------	------------------------------------	--------------------------------------

**SIST EN 300 392-1 V1.4.1:2009** en

**iTeh STANDARD PREVIEW  
(standards.iteh.ai)**

SIST EN 300 392-1 V1.4.1:2009

<https://standards.iteh.ai/catalog/standards/sist/9aa9b19e-bf95-4c9d-b64e-5895b5b214c8/sist-en-300-392-1-v1-4-1-2009>

# ETSI EN 300 392-1 V1.4.1 (2009-01)

European Standard (Telecommunications series)

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

iTeh STANDARD PREVIEW  
(standards.iteh.ai)

SIST EN 300 392-1 V1.4.1:2009

<https://standards.iteh.ai/catalog/standards/sist/9aa9b19e-bf95-4c9d-b64e-5895b5b214c8/sist-en-300-392-1-v1-4-1-2009>



---

Reference

REN/TETRA-03190

---

Keywords

air interface, TETRA, V+D

***ETSI***

650 Route des Lucioles  
 F-06921 Sophia Antipolis Cedex - FRANCE

---

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C  
 Association à but non lucratif enregistrée à la  
 Sous-Préfecture de Grasse 06 N° 7303/88

## iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN 300 392-1 V1.4.1:2009](#)  
<https://standards.iteh.ai/catalog/standards/sist/9aa9b19e-bf95-4c9d-b64e-5895b5b2142009/v1.4.1-2009>  
***Important notice***

---

Individual copies of the present document can be downloaded from:  
<http://www.etsi.org>

The present document may be made available in more than one electronic version or in print. In any case of existing or perceived difference in contents between such versions, the reference version is the Portable Document Format (PDF). In case of dispute, the reference shall be the printing on ETSI printers of the PDF version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status.  
 Information on the current status of this and other ETSI documents is available at  
<http://portal.etsi.org/tb/status/status.asp>

If you find errors in the present document, please send your comment to one of the following services:  
[http://portal.etsi.org/chaircor/ETSI\\_support.asp](http://portal.etsi.org/chaircor/ETSI_support.asp)

---

***Copyright Notification***

No part may be reproduced except as authorized by written permission.  
 The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 2009.  
 All rights reserved.

**DECT™, PLUGTESTS™, UMTS™, TIPHON™**, the TIPHON logo and the ETSI logo are Trade Marks of ETSI registered for the benefit of its Members.

**3GPP™** is a Trade Mark of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.

**LTE™** is a Trade Mark of ETSI currently being registered for the benefit of its Members and of the 3GPP Organizational Partners.

**GSM®** and the GSM logo are Trade Marks registered and owned by the GSM Association.

---

## Contents

Intellectual Property Rights .....	12
Foreword.....	12
1 Scope .....	14
2 References .....	14
2.1 Normative references .....	15
2.2 Informative references.....	15
3 Definitions, symbols and abbreviations .....	16
3.1 Definitions .....	16
3.2 Symbols.....	21
3.3 Abbreviations .....	22
4 Circuit mode reference points .....	24
5 Packet mode reference points.....	24
6 Protocol architecture for V+D .....	24
7 Addressing and identities .....	24
7.1 Introduction .....	24
7.2 Subscriber identities .....	26
7.2.1 General.....	26
7.2.2 TSI .....	27
7.2.3 SSI .....	28
7.2.4 Composition of subscriber identities .....	28
7.2.5 Allocation principles for subscriber identities .....	29
7.2.6 Use of subscriber identities.....	29
7.2.7 NSAP addresses.....	30
7.2.8 Installation of TSIs.....	30
7.3 TETRA Management Identity (TMI).....	30
7.3.1 General.....	30
7.3.2 Composition of management identities.....	31
7.3.3 Use of management identities.....	31
7.4 Network layer SAP (NSAP) addresses.....	31
7.4.1 General.....	31
7.4.2 Static binding .....	31
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.....	32
7.4.3.4 Binding of NSAP addresses .....	32
7.5 TETRA Equipment Identity (TEI) .....	32
7.5.1 General.....	32
7.5.2 Contents of TEI.....	33
7.5.3 Allocation principles for TEI.....	33
7.5.4 Use of TEI.....	33
7.6 Mobile Network Identity (MNI).....	34
7.6.1 Contents of MNI .....	34
7.7 Layer 2 addresses and labels .....	34
7.7.1 Overview .....	34
7.7.2 Event labelling .....	34
7.7.3 Scrambling labelling .....	34
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 .....	35
7.7.4.3 Implementation of scrambling labels .....	35
7.7.5 Use of identities for V+D control channels .....	35

7.7.6	Labelling of packet channels .....	36
7.7.6.1	Use of identities for uplink data transfers .....	36
7.7.6.2	Use of identities for downlink data transfers.....	36
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.....	37
7.8.1	Air interface addressing functions .....	37
7.8.2	Address placement in primitives and PDUs .....	37
7.8.2.1	Use of ISSI at layer 2 .....	37
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.....	40
7.8.3.1	Routing of intra-TETRA calls (within one TETRA network) .....	40
7.8.3.2	Routing of inter-TETRA calls (between two TETRA networks).....	40
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.....	41
9	Mobility Management (MM) in MS .....	42
10	MLE mobility scenarios and functionalities.....	42
11	Technical realization of SDS.....	42
12	Void.....	42
13	<b>iTeh STANDARD PREVIEW</b> .....	42
14	General on supplementary services ( <a href="http://standards.iteh.ai">standards.iteh.ai</a> ) .....	42
<b>Annex A (informative):</b>	<b>Circuit mode reference points.....</b>	<b>43</b>
A.1	Introduction .....	43
A.2	Reference configuration .....	43
A.2.1	Configuration examples of TETRA LMNs .....	44
A.3	TETRA LMN access .....	45
A.3.1	MS access .....	45
A.3.1.1	MS functional groups.....	45
A.3.1.2	MS access points and reference points .....	45
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
<b>Annex B (informative):</b>	<b>Protocol architecture for V+D .....</b>	<b>47</b>
B.1	Introduction .....	47
B.2	Mobile/base protocol architecture .....	47
B.2.1	Overview .....	47
B.2.2	Air interface layer 1.....	47
B.2.3	Air interface layer 2.....	48
B.2.3.1	Medium Access Control (MAC).....	48
B.2.3.2	Logical Link Control (LLC) .....	50
B.2.4	Air interface layer 3.....	50
B.2.4.1	Mobile/Base Link control Entity (MLE/BLE).....	50
B.2.4.2	Sub-Network Access Functions (SNAF) .....	51
B.2.4.2.1	Mobility Management (MM) .....	51
B.2.4.2.2	Circuit Mode Control Entity (CMCE).....	51
B.2.4.2.3	Packet data handling .....	52
B.2.4.2.4	TETRA packet data protocol (PDP).....	52

B.2.4.2.5	Void.....	52
B.2.5	Mobile/base protocol stack.....	52
B.3	Lower Layer Management Entity (LLME) and other layers interaction.....	53
B.3.1	General description.....	53
<b>Annex C (informative):</b>	<b>Overview of circuit mode basic services .....</b>	<b>54</b>
C.1	Introduction .....	54
C.2	Functional groupings in circuit switched mode calls .....	54
C.2.1	Circuit switched call control, C-plane .....	54
C.2.2	Circuit switched call, user data, U-plane .....	54
C.3	Protocols.....	54
C.3.1	TNP1 .....	54
C.3.2	Void.....	54
C.3.3	TNP3 .....	54
C.3.4	TNP4 .....	55
C.3.5	AI1.....	55
C.3.6	AI2.....	55
C.3.7	TLC1 .....	55
C.3.8	V.24T .....	55
C.4	Example configuration .....	55
C.4.1	MS to MS .....	55
C.4.2	Void.....	56
C.4.3	Void.....	56
C.4.4	MS to MS over ISI .....	56

## iTeh STANDARD PREVIEW

<b>Annex D (informative):</b>	<b>Individual circuit mode call scenarios.....</b>	<b>58</b>
D.1	Introduction .....	58
D.2	Procedures - message trunked systems <a href="http://standards.iteh.ai/catalog/standards/sist/9aa9b19e-bf95-4c9d-b64e-58951532d758/et-300-392-1-v1-4-1-2009">SIST EN 300 392-1 V1.4.1:2009</a> .....	58
D.2.1	Call set-up - on/off hook signalling.....	58
D.2.1.1	Call set-up - on/off hook signalling flow.....	58
D.2.1.2	Traffic channel assignment.....	59
D.2.2	Call set-up - direct set-up signalling.....	59
D.2.2.1	Call set-up - direct set-up signalling flow.....	59
D.2.2.2	Traffic channel assignment.....	60
D.2.3	Request-to-transmit .....	61
D.2.4	Response to request-to-transmit .....	62
D.2.5	Permission to transmit withdrawn .....	62
D.2.6	Permission to continue with withdrawn call.....	62
D.2.7	End of transmission .....	62
D.2.8	Stop-transmission order.....	62
D.2.9	Call clearing .....	63
D.2.9.1	Mobile originated.....	63
D.2.9.2	SwMI originated .....	64
D.3	Procedures - transmission trunked systems .....	64
D.3.1	Call set-up - on/off hook signalling.....	64
D.3.1.1	Call set-up - on/off hook signalling flow .....	64
D.3.1.2	Traffic assignment .....	65
D.3.2	Call set-up - direct set-up signalling .....	65
D.3.2.1	Call set-up - direct set-up signalling flow .....	65
D.3.2.2	Traffic channel assignment .....	66
D.3.3	Request-to-transmit .....	66
D.3.4	Response to request-to-transmit .....	67
D.3.5	Permission to transmit withdrawn .....	68
D.3.6	Permission to continue with withdrawn call.....	68
D.3.7	End of transmission .....	68
D.3.8	Stop-transmission order.....	68
D.3.9	Call clearing .....	68

D.3.9.1	Mobile originated.....	68
D.3.9.2	SwMI originated .....	69
<b>D.4</b>	<b>Procedures - quasi-transmission trunked systems .....</b>	<b>70</b>
D.4.1	Call set-up - on/off hook signalling.....	70
D.4.1.1	Call set-up - on/off hook signalling flow .....	70
D.4.1.2	Traffic assignment .....	71
D.4.2	Call set-up - direct set-up signalling.....	71
D.4.2.1	Call set-up - direct set-up signalling flow .....	71
D.4.2.2	Traffic assignment .....	72
D.4.3	Request-to-transmit .....	73
D.4.4	Response to request-to-transmit .....	74
D.4.5	Permission to transmit withdrawn .....	74
D.4.6	Permission to continue with withdrawn call.....	75
D.4.7	End of transmission request.....	75
D.4.8	Stop-transmission order.....	75
D.4.9	Call clearing .....	75
D.4.9.1	Mobile originated.....	75
D.4.9.2	SwMI originated .....	76

**Annex E (informative):     Group voice call scenarios.....77**

E.1	Procedures for message trunked systems .....	77
E.1.1	General .....	77
E.1.2	Call set-up .....	78
E.1.2.1	Call set-up flow.....	78
E.1.2.2	Traffic channel assignment .....	79
E.1.3	Request-to-transmit .....	79
E.1.4	Response to request-to-transmit .....	80
E.1.5	Permission to transmit withdrawn .....	81
E.1.6	Permission to continue with withdrawn call.....	81
E.1.7	End of transmission .....	81
E.1.8	Stop-transmission order.....	81
E.1.9	Call clearing .....	82
E.1.9.1	Mobile originated.....	82
E.1.9.2	SwMI originated .....	82
E.2	Procedures for transmission trunked systems.....	82
E.2.1	General .....	82
E.2.2	Call set-up .....	83
E.2.2.1	Call set-up flow.....	83
E.2.2.2	Traffic channel assignment .....	84
E.2.3	Request-to-transmit .....	84
E.2.4	Response to request-to-transmit .....	85
E.2.5	Permission to transmit withdrawn .....	86
E.2.6	Permission to continue with withdrawn call.....	86
E.2.7	End of transmission .....	86
E.2.8	Stop-transmission order.....	86
E.2.9	Call clearing .....	86
E.2.9.1	Mobile originated.....	86
E.2.9.2	SwMI originated .....	87
E.3	Procedures for quasi-transmission trunked systems.....	87
E.3.1	General .....	87
E.3.2	Call set-up .....	88
E.3.2.1	Call set-up flow.....	88
E.3.2.2	Traffic channel assignment .....	89
E.3.3	Request-to-transmit .....	89
E.3.4	Response to request-to-transmit .....	90
E.3.5	Permission to transmit withdrawn .....	90
E.3.6	Permission to continue with withdrawn call.....	90
E.3.7	End of transmission .....	91
E.3.8	Stop-transmission order.....	91

E.3.9	Call clearing .....	91
E.3.9.1	Mobile originated.....	91
E.3.9.2	SwMI originated .....	92

**Annex F (informative): Priority functions for circuit mode services .....93**

F.1	Introduction .....	93
F.2	Priority requirements.....	93
F.2.1	Access priority.....	93
F.2.2	Call type priority .....	94
F.2.3	Queue priority .....	94
F.2.4	Pre-emptive priority .....	94
F.2.5	Call retention priority .....	94
F.2.6	Subscriber priority.....	94
F.3	Mechanisms for supporting priority .....	94
F.4	Supplementary service activation and invocation .....	95

**Annex G (informative): Mobility Management (MM) in MS.....96**

G.1	Introduction .....	96
G.2	Overview of MM relations and procedures.....	96
G.3	Stimuli of MM.....	97
G.3.1	Stimulation through TNMM-SAP .....	97
G.3.2	Stimulation through LMM-SAP .....	98
G.3.3	Stimulation through peer MM.....	98
G.3.4	Other stimulation.....	98
G.4	Outputs from MM .....	98
G.4.1	Output through TNMM-SAP .....	98
G.4.2	Outputs through LMM-SAP .....	99
G.4.3	Output to peer MM.....	99
G.5	Database requirement .....	99
G.6	MM procedures .....	99
G.6.1	Registration .....	99
G.6.1.1	Registration at roaming .....	99
G.6.1.1.1	Implicit registration .....	99
G.6.1.1.2	Registration area .....	100
G.6.1.1.3	Registration procedure .....	100
G.6.1.1.4	Registration with authentication.....	101
G.6.1.1.5	Registration with identity exchange .....	102
G.6.1.2	Registration at migration .....	103
G.6.1.2.1	Registration with identity exchange .....	103
G.6.1.2.2	Registration with authentication.....	105
G.6.1.3	Network initiated registration .....	106
G.6.1.4	TEI request.....	106
G.6.2	Authentication .....	106
G.6.2.1	Network initiated authentication.....	106
G.6.2.2	MS initiated authentication .....	107
G.6.3	De-registration.....	108
G.6.4	Periodic registration .....	108
G.6.5	Disable/enable .....	108
G.6.5.1	Temporary disable .....	108
G.6.5.2	Enable .....	108
G.6.5.3	Permanently disable .....	109
G.6.6	Energy economy mode change.....	109
G.7	Downloading of group identities .....	109
G.7.1	Add group identity.....	109
G.7.2	Delete group identity .....	110

G.7.3	Delete all group identities.....	110
G.7.4	Report group identities .....	111

**Annex H (informative): MLE mobility scenarios and functionalities.....112**

H.1	Introduction .....	112
H.2	Overview .....	112
H.3	MLE responsibilities .....	112
H.4	MS-MLE model .....	113
H.5	MLE functionalities.....	114
H.5.1	Monitoring of neighbour cells (scenario 1) .....	115
H.5.2	Scanning of neighbour cells (scenario 2) .....	115
H.5.3	MM activation of the MS-MLE (scenario 3).....	116
H.5.4	Open up MLE service (scenario 4).....	117
H.5.5	Close of MLE service (scenario 5).....	118
H.5.6	Changing to serving cell (scenario 6).....	118
H.5.7	Surveillance of the serving cell (scenario 7) .....	118
H.5.8	Inviting MM intervention.....	119
H.5.8.1	No service can be found (scenario 8).....	119
H.5.8.2	LA found outside RA (scenario 9).....	120
H.5.9	Set-up of MAC broadcast (SYNC + SYSINFO) (scenario 10).....	121
H.5.10	Set-up of MLE broadcast (NETWORK) (scenario 11) .....	121
H.5.11	MM registering (scenario 12).....	122
H.5.12	Announce old cell and go-to-channel (scenario 13).....	122
H.5.13	Announce old cell (scenario 14).....	122
H.5.14	Announce new cell and successful restoration (scenario 15) .....	123
H.5.15	Announce new cell and restoration failure (scenario 16) .....	124
H.5.16	Path lost to the serving cell (scenario 17).....	124
H.6	Initial cell selection .....	125
H.6.1	MLE functions as viewed at the LMM SAP .....	125
H.6.2	MLE functions.....	125
H.7	Cell re-selection by roaming .....	126
H.7.1	Announced cell re-selection .....	126
H.7.1.1	Announced cell re-selection (type-1).....	127
H.7.1.1.1	MLE functions as viewed at the LMM SAP .....	127
H.7.1.1.2	MLE functions as viewed at the LCMC SAP .....	128
H.7.1.1.3	MLE functions .....	128
H.7.1.2	Announced cell re-selection (type-2).....	129
H.7.1.3	Announced cell re-selection (type-3).....	130
H.7.1.3.1	MLE functions as viewed at the LCMC SAP .....	130
H.7.1.3.2	MLE functions .....	131
H.7.2	Unannounced cell re-selection .....	131
H.7.3	Undeclared cell re-selection .....	132
H.7.3.1	MLE functions as viewed at the LMM SAP.....	132
H.8	MLE service requests during cell re-selection .....	132
H.8.1	Undeclared cell re-selection .....	133
H.9	No MLE recovery.....	133
H.10	Use of LLC.....	133
H.10.1	MS-MLE using the LLC basic link .....	134
H.10.1.1	Basic link and connectionless MLE service .....	134
H.10.1.2	Basic link and MLE connections .....	134
H.10.2	MS-MLE using the LLC advanced link .....	135
H.10.2.1	Advanced link and connectionless MLE service .....	135
H.10.2.2	Advanced link and MLE connection .....	136
<b>Annex I (informative):</b>	<b>Void .....</b>	<b>137</b>

<b>Annex J (informative):</b>	<b>Technical realization of SDS and SDS-TL.....</b>	<b>138</b>
J.1	Introduction .....	138
J.2	General .....	138
J.3	Internal organization of the network layer .....	138
J.3.1	Service model .....	138
J.3.2	Network model .....	139
J.3.2.1	Description of the functional entities .....	139
J.3.2.2	Description of the relationships between functional entities .....	142
J.3.3	Allocation of functional entities .....	142
J.3.3.1	Point-to-point message transfer within one SwMI.....	142
J.3.3.2	Point-to-multipoint message transfer within one SwMI .....	143
J.3.3.3	Point-to-point message transfer within two SwMI .....	143
J.3.3.4	Point-to-multipoint message transfer within two SwMI .....	143
J.3.3.5	Point-to-point message transfer via an outgoing gateway .....	144
J.3.3.6	Point-to-point message transfer via an incoming gateway.....	144
J.3.3.7	Point-to-multipoint message transfer via an outgoing gateway .....	144
J.3.3.8	Point-to-multipoint message transfer via an incoming gateway .....	144
J.4	Protocol architecture.....	145
J.4.1	MS protocol stack.....	145
J.4.2	BS protocol stack .....	146
J.5	Addressing.....	146
J.5.1	Uplink addressing on the air interface .....	146
J.6	Services provided by the air interface protocol.....	147
J.7	Lower layer services used .....	148
J.7.1	MLE primitives used in the MS and the LS.....	148
<b>Annex K (informative):</b>	<b>General on supplementary services.....</b>	<b>149</b>
K.1	Introduction .....	149
	<a href="https://standards.itech.ai/catalog/standards/sist/9aa9b19e-bf05-4c9d-b64e-5895b5b214c8/sist-en-300-392-1-v1-4-1-2009">https://standards.itech.ai/catalog/standards/sist/9aa9b19e-bf05-4c9d-b64e-5895b5b214c8/sist-en-300-392-1-v1-4-1-2009</a>	
K.2	General .....	149
K.2.1	Framework for the description of supplementary services .....	149
K.2.2	Alignment with the European Computer Manufacturers Association (ECMA).....	149
K.2.3	Methodology .....	150
K.3	Supplementary service concepts .....	150
K.3.1	Concepts associated with supplementary services .....	150
K.3.1.1	Provision .....	150
K.3.1.2	Withdrawal .....	151
K.3.1.3	Activation .....	151
K.3.1.4	Deactivation .....	151
K.3.1.5	Definition .....	151
K.3.1.6	Registration .....	151
K.3.1.7	Interrogation .....	151
K.3.1.8	Cancellation .....	152
K.3.1.9	Invocation .....	152
K.3.1.10	Operation .....	152
K.3.1.11	Exceptional procedures .....	152
K.3.1.12	Interworking considerations.....	152
K.3.2	Supplementary service invocation order .....	152
K.3.3	Use of a password option in relation to supplementary services .....	153
K.3.3.1	Description .....	153
K.3.3.2	Management - normal procedures .....	153
K.3.3.2.1	Provision of password option .....	153
K.3.3.2.2	Withdrawal of the password option.....	153
K.3.3.2.3	Registration of password.....	153
K.3.3.2.4	Erasures of password .....	153
K.3.3.2.5	Password checking .....	153

K.3.3.3	Management - exceptional procedures .....	153
K.4	Supported supplementary services .....	154
K.4.1	Format of description .....	156

**Annex L (informative):      Packet mode reference points.....157**

L.1	Introduction .....	157
L.2	Physical interfaces.....	157
L.3	Configurations.....	157
L.3.1	Basic configurations .....	157
L.3.2	Void.....	157
L.3.3	Interworking .....	157
L.4	Reference points.....	157
L.4.1	MS reference points.....	157
L.4.2	Void.....	158
L.4.3	Void.....	158
L.4.4	TETRA to TETRA reference point .....	158
L.4.5	TETRA to non-TETRA reference point .....	159
L.5	Protocol stacks.....	159
L.5.1	Protocol stacks at R1 reference point .....	159
L.5.2	Protocol stacks at R2 reference point .....	159
L.5.3	Protocol stacks at R4 reference point .....	160

**Annex M (informative):      Quality of Service (QoS).....161**

**iTeh STANDARD PREVIEW**

M.1	Introduction .....	161
M.2	Quality of network service .....	161
M.2.1	Determination of quality of network service .....	161
M.2.1.1	Connection oriented quality of network service .....	162
M.2.1.2	Connectionless quality of network service .....	162
M.2.2	QoS negotiation and non-negotiation .....	162
M.2.3	QoS parameter set for connection oriented services.....	162
M.2.3.1	Summary.....	162
M.2.3.2	NC establishment delay .....	163
M.2.3.3	NC establishment failure probability .....	163
M.2.4	Throughput (User information transfer rate) .....	163
M.2.4.1	Throughput for constant delay services .....	163
M.2.4.2	Throughput for variable delay services.....	164
M.2.5	Transit delay .....	164
M.2.5.1	Transit delay for constant delay services .....	164
M.2.5.2	Transit delay for voice services .....	164
M.2.5.3	Transit delay for variable delay services.....	164
M.2.6	Residual error rate .....	165
M.2.7	Transfer failure probability .....	165
M.2.8	NC resilience .....	165
M.2.8.1	NC release delay .....	166
M.2.8.1.1	NC release delay at the peer user .....	166
M.2.8.1.2	NC release delay at the invoking user .....	166
M.2.8.2	NC release failure probability .....	166
M.2.8.3	NC protection.....	166
M.2.8.4	NC priority .....	167
M.2.9	Maximum acceptable cost .....	167
M.2.10	Air interface parameters .....	167
M.2.10.1	Duration of interruption of user traffic due to call restoration .....	167
M.2.10.2	Call restoration success rate.....	167
M.2.10.3	Interruption of user traffic due to slot stealing .....	167
M.2.11	Supplementary service parameters .....	168
M.2.11.1	Maximum time to activate a supplementary service .....	168
M.2.12	Connection oriented QoS negotiation.....	168

M.2.13	QoS parameter set for connectionless services.....	168
M.2.13.1	Summary.....	168
M.2.13.2	Transit delay .....	169
M.2.13.3	Protection from unauthorized access .....	169
M.2.13.4	Cost determinants .....	169
M.2.13.5	Residual error probability .....	169
M.2.13.6	Priority .....	170
M.2.13.7	Connectionless QoS negotiation.....	170
M.3	Applicability of QoS parameters to TETRA services .....	170
<b>Annex N (normative):</b>	<b>TETRA type approval code information element.....</b>	<b>172</b>
N.1	Encoding of the TAC information element.....	172
N.2	Application for the TAC value .....	172
<b>Annex O (normative):</b>	<b>TETRA final assembly code information element .....</b>	<b>175</b>
O.1	Encoding of the FAC information element .....	175
O.2	Application for the FAC value .....	175
O.3	WEB page contents for FAC data base .....	175
<b>Annex P (normative):</b>	<b>TETRA electronic serial number information element.....</b>	<b>178</b>
P.1	Encoding of the ESN information element .....	178
P.2	Usage of the ESN .....	178
P.3	Usage of check sum of the equipment identity .....	178
<b>Annex Q (informative):</b>	<b>Change requests .....</b>	<b>179</b>
History .....	SIST EN 300 392-1 V1.4.1:2009	180

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN 300 392-1 V1.4.1:2009  
<https://standards.iteh.ai/catalog/standards/sist/9aa9b19e-bf95-4c9d-b64e-5895b5b214c8/sist-en-300-392-1-v1-4-1-2009>

---

## Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<http://webapp.etsi.org/IPR/home.asp>).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

---

## Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Terrestrial Trunked Radio (TETRA).

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

**EN 300 392-1: "General network design";**

EN 300 392-2: "Air Interface (AI)";

EN 300 392-3: "Interworking at the Inter-System Interface (ISI)";

ETS 300 392-4: "Gateways basic operation";

EN 300 392-5: "Peripheral Equipment Interface (PEI)";

EN 300 392-7: "Security"; [SIST EN 300 392-1 V1.4.1:2009](#)

<https://standards.iteh.ai/catalog/standards/sist/9aa9b19e-bf95-4c9d-b64e->

EN 300 392-9: "General requirements for supplementary services"; [EN 300 392-9:2009](#)

EN 300 392-10: "Supplementary services stage 1";

EN 300 392-11: "Supplementary services stage 2";

EN 300 392-12: "Supplementary services stage 3";

ETS 300 392-13: "SDL Model of the Air Interface (AI)";

ETS 300 392-14: "Protocol Implementation Conformance Statement (PICS) proforma specification";

TS 100 392-15: "TETRA frequency bands, duplex spacings and channel numbering";

TS 100 392-16: "Network Performance Metrics";

TR 100 392-17: "TETRA V+D and DMO specifications";

TS 100 392-18: "Air interface optimized applications".

NOTE: 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.

<b>National transposition dates</b>	
Date of adoption of this EN:	27 November 2008
Date of latest announcement of this EN (doa):	28 February 2009
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 August 2009
Date of withdrawal of any conflicting National Standard (dow):	31 August 2009

## iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN 300 392-1 V1.4.1:2009

<https://standards.iteh.ai/catalog/standards/sist/9aa9b19e-bf95-4c9d-b64e-5895b5b214c8/sist-en-300-392-1-v1-4-1-2009>