SLOVENSKI STANDARD
SIST I-ETS 300 131:1999

01-oktober-1999

Radijska oprema in sistemi (RES) - Specifikacija skupnega radijskega vmesnika, ki se uporablja za medsebojno delovanje brezvrvi nih telefonskih aparatov v frekven nem pasu od 864,1 MHz do 868,1 MHz vklju no s storitvami javnega dostopa

Radio Equipment and Systems (RES); Common air interface specification to be used for the interworking between cordless telephone apparatus in the frequency band 864,1 MHz to 868,1 MHz, including public access services

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST I-ETS 300 131:1999
https://standards.iteh.ai/catalog/standards/sist/3c4d967a-b221-4207-af6f-65e343a41f45/sist-i-ets-300-131-1999

Ta slovenski standard je istoveten z: **I-ETS 300 131 Edition 2**

ICS:

33.060.20	Sprejemna in oddajna oprema	Receiving and transmitting equipment

SIST I-ETS 300 131:1999 **en**

2003-01.Slovenski inštitut za standardizacijo. Razmnoževanje celote ali delov tega standarda ni dovoljeno.

SIST I-ETS 300 131:1999

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST I-ETS 300 131:1999
https://standards.iteh.ai/catalog/standards/sist/3c4d967a-b221-4207-af6f-65e343a41f45/sist-i-ets-300-131-1999

SIST I-ETS 300 131:1999

EUROPEAN TELECOMMUNICATION STANDARD

I-ETS 300 131

November 1994

Second Edition

Source: ETSI TC-RES

Reference: RI/RES-03015

ICS: 33.060.20

Key words: CT2, CAI

Radio Equipment and Systems (RES); Common air interface specification to be used for the interworking between cordless telephone apparatus in the frequency band 864,1 Mhz to 868,1 MHz, including public access services

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST I-ETS 300 131:1999
https://standards.iteh.ai/catalog/standards/sist/...-65e343a41f45/sist-i-ets-300-131-1999

ETSI

European Telecommunications Standards Institute

ETSI Secretariat

Postal address: F-06921 Sophia Antipolis CEDEX - FRANCE
Office address: 650 Route des Lucioles - Sophia Antipolis - Valbonne - FRANCE
X.400: c=fr, a=atlas, p=etsi, s=secretariat - **Internet:** secretariat@etsi.fr

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

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.

Some of the material contained herein is the copyright of, or has been supplied by, the United Kingdom Department of Trade and Industry, the British Standards Institution and the companies listed in annex H.

© European Telecommunications Standards Institute 1994. All rights reserved.

New presentation - see History box

SIST I-ETS 300 131:1999

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST I-ETS 300 131:1999
https://standards.iteh.ai/catalog/standards/sist/3c4d967a-b221-4207-af6f-65e343a41f45/sist-i-ets-300-131-1999

Whilst every care has been taken in the preparation and publication of this document, errors in content, typographical or otherwise, may occur. If you have comments concerning its accuracy, please write to "ETSI Editing and Committee Support Dept." at the address shown on the title page.

SIST I-ETS 300 131:1999

Contents

Foreword 15

Introduction 15

1 Scope 17

2 Normative references 18

3 Definitions and abbreviations 19
3.1 Definitions 19
3.2 Abbreviations 20

4 Radio frequency interface 24
4.1 General 24
4.2 Channel frequencies 24
4.2.1 Channel centre frequencies 24
4.2.2 Channel frequency accuracy 24
4.2.3 Rate of change of transmit centre frequency 25
4.2.4 CTA access 25
4.3 Signalling strategy 25
4.3.1 CTA access 25
4.3.2 Signalling whilst in the communication state 25
4.3.3 Signalling outside the communication state 25
4.4 Dynamic channel allocation strategy 25
4.4.1 Incoming calls 25
4.4.2 Outgoing calls 25
4.4.3 Channel selection strategies 26
4.4.4 Free channel 26
4.4.4.1 Free channel selection for primary services 26
4.4.4.2 Free channel selection for secondary services 26
4.5 Radio transmitters 27
4.5.1 RF power 27
4.5.1.1 Maximum RF power 27
4.5.1.2 Minimum RF power 27
4.5.1.3 Output power at low power setting 27
4.5.2 Modulation 27
4.5.3 Adaptive transmitter power strategy 27
4.5.3.1 General 27
4.5.3.2 CPP only 27
4.5.3.3 CPP and CFP 27
4.5.3.4 Power level changes 28
4.5.4 Transmitter burst envelope 28
4.5.4.1 Amplitude 28
4.5.4.2 Dispersion effects 28
4.5.4.3 Guard time 28
4.5.4.4 Synchronisation of transmitter burst envelopes 29
4.5.5 Adjacent channel power (narrow band) 29
4.5.6 Out of band power arising from transmitter transients 29
4.5.7 Intermodulation attenuation 29
4.6 Radio receivers 29
4.6.1 General 29
4.6.1.1 CTA including three or more RFPs 29
4.6.1.2 Other CTAs 29
4.6.1.3 CTAs without integral or supplied antenna 29

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST I-ETS 300 131:1999
https://standards.iteh.ai/catalog/standards/sist/3c4d967a-b221-4207-af6f-65e343a41145/sist-i-ets-300-131-1999

SIST I-ETS 300 131:1999

4.6.2 Sensitivity 30
4.6.2.1 Receiver sensitivity for CFP or CPP using an integral or supplied antenna 30
4.6.2.2 Receiver sensitivity with a 50 ohm connector 30
4.6.3 Interference rejection 30
4.6.3.1 Unmodulated interfering carrier signal 30
4.6.3.2 Modulated asynchronous interfering signal 31
4.6.4 Blocking due to spurious responses 31
4.6.5 Intermodulation response rejection 32
4.7 Combined radio transmitter/receivers 32
4.7.1 Adverse power supply conditions 32
4.7.2 Spurious emissions of the combined transmitter/receiver 32
4.8 Termination of the communication state 33
4.8.1 Clear down signal sequence 33
4.8.2 Cessation of RF activity 33
4.8.3 Off-line timing 33
4.9 Channel scanning 33
4.9.1 Available channels 33
4.9.2 Response times 33
4.9.2.1 Outgoing 33
4.9.2.2 Incoming 33
4.10 In-communication channel switching 33
4.10.1 Capability 33
4.10.2 Channel change delay 34
4.11 Controls 34
4.12 Synthesisers and PLL systems 34

5 Signalling layer one 34
5.1 Data structure and timing 35
5.1.1 Data rate 35
5.1.2 Time-division duplexing 35
5.1.3 Master-slave relationship 35
5.2 Sub-channel multiplexes 36
5.2.1 Channel Markers (CHM) and synchronism markers (SYNC) 36
5.2.2 Multiplex one 37
5.2.3 Multiplex two 38
5.2.4 Multiplex three 38
5.3 Calling channel detection 40
5.3.1 Calling channel detection at the CPP 40
5.3.2 Calling channel detection at the CFP 41
5.4 Link set up and establishment 41
5.4.1 Link set up from CFP to CPP 42
5.4.2 Link set up from CPP to CFP 42
5.4.3 Set up collision resolution 43
5.4.4 Link re-establishment on the existing channel 43
5.4.4.1 Action at the CPP 44
5.4.4.2 Action at the CFP 44
5.4.5 Link re-establishment on a re-selected channel 44
5.4.5.1 At the CPP 44
5.4.5.2 At the CFP 45
5.4.6 Synchronous re-establishment 45
5.4.6.1 Action at the CFP 46
5.4.6.2 Action at the CPP 47
5.5 ID handshaking 47
5.5.1 General 47
5.5.1.1 Handshake code series 47
5.5.1.2 Code allocation 47
5.5.1.3 Code matching 48
5.5.1.4 Code recognition 48
5.5.1.5 Communication state 48

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST I-ETS 300 131:1999
https://standards.iteh.ai/catalog/standards/sist/3c4d967a-b221-4207-af6f-65e343a41f45/sist-i-ets-300-131-1999

SIST I-ETS 300 131:1999

5.5.1.6 Lack of in-communication handshake: RF activity 48
5.5.1.7 Lack of in-communication handshake: off-line state 48
5.5.2 ID handshake operation 48
5.5.3 Handshake protocol 48
5.5.4 Reception of valid handshakes 49
5.5.5 ID handshake mechanism 49

6 Signalling layer two 50
6.1 Code word usage 50
6.2 General message format 51
6.3 General packet format 51
6.3.1 Order of transmission and field mapping convention 51
6.3.2 IDLE_D 52
6.3.3 Synchronisation word (SYNCD) 52
6.3.4 Code Words - (address and data code words) 52
6.3.5 Code word transmission sequence 53
6.3.6 Check field encoding (octets 7 and 8) 53
6.4 Fixed length packet format (FT = 0) 53
6.4.1 SR (octet 1 (part)) 54
6.4.2 LS (octet 1 (part)) 54
6.4.3 HIC (octets 1 (part), 2, 3) 55
6.4.4 MIC (octet 4) 55
6.4.5 LID (octets 5 and 6) 55
6.4.5.1 Allocation of LID values 56
6.4.5.2 Link set up from the CPP: LID use by the CPP in LINK_REQUEST 57
6.4.5.3 Link set up from the CPP: LID use by the CFP in LINK_GRANT 57
6.4.5.4 Polling of CPPs (including link set up from the CFP): LID use by the CFP in ID_OK 57
6.4.5.5 CPP poll response : LID use by the CPP in ID_OK 58
6.4.5.6 Link set up from the CFP: LID use by the CPP in LINK_REQUEST 58
6.4.5.7 Link set up from the CFP: LID use by the CFP in LINK_GRANT 58
6.4.5.8 Established or re-established link: LID use by the CPP in ID_OK and ID_LOST 58
6.4.5.9 Established or re-established link: LID use by the CFP in ID_OK and ID_LOST 58
6.4.5.10 Link re-establishment: LID use by the CPP in LINK_REQUEST 58
6.4.5.11 Link re-establishment: LID use by the CFP in LINK_GRANT 58
6.4.5.12 Validity of handshakes 59
6.4.6 CFP Identity and Status Code Word (CIS) 59
6.5 Variable length packet format (FT = 1) 61
6.5.1 PI (octet 1) 62
6.5.2 L3_end (octet 1) 62
6.5.3 Endwrd and code word no/rem encoding (octet 1) 62
6.5.4 Control (octet 2) 62
6.5.5 Content 64
6.5.6 Link supervisory messages 64
6.5.6.1 Transmit power level control 65
6.5.6.2 Reserved for future use 65
6.5.6.3 Reserved for future use 65
6.5.6.4 Link re-establishment 65
6.5.6.5 Protocol initialisation (SABM), basic and extended 67
6.5.6.6 Protocol acknowledgment (SABM_ACK), basic and extended 69
6.5.6.7 Layer 2 code set shift 69

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST I-ETS 300 131:1999
https://standards.iteh.ai/catalog/standards/sist/3c4d9b7a-b221-4207-af6f-65e343a41f45/sist-i-ets-300-131-1999

SIST I-ETS 300 131:1999

6.5.6.7.1 Secondary service channel availability 70
6.5.6.8 NULL message 71
6.5.7 Fill-in 71
6.6 Link establishment and re-establishment 71
6.6.1 Link set up from the CPP 71
6.6.2 Link re-establishment 72
6.6.3 Link set up from the CFP 73
6.6.4 CFP polling 73
6.6.5 CPP poll response 74
6.6.6 CPP link set up and standard re-establishment diagram 75
6.6.7 CFP link set up diagram 76
6.6.8 Synchronous re-establishment diagram 78
6.7 Layer two link protocol set up and control 78
6.7.1 Layer two link protocol timings 79
6.7.2 Layer two link operation 79
6.7.2.1 Link initialisation (see subclause 6.5.6.5) 79
6.7.2.2 Packet transmission 80
6.7.2.3 Packet reception 80
6.8 Location tracking of CPPs 81
6.8.1 Polling only location tracking 82
6.8.2 CIS assisted location tracking 82
6.8.2.1 CIS only transmissions 83
6.8.2.2 Combined CIS/polling transmissions 83
6.8.2.3 Requesting the service 83
6.8.2.4 CIS monitoring by the CPP 84
6.8.2.5 In range indication to the user 84
7 Signalling layer three 85
7.1 Single octet information elements 85
7.2 Variable length information elements 86
7.2.1 Keypad information element (KP) 88
7.2.2 Display information element (DISP) 91
7.2.3 Signal information element (SIG) 92
7.2.4 Feature activation information element (FA) 94
7.2.4.1 Use of FAs for answering incoming calls 99
7.2.5 Feature indication information element (FI) 99
7.2.6 Channel control information element (CC) 103
7.2.7 Initialisation information element (INIT) 103
7.2.8 Authentication request information element (AUTH_REQ) 104
7.2.9 Authentication response information element (AUTH_RES) 105
7.2.10 Terminal capabilities information element (TERM_CAP) 107
7.2.11 Base capabilities information element (BAS_CAP) 109
7.2.12 Character information element (CHAR) 111
7.2.13 On-air (de-)registration acknowledge information element (OARAC) 111
7.2.14 Parameter set information element (PAR_SET) 112
7.2.15 Parameter request information element (PAR_REQ) 112
7.2.16 Parameter response information element (PAR_RES) 112
7.2.17 Alternative authentication request information element (AUTH2_REQ) 113
7.2.18 Alternative authentication response information element (AUTH2_RES) 113
7.2.19 Number of CPPs polled information element (NO_POLL) 113
7.2.20 Change slot information element (CHANGE_SLOT) 114
7.2.21 Network authentication request (NET_AUTH_REQ) 114
7.2.22 Network authentication response (NET_AUTH_RES) 115
7.2.23 Terminal registration data allocate information element (TRD_ALLOC) 115
7.2.24 Key allocate information element (KEY_ALLOC) 116
7.2.25 Location registration parameters information element (LR_PARAMS) 117
7.2.26 Polling Lid information element (POLLING_LID) 119
7.2.27 Data bearer capability information element (DAT_CAP) 120
7.2.28 Data bearer response information element (DAT_RES) 121
7.3 Layer three mandatory syntax 122

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST I-ETS 300 131:1999
https://standards.iteh.ai/catalog/standards/sist/3c4d967a-b221-4207-af6f-65e343a41f45/sist-i-ets-300-131-1999

SIST I-ETS 300 131:1999

7.3.1 Access to layer three ... 122
7.3.2 Exit from layer three ... 122
7.3.3 Emergency access ... 122
7.3.4 On-air registration ... 123
7.4 Parameter values for PAR_SET, PAR_REQ, PAR_RES ... 123
7.4.1 Parameter type = 0; class of service ... 123
7.4.2 Parameter type = 1; extension number (BCD) ... 124
7.4.3 Parameter type = 2; language preference ... 124
7.4.4 Parameter type = 3; enhanced display ... 124
7.4.4.1 Display Behaviour types ... 125
7.4.4.2 Minimum character set ... 125
7.4.4.3 Display mapping ... 125
7.4.4.4 Scrolling behaviour and window origins ... 125
7.4.4.5 Display behaviour ... 126
7.4.5 Parameter type = 4; Parameter List ... 127
7.4.6 Parameter type = 5; Preferred channels ... 128

8 Speech coding and telephony ... 128
8.1 Definitions ... 129
8.1.1 Cordless Portable Part (CPP) ... 129
8.1.2 Fixed geometry CPP ... 129
8.1.3 Variable geometry CPP ... 129
8.1.4 CAI ADPCM voice codec (CIC = 0) ... 129
8.2 Speech transmission algorithm ... 129
8.2.1 Speech coding algorithm ... 129
8.2.2 Codec for public access CFP ... 129
8.3 Bit transmission sequence ... 129
8.4 Frequency responses ... 130
8.4.1 Sending frequency response ... 130
8.4.2 Receiving frequency response ... 131
8.5 Digital signal level ... 131
8.6 Sending and receiving loudness ratings ... 131
8.6.1 CPP ambient noise rejection ... 132
8.7 Sidetone loudness ratings ... 133
8.7.1 Sidetone for analogue telephony ... 133
8.7.2 Sidetone for digital telephony ... 133
8.7.2.1 Talker sidetone ... 133
8.7.2.2 Listener sidetone ... 133
8.8 Clipping ... 133
8.9 Distortion ... 133
8.9.1 Sending distortion ... 133
8.9.2 Receiving distortion ... 134
8.9.3 Sidetone distortion ... 134
8.10 Noise ... 134
8.10.1 Sending ... 134
8.10.2 Sending (narrow-band noise) ... 134
8.10.3 Receiving ... 134
8.11 Delay ... 134
8.11.1 CPP delay ... 134
8.11.2 CFP delay ... 135
8.11.3 Network echo from a CFP with a 2-wire analogue interface ... 135
8.12 Terminal coupling loss ... 135
8.12.1 Weighted terminal coupling loss (TCLw) ... 135
8.12.2 Stability loss (fixed geometry CPPs) ... 135
8.12.3 Stability loss (variable geometry CPPs) ... 135
8.12.4 CFP with a 4-wire interface ... 135
8.13 Out of band signals ... 136
8.13.1 Discrimination against out-of-band input signals (sending) ... 136
8.13.2 Spurious out-of-band signals (receiving) ... 136
8.14 Sampling frequency level (receiving) ... 136

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST I-ETS 300 131:1999
https://standards.iteh.ai/catalog/standards/sist/3c4d967a-b221-4207-af6f-65e343a41f45/sist-i-ets-300-131-1999

SIST I-ETS 300 131:1999

8.15 Acoustic shock 136
8.15.1 Maximum intended sound pressure level 136
8.15.2 Maximum possible sound pressure level 136
8.16 Audible incoming call indication 136
8.16.1 Provided on CPP: sound pressure level 136
8.16.2 Generated other than through the earpiece: maximum sound pressure level 137

9 Radio frequency parametric and system tests 137
9.1 Test conditions, power sources and ambient temperatures 137
9.1.1 Normal and extreme test conditions 137
9.1.2 Test power source 137
9.1.3 Normal test conditions 137
9.1.3.1 Normal temperature and humidity 137
9.1.3.2 Normal test power source 137
9.1.3.2.1 Mains voltage 137
9.1.3.2.2 Regulated lead acid battery power sources 138
9.1.3.2.3 Nickel cadmium battery 138
9.1.3.2.4 Other power sources 138
9.1.4 Extreme test conditions 138
9.1.4.1 Extreme temperatures 138
9.1.4.2 Extreme test source voltages 138
9.1.4.2.1 Mains voltage 138
9.1.4.2.2 Regulated lead acid battery power sources 138
9.1.4.2.3 Nickel cadmium battery 138
9.1.4.2.4 Other power sources 138
9.1.5 Procedure for tests at extreme temperatures 139
9.2 Electrical test conditions 139
9.2.1 Arrangements for signals to be applied to the fixed and portable receivers 139
9.2.2 Artificial antenna 139
9.2.3 Test fixture for integral antenna 139
9.2.4 Test site and general arrangements for measurements involving the use of radiated fields 140
9.2.4.1 Outdoor test site 140
9.2.4.2 Test antenna 140
9.2.4.3 Substitution antenna 140
9.2.4.4 Optional additional indoor site 141
9.2.5 Combined transmitter/receiver test facility 142
9.2.6 Guidance on the use of radiation test sites 142
9.2.7 Further optional alternative indoor test site using an anechoic chamber 142
9.2.8 Test frequencies 142
9.3 Transmitter 142
9.3.1 Transmitter carrier power 142
9.3.1.1 Definition 142
9.3.1.2 Method of measurement for equipment with an antenna connection 143
9.3.1.3 Method of measurement for equipment with an integral antenna 143
9.3.1.3.1 Method of measurement under normal test conditions 143
9.3.1.3.2 Method of measurement under extreme test conditions 143
9.3.1.4 Limits 144
9.3.2 Adjacent channel power (narrow-band) 144
9.3.2.1 Definition 144
9.3.2.2 Method of measurement 144
9.3.2.3 Characteristics of the spectrum analyser 145
9.3.2.4 Integrating and power summing device 145
9.3.2.5 Limits 145
9.3.3 Out of band power arising from transmitter transients 145
9.3.3.1 Definition 145
9.3.3.2 Method of measurement 145

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST I-ETS 300 131:1999
https://standards.iteh.ai/catalog/standards/sist/3c4d967a-b221-4207-af6f-65e343a41f45/sist-i-ets-300-131-1999

SIST I-ETS 300 131:1999

9.3.3.3 Characteristics of the spectrum analyser 146
9.3.3.4 Limits..... 146
9.3.4 Intermodulation attenuation 146
9.3.4.1 Definition..... 146
9.3.4.2 Method of measurement 146
9.3.4.3 Limits..... 147
9.3.5 Prevention of mis-operation due to adverse power supply conditions..... 147
9.3.5.1 Definition..... 147
9.3.5.2 Method of measurement 147
9.3.5.3 Limits..... 147
9.4 Spurious emissions..... 147
9.4.1 Spurious emissions of the combined transmitter/receiver 147
9.4.1.1 Definition..... 147
9.4.1.2 Method of measuring the power level, subclause 9.4.1.1, (1) 148
9.4.1.3 Method of measuring the effective radiated power, subclause 9.4.1.1, (2) 148
9.4.1.4 Limits..... 148
9.5 Radio frequency system operation..... 149
9.5.1 Definitions..... 149
9.5.2 Channel frequencies 149
9.5.2.1 Ability to transmit on each of the 40 channels..... 149
9.5.2.2 Ability to receive on each of the 40 channels..... 149
9.5.2.3 Ability to receive when the carrier frequency is up to ±10 kHz from nominal..... 149
9.5.2.4 Ability to receive when carrier frequency is varying at a rate of up to 1 kHz/ms..... 149
9.5.3 Dynamic RF channel allocation strategy 149
9.5.3.1 No channel is occupied..... 149
9.5.3.2 One channel only below the threshold..... 149
9.5.3.3 All channels occupied..... 149
9.5.4 Adaptive CPP transmitter power control..... 149
9.5.5 RF modulation..... 150
9.5.5.1 Peak frequency deviation: transmission 150
9.5.5.2 Peak frequency deviation: reception..... 150
9.5.6 RF envelope 150
9.5.6.1 Transmitter output: ramp-down..... 150
9.5.6.2 Transmitter output: ramp-up 150
9.5.6.3 CPP transmit amplitude during off period..... 150
9.5.6.4 CFP transmit amplitude during off period..... 150
9.5.7 Radio receiver sensitivity..... 151
9.5.7.1 Raw bit error rate..... 151
9.5.8 Radio receiver blocking performance 152
9.5.8.1 Ability to receive in the presence of unmodulated interfering signals..... 152
9.5.8.2 Ability to receive in the presence of asynchronous modulated interfering signals 152
9.5.9 Blocking due to spurious responses 152
9.5.9.1 Blocking requirements..... 152
9.5.9.2 Intermodulation response rejection..... 152
9.6 Transmitter modulation 152
9.7 Power supply units..... 153
9.8 Declarations by the manufacturer 153
9.9 Identification 153

10 Signalling system tests 153
10.1 Multiplex alignment and timing 153
10.1.1 Alignment of D and B channels in MUX1..... 153
10.1.2 Alignment of D and SYN channels in MUX2 153
10.1.3 Transmit/listen timing of MUX3 153

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST I-ETS 300 131:1999
https://standards.iteh.ai/catalog/standards/sist/3c4d967a-b221-4207-af6f-65e343a41f45/sist-i-ets-300-131-1999

SIST I-ETS 300 131:1999

10.1.4 Alignment of P, D and SYN channels in MUX3 153
10.2 Calling channel detection at the CPP 154
10.3 Calling channel detection at the CFP 154
10.4 Link set up from CFP to CPP 154
10.4.1 For a CFP 154
10.4.1.1 To acquire a free RF channel and generate MUX2 Transmissions 154
10.4.1.2 Generation of LINK_GRANT 154
10.4.1.3 If no valid MUX2 response is received 154
10.4.2 For a CPP 154
10.5 Link set up from CPP to CFP 154
10.5.1 For a CPP 154
10.5.1.1 To acquire a free RF channel and generate MUX3 transmissions of LINK_REQUEST 154
10.5.1.2 Valid MUX2 response 155
10.5.1.3 No valid MUX2 response 155
10.5.2 For a CFP 155
10.6 Set up collision resolution 155
10.7 Link re-establishment on the existing channel 155
10.7.1 For a CPP 155
10.7.1.1 Valid link re-establishment message 155
10.7.1.2 Valid MUX2 response 155
10.7.1.3 No valid MUX2 response 155
10.7.2 For a CFP 156
10.7.2.1 Valid link re-establishment message 156
10.7.2.2 Valid MUX3 LINK REQUEST 156
10.7.2.3 No valid MUX3 LINK REQUEST 156
10.8 Link re-establishment on a different channel 156
10.8.1 For a CPP 156
10.8.2 For a CFP 156
10.9 Generation and reception of valid handshakes 156
10.9.1 Handshake intervals 156
10.9.2 For a CPP 156
10.9.2.1 Response to loss of valid handshakes 156
10.9.2.2 Re-acquisition of valid handshakes 156
10.9.3 For a CFP 157
10.9.3.1 Response to loss of valid handshakes 157
10.9.3.2 Re-acquisition of valid handshakes 157
10.10 Layer two parameters 157
10.11 Layer one and layer two timers 158
10.12 Acknowledged message protocol validation 158
10.12.1 CPP response to received packets 158
10.12.2 CPP transmit actions 159
10.12.3 CFP response to received packets 159
10.12.4 CFP transmit actions 159
10.13 Handshake operation 159
10.14 Layer three parameters 160
10.14.1 The receiving end 160
10.14.2 The transmitting end 160
10.15 Layer three timers 160
10.16 Declarations by the manufacturer 160
10.16.1 Information 160
10.16.2 Declarations 161
10.17 Additional test requirements 162
10.17.1 Specifics for authentication to UKF1 162
10.17.2 Reserved for future use 162
10.18 Characteristics of the reference test set 162

11 Speech and telephony tests 163
11.1 Measurement philosophy 163

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST I-ETS 300 131:1999
https://standards.iteh.ai/catalog/standards/sist/3c4d967a-b221-4207-af6f-65e343a41f45/sist-i-ets-300-131-1999

SIST I-ETS 300 131:1999

11.2 Digital signal level 164
11.3 General conditions of test 164
11.4 Sending sensitivity frequency response (subclause 8.4.1) 165
11.5 Receiving sensitivity frequency response (subclause 8.4.2) 165
11.6 CPP sending loudness rating (subclause 8.6 (1)) 165
11.7 CPP receiving loudness rating (subclause 8.6 (2)) 166
11.8 CPP sidetone masking rating (subclause 8.7.2.1) 166
11.9 Sending distortion (subclause 8.9.1) 166
11.10 Receiving distortion (subclause 8.9.2) 166
11.11 Sending noise (subclause 8.10.1) 166
11.12 Sending noise (narrow band) (subclause 8.10.2) 167
11.13 Receiving noise (subclause 8.10.3) 167
11.14 CPP delay (subclause 8.11.1) 167
11.15 Weighted terminal coupling loss (subclause 8.12.1) 169
11.16 Stability loss - fixed geometry (subclause 8.12.2) 170
11.17 Stability loss - variable geometry (subclause 8.12.3) 170
11.18 Out of band (sending) (subclause 8.13.1) 170
11.19 Out of band (receiving) (subclause 8.13.2) 170
11.20 Sampling frequency level (receiving) (subclause 8.14) 170
11.21 Acoustic shock (subclause 8.15) 170
11.22 Listener sidetone (subclause 8.7.2.2) 171
11.23 Sidetone distortion (subclause 8.9.3) 171
11.24 Subjective speech quality 171
11.24.1 Overall requirements 171
11.24.2 CTA tested as an entirety 172
11.24.3 Codec to be treated in isolation 172
11.24.4 CTA incorporating codec complying with 11.24.3 173
11.24.5 Standard of performance 173
11.25 CPP ambient noise rejection (subclause 8.6.1) 174

Annex A (normative): Layer three mandatory syntax diagrams 174

A.1 CPP mandatory layer three initialisation syntax 175

A.2 CFP mandatory layer three initialisation syntax 176

A.3 Public access CPP mandatory layer three syntax 177

A.4 Public access CFP mandatory layer three syntax 178

Annex B (normative): Authentication procedures 179

B.1 Minimum configuration for CPPs using authentication 179

B.2 Minimum configuration for public access CFPs using authentication 180

B.3 Authentication 182
B.3.1 Introduction 182
B.3.2 Basis of operation 183
B.3.2.1 Identification information 184
B.3.2.2 KEY number 185
B.3.2.3 Function "F" 186
B.3.2.4 Assignment of KEY numbers 186
B.3.3 ZAP facility 186

B.4 Entry of registration and authentication data 186
B.4.1 Manual registration 186
B.4.1.1 Basic data entry 187
B.4.1.2 Check digits 188
B.4.1.3 Termination of data entry 188

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST I-ETS 300 131:1999
https://standards.iteh.ai/catalog/standards/sist/3c4d967a-b221-4207-af6f-65e343a41f45/sist-i-ets-300-131-1999

SIST I-ETS 300 131:1999

B.4.1.4 Example 188
B.4.1.5 Man-machine interface (MMI) for manual registration 190
B.4.2 Over the air registration 191
B.4.2.1 Pre-registration of LID only 191
B.4.2.2 Pre-registration of LID and EPID 192
B.4.2.3 Man-machine interface (MMI) for OTAR pre-registration 194
B.4.2.4 On-air registration process 194
B.4.2.5 FTD1 Decryption Algorithm 195
B.4.3 CPP registration capacity 196
B.4.3.1 Manual registration slot 196
B.4.3.2 OTAR registration slot 197

Annex C (normative): Serial number and GPID format 198

Annex D (normative): Accuracy of measurement 199

D.1 Radio frequency parametric and system tests 199

D.2 Signalling system tests 199

D.3 Speech and telephony tests 200

Annex E (informative): Interim arrangements 201

E.1 Minimum RF power 201

E.2 Radio receiver sensitivity 201

E.3 Portable part ADPCM voice codec 201

E.4 Weighted terminal coupling loss 201

E.5 Alternative authentication algorithms 201

E.6 Alternative re-establishment algorithms 202
E.6.1 Interim wording for subclause 5.4.4 202
E.6.2 Interim wording for subclause 5.4.5 202

E.7 CPP ramp-up and ramp-down specifications 202
E.7.1 Interim wording for subclause 4.5.4.1 202

E.8 In Communication channel switching 202

E.9 Acknowledgement of KP, FA, AUTH_REQ, AUTH_RES, TERM_CAP and BAS_CAP information elements 203

E.10 Interference rejection 203
E.10.1 Interim values for table 1 203
E.10.2 Interim values for table 2 203

E.11 Spurious emissions of the combined transmitter/receiver 203
E.11.1 Interim wording for subclause 4.7.2 204
E.11.2 Interim wording for subclause 9.4.1.2 204
E.11.3 Interim wording for subclause 9.4.1.3 204

E.12 Intermodulation rejection 205
E.12.1 Interim wording for subclause 4.6.5 205

E.13 Initial location registration and terminate location registration FAs 205

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST I-ETS 300 131:1999
https://standards.iteh.ai/catalog/standards/sist/3c4d967a-b221-4207-af6f-65e343a41f45/sist-i-ets-300-131-1999

SIST I-ETS 300 131:1999

Annex F (informative) : Message sequence diagrams 206

F.1 Call set up to a public access CFP 207

F.2 Call set up to a private CFP 208

F.3 Private CFP incoming (group) call 209

F.4 Public access CFP incoming call 210

F.5 Call clear down 211

F.6 On air identity registration from CPP to private CFP 211

Annex G (informative): Code word example 213

Annex H (informative): Intellectual property rights 214

Annex J (normative): Subjective speech quality tests 216

J.1 Preparation of master recordings 216
J.1.1 Speech material 216
J.1.2 Apparatus and environment 217
J.1.3 Recording procedure 217
J.1.4 Calibration signals and speech levels 219

J.2 Processing of recordings 219
J.2.1 General 219
J.2.2 Processing through the apparatus under test 220
J.2.3 Processing through controlled distortion 221

J.3 Conduct of listening test 222
J.3.1 Apparatus, calibration and environment 222
J.3.2 Selection of subjects 222
J.3.3 Procedure 222

J.4 Treatment of results 225

J.5 Determination of laboratory-specific Q-rating boundaries for the purposes of subclause 11.24.5 . 232

J.6 References 232

Annex K (informative): Artificial echo loss for a CFP with a 4-wire interface 234

Annex L (informative): Network echo from a CFP with a 2-wire analogue interface 235

Annex M (normative): Code for the representation of names of languages 236

Annex N (normative): External synchronisation ports 237

N.1 External synchronisation ports 237
N.1.1 External synchronisation output port 237
N.1.2 External synchronisation input port 237

N.2 Synchronisation 238
N.2.1 External synchronisation input signal 239
N.2.2 Envelope synchronisation 239

N.3 Interconnection 239

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST I-ETS 300 131:1999
https://standards.iteh.ai/catalog/standards/sist/3c4d967a-b221-4207-af6f-65e343a41f45/sist-i-ets-300-131-1999