

PRODUCT DATA

Conformance Test System for PSTN Telephones PSTN Standards — Type 6711 (version 2.0)



The standard options for Conformance Test System for PSTN Telephones Type 6711 allow testing of terminal equipment (telephones) according to national PSTN voice standards.

The tests are controlled from Microsoft® Windows® software. All measurement results are documented in pre-defined report formats in MS® Word, enabling the user to customise the test report layout. Furthermore, the measurement data can be exported in several data formats for additional post-processing. All test-case parameters and requirements can be customised, allowing the advanced user to modify test cases to match individual preferences.

The system supports telephones with receiving volume control (RVC) and an ITU-T P.57 Type 3.2 ear simulator where specified in the standards.

6711

Uses and Features

- USES**
- Voice conformance testing of PSTN telephones
 - Testing for research and development of PSTN telephones
 - General acoustic design, verification and troubleshooting of PSTN telephones

- FEATURES**
- Coverage of a wide range of national PSTN standards in Europe, North America and Asia
 - Completely software controlled using Microsoft Windows
 - Automatic test report generation in Microsoft Word
 - Selection of extensive or short test report formats
 - Test case parameters and requirements can be user defined
 - Export of measurement results to a wide range of file formats
 - Accuracy figures for each test case

Introduction

The basic configuration for using the PSTN standards listed in this Product Data requires the Type 6711 Base System. Some of these standards require additional hardware. See the Ordering Information for each standard for details.

For more information on the Type 6711 Base System, please see the separate Product Data BP 1682.

Specifications – Europe TBR 21, January 1998

STANDARD NAME

TBR 21 January 1998 – Terminal equipment (TE). Attachment requirements for pan-European approval for connection to the analogue Public Switched Telephone Networks (PSTNs) of TE (excluding TE supporting the voice telephony service) in which network addressing, if provided, is by means of Dual Tone Multi Frequency (DTMF) signalling

STANDARDS AUTHORITY

Published by ETSI Secretariat

Postal address: F-06921 Sophia Antipolis CEDEX-FRANCE

Office address: 650 Route des Lucioles – Sophia Antipolis – Valbonne – FRANCE

Tel.: +33 92 94 42 00

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REMARKS

Covers TE – excluding TE supporting the voice telephony service

PARAGRAPHS TESTED

4.4.1 DC resistance

4.4.2.1 Impedance

4.4.2.2 Transient response

4.4.2.3 DC current

4.4.3 Impedance unbalance about earth

4.4.4 Resistance to earth

4.5 Ringing signal detector sensitivity

4.6.1 Acceptance of breaks in the loop in a call attempt

4.6.2 Loop current characteristics

4.7.1 DC characteristics

4.7.2 Imaginary Impedance

4.7.2 Return Loss

4.7.3.1 Mean sending level

4.7.3.2 Instantaneous voltage

4.7.3.3 Sending level in a 10 Hz bandwidth

4.7.3.4 Sending level above 4.3 kHz during DTMF dialling

Note: Part of DTMF Frequencies and Levels

4.7.3.4 Sending level above 4.3 kHz during communication

4.7.4.1 Longitudinal Conversion Loss

4.7.4.2 Output signal balance

4.7.5 Resistance to earth

4.8.1.1 Dialling without dial tone detection

4.8.1.2 Dialling with dial tone detection

4.8.2.1 Frequency combinations

Note: Part of DTMF Frequencies and Levels

4.8.2.2 Absolute levels

Note: Part of DTMF Frequencies and Levels

4.8.2.2 Level difference

Note: Part of DTMF Frequencies and Levels

4.8.2.3 Unwanted frequency components

Note: Part of DTMF Frequencies and Levels

4.8.2.4 Tone Duration

Note: Part of DTMF Timing

4.8.2.5 Pause Duration

Note: Part of DTMF Timing

4.8.3 Automatic repeated call attempts

4.9 Transition from loop to quiescent state

Ordering Information

BZ 5137-015	Software for TBR 21
Type 2144	Frequency Analyzer
Type 3108	Generator Module
WB 1492	Accessories for TBR 21 and TBR 37

Specifications – Europe TBR 37, June 1999

STANDARD NAME

EN 301 437 v.1.1.1 (1999-06) – Terminal equipment (TE).
Attachment requirements for pan-European approval for connection to the analogue Public Switched Telephone Networks (PSTNs) of TE supporting the voice telephony service in which network addressing, if provided, is by means of Dual Tone Multi Frequency (DTMF) signalling

STANDARDS AUTHORITY

Published by ETSI Secretariat
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Office address: 650 Route des Lucioles – Sophia Antipolis – Valbonne – FRANCE
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REMARKS

Covers standard Handset telephone for the connection to the PSTN only

PARAGRAPHS TESTED

- 4.4.1 DC resistance
- 4.4.2.1 Impedance
- 4.4.2.2 Transient response
- 4.4.2.3 DC current
- 4.4.3 Impedance unbalance about earth
- 4.4.4 Resistance to earth
- 4.5 Ringing signal detector sensitivity
- 4.6.1 Acceptance of breaks in the loop in a call attempt
- 4.6.2 Loop current characteristics
- 4.7.1 DC characteristics
- 4.7.2 Imaginary Impedance
- 4.7.2 Return Loss

- 4.7.3.1 Mean sending level
- 4.7.3.2 Instantaneous voltage
- 4.7.3.4 Sending level above 4.3kHz during DTMF dialling
Note: Part of DTMF Frequencies and Levels
- 4.7.3.4 Sending level above 4.3kHz during communication
- 4.7.4.1 Longitudinal Conversion Loss
- 4.7.4.2 Output signal balance
- 4.7.5 Resistance to earth
- 4.8.1.1 Dialling without dial tone detection
- 4.8.1.2 Dialling with dial tone detection
- 4.8.2.1 Frequency combinations
Note: Part of DTMF Frequencies and Levels
- 4.8.2.2 Absolute levels
Note: Part of DTMF Frequencies and Levels
- 4.8.2.2 Level difference
Note: Part of DTMF Frequencies and Levels
- 4.8.2.3 Unwanted frequency components
Note: Part of DTMF Frequencies and Levels
- 4.8.2.4 Tone Duration
Note: Part of DTMF Timing
- 4.8.2.5 Pause Duration
Note: Part of DTMF Timing
- 4.8.3 Automatic repeated call attempts
- 4.9 Transition from loop to quiescent state

Ordering Information

BZ 5137-016	Software for TBR 37
Type 2144	Frequency Analyzer
Type 3108	Generator Module
WB 1492	Accessories for TBR 21 and TBR 37

Specifications – Europe TBR 38, February 1998

STANDARD NAME

TBR 38 Final Draft, February 1998 – “Public Switched Telephone Network (PSTN); Attachment requirements for a terminal equipment incorporating an analogue handset function capable of supporting the justified case service when connected to the analogue interface of the PSTN in Europe”

STANDARDS AUTHORITY

Published by ETSI Secretariat.
Postal address: F-06921 Sophia Antipolis CEDEX-FRANCE
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REMARKS

Covers standard Handset telephone for the connection to the PSTN only

PARAGRAPHS TESTED

- 4.2.1.1 Sending Frequency Response
- 4.2.1.2 Receiving Frequency Response
- 4.2.2.1 Sending Loudness Rating
- 4.2.2.2 Receiving Loudness Rating
- 4.2.3 Sidetone Masking Rating
- 4.2.4.1 Sending distortion
Note: Sending Distortion, Normal/Reverse Polarity; Sending power handling, Normal/Reverse Polarity
- 4.2.4.2 Receiving distortion
Note: Receiving Distortion, Normal/Reverse Polarity; Receiving power handling, Normal/Reverse Polarity
- 4.2.5.1 Sending linearity
Note: Sending linearity, Normal/Reverse Polarity

4.2.5.1 Receiving linearity

Note: Receiving linearity, Normal/Reverse Polarity

4.2.6.1 Sending noise

Note: Sending Noise, Normal/Reverse Polarity

4.2.6.2 Receiving noise

Note: Receiving Noise, Normal/Reverse Polarity

4.2.7 Instability

Note: Stability Corner Instability, Normal/Reverse Polarity

4.2.8 Echo return loss

Note: Stability ERL, Normal/Reverse Polarity

ACCESS MEASUREMENTS ACCORDING TO TBR 37

TBR 37 4.7.1 DC Characteristics

Note: DC Characteristics, Normal/Reverse Polarity. Uses $R=300\ \Omega$ instead of $230\ \Omega$

TBR 37 4.7.2 Return loss

Note: Return Loss, Normal/Reverse Polarity. Uses $R=300\ \Omega$ instead of $230\ \Omega$

TBR 37 4.7.2 Imaginary Impedance

Note: Imaginary Impedance, Normal/Reverse Polarity. Uses $R=300\ \Omega$ instead of $230\ \Omega$

TBR 37 4.8.2.1-3 DTMF

Note: DTMF Frequencies and Levels, Normal/Reverse Polarity. Uses $R=300\ \Omega$ instead of $230\ \Omega$

TBR 37 4.8.2.4-5 DTMF

Note: DTMF Timing, Normal/Reverse Polarity. Uses $R=300\ \Omega$ instead of $230\ \Omega$

Ordering Information

BZ 5137-014 Software for TBR 38

Specifications – Europe ETS 300 480, January 1996

STANDARD NAME

ETS 300 480, January 1996 – “Public Switched Telephone Network (PSTN); Testing specification for analogue handset telephony”
ETS 300 677, August 1996 – “Public Switched Telephone Network (PSTN); Requirements for handset telephony”

STANDARDS AUTHORITY

Published by ETSI Secretariat
Postal address: F-06921 Sophia Antipolis
CEDEX-FRANCE
Office address: 650 Route des Lucioles
Sophia Antipolis – Valbonne – FRANCE
Tel.: +33 92 94 42 00
Fax. +33 93 65 47 16
Internet: secretariat@etsi.fr

REMARKS

Handset telephones only. The software supports measurements on telephones with RVC. The software supports measurements using a Type 3.2 low-leak ear simulator

PARAGRAPHS TESTED

- 4.2.1.1 Sending Frequency Response
- 4.2.1.2 Receiving Frequency Response
- 4.2.2.1 Sending Loudness Rating
- 4.2.2.2 Receiving Loudness Rating
- 4.2.3 Sidetone Masking Rating

4.2.4.1 Sending distortion

4.2.4.2 Receiving distortion

4.2.4.3 Sidetone distortion

4.2.4.4 Sending power handling capability

4.2.4.5 Receiving power handling capability

4.2.5.1 Sending linearity

4.2.5.2 Receiving linearity

4.2.6.1 Sending noise

4.2.6.2 Receiving noise

4.2.7 Echo return loss

4.2.8 Instability

Note: The standard states that the test is conducted in an acoustic corner

A1. Maximum signal sent to line

B1. Acoustic shock

C1. Immunity to out-of-band signalling – Sending

C2. Immunity to out-of-band signalling – Receiving

D2. DC Characteristics

Ordering Information

BZ 5137-005 Software for ETS 300 480

OPTIONAL ACCESSORIES

Type 4195 Wideband Ear Simulator

Specifications – France B0021A, February 1996

STANDARD NAME

POSTES TELEPHONIQUES caracteristiques de traitement des appels et de téléphonométrie

STANDARDS AUTHORITY

Direction Generale des Postes et Telecommunications

REMARKS

Covers standard handset telephone for the connection to the PSTN only

PARAGRAPHS TESTED

3.2 Telephonometry Characteristics

Note: Almost covered in full. See sub-clauses below

3.2.1. Loudness Ratings

3.2.3 Larsen Effect for PSTN Telephones

Note: Listening test only

3.2.4.1.1 Sending Characteristics

Note: No allowance for partly exceeding the mask

3.2.4.2 Receiving Characteristics

3.2.5 Harmonic Distortion

3.2.6.1 Limitation of Acoustic Level

Note: At 20 dBm using continuous excitation and with 50Hz ringer excitation

Included with B 0021 A are the following Access Measurements according to TBR 37:

- DC Characteristics
- Complex Impedance
- Return Loss
- DTMF

ARTIFICIAL LINES

Type: 0.4 mm Cu

Distributed Impedance: 278.4Ω/km, 50.3 nF/km, 300 mH/km

Selectable Length: 0 km, 0.5 km, 1.0 km, 1.5 km, 2.0 km, 2.5 km, 3.0 km, 3.5 km + short line

Maximum Load Current: 150 mA

Ordering Information

BZ 5137–003 Software for B0021A

OPTIONAL ACCESSORIES

Type 4195 Wideband Ear Simulator

Specifications – France B1115, March 1995

STANDARD NAME

“Fonctions mains-libres d’un terminal analogique”

STANDARDS AUTHORITY

France Telecom

REMARKS

Covers Handsfree telephone for the connection to the PSTN only

PARAGRAPHS TESTED

4.1 RVC

4.2 Receiving Response

4.3 Receiving Loudness Rating

4.5 Receiving Distortion

4.6 Receiving Noise

5.1 Sending Response

5.2 Sending Loudness Rating

5.4 Sending Distortion

5.5 Sending Noise

6.1 Larsen Effect

6.3 Receive build-up time

6.3 Receive switching time

6.3 Send build-up time

6.3 Send switching time

7.1 Receiving Loudness Rating

7.2 Sending Loudness Rating

7.3 Larsen Effect

PARAGRAPHS NOT SUPPORTED

4.4 Clearness of Logatom, Receiving

5.3 Clearness of Logatom, Sending

6.2 Threshold of transmission to words

6.4 Echo

6.5 Test of Conversation

Ordering Information

BZ 5137–017 Software for B 11–15

Type 2144 Frequency Analyzer

Type 3108 Generator Module

Type 9640 Turntable System

Type 4227 Mouth Simulator

Type 4191 Free-field Microphone

Type 2669 L Preamplifier

Cables for Hands-free

Specifications – Italy CEI 103-5, 1990/1993

STANDARD NAME

CEI 103-5 – Norma Italiana Apparecchi Telefonici, 1990/October 1993

STANDARDS AUTHORITY

Ente Nazionale Italiano di Unificazione

REMARKS

Only handset telephones are covered. Noise excitation, pulsed for telephones with AGC is not covered

PARAGRAPHS TESTED

2.3.01 Handset Stability – Hard Surface

Note: The standard states that the test is conducted in an acoustic corner

2.3.02d DTMF

2.4.04 Subjective Loudness Rating

Note: Alternative implementation using sine excitation

2.4.05 Transmission Response Curve

Note: Alternative implementation using sine excitation

2.4.06 Receiving Response Curve

Note: Alternative implementation using sine excitation

2.4.07 Stability

Note: May be checked by repeating the Loudness Rating test on 300 Ω line after the temperature test and manually checking the deviation

2.4.09 Telephone noise

2.4.10 Telephone Impedance during Conversation Time

2.4.12 Static Voltage-Current Characteristics

2.4.13 Non-linear Distortion

2.4.16 Limitation of Sound Pressure Level

ARTIFICIAL LINES

Type: 0.4 mm Cu

Distributed Impedance: Not Stated

Selectable Length: 0 Ω , 300 Ω , 700 Ω , 1000 Ω , 1400 Ω
(approximately 0 km, 1 km, 2.5 km, 3.5 km and 5.0 km)

Maximum Load Current: 700 Ω : 93 mA; 300 Ω : 170 mA

Ordering Information

BZ5137-004 Software for CEI 103-5

Additional equipment needed for measuring according to 2.4.04, 2.4.05 and 2.4.06 is included in Type 6711 R and comprises:

Type 2144 Frequency Analyzer

Type 3108 Generator Module

Specifications – The Netherlands T11-05, 1992

STANDARD NAME

T 11-00 August 1988, T 11-05 December 1992 – Conformity specification for terminal equipment intended for connection to the Dutch public switched telephone network

STANDARDS AUTHORITY

Ministerie van Verkeer en Waterstaat
Hoofdirectie Telekommunikatie en Post
Section Technical Developments
P.O. Box 450
9700AL Groningen
The Netherlands

PARAGRAPHS TESTED

2.1 Sending part frequency characteristic

2.2 Sending part frequency characteristic linearity

2.3 Sending part frequency characteristic DC feed variations

3.1 Receiving part frequency characteristic

3.2 Receiving part frequency characteristic linearity

3.3 Receiving part frequency characteristic DC feed variations

4 Sending Loudness Rating (SLR)

5 Receiving Loudness Rating (RLR)

5 Receiving Loudness Rating (RLR) – with RVC

Note: Intelligent RLR algorithm is used to find the optimal RVC setting

6 Sidetone Masking Rating (STMR)

7.1 Sending-part load limit

7.2 Receiving-part load limit

7.3 Auditory protection – sine

Note: The standard states that a level of 27.6 dBV is to be applied. The test is performed at 24 dBV

7.3 Auditory protection – transients

Note: The standard states that a level of 27.6 dBV is to be applied. The test is performed at 24 dBV

7.4 Sending-part distortion

7.4 Receiving-part distortion

8 Sending Noise

8 Receiving Noise

9 Stability

Note: The standard states that the test is conducted in an acoustic corner

9 Stability – with RVC

Note: The standard states that the test is conducted in an acoustic corner

10 Maximum speech level on the line

ARTIFICIAL LINES

Selectable Length: 0.0 km, 1.5 km, 4.75 km

Maximum Load Current: 150 mA

Ordering Information

BZ5137-009 Software for T11-05

Specifications – Germany BAPT 223 ZV24, May 9, 1995

STANDARD NAME

BAPT 223 ZV 24, May 9. 1995 – Zulassungsvorschrift für Endeinrichtungen des 3,1 kHz-Telefondienstes zur direkten Anschaltung an analoge Wählanschlüsse (ausgenommen Notruf- und Durchwählanschlüsse des Telefonnetzes/ISDN der Deutschen Telekom AG)

STANDARDS AUTHORITY

Published by Bundesministerium für Post und Telekommunikation 53175 Bonn. Edited by Bundesamt für Post und Telekommunikation 55122 Mainz. Order number for the document: 407 223 024-1

REMARKS

Tests for handset telephones only. Measurements are done as Loudness Ratings (not ODBM)

PARAGRAPHS TESTED

- 4.2.1 Sending Loudness Rating (SLR)
- 4.2.2 Receiving Loudness Rating (RLR)
- 4.2.3 Sidetone Masking Rating (STMR)
- 4.3.1 Sending Frequency Response
 - 4.3.2.1 Receiving Frequency Response
 - 4.3.2.2 Receiving Frequency Response with Leaking
- 4.4.1 Sending Loudness Rating – Line Influence
- 4.4.2 Receiving Loudness Rating – Line Influence
- 4.5.1 Sending Loudness rating – Level Influence
- 4.5.2 Receiving Loudness rating – Level Influence
- 4.6.1 Sending Distortion
- 4.6.2 Receiving Distortion
- 4.6.3 Sidetone Distortion
- 4.7.1 Sending Noise
- 4.7.2 Receiving Noise
- 4.8 Echo Return Loss
- 4.9 Instability
 - Note:** Alternative implementation. High resolution sine excitation using 1/96 octave instead of pink noise
 - Note:** The return loss curve is smoothed by a 1/12-octave filter.
 - Note:** The standard states that the test is conducted in an acoustic corner
- 4.10.1 Meter Pulse Influence on Sending Sensitivity
- 4.10.2 Meter Pulse Influence on Receiving Sensitivity
- 4.11 Acoustic Shock
- 4.12 Handset Microphone Position
 - Note:** This test should be performed only if the handset does not fulfil some geometric requirements.
- 4.13 Receiving Volume Control

STANDARD NAME

BAPT 223 ZV5, May 2. 1994 – Zulassungsvorschrift für Endeinrichtungen zur Anschaltung an analoge Wählanschlüsse (ausgenommen Notruf- und Durchwählanschlüsse) des Telefonnetzes/ISDN der Deutschen Bundespost Telekom

STANDARDS AUTHORITY

Published by Bundesministerium für Post und Telekommunikation 53105 Bonn. Edited by Bundesamt für Post und Telekommunikation 55003 Mainz. Order number for the document: 407 223 005-1

PARAGRAPHS TESTED

- 2.5.2 DTMF
- 2.8 DC Characteristics
 - 2.8.1.2 Limits of signals sent to line
 - 2.8.3 Return Loss

ARTIFICIAL LINES

Type: 0.6 mm Cu

Distributed Impedance: 120 Ω /km, 36 nF/km

Selectable Length: 0 km, 3.0 km, 6.0 km

Maximum Load Current: 150 mA

Ordering Information

BZ 5137–002 Software for BAPT 223 ZV24
EQ 8002 Leak Ring

OPTIONAL ACCESSORIES

Type 4195 Wideband Ear Simulator for use instead of Leak Ring (EQ8002) Test Case 4.3.2.2

Additional equipment needed for measuring according to 4.9 is included in Type 6711 R and comprises

Type 2144 Frequency Analyzer
Type 3108 Generator Module

Additional equipment needed for measuring according to 4.12 is included in Type 6711 F and comprises

EA 8002 Test Rig for LSTR
Type 2144 Frequency Analyzer
Type 3108 Generator Module
Type 9640 Turntable System
2 × Type 4227 Mouth Simulator
Type 4191 Free-field Microphone
Type 2669 L Preamplifier
 Cables for Test Rig

Specifications – Sweden SS 63 63 41, 1995

STANDARD NAME

SS 63 63 41, May 1995 – Telecommunication equipment, Subscriber equipment. Technical Requirements for analogue handset telephony

STANDARDS AUTHORITY

Swedish Standards Institution
Box 3295
103 66 Stockholm
Sweden

PARAGRAPHS TESTED

- 4.3 Sending Sensitivity/Frequency Response
- 4.3 Receiving Sensitivity/Frequency Response
- 4.4.2 Sending Loudness Rating
- 4.4.2 Receiving Loudness Rating
- 4.4.3 Sidetone Masking Rating (STMR)
- 4.5.1 Sending Distortion
- 4.5.1 Receiving Distortion
- 4.5.2 Sidetone Distortion
- 4.7 Sending Noise
- 4.7 Receiving Noise
- 4.9.2 Receiving Sensitivity/Frequency Response – with Receiving Volume Control (RVC)
- 4.9.3 Receiving Loudness Rating – with RVC
 - Note** Intelligent RLR algorithm is used to find the optimal RVC setting.
- 4.9.4 Sidetone Masking Rating (STMR) – with RVC
- 4.9.5 Sending Distortion – with RVC
- 4.9.5 Receiving Distortion – with RVC
- 4.9.6 Sidetone Distortion – with RVC

- 4.9.7 Sending Noise – with RVC
- 4.9.7 Receiving Noise – with RVC
- 5 Return loss

NON MANDATORY TESTS

4.6 Acoustic shock

Note: The standard states that the test is conducted at 0dBV to 34dBV and for all settings of RVC. The test is performed for an NOM setting of RVC and 24 dBV

4.6 Maximum signal send to line

Note: The standard states that the level of acoustical excitation signal to be applied is any level. The test is performed for an NOM setting of RVC and at 26 dBPa

ARTIFICIAL LINES

Type: 0.4 mm Cu

Distributed Impedance: 240 Ω /km, 40 nF/km

Selectable Length: 0.0 km, 0.5 km, 1.0 km, 1.5 km, 2.0 km, 2.5 km, 3.0 km, 3.5 km, 4.0 km, 4.5 km

Maximum Load Current: 150 mA

Type: 0.5 mm Cu

Distributed Impedance: 180 Ω /km, 40 nF/km

Selectable Length: 0.0 km, 0.5 km, 1.0 km, 1.5 km, 2.0 km, 2.5 km, 3.0 km, 3.5 km, 4.0 km, 4.5 km, 5.0 km, 5.5 km, 6.0 km, 6.5 km, 7.0 km

Maximum Load Current: 150 mA

Ordering Information

BZ5137-008 Software for SS 63 63 41

Specifications – United Kingdom BS6317, 1982

STANDARD NAME

BS 6317, 1982 – The British Standard Specification for Simple Extension Telephones for Connection to the British Telecommunications Public Switched Telephone Network, 1982
Remarks: Although a BS6317:1992 exists, it is not implemented in this version of the Type 6711 system because the standard has not yet been approved for certification purposes. The software supports telephones with RVC. Carbon microphones are not covered

STANDARDS AUTHORITY

British Standards Institution (BSI)

PARAGRAPHS TESTED

- 9. Apparatus on-line (non-signalling state)
 - Note:** Partly covered – see sub clause below (tested at max. RVC)
- 9.1 DC Characteristics
- 9.2 Echo Return Loss
- 9.2 Return Loss
- 11. Multi-frequency tone signalling
- 13. Speech transmission process
 - Note:** Almost covered in full – see sub-clauses below
- 13.1 Sending Characteristics
- 13.2 Receiving Characteristics
- 13.3 Sending and Receiving Loudness Rating
 - 13.3.1 Sending Loudness Rating
 - 13.3.2 Receiving Loudness Rating
- 13.4 Sidetone performance
- 13.5 Distortion

Note: Full coverage – see sub-clauses below

- 13.5.1 Sending Distortion
- 13.5.2 Receiving Distortion
- 13.5.3 Sidetone Distortion
- 13.6 Clipping
 - 13.6.1 Sending Clipping
 - 13.6.2 Receiving Clipping
- 13.7 Noise

Note: Alternative test implementation. A “virtual” white-noise generator is used for measurement/calculation of the change in receive noise

- 13.8 Instability
- 13.9.1 Acoustic Shock
- 13.10 Limits of signal sent to line

ARTIFICIAL LINES

Type: 0.5 mm Cu

Distributed Impedance: 168 Ω /km, 50 nF/km

Selectable Length: 0 km, 0.5 km, 1.0 km, 2.0 km, 3.0 km, 4.5 km, 6.0 km, 7.5 km

Maximum Load Current: 220 mA

Ordering Information

BZ5137-001 Software for BS6317

Additional equipment needed for measuring according to 13.7:
Type 2144 Frequency Analyzer
Type 3108 Generator Module

Specifications – China CB/T 15279, 1994

STANDARD NAME

CB/T 15279 1994 – The specification of automatic telephone set

STANDARDS AUTHORITY

National Technology Control Department

REMARKS

The standard states that the test is conducted using $2 \times 4 \mu\text{F}$ capacitors in the feeding bridge. The test is performed using $2 \times 10 \mu\text{F}$ capacitors

PARAGRAPHS TESTED

5.2.2 Sending Loudness Rating (SLR)

5.2.3 Receiving Loudness Rating (RLR)

5.2.4 Sidetone Masking Rating (STMR)

5.3.1 Sending frequency characteristic

5.3.2 Receiving frequency characteristic

5.4 Sending Dynamics

5.5.1 Receiving Distortion

5.5.2 Sending Distortion

5.8 DC characteristics – Off-hook

5.10 Stability Balance Return Loss

5.10 Echo Balance Return Loss

5.11 Dialer characteristics

Note: Only 5.11.3, 5.11.4, 5.11.5, 5.11.6, 5.11.7, 5.11.8

PARAGRAPHS NOT SUPPORTED

5.6 Maximum sound level (Off-hook to On-hook)

5.7 Howling

5.9 Leakage current – On-hook

5.12 Ringer characteristics

5.13 Telephone hook switch characteristics

5.14 Telephone set cord and handset cord characteristics

5.15 "R" key

5.16 Size of handset

5.17 Surface inspection

5.18 Withstanding voltage

5.19 Insulation resistance

5.20 Environmental adaptation

5.21 Anti-surge

5.22 EMC

ARTIFICIAL LINES

Type: 0.5 mm Cu

Distributed Impedance: $188 \Omega/\text{km}$, $47 \text{ nF}/\text{km}$

Selectable Length: 0.0 km, 1.0 km, 2.0 km, 3.0 km, 4.0 km, 5.0 km

Maximum Load Current: 150 mA

Ordering Information

BZ5137-011 Software for CB/T 15279

Specifications – United States EIA-470-A, 1987

STANDARD NAME

EIA-470-A July 1987 – Telephone Instruments with Loop Signalling

REMARKS

Tests Telephone Instruments with Loop Signalling. The standard states that the test is conducted using very complex feeding bridge. A simpler feeding bridge is used. See IEEE 269-1983 for calculation of TOLR and ROLR

STANDARDS AUTHORITY

Electronic Industries Association
Engineering Department
2001 Eye Street, NW
Washington D.C 20006
United States

PARAGRAPHS TESTED

4.1.1.2 Transmit Objective Loudness Rating TOLR

4.1.1.2 Transmit Frequency Response

4.1.2.2 Receive Objective Loudness Rating ROLR

4.1.2.2 Receive Frequency Response

4.1.2.2 Receive Distortion

4.1.3.2 Sidetone Objective Loudness Rating SOLR

4.1.4.1.2 Off-hook Noise

Note: The standard states that the test is conducted using a loop simulator. The test is performed without using a loop simulator

4.1.4.2 On-hook Noise

Note: The standard states that the test is conducted using a loop simulator. The test is performed without using a loop simulator

4.1.6 Peak Acoustic Pressure

Note: Alternative implementation. See EIA-470-B 1996 section 4.2.2.6.2.2

4.3.2 DTMF Transmission Characteristics

Note: Only 4.3.2.4.1, 4.3.2.4.2, 4.3.2.4.3, 4.3.2.4.4, 4.3.2.4.5, 4.3.2.4.6

4.4.2 Off-Hook Resistance

Note: Only Telephone Instruments that are not connected in series

4.5.2 Off-Hook Tip to Ring Impedance (Return Loss)

PARAGRAPHS NOT SUPPORTED

4.1.7 Feature for the Hearing Impaired

4.2 Loop Supervision Characteristics

4.3.1 Dial Pulse Signalling

4.4.1 On-Hook Resistance

4.5.1 On-Hook Impedance

4.5.3 On- and Off-Hook Longitudinal-to-Metallic Balance

4.5.4 On- and Off-Hook Metallic-to-Longitudinal Balance

4.6.1 Ringer Sensitivity

4.6.2 Ringer Acoustic Output

4.7 Maintenance Related Characteristics

ARTIFICIAL LINES

Type: AWG 26 0.4 mm Cu

Selectable Length: 0.0 km (0.0 kft), 0.5 km (1.5 kft), 2.7 km (9.0 kft), 4.6 km (15.0 kft)

Maximum Load Current: 150 mA

Ordering Information

BZ5137-010 Software for US EIA-A

Specifications – United States EIA-470-B, 1996

STANDARD NAME

EIA-470-B, April 1996 – Telephone Instruments with Loop Signalling

STANDARD AUTHORITIES

Electronic Industries Association
Engineering Department
2001 Eye Street, NW
Washington D.C. 20006
United States

REMARKS

Tests Telephone Instruments with Loop Signalling. The standard states that the test is conducted using very complex feeding bridge. A simpler feeding bridge is used. See IEEE 269–1983 for calculation of TOLR and ROLR

PARAGRAPHS TESTED

4.2.1.2 Transmit Objective Loudness Rating (TOLR)
4.2.1.3 Transmit Frequency
4.2.1.4 Transmit Distortion
4.2.1.5.1 Off-Hook Noise
4.2.1.5.2 On-Hook Noise
4.2.2.2 Receive Objective Loudness Rating (ROLR)
4.2.2.3 Receive Frequency Response
4.2.2.4 Receive Distortion
4.2.2.5 Receive Off-Hook Noise
4.2.2.6.1 Peak Acoustic Pressure

4.2.2.6.2 Continuous Sound Pressure Level
4.2.2.7 Feature for the Hearing Impaired
4.2.3.2 Sidetone Objective Loudness Rating (SOLR)
4.4.2.1 Off-Hook DC Resistance
4.4.4 Off-Hook Metallic Impedance

PARAGRAPHS NOT SUPPORTED

4.2.4 Signal Power Limitations
4.3 Alerting Characteristics
4.4.1 On-Hook Resistance
4.4.3 On-Hook Impedance
4.4.5 Longitudinal Balance
4.4.5 Transverse Balance
4.4.5 Mechanical Requirements
4.6 Dial Pulse Network Control Signalling
4.7 DTMF Signalling

ARTIFICIAL LINES

Type: AWG 26, 0.4 mm Cu

Selectable Length: 0.0 km (0.0 kft), 0.9 km (3.0 kft), 1.8 km (6.0 kft), 2.7 km (9.0 kft), 3.7 km (12.0 kft), 4.6 km (15.0 kft)

Maximum Load Current: 150 mA

Ordering Information

BZ 5137–012 Software for US EIA-470-B

Specifications – Canada T510, 1995

STANDARD NAME

T510, 1995 – Performance and Compatibility Requirements for Telephone Sets with Loop Signalling

STANDARDS AUTHORITY

Canadian Standards Association
178 Rexdale Blvd.
Etobicoke
M9W 1R3 Ontario
Canada

REMARKS

Tests Telephone Instruments with Loop Signalling. The standard states that the test is conducted using very complex feeding bridge. A simpler feeding bridge is used. See IEEE 269–1983 for calculation of TOLR and ROLR

PARAGRAPHS TESTED

4.2.1.2 Transmit Objective Loudness Rating (TOLR)
4.2.1.3 Transmit Frequency
4.2.1.4 Transmit Distortion
4.2.1.5.1 Off-Hook Noise
4.2.1.5.2 On-Hook Noise
4.2.2.2 Receive Objective Loudness Rating (ROLR)
4.2.2.3 Receive Frequency Response
4.2.2.4 Receive Distortion
4.2.2.5 Receive Off-Hook Noise
4.2.2.6.1 Peak Acoustic Pressure

4.2.2.6.2 Continuous Sound Pressure Level
4.2.3.2 Sidetone Objective Loudness Rating (SOLR)
4.4.2.1.2 Off-Hook Resistance
4.4.4 Off-Hook Metallic Impedance

PARAGRAPHS NOT SUPPORTED

4.2.2.7 Feature for the Hearing Impaired
4.2.4 Signal Power Limitations
4.3 Alerting Characteristics
4.4.1 On-Hook Resistance
4.4.3 On-Hook Impedance
4.4.5 Longitudinal Balance
4.4.5 Transverse Balance
4.4.5 Mechanical Requirements
4.6 Dial Pulse Network Control Signalling
4.7 DTMF Signalling

ARTIFICIAL LINES

Type: AWG 26, 0.4 mm Cu

Selectable Length: 0.0 km (0.0 kft), 0.9 km (3.0 kft), 1.8 km (6.0 kft), 2.7 km (9.0 kft), 3.7 km (12.0 kft), 4.6 km (15.0 kft)

Maximum Load Current: 150 mA

Ordering Information

BZ 5137–013 Software for T510

Brüel & Kjær reserves the right to change specifications and accessories without notice

