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Report reference No	REP032405
Test item description	Bluetooth Audio Base
Model	PBVOY52, PBVOY72
Testing Laboratory	**Nemko Canada Inc.**
Address	303 River Road Ottawa, Ontario, Canada, K1V 1H2 +1 (613) 737-9680
Applicant's Name	**HP Inc.**
Address	1501 Page Mill Road, Palo Alto, CA 94304 USA
Test specification	ANSI/TIA-968-B, Telecommunications, Telephone Terminal Equipment, Technical Requirements for Connection of Terminal Equipment to the Telephone Network, Approved: August 11, 2009 TIA-968-B-1 Addendum 1, June 2012 TIA-968-B-2 Addendum 2, January 2015 TIA-968-B-3 Addendum 3, March 2016 & Part 68, FCC rules for Registration of Telephone Equipment & CS-03 Part I, Issue 9 Amendment 5, March 2016, Requirements for terminal equipment and related access arrangements intended for direct connection to analogue wireline facilities
Tested by	Kurt Mikolajewski Telecom Specialist
Approved by	Stuart Beck Director, Nemko Group Certification
Date of issue	April 5, 2024
Number of Pages	99

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1 Client information

Client name:	HP Inc.
Address:	1501 Page Mill Road, Palo Alto, CA 94304 USA
Telephone:	(650)857 1501
E-mail:	ismael.talancon@hp.com
Contact name:	Ismael Talancon

2 Equipment details

Product name:	Bluetooth Audio Base
Product type:	KX (Adjunct, ancillary equipment or component used with host system)
Model(s):	PBVOY52, PBVOY72

3 Test project performance

Project ID:	PRJ0054142
Location:	Nemko Canada Inc. 303 River Road, RR#5 Ottawa, Ontario, Canada K1V 1H2
Test started:	3/13/2024 1:28:00 PM
Test specification(s):	ANSI/TIA-968-B, Telecommunications, Telephone Terminal Equipment, Technical Requirements for Connection of Terminal Equipment to the Telephone Network, Approved: August 11, 2009 TIA-968-B-1 Addendum 1, June 2012 TIA-968-B-2 Addendum 2, January 2015 TIA-968-B-3 Addendum 3, March 2016 & Part 68, FCC rules for Registration of Telephone Equipment & CS-03 Part I, Issue 9 Amendment 5, March 2016, Requirements for terminal equipment and related access arrangements intended for direct connection to analogue wireline facilities
Test suite:	TIA-968-B-3, CS-03 analogue combined and HAC (11/23/2023)

4 Test report summary

Testing was completed against all relevant requirements of the test standard per the justification using an AT&T/VTECH standard telephone Model CL4940, ACTA registration US: EW7TE12BCL4940, ISED registration: 1135B- CL4940. The results obtained indicate that the product Host does continue to comply in full with the requirements tested with the adjunct product connected.

The test results relate only to the items tested.

A summary of the test status of the product under test with respect to each test requirement of the standard is provided in section 10 of this report.

Detailed test results are presented in section 11 of this report.

5 Equipment under test

5.1 EUT Description

The EUT is a Headset switch and wireless Bluetooth Headset/Ear bud base station. It is an adjunct to a telephone intended to connect to a handset port on the phone and/or the USB A or C port on a PC. The selector switch allows connection of the headset to the PC or Telephone audio. The unit provides a 6-position switch to adjust to the type of interface on the telephone handset port and adjust the headset Microphone and ear volume/sensitivity settings.

The Bluetooth Audio Base supports various Poly Voyager Bluetooth headsets. The PBVOY72 charging cradle supports the Poly Voyager over-the-head headsets (Voyager Focus 2 and Voyager 4300 series). The PBVOY52 supports the over the ear headsets (Voyager 5200 series). The EUT was tested with the Poly Voyager 5200 over the ear headset.

All the models have the same PCB assembly, same I/O ports and same circuitry, while they differ in the mechanics of the cradle depending on the form factor used to charge the ancillary headset.

The Bluetooth Audio Base is marketed by HP Inc. under the poly and Voyager Office Base marketing names.

5.2 Technical judgement

The following technical judgements were made during the assessment:

5.2.1 Technical judgement 1

The Host analog telephone obtained for the evaluation has numerous additional features that are not directly related to the handset functions. It was judged that none of these extra functions would require testing in this evaluation. It was also judged that to demonstrate the continuing compliance of the set after surges the DC resistance and REN are to be measured.

5.2.2 Technical judgement 2

The EUT does not connect directly to the PSTN. It is an adjunct, ancillary equipment used with a host system. It was judged that the EUT be tested with a representative PSTN telephone for noise, balance and surge to determine if the telephone continues to be compliant. It was judged that testing with an AT&T Model CL4940, ACTA registration US: EW7TE12BCL4940, ISED registration: 1135B- CL4940, set was representative of the products end use. It was also judged that testing the fully loaded CD version of the Base connected to a PC via the USB port would provide representative results for all versions of the base.

5.2.3 Technical judgement 3

The EUT can be paired with various wireless headsets. It was judged that the Poly Voyager 5200 Mono Bluetooth over the ear headset is representative of all the headsets that could be used with the base.

5.3 Modification performed during the assessment

No modifications were made during the assessment.

5.4 Additional observations

The results observed show substantial margins to the limits of the requirements tested. This shows that there is no impact to the addition of the adjunct device.

Connector: N/A

CS-03 REN: N/A

TIA-968-A REN: N/A

Power adaptor: Model number: SSA-090100, PN: 215219-01, Output 9V dc @ 1.0 A

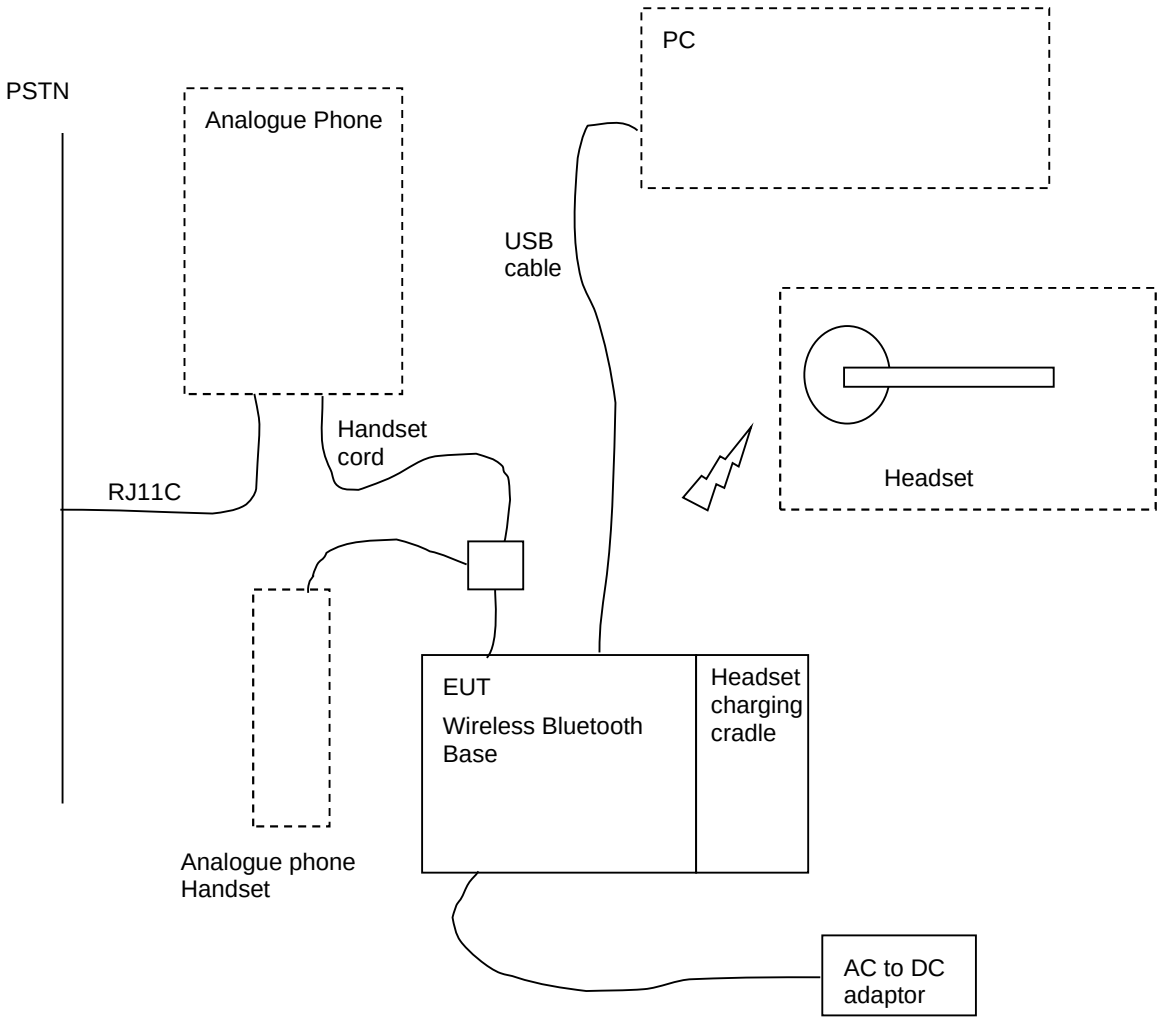
Host Telephone: AT&T/Vtech CL4940,

Registration:

ACTA registration US: EW7TE12BCL4940

ISED registration: 1135B- CL4940

Block Diagram



5.5 Samples Submitted for testing

The following samples have been for type assessment:

Sample	Description	Model Number	Serial Number
PRJ00541420001	Wireless Bluetooth Base	Reg Model; PBVOY52 CB5232-M CD	30BFK9
PRJ00541420002	Poly Voyager 52000 mono headset	POTE16	3083KY
	Host reference Equipment		
n/a	AT&T Corded Speakerphone with Answering machine	CL4940	SC100535617

The first samples were received on: March 12, 2024

6 Test laboratory description

Nemko Canada Inc., a testing laboratory, is accredited by the ANSI National Accreditation Board (ANAB). The tests included in this report are within the scope of this accreditation.

7 Test equipment used

Description	Model	S/N	Hardware Rev.	Software Rev.	Last Calibration	Calibration Due
Telecom Conformance Analyzer	Hermon Laboratories TCA 8200	FA002045 8747	A5.01	2.6.5, build 6010, 11/21/2023	12/25/2023 1:42 AM	Dec 24, 2025
Surge Generator	KeyTek ECAT	FA001348	—	—	Mar 13, 2024	Mar 13, 2025
Dielectric Analyzer	AR Inc. Hypot Ultra	FA003021	—	—	Nov 10, 2023	Nov 10, 2024

8 Photographs of test samples

Photographs were taken of relevant samples during the assessment. These are detailed below and are included in this section.

8.1 EUT PBVOY52 Top & Front View
8.2 EUT PBVOY52 Rear View
8.3 EUT PBVOY52 Bottom View
8.4 EUT PBVOY52 Main PCB Top View
8.5 EUT PBVOY52 Main PCB Bottom View
8.6 EUT Handset adaptor Cable
8.7 EUT Over Ear Headset View
8.8 EUT Power Pack View
8.9 EUT PBVOY72 Top & Front View

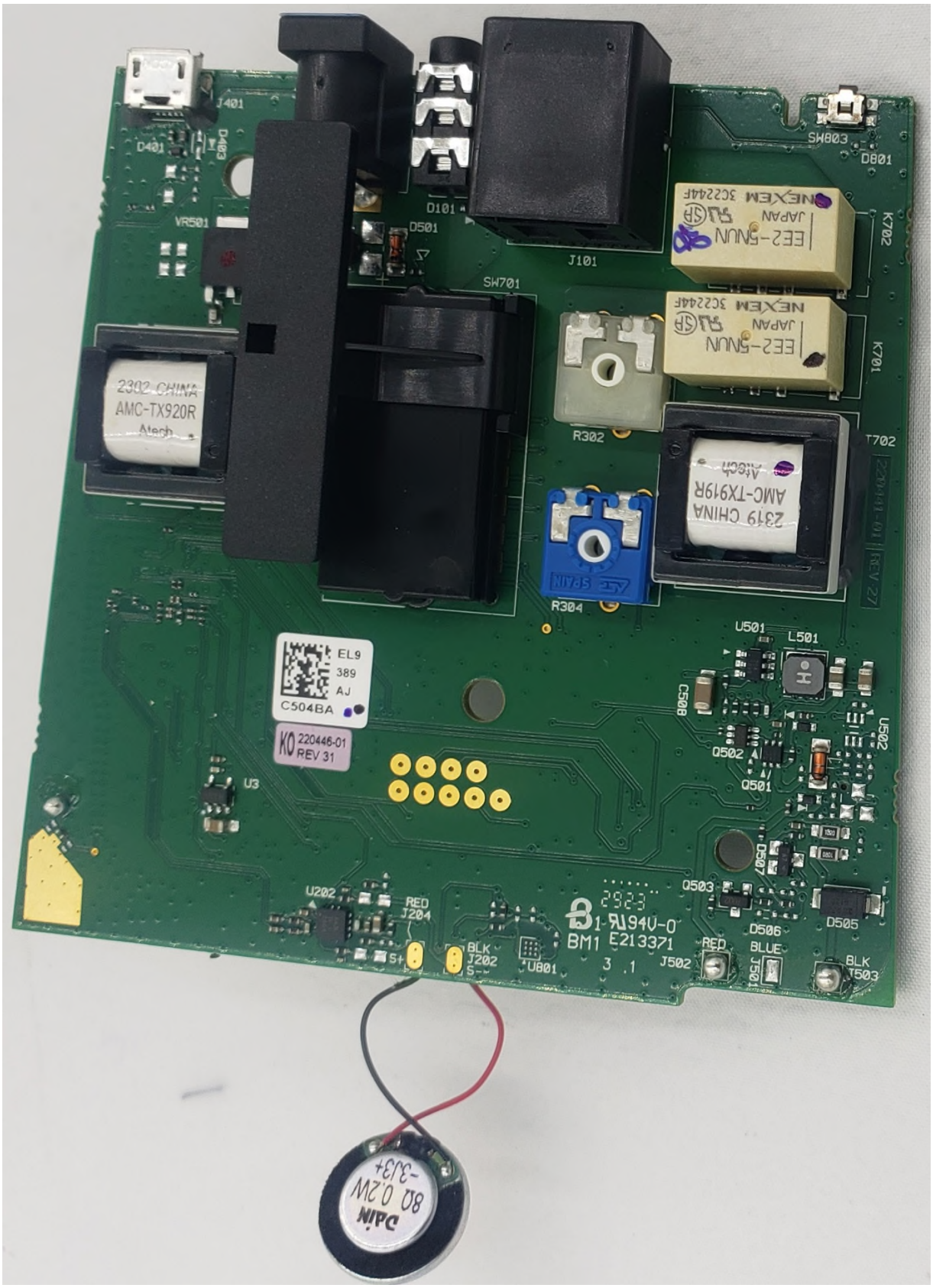
The photographs depict the samples as originally submitted.

8.1 EUT PBVOY52 Top & Front View

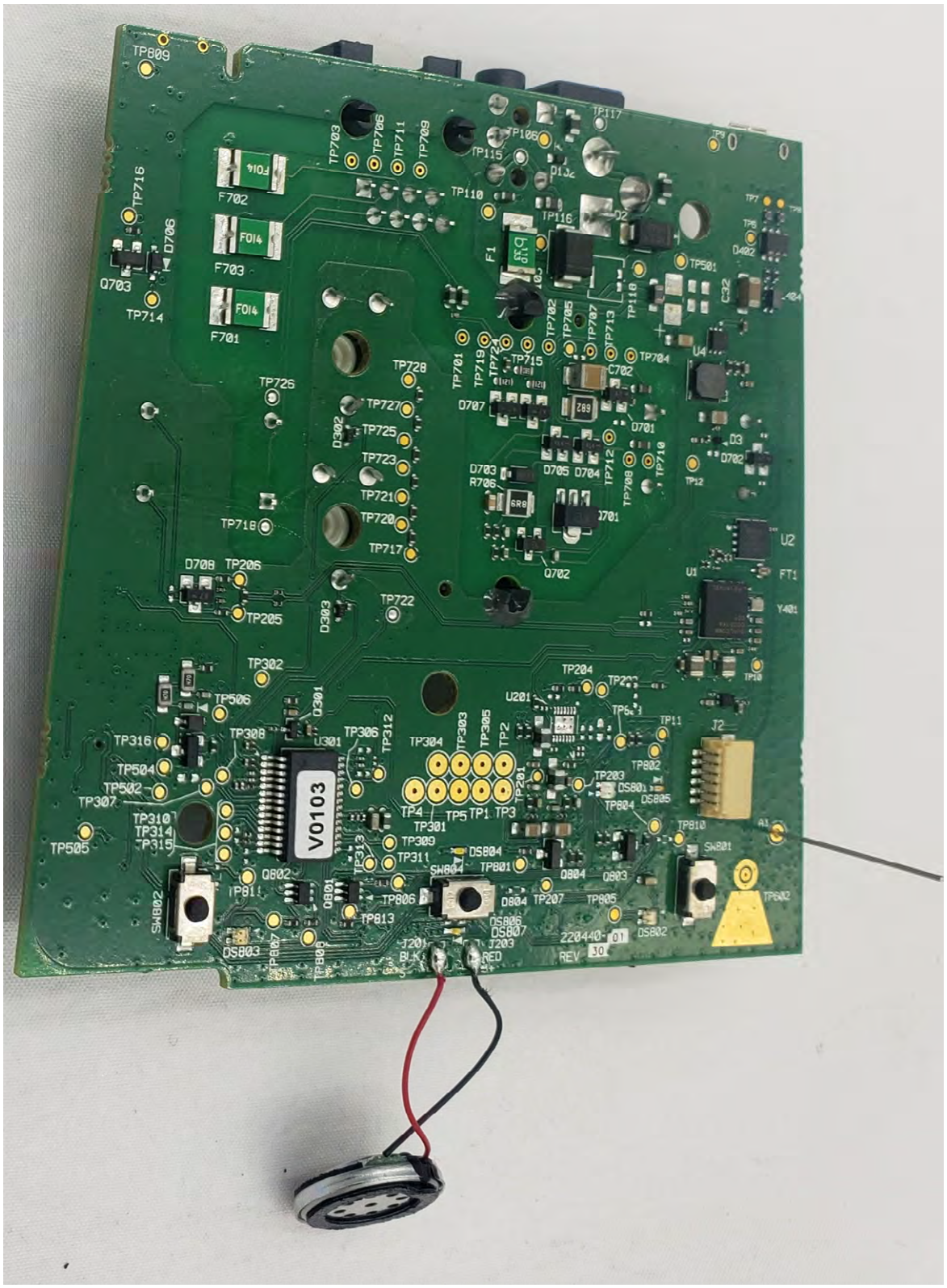
8.2 EUT PBVOY52 Rear View

8.3 EUT PBVOY52 Bottom View

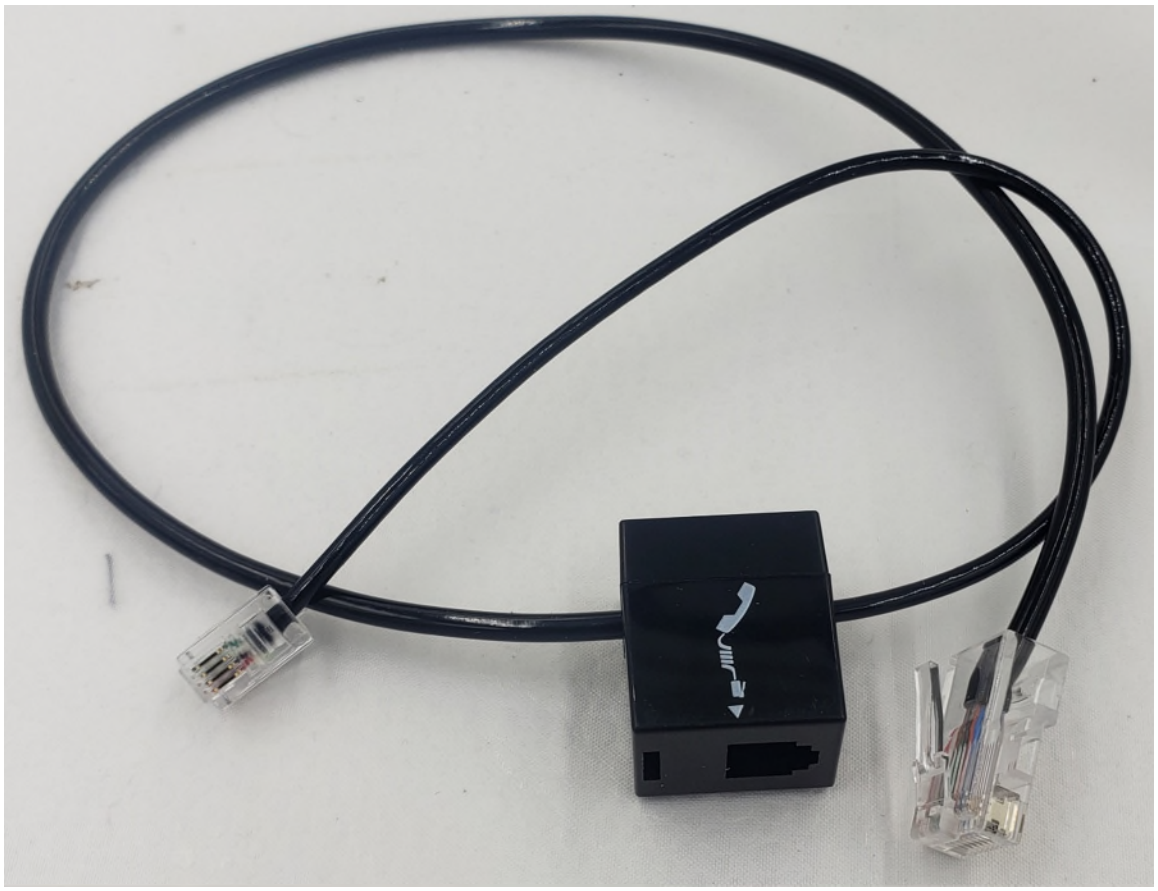
8.4 EUT PBVOY52 Main PCB Top View



8.5 EUT PBVOY52 Main PCB Bottom View

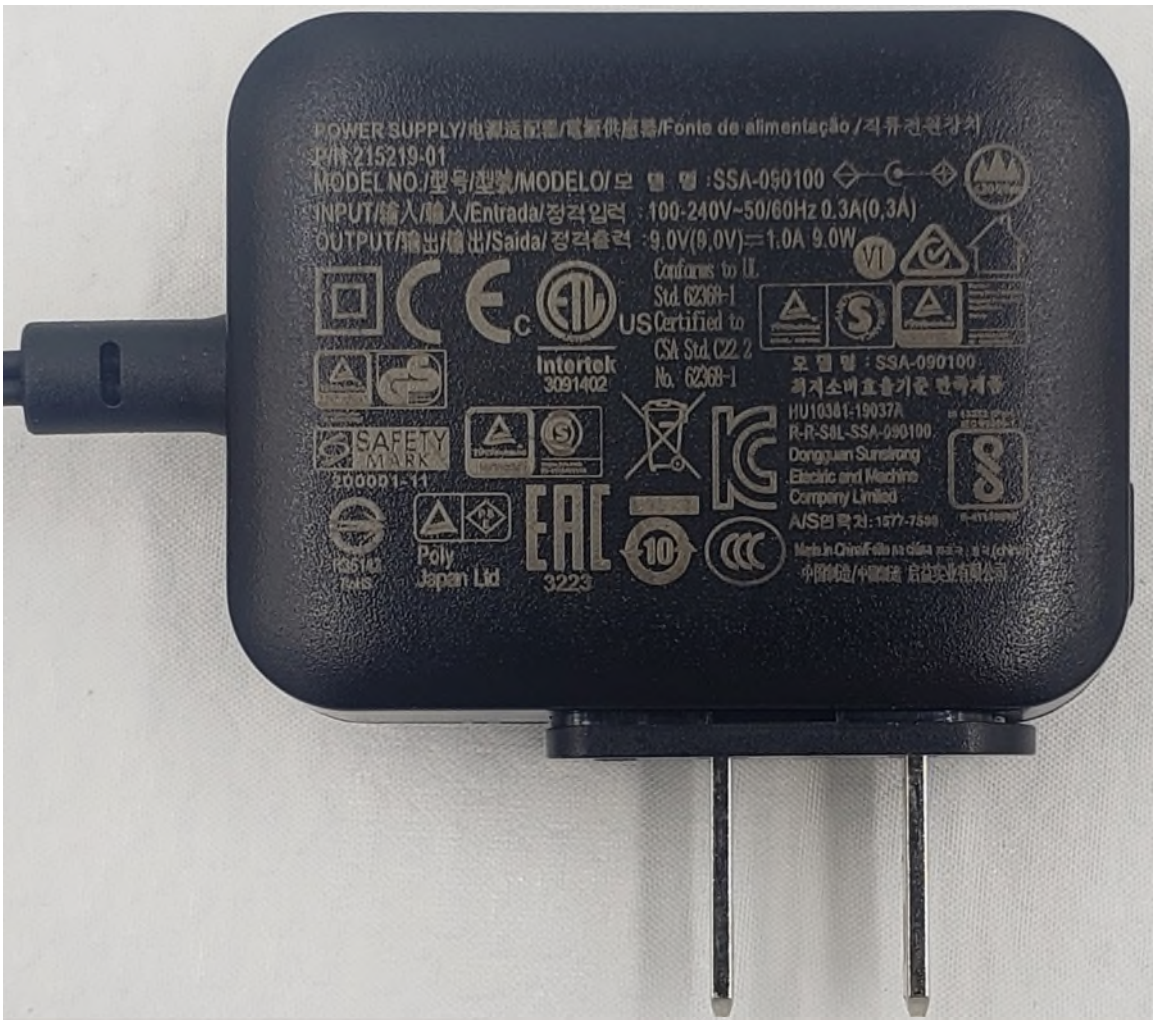


8.6 EUT Handset adaptor cable View

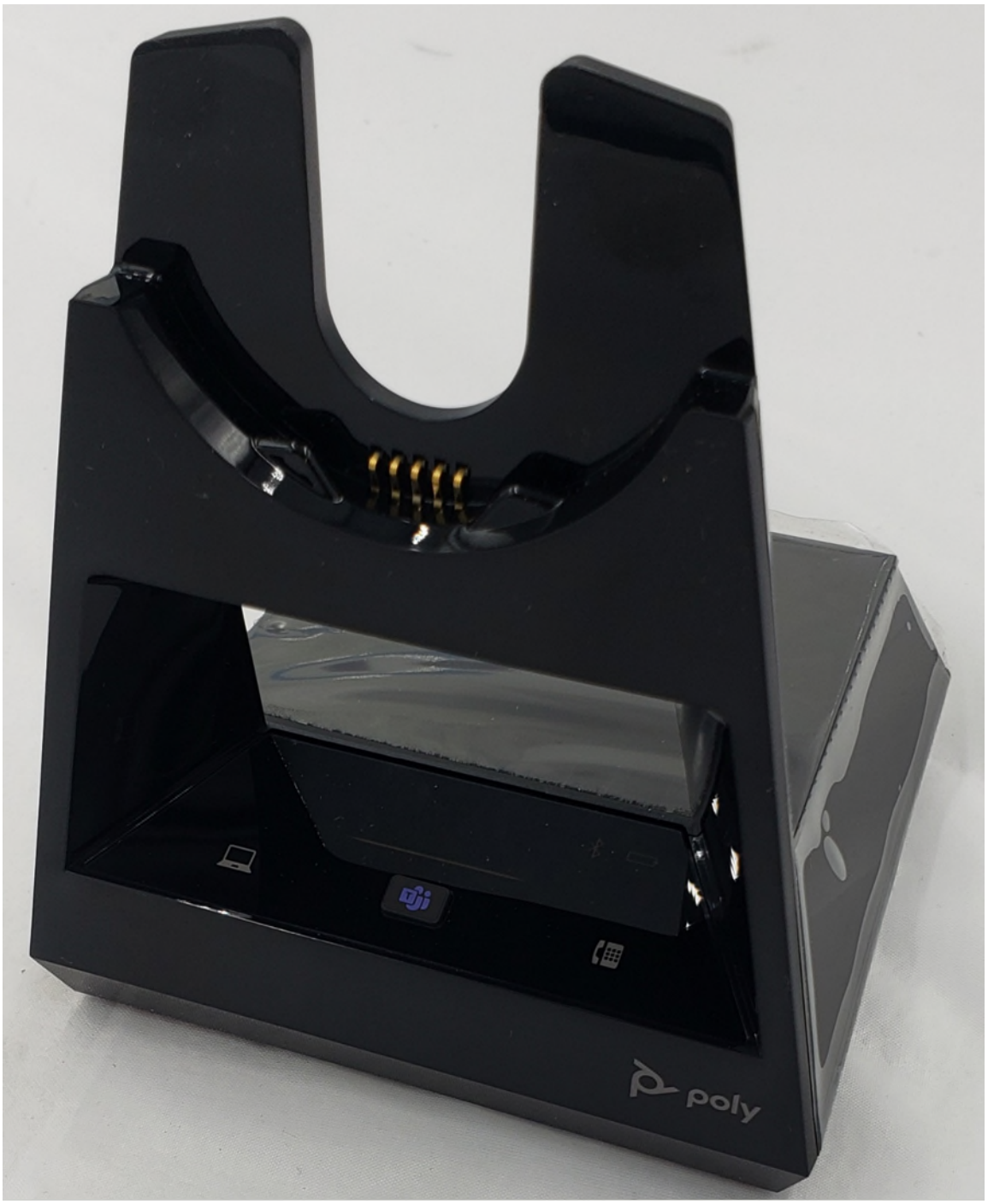


8.7 EUT Over Ear Headset

8.8 EUT Power Pack View



8.9 EUT PBVOY72 Top & Front View



9 Requirement conditions table

Condition	Applies
TIA-968-B-3, CS-03 analogue combined and HAC (11/23/2023)	
Is the TE hand-held or table-top equipment with a weight less than 5 kg?	Yes
Is the TE AC powered?	Yes
Does the TE have an intentional dc conducting path from its telephone connection to earth ground at operational voltages?	No
Does the TE have an intentional dc conducting path from its telephone connection to earth ground for protection purposes?	No
Is the TE type A ringer (20 Hz to 30 Hz?	Yes (Host)
Is the TE intended for network control signaling?	Yes (Host)
Does the TE provide through-transmission paths?	No
Does the TE have a loop-start interface (LS)?	Yes (Host)
Does the TE have a ground-start interface (GS)?	No
Does the TE have a Tie-trunk interface (Tie)?	No
Does the TE have an Off Premise station(s) (OPS)?	No
Does the TE have an On Premise station(s) (ONS)?	No
Does the TE have a 1.544 Mbps digital PBX-CO trunk ports?	No
Does the TE have a VoIP WAN/LAN ports?	No
Does the TE contain an analog-to-digital converter or generates a data bit stream?	No
Does the TE have a voiceband metallic channel interface?	No
Does the TE have a Private Line?	No
Does the TE have Ringing sources?	No
Is the TE an approved data circuit terminal?	No
Is the TE data terminal equipment intended to operate with a programming resistor?	No
Is the TE approved test equipment or approved test circuitry?	No
Does the EUT support stuttered dial tone detection	No
Does the EUT go off-hook to program dialing numbers	No
Does the TE provide automatic re-dial?	No
Does the TE provide automatic answer?	Yes (Host)
Does the TE present signal sources other than for Network control signalling?	Yes (Host)

10 Test results summary

Test	Status
TIA-968-B-3, CS-03 analogue combined and HAC (11/23/2023)	
4 / 2.0 Common requirements	
4.1 / 2.0 Environmental simulation	
4.1 / Environmental simulation	Pass
4.1.1 / 2.1 Mechanical shock	Pass
4.1.2 / 2.4.1 Telephone line surge - type A	
4.1.2.1 / 2.4.1.1 Metallic voltage surge - type A	Pass
4.1.2.2 / 2.4.1.3 Longitudinal voltage surge - type A	Pass
4.1.3 / 2.4.2 Telephone line surge - type B	
4.1.3.1 / 2.4.2.1 Metallic voltage surge - type B	Pass
4.1.3.2 / 2.4.2.3 Longitudinal voltage surge - type B	Pass
4.1.4 / 2.5 Power line surge	Pass
4.2 / 2.2 Leakage current limitation	Pass
4.3 / 2.3 Hazardous voltage limitations	
4.3.1 / 2.3.1 to 2.3.6 General requirement	Pass
4.3.2 / 2.3.7.1 Physical separation of leads	Not required
4.3.3 / 2.3.8 Non-hazardous voltage source	Not required
4.3.4 / 2.3.10 Intentional paths to ground	
4.3.4.1 / 2.3.10.1 Operational paths to ground	Not required
4.3.4.2 / 2.3.10.2 Protective paths to ground	Not required
4.4 / 3.3.1, 3.5 Billing protection	
4.4.1 / 3.5.1.1 Call duration requirements on data equipment	Not required
4.4.2 / 3.3.1 Voice and data equipment on-hook signal requirements	Pass
4.4.3 / 3.5.3 Signaling interference requirements	Not required
4.5 / Encoded analog content	
4.5.1 (a) Encoded analog content (all signals other than voice or network control signals)	
4.5.1 (a) Encoded analog content limits (Analog port (FXS) to Network interface (VoIP))	Not required
4.5.1 (a) Encoded analog content limits (Analog port (FXS) to Network interface (1544 kbps PBX-CO))	Not required
4.5.1 (a) Encoded analog content limits (Internal signal sources to Network interface (VoIP))	Not required
4.5.1 (a) Encoded analog content limits (Internal signal sources to Network interface (1544 kbps PBX-CO))	Not required
4.5.1 (c) Encoded analog content (network control signals)	
4.5.1 (c) Encoded analog content limits (Network control signals to Network interface (VoIP))	Not required
4.5.1 (c) Encoded analog content limits (Network control signals to Network interface (1544 kbps PBX-CO))	Not required
4.6 / 1.6 Connectors & wiring configurations	
4.6 / 1.6 Connectors & wiring configurations	Not required

Test	Status
4.7 / 3.4.4.1(3) Allowable net amplification between ports	
4.7.2 / 3.4.4.1(3)(a) Allowable net amplification between network interface ports	
4.7.2 / 3.4.4.1 (3)(a) Allowable net amplification (LS <-> LS)	Not required
4.7.2 / 3.4.4.1 (3)(a) Allowable net amplification (OPS <-> OPS)	Not required
4.7.2 / 3.4.4.1 (3)(a) Allowable net amplification (OPS <-> LS)	Not required
4.7.2 / 3.4.4.1 (3)(a) Allowable net amplification (OPS <-> 1.544 Mbps)	Not required
4.7.2 / 3.4.4.1 (3)(a) Allowable net amplification (LS <-> OPS)	Not required
4.7.3 / 3.4.4.1(3)(a) Allowable net amplification between ports for other approved TE and network interface ports	
4.7.3 / 3.4.4.1 (3)(a) Allowable net amplification (ONS -> Tie trunk Lossless)	Not required
4.7.3 / 3.4.4.1 (3)(a) Allowable net amplification (ONS -> OPS)	Not required
4.7.3 / 3.4.4.1 (3)(a) Allowable net amplification (ONS -> LS)	Not required
4.7.3 / 3.4.4.1 (3)(a) Allowable net amplification (ONS -> 1.544 Mbps)	Not required
4.7.4 / 3.4.4.1(3)(b) Single frequency (SF) guard band	
4.7.4 / 3.4.4.1 (3)(b) Single frequency (SF) guard band (LS -> LS)	Not required
4.7.4 / 3.4.4.1 (3)(b) Single frequency (SF) guard band (ONS -> OPS)	Not required
4.7.4 / 3.4.4.1 (3)(b) Single frequency (SF) guard band (ONS -> LS)	Not required
4.7.4 / 3.4.4.1 (3)(b) Single frequency (SF) guard band (ONS -> 1.544 Mbps)	Not required
4.7.4 / 3.4.4.1 (3)(b) Single frequency (SF) guard band (OPS <-> OPS)	Not required
4.7.4 / 3.4.4.1 (3)(b) Single frequency (SF) guard band (OPS <-> LS)	Not required
4.7.4 / 3.4.4.1 (3)(b) Single frequency (SF) guard band (OPS <-> 1.544 Mbps)	Not required
4.7.4 / 3.4.4.1 (3)(b) Single frequency (SF) guard band (LS <-> OPS)	Not required
4.7.5 / 3.4.4.1(3) Note (7) SF cut-off	
4.7.5 / 3.4.4.1 (3)(a) Note (7) SF cut-off (ONS -> OPS)	Not required
4.7.5 / 3.4.4.1 (3)(a) Note (7) SF cut-off (ONS -> LS)	Not required
4.7.5 / 3.4.4.1 (3)(a) Note (7) SF cut-off (ONS -> 1.544 Mbps)	Not required
4.7.5 / 3.4.4.1 (3)(a) Note (7) SF cut-off (OPS <-> OPS)	Not required
4.7.5 / 3.4.4.1 (3)(a) Note (7) SF cut-off (OPS <-> LS)	Not required
4.7.5 / 3.4.4.1 (3)(a) Note (7) SF cut-off (OPS <-> 1.544 Mbps)	Not required
4.7.5 / 3.4.4.1 (3)(a) Note (7) SF cut-off (LS <-> OPS)	Not required
5.1 / 3.4 Analog voice band interface requirements	
5.1.2 / 3.4.1 Limitations on signals not intended for network control signaling	
5.1.2.1 / 3.4.1 (1) Voice band metallic signal power (LS, GS Limit: -9 dBm)	Not required
5.1.2.2 / 3.4.1 (2) Voice band metallic signal power (Tie trunk. Limit: -11 dBm)	Not required
5.1.2.3 / 3.4.1 (3) Voice band metallic signal power (OPS, Limit: -9 dBm)	Not required
5.1.2.4 / 3.4.1 (4) Voice band metallic signal power (Test equipment, Limit: 0 dBm)	Not required
5.1.2.5 / 3.4.1 (5) Voice band metallic signal power (Private line, Limit: -13 dBm)	Not required
5.1.2.6 / 3.4.1 (6) Metallic signal power in the band 2600 ± 150 Hz (Private line, Limit: -8 dBm)	Not required
5.1.2.6 / 3.4.1 (6) Voice band metallic signal power (Private line in On-hook, Limit: -20 dBm)	Not required
5.1.2.6 / 3.4.1 (6) Voice band metallic signal power (Private line non-signaling mode, Limit: -13 dBm)	Not required

Test	Status
5.1.2.7 / 3.4.1 Data terminal equipment	
5.1.2.7 (a) / 3.4.1 Data TE with programming resistors	Not required
5.1.2.7 (b) / 3.4.1 Data TE operating in the fixed loss loop FLL (-4 dBm)	Not required
5.1.2.7 (c) / 3.4.1 Data circuit TE (-9 dBm)	Not required
5.1.3 / 3.4.2 Limitations on signals intended for network control signaling	
5.1.3.1 (a)(b) / 3.4.2 (1)(a)(b) Voice band metallic signal power for network control signaling (LS, GS, Limit: 0 dBm)	Not required
5.1.3.1 (c) / 3.4.2 (c) Voice band metallic signal power for network control signaling (LS, GS, Limit: -9 dBm)	Not required
5.1.3.2 / 3.4.2 (2) Voice band metallic signal power for network control signaling (Tie trunk, Limit: -4 dBm)	Not required
5.1.4 / 3.4.8 Audio signal limiting	
5.1.4 / 3.4.8.1 (1)(2) MOH Voice band metallic signal power (LS, GS Limit: -9 dBm)	Not required
5.1.4 / 3.4.8.1 (1)(2) MOH Voice band metallic signal power (OPS, Limit: -9 dBm)	Not required
5.1.4 / 3.4.8.1 (1)(2) MOH Voice band metallic signal power (Tie trunk. Limit: -11 dBm)	Not required
5.1.4 / 3.4.8.1 (3) MOH 5.1.6.1 / 3.4.6 (1) Signal power in 3995-4005 Hz band from internal signal sources (LS, GS)	Not required
5.1.4 / 3.4.8.1 (4) MOH 5.1.6.2 / 3.4.4.1 (1) 3 dB loss difference in the 600-4000 Hz and in the 3995-4005 Hz bands (ONS -> LS)	Not required
5.1.4 / 3.4.8.1 (4) MOH 4.4.3 / 3.5.3 Signaling interference requirements	Not required
5.1.5 / 3.4.4.1 (2) Through transmission limitations	
5.1.5.1 / 3.4.4.1 (2)(a) DC conditions	
5.1.5.1 (a) / 3.4.4.1 (2)(a)(1) DC conditions. Max open circuit voltage	Not required
5.1.5.1 (b) / 3.4.4.1 (2)(a)(2) DC conditions. Short circuit current	Not required
5.1.5.1 (c) / 3.4.4.1 (2)(a)(3) DC conditions. Min current provided into 430 Ohms.	Not required
5.1.5.2 / 3.4.4.1 (2)(b) Data terminal equipment jack limitations	Not required
5.1.5.3 / 3.4.4.1 (3) Allowable net amplification between ports	Not required
5.1.5.4 / 3.8 Tie trunk interface Return loss	
5.1.5.4 (a) / 3.8.1 Tie trunk interface Return loss (two-wire interface)	Not required
5.1.5.4 (b) / 3.8.1 Tie trunk interface Return loss (four-wire interface)	Not required
5.1.6 / 3.4.6 Signal power in the 3995–4005 Hz frequency band	
5.1.6.1 / 3.4.6 Signal power in the 3995–4005 Hz frequency band from internal signal sources	
5.1.6.1 / 3.4.6 (1) Signal power in 3995-4005 Hz band from internal signal sources (LS, GS)	Not required
5.1.6.2 / 3.4.4.1 (1) Signal power in the 3995–4005 Hz band - through-transmission TE	
5.1.6.2 / 3.4.4.1 (1) 3 dB loss difference in the 600-4000 Hz and in the 3995-4005 Hz bands (ONS -> OPS)	Not required
5.1.6.2 / 3.4.4.1 (1) 3 dB loss difference in the 600-4000 Hz and in the 3995-4005 Hz bands (ONS -> LS)	Not required
5.1.6.2 / 3.4.4.1 (1) 3 dB loss difference in the 600-4000 Hz and in the 3995-4005 Hz bands (OPS <-> OPS)	Not required
5.1.6.2 / 3.4.4.1 (1) 3 dB loss difference in the 600-4000 Hz and in the 3995-4005 Hz bands (OPS <-> LS)	Not required
5.1.6.2 / 3.4.4.1 (1) 3 dB loss difference in the 600-4000 Hz and in the 3995-4005 Hz bands (LS <-> OPS)	Not required
5.1.7 / 3.3.2.1 Longitudinal voltage at frequencies below 4 kHz	Pass

Test	Status
5.1.8 / 3.3.2.2, 3.4.6 Voltage in the 4 kHz to 30 MHz frequency range	
5.1.8.1 / 3.4.6 Metallic voltage, 4 kHz to 270 kHz	
5.1.8.1 / 3.4.6 (2) Metallic voltage 8 kHz - 12 kHz	Pass
5.1.8.1 / 3.4.6 (2) Metallic voltage 12 kHz - 266 kHz	Pass
5.1.8.2 / 3.4.6 (3) Metallic voltage 270 kHz - 30 MHz	Pass
5.1.8.3 / 3.3.2.2 Longitudinal voltage, 4 kHz to 270 kHz	
5.1.8.3 / 3.3.2.2 Longitudinal voltage 8 kHz - 12 kHz	Pass
5.1.8.3 / 3.3.2.2 Longitudinal voltage 12 kHz - 270 kHz	Pass
5.1.8.4 / 3.3.2.3 Longitudinal voltage 270 kHz - 6 MHz	Pass
5.1.10 / 3.6 Analog voice band transverse balance	
5.1.10 / 3.6 Transverse balance for analog voiceband equipment (LS)	Pass
5.1.10 / 3.6 Transverse balance for analog voiceband equipment (GS)	Not required
5.1.10 / 3.6 Transverse balance for analog voiceband equipment (OPS)	Not required
5.1.11 / 3.5, 3.7, 3.10, 3.11 Loop start interfaces	
5.1.11.2 / 3.7 Limitations on equipment intended for operation on loop start telephone facilities	
5.1.11.2.1, 5.1.11.2.2 / 3.7.1 On-hook resistance, metallic and longitudinal	Not required
5.1.11.2.3 / 3.7.2 DC current during ringing, 5.1.11.2.4 / 3.7.3 Ringing impedance (metallic), REN - Ringing type A	Not required
5.1.11.2.5 / 3.7.3 (2) Ringing frequency impedance (longitudinal)	Not required
5.1.11.3 / 3.10, 3.11 Transitioning to the off-hook state / Stuttered dial tone	Not required
5.1.11.4 / 3.5.2 Voice and data equipment loop current requirements	
5.1.11.4 (a) / 3.5.2.1 Loop current requirements (Min current)	Not required
5.1.11.4 (b) / 3.5.2.1 Loop current requirements (25% current decrease)	Not required
5.1.12 Ground start interfaces	
5.1.12.2 Limitations on individual equipment intended for operation on ground start	
5.1.12.2.1 DC current during ringing, 5.1.12.2.2 Ringing impedance, REN - Ringing type A	Not required
5.1.12.3 Transitioning to the off-hook state	Not required
5.1.12.4 (a) Loop current requirements (Min current)	Not required
5.1.12.4 (b) Loop current requirements (25% current decrease)	Not required
5.1.16 / 2.3.9, 3.4.5 Off premises station (OPS)	
5.1.16.2 / 3.4.5 Minimum DC loop current	
5.1.16.2 / 3.4.5 (2)(b) Minimum DC loop current for OPS ports classes A, B, C	Not required
5.1.16.2 / 3.4.5 (2)(c) Additional requirements for the minimum DC loop current for OPS ports classes B, C	Not required
5.1.16.3 / 3.4.5 (2)(b) Maximum DC current into a short circuit	Not required
5.1.16.4 / 3.4.5 (1) Maximum open circuit DC voltage	Not required
5.1.16.5 / 3.4.5 (1) Hazardous voltage limit for talking and supervisory voltages	Not required
5.1.16.6 / 3.4.5 (1), 2.3.4 (2), 2.3.9.3 Hazardous voltage limits for ringing signals	Not required
5.1.16.6.5 / 2.3.9 Ringing voltage sources requirements	
5.1.16.6.5 (a) / 2.3.9.4(1) Ring signal requirements for ring current not exceed 100 mA (p-p) at 500 Ohm	Not required
5.1.16.6.5 (b)(1) / 2.3.9.4(2)(a) Ring signal requirements for ring current exceed 100 mA (p-p) at 1500 Ohm and 500 Ohm load	Not required
5.1.16.6.5 (b)(2) / 2.3.9.4(2)(b) Ring signal requirements for ring current exceed 100 mA (p-p) at 1500 Ohm	Not required

Test	Status
6.2 Series Devices	
6.2.1 Transverse balance for series connected analog voiceband equipment (LS)	Not required
/ 3.10 Stuttered dial tone detection	
/ 3.10.1 Stuttered dial tone detection	Not required
/ 3.10.1 Stuttered Dial Tone Detection after a completed calling event (without dialtone)	Not required
/ 3.10.1 Stuttered Dial Tone Detection after a completed calling event (with dialtone)	Not required
/ 3.10.1 Stuttered Dial Tone Detection after unanswered incoming calling (without dialtone)	Not required
/ 3.10.1 Stuttered Dial Tone Detection after unanswered incoming calling (with dialtone)	Not required
FCC pt. 68.318 (b) / CS-03 part 1, 3.9 Automatic dialing and automatic redialing	
(1) Automatically repeated call attempts (TE without busy and reorder signals detection)	
(1) Automatically repeated call attempts (TE without busy and reorder signals detection) (LS, GS)	Not required
(1) Automatically repeated call attempts (TE without busy and reorder signals detection) (Tie)	Not required
(1) Automatically repeated call attempts (TE with busy and reorder signals detection)	
(1) Automatically repeated call attempts (TE with busy and reorder signals detection) (LS, GS)	Not required
(1) Automatically repeated call attempts (TE with busy and reorder signals detection) (Tie)	Not required
(2),(3),(4) Clearing of automatic calls	
(2),(3),(4) Clearing of automatic calls (LS, GS)	Not required
(2),(3),(4) Clearing of automatic calls (Tie)	Not required
(6)(a) Dialing with dial tone detection	
(6)(a) Dialing with dial tone detection (LS, GS)	Not required
(6)(a) Dialing with dial tone detection (Tie)	Not required
(6)(b) Dialing without dial tone detection	
(6)(b) Dialing without dial tone detection (LS, GS)	Not required
(6)(b) Dialing without dial tone detection (Tie)	Not required
FCC pt. 68.318 (d) Telephone facsimile machines	Not required

11 Detailed test results

Test specification:	4.1 / Environmental simulation		
Test purpose:			
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/22/2024 10:16:06 AM		
Temperature: 22.8 °C	**Air Pressure:** 102.0 kPa	**Relative Humidity:** 31.9 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S.			

Test results

Standard reference	Requirement	Description	Verdict
4.1	Unpackaged approved terminal equipment and approved protective circuitry shall comply with all the criteria specified in this Standard, both prior to and after application of the mechanical and electrical stresses specified in this section.	The TE together with the Adjunct headset base was fully functional and compliant to the requirements both before and after the application of stresses.	Pass

Test specification:	4.1.1 / 2.1 Mechanical shock		
Test purpose:	To simulate handling of terminal equipment during installation and use		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 11:44:49 AM		
Temperature: 23.2 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 35.6 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S.			

Test results

Standard reference	Requirement	Description	Verdict
4.1.1.1	Hand-held items normally used at head height: 18 random drops from a height of 1.5 meters onto concrete covered with 3 mm asphalt tile or similar surface.		Pass
4.1.1.2	Table (desk)-top equipment 0–5 kg: Six random drops from a height of 750 mm onto concrete covered with 3 mm asphalt tile or similar surface.		Pass
4.1.1.3	The drop tests specified in 4.1.1 shall be performed as follows: The unit shall be positioned prior to release to ensure as nearly as possible that for every six drops there is one impact on each of the major surfaces and that the surface to be struck is approximately parallel to the impact surface.		Noted

Test specification:	4.1.2.1 / 2.4.1.1 Metallic voltage surge - type A		
Test purpose:	Two metallic voltage surges (one of each polarity) shall be applied between any pair of connections on which lightning surges may occur. Surges parameters shall comply with requirements 4.1.2.1.1 of the standard.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 11:43:51 AM		
Temperature: 23.2 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 35.6 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S.			

Test results

Test leads		On-hook		Off-hook	
		Normal	**Inverse**	**Normal**	**Inverse**
2-wire	Tip - Ring	Operational	Operational	Operational	Operational
4-wire	Tip - Ring				
	Tip1 - Ring1				
4-wire simplex Tip and Ring 1 Tip 1 and Ring					

Observations:

- Clamping at approximately 600 V

Test specification:	4.1.2.2 / 2.4.1.3 Longitudinal voltage surge - type A		
Test purpose:	Two longitudinal voltage surges (one of each polarity) shall be applied to any pair of connections on which lightning surges may occur. Surges parameters shall comply with requirements 4.1.2.2.1 of the standard.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 9:30:33 AM		
Temperature: 23.2 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 35.6 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S.			

Test results

Test leads	On-hook		Off-hook	
	Normal	Inverse	Normal	Inverse
Tip/Ring to Ground	Operational	Operational	Operational	Operational
Tip 1/Ring 1 to Ground				
M (Type I, A side)				
Any other leads				
Tip/Ring to All leads				

Observations:

- No current drawn
-

Test specification:	4.1.3.1 / 2.4.2.1 Metallic voltage surge - type B		
Test purpose:	Two metallic voltage surges (one of each polarity) shall be applied to equipment between any pair of connections on which lightning surges may occur. Surges parameters shall comply with requirements 4.1.3.1 of the standard.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 9:15:58 AM		
Temperature: 23.2 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 35.6 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.B.S.			

Test results

Test leads		On-hook		Off-hook	
		Normal	**Inverse**	**Normal**	**Inverse**
2-wire	Tip - Ring	Operational	Operational	Operational	Operational
4-wire	Tip - Ring				
	Tip1 - Ring1				
4-wire simplex Tip and Ring 1 Tip 1 and Ring					

Observations:

- Clamping at ~ 500V

Test specification:	4.1.3.2 / 2.4.2.3 Longitudinal voltage surge - type B		
Test purpose:	Two longitudinal voltage surges (one of each polarity) shall be applied to any pair of connections on which lightning surges may occur. Surges parameters shall comply with requirements 4.1.3.2 of the standard.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 9:08:45 AM		
Temperature: 23.2 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 35.6 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.B.S.			

Test results

Test leads	On-hook		Off-hook	
	Normal	Inverse	Normal	Inverse
Tip/Ring to Ground	Operational	Operational	Operational	Operational
Tip 1/Ring 1 to Ground				
M (Type I, A side)				
Any other leads				
Tip/Ring to All leads				

Observations:

- No current drawn
-

Test specification:	4.1.4 / 2.5 Power line surge		
Test purpose:	Six power line surges (three of each polarity) shall be applied between the phase and neutral terminals of the AC power line while the equipment is being powered. Surges parameters shall comply with requirements 4.1.4.1 of the standard.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 10:53:54 AM		
Temperature: 23.2 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 35.6 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.B.S.			

Test results

Test leads	Power On		Power Off	
	Normal polarity	Inverse polarity	Normal polarity	Inverse polarity
Phase - Neutral	Operational	Operational	n/a	n/a
Phase - Neutral	Operational	Operational	n/a	n/a
Phase - Neutral	Operational	Operational	n/a	n/a

Notes: There is no power switch on the Bluetooth Base

Test specification:	4.2 / 2.2 Leakage current limitation		
Test purpose:	Leakage current shall not exceed 10 mA peak at any time during the 90 second test interval described below when the 50-60 Hz AC test voltage in table 1 is applied between the test points in table 1.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 8:32:42 AM		
Temperature: 23.2 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 35.6 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: B.E.S.			

Test results

Test leads	Test voltage	Leakage current
		BES
T/R (1) to exposed conductive surfaces (3)	1000 V rms	74 µA
T/R (1) to non registered (4)	1000 V rms	
T/R (1) to auxiliary (6)	1000 V rms	
T/R (1) to E&M (7)	1000 V rms	
T/R (1) to PR, PC, CY1, CY2 (8)	1000 V rms	
Auxiliary (6) to exposed conductive surfaces (3)	1000 V rms	
E&M (7) to exposed conductive surfaces (3)	1000 V rms	
E&M (7) to non registered (4)	1000 V rms	
Auxiliary (6) to non registered (4)	1000 V rms	
Auxiliary (6) to PR, PC, CY1, CY2 (8)	1000 V rms	
AC (2) to T/R (1)	1500 V rms	33 µA
AC (2) to exposed conductive surfaces (3)	1500 V rms	44 µA
AC (2) to non registered (4)	1500 V rms	
AC (1) to points (5)	1500 V rms	
AC (2) to PR, PC, CY1, CY2 (8)	1500 V rms	
	Verdict	Pass

Notes:
1. Both set and base power packs in parallel.
2. No other ports

Test specification:	4.2 / 2.2 Leakage current limitation		
Test purpose:	Leakage current shall not exceed 10 mA peak at any time during the 90 second test interval described below when the 50-60 Hz AC test voltage in table 1 is applied between the test points in table 1.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 11:56:26 AM		
Temperature: 23.2 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 35.6 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S.			

Test results

Test leads	Test voltage	Leakage current
		AES
T/R (1) to exposed conductive surfaces (3)	1000 V rms	84 µA
T/R (1) to non registered (4)	1000 V rms	
T/R (1) to auxiliary (6)	1000 V rms	
T/R (1) to E&M (7)	1000 V rms	
T/R (1) to PR, PC, CY1, CY2 (8)	1000 V rms	
Auxiliary (6) to exposed conductive surfaces (3)	1000 V rms	
E&M (7) to exposed conductive surfaces (3)	1000 V rms	
E&M (7) to non registered (4)	1000 V rms	
Auxiliary (6) to non registered (4)	1000 V rms	
Auxiliary (6) to PR, PC, CY1, CY2 (8)	1000 V rms	
AC (2) to T/R (1)	1500 V rms	34 µA
AC (2) to exposed conductive surfaces (3)	1500 V rms	44 µA
AC (2) to non registered (4)	1500 V rms	
AC (1) to points (5)	1500 V rms	
AC (2) to PR, PC, CY1, CY2 (8)	1500 V rms	
	Verdict	Pass

Notes:
3. Phone and Base power packs in parallel.
4. No other ports

Test specification:	4.3.1 / 2.3.1 to 2.3.6 General requirement		
Test purpose:	Under no condition of failure of approved terminal equipment or approved protective circuitry that can be conceived to occur in the handling, operation or repair of such equipment or circuitry, shall the open circuit voltage on telephone connections exceed 70 Vp after one second, except for voltages for network control signaling, alerting and supervision.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/13/2024 1:37:06 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.0 kPa	**Relative Humidity:** 41.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: B.E.S.			

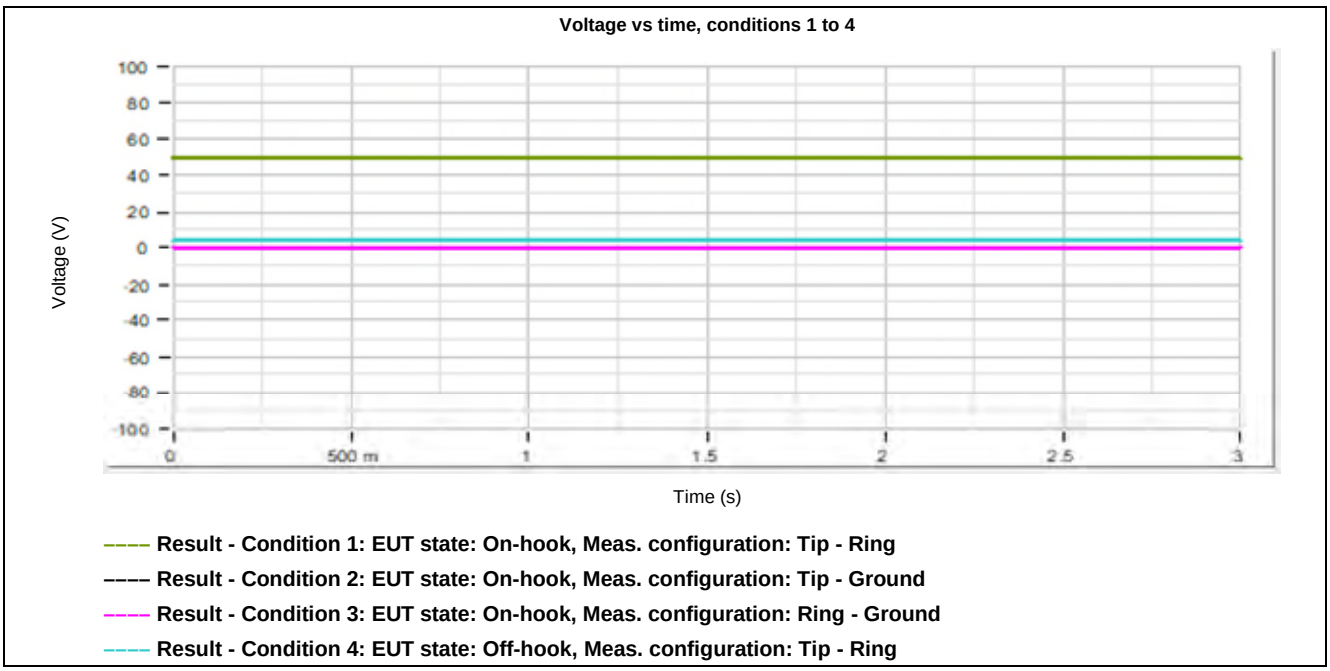
Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

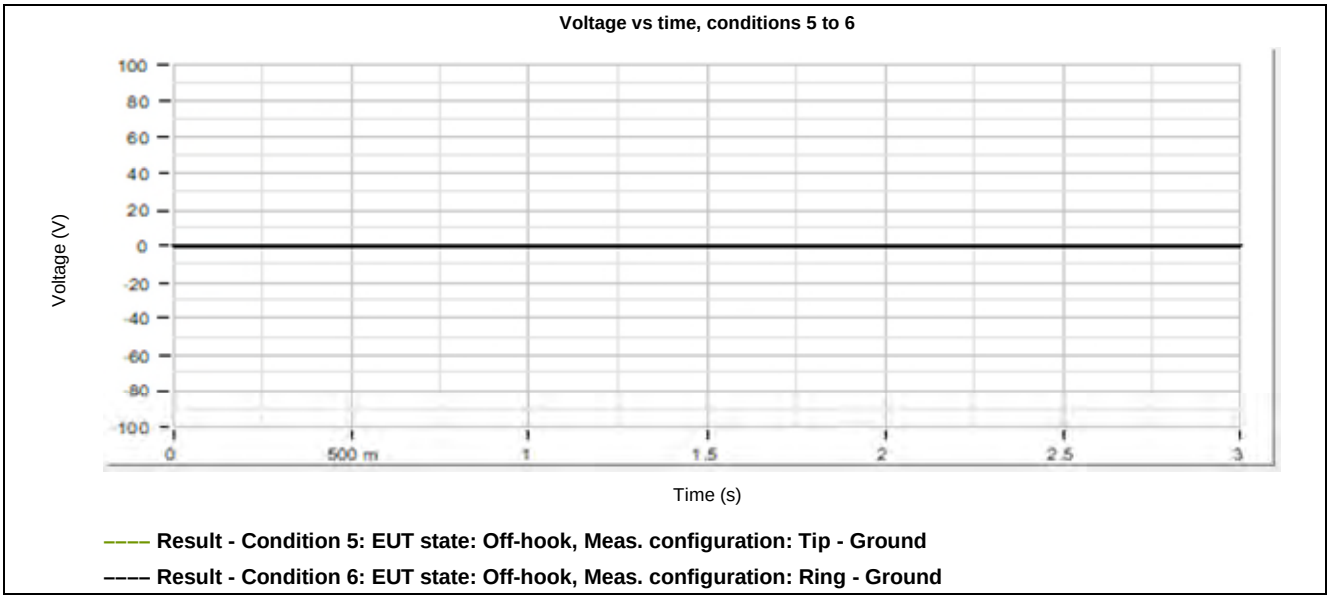
Signal level	±1.64%
Timing	±4 ms

General parameters

Parameter	Value
Feed voltage	50 V
Meas. time	3s
Hazardous voltage	70 V



Test specification:	4.3.1 / 2.3.1 to 2.3.6 General requirement		
Test purpose:	Under no condition of failure of approved terminal equipment or approved protective circuitry that can be conceived to occur in the handling, operation or repair of such equipment or circuitry, shall the open circuit voltage on telephone connections exceed 70 Vp after one second, except for voltages for network control signaling, alerting and supervision.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/13/2024 1:37:06 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.0 kPa	**Relative Humidity:** 41.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: B.E.S.			



Peak voltage, Hazardous voltage duration

Peak voltage	Duration	Limit	Verdict
Condition 1: EUT state: On-hook, Meas. configuration: Tip - Ring			**Pass**
49.95 V	0.00 s	1 s	Pass
Condition 2: EUT state: On-hook, Meas. configuration: Tip - Ground			**Pass**
0.16 V	0.00 s	1 s	Pass
Condition 3: EUT state: On-hook, Meas. configuration: Ring - Ground			**Pass**
0.16 V	0.00 s	1 s	Pass
Condition 4: EUT state: Off-hook, Meas. configuration: Tip - Ring			**Pass**
3.77 V	0.00 s	1 s	Pass
Condition 5: EUT state: Off-hook, Meas. configuration: Tip - Ground			**Pass**
0.16 V	0.00 s	1 s	Pass
Condition 6: EUT state: Off-hook, Meas. configuration: Ring - Ground			**Pass**
0.16 V	0.00 s	1 s	Pass

Test specification:	4.3.1 / 2.3.1 to 2.3.6 General requirement		
Test purpose:	Under no condition of failure of approved terminal equipment or approved protective circuitry that can be conceived to occur in the handling, operation or repair of such equipment or circuitry, shall the open circuit voltage on telephone connections exceed 70 Vp after one second, except for voltages for network control signaling, alerting and supervision.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 12:20:17 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 42.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S.			

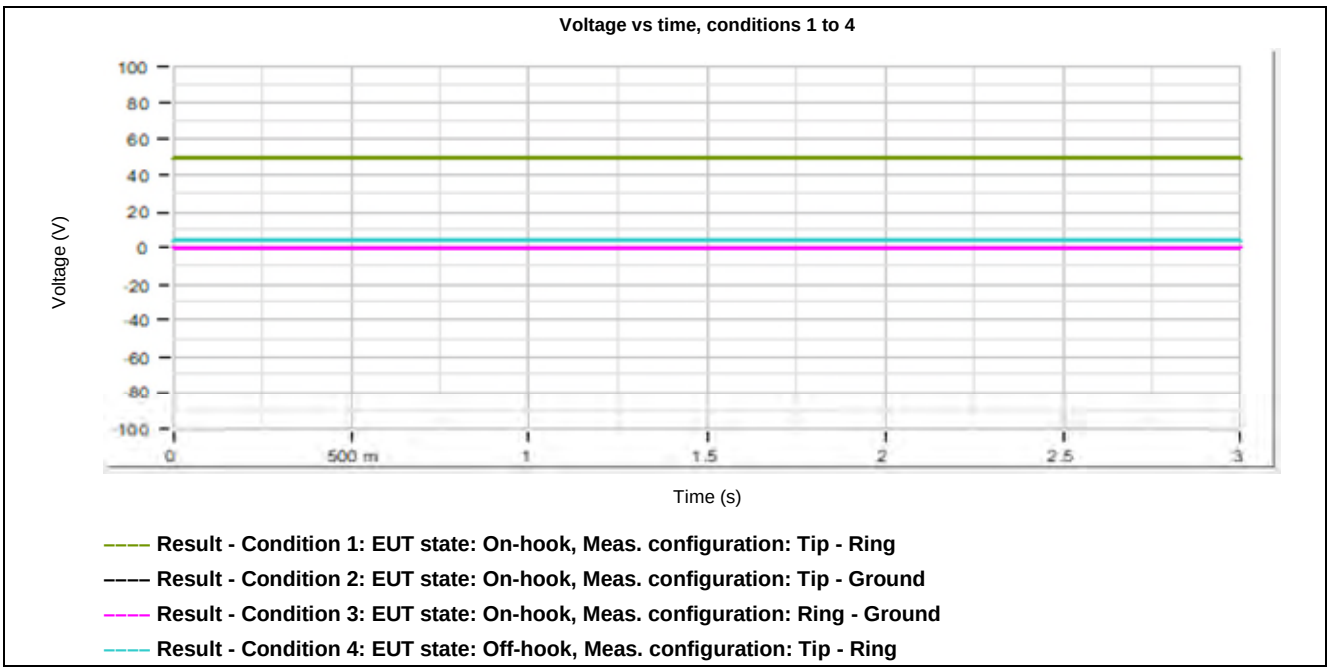
Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

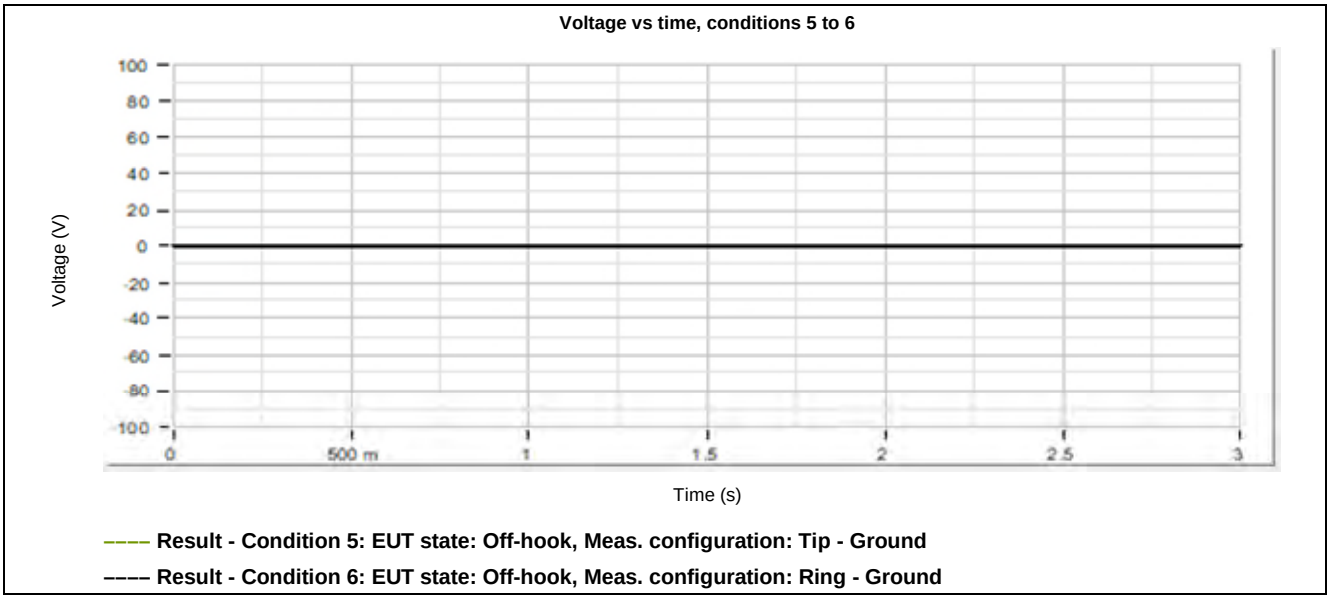
Signal level	±1.64%
Timing	±4 ms

General parameters

Parameter	Value
Feed voltage	50 V
Meas. time	3s
Hazardous voltage	70 V



Test specification:	4.3.1 / 2.3.1 to 2.3.6 General requirement		
Test purpose:	Under no condition of failure of approved terminal equipment or approved protective circuitry that can be conceived to occur in the handling, operation or repair of such equipment or circuitry, shall the open circuit voltage on telephone connections exceed 70 Vp after one second, except for voltages for network control signaling, alerting and supervision.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 12:20:17 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 42.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S.			



Peak voltage, Hazardous voltage duration

Peak voltage	Duration	Limit	Verdict
Condition 1: EUT state: On-hook, Meas. configuration: Tip - Ring			**Pass**
49.84 V	0.00 s	1 s	Pass
Condition 2: EUT state: On-hook, Meas. configuration: Tip - Ground			**Pass**
0.11 V	0.00 s	1 s	Pass
Condition 3: EUT state: On-hook, Meas. configuration: Ring - Ground			**Pass**
0.16 V	0.00 s	1 s	Pass
Condition 4: EUT state: Off-hook, Meas. configuration: Tip - Ring			**Pass**
3.77 V	0.00 s	1 s	Pass
Condition 5: EUT state: Off-hook, Meas. configuration: Tip - Ground			**Pass**
0.11 V	0.00 s	1 s	Pass
Condition 6: EUT state: Off-hook, Meas. configuration: Ring - Ground			**Pass**
0.16 V	0.00 s	1 s	Pass

Test specification:	4.4.2 / 3.3.1 Voice and data equipment on-hook signal requirements		
Test purpose:	The total power transmitted in the on-hook state by loop-start or ground-start equipment, shall not exceed -55 dBm within the voiceband		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/13/2024 1:44:57 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.0 kPa	**Relative Humidity:** 41.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: B.E.S.			

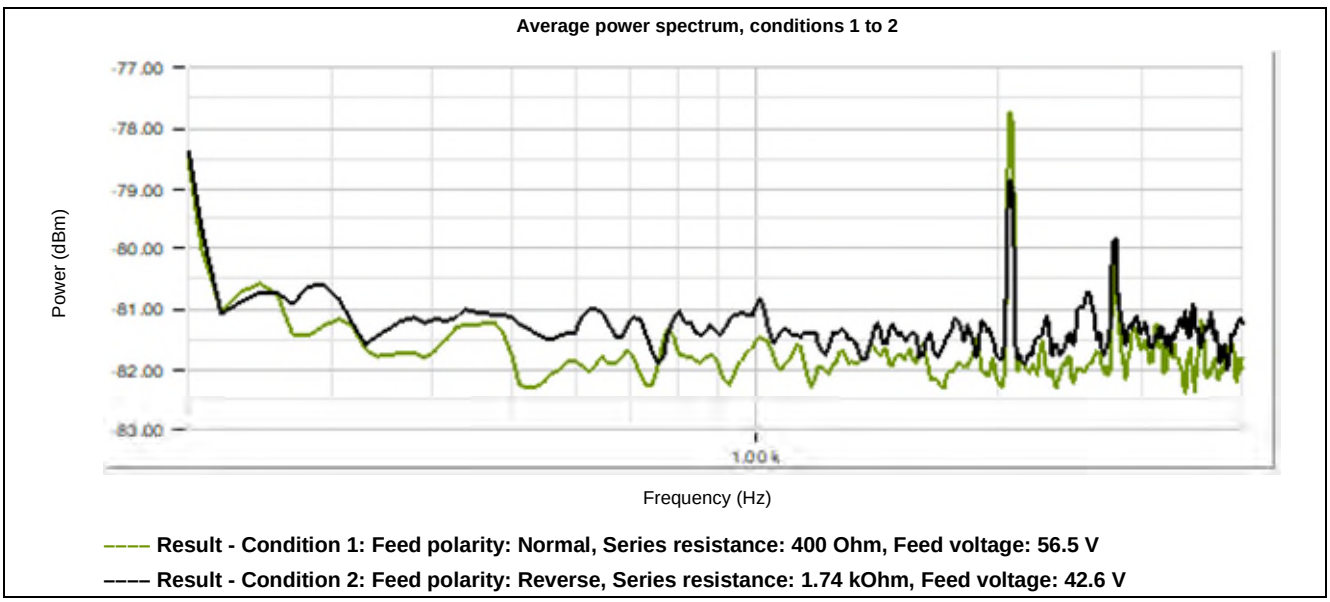
Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

Signal power level (20 Hz - 300 kHz)	±0.1 dB
Signal power level (300 kHz - 30 MHz)	±2.52 dB
Peak to peak voltage (frequency 10 Hz - 5 kHz)	±0.22%

Test ranges

Frequency			
Start	**Stop**	**Acquisition settings**	**Termination**
200.00 Hz	4.00 kHz	Acquisition time = 100 ms, Overall meas. time = 30 s	600 Ohm



Max power

Power	Limit	Verdict
Condition 1: Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V		**Pass**
-61.03 dBm	-55 dBm	Pass
Condition 2: Feed polarity: Reverse, Series resistance: 1.74 kOhm, Feed voltage: 42.6 V		**Pass**
-60.50 dBm	-55 dBm	Pass

Test specification:	4.4.2 / 3.3.1 Voice and data equipment on-hook signal requirements		
Test purpose:	The total power transmitted in the on-hook state by loop-start or ground-start equipment, shall not exceed -55 dBm within the voiceband		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/22/2024 10:13:14 AM		
Temperature: 22.8 °C	**Air Pressure:** 102.0 kPa	**Relative Humidity:** 31.9 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S.			

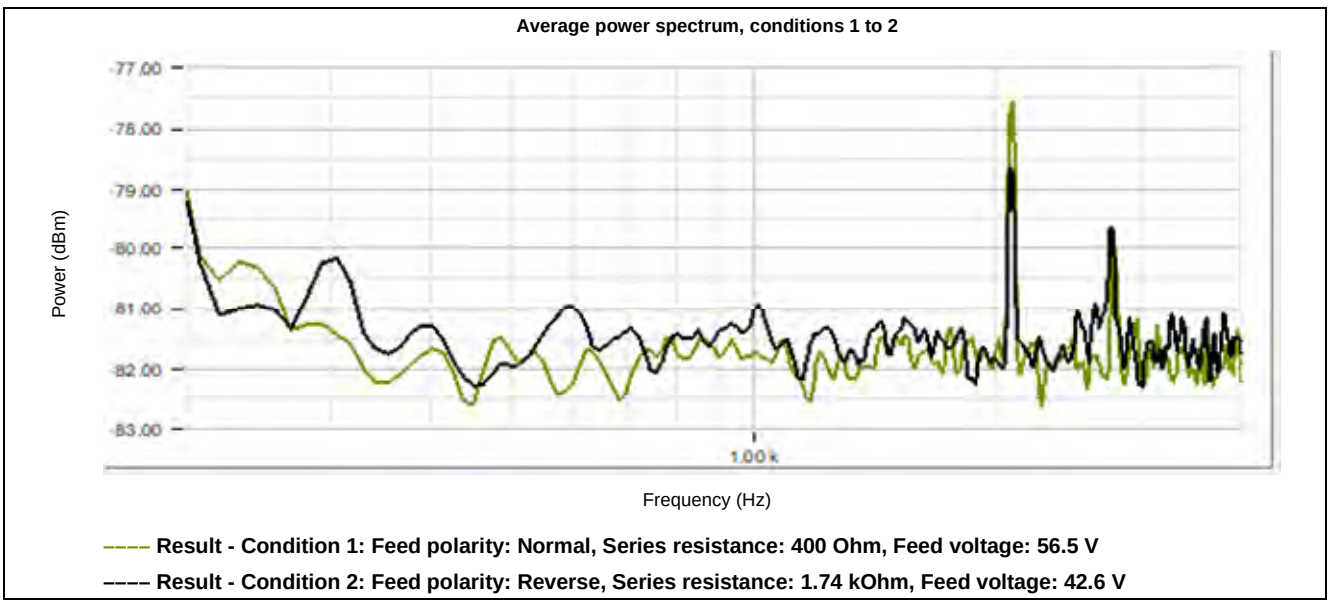
Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

Signal power level (20 Hz - 300 kHz)	±0.1 dB
Signal power level (300 kHz - 30 MHz)	±2.52 dB
Peak to peak voltage (frequency 10 Hz - 5 kHz)	±0.22%

Test ranges

Frequency			
Start	**Stop**	**Acquisition settings**	**Termination**
200.00 Hz	4.00 kHz	Acquisition time = 100 ms, Overall meas. time = 30 s	600 Ohm



Max power

Power	Limit	Verdict
Condition 1: Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V		**Pass**
-61.27 dBm	-55 dBm	Pass
Condition 2: Feed polarity: Reverse, Series resistance: 1.74 kOhm, Feed voltage: 42.6 V		**Pass**
-60.63 dBm	-55 dBm	Pass

Test specification:	5.1.7 / 3.3.2.1 Longitudinal voltage at frequencies below 4 kHz		
Test purpose:	To verify that longitudinal rms voltage averaged over 100 ms within the 0.1 - 4 kHz frequency range does not exceed the test limit. The EUT should be tested in on-hook and all possible off-hook states.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/13/2024 1:52:42 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.0 kPa	**Relative Humidity:** 41.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: B.E.S. USB not grounded			

Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

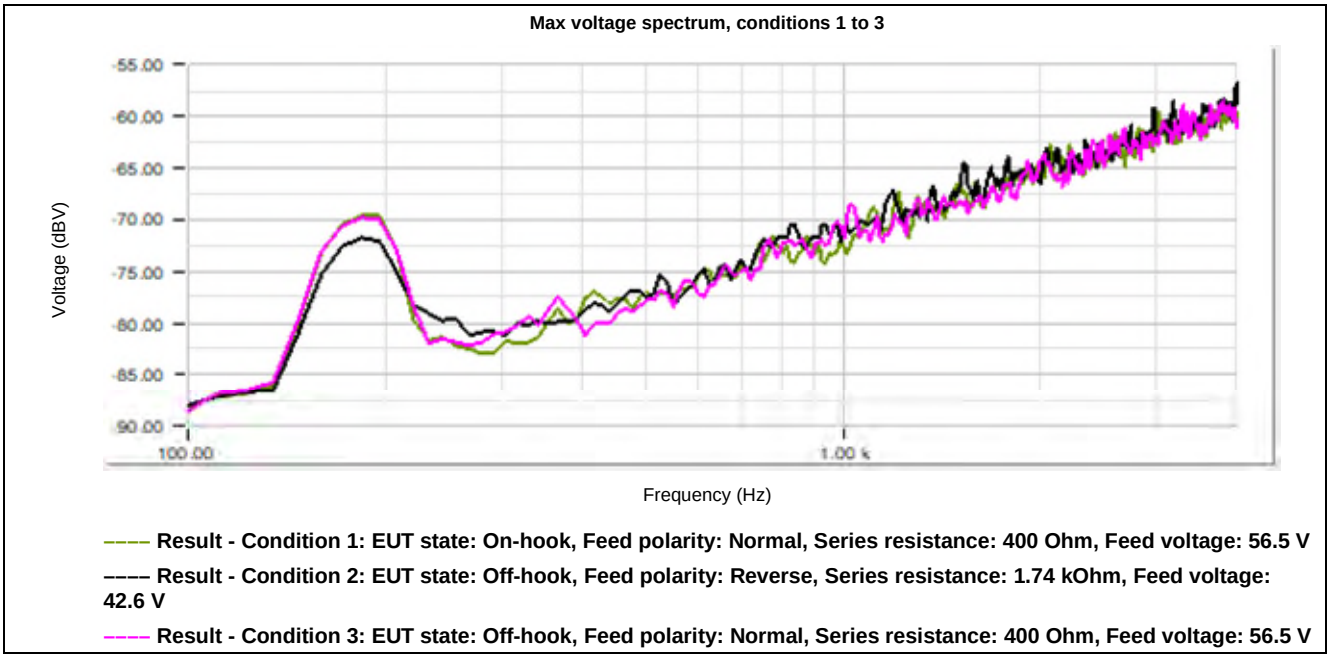
Signal power level (20 Hz - 300 kHz)	±0.1 dB
Signal power level (300 kHz - 30 MHz)	±2.52 dB
Peak to peak voltage (frequency 10 Hz - 5 kHz)	±0.22%

General parameters

Parameter	Value
Stimulus signal	D:\TCA\sounds\IEEE_269-2010_Male_mono_48_kHz.wav
Acoustic test setup	Test head

Test ranges

Frequency				
Start	**Stop**	**Acquisition settings**	**Termination**	**Transfer function**
100.00 Hz	4.00 kHz	Acquisition time = 100 ms, Overall meas. time = 30 s	600 Ohm Metallic / 500 Ohm Longitudinal	u(f)*f/Fmax



Test specification:	5.1.7 / 3.3.2.1 Longitudinal voltage at frequencies below 4 kHz		
Test purpose:	To verify that longitudinal rms voltage averaged over 100 ms within the 0.1 - 4 kHz frequency range does not exceed the test limit. The EUT should be tested in on-hook and all possible off-hook states.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/13/2024 1:52:42 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.0 kPa	**Relative Humidity:** 41.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: B.E.S. USB not grounded			

Max voltage

Maximum voltage	Limit	Verdict
Condition 1: EUT state: On-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V		**Pass**
-51.36 dBV	-30 dBV	Pass
Condition 2: EUT state: Off-hook, Feed polarity: Reverse, Series resistance: 1.74 kOhm, Feed voltage: 42.6 V		**Pass**
-50.04 dBV	-30 dBV	Pass
Condition 3: EUT state: Off-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V		**Pass**
-51.05 dBV	-30 dBV	Pass

Test specification:	5.1.7 / 3.3.2.1 Longitudinal voltage at frequencies below 4 kHz		
Test purpose:	To verify that longitudinal rms voltage averaged over 100 ms within the 0.1 - 4 kHz frequency range does not exceed the test limit. The EUT should be tested in on-hook and all possible off-hook states.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/13/2024 2:20:19 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.0 kPa	**Relative Humidity:** 41.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: B.E.S. USB Grounded			

Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

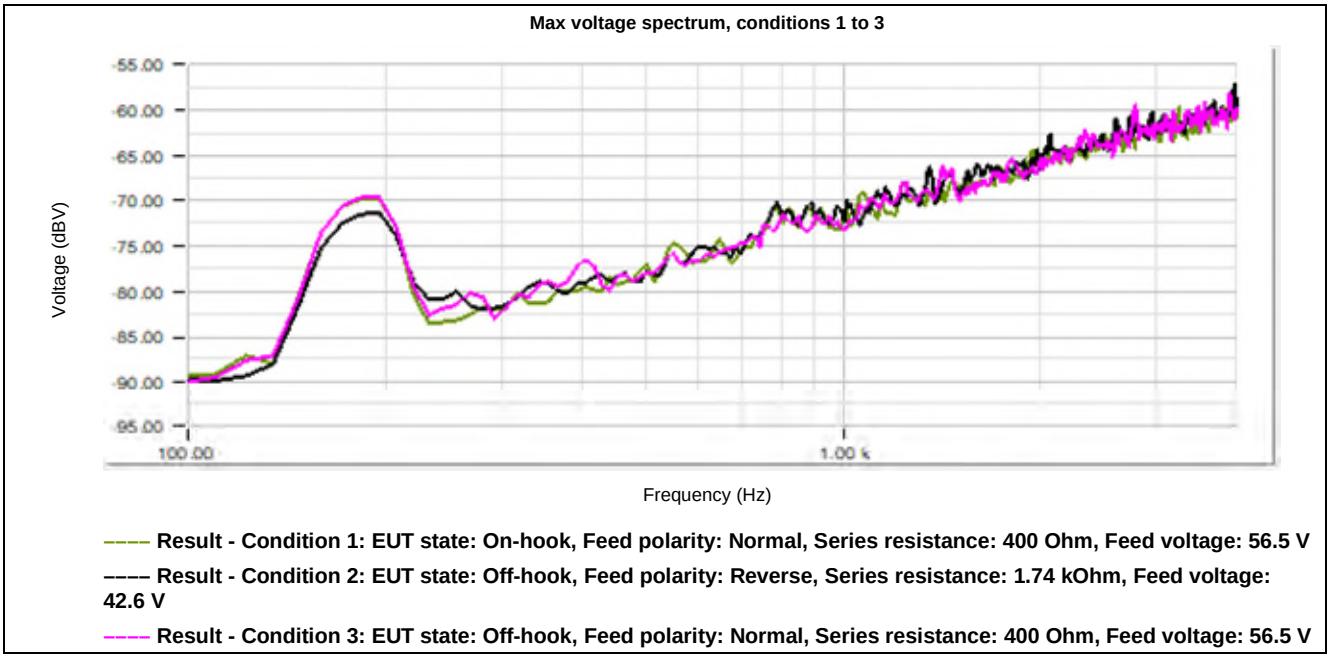
Signal power level (20 Hz - 300 kHz)	±0.1 dB
Signal power level (300 kHz - 30 MHz)	±2.52 dB
Peak to peak voltage (frequency 10 Hz - 5 kHz)	±0.22%

General parameters

Parameter	Value
Stimulus signal	D:\TCA\sounds\IEEE_269-2010_Male_mono_48_kHz.wav
Acoustic test setup	Test head

Test ranges

Frequency				
Start	**Stop**	**Acquisition settings**	**Termination**	**Transfer function**
100.00 Hz	4.00 kHz	Acquisition time = 100 ms, Overall meas. time = 30 s	600 Ohm Metallic / 500 Ohm Longitudinal	u(f)*f/Fmax



Test specification:	5.1.7 / 3.3.2.1 Longitudinal voltage at frequencies below 4 kHz		
Test purpose:	To verify that longitudinal rms voltage averaged over 100 ms within the 0.1 - 4 kHz frequency range does not exceed the test limit. The EUT should be tested in on-hook and all possible off-hook states.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/13/2024 2:20:19 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.0 kPa	**Relative Humidity:** 41.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: B.E.S. USB Grounded			

Max voltage

Maximum voltage	Limit	Verdict
Condition 1: EUT state: On-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V		**Pass**
-51.31 dBV	-30 dBV	Pass
Condition 2: EUT state: Off-hook, Feed polarity: Reverse, Series resistance: 1.74 kOhm, Feed voltage: 42.6 V		**Pass**
-50.80 dBV	-30 dBV	Pass
Condition 3: EUT state: Off-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V		**Pass**
-51.09 dBV	-30 dBV	Pass

Test specification:	5.1.7 / 3.3.2.1 Longitudinal voltage at frequencies below 4 kHz		
Test purpose:	To verify that longitudinal rms voltage averaged over 100 ms within the 0.1 - 4 kHz frequency range does not exceed the test limit. The EUT should be tested in on-hook and all possible off-hook states.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 12:25:04 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 42.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S. USB grounded			

Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

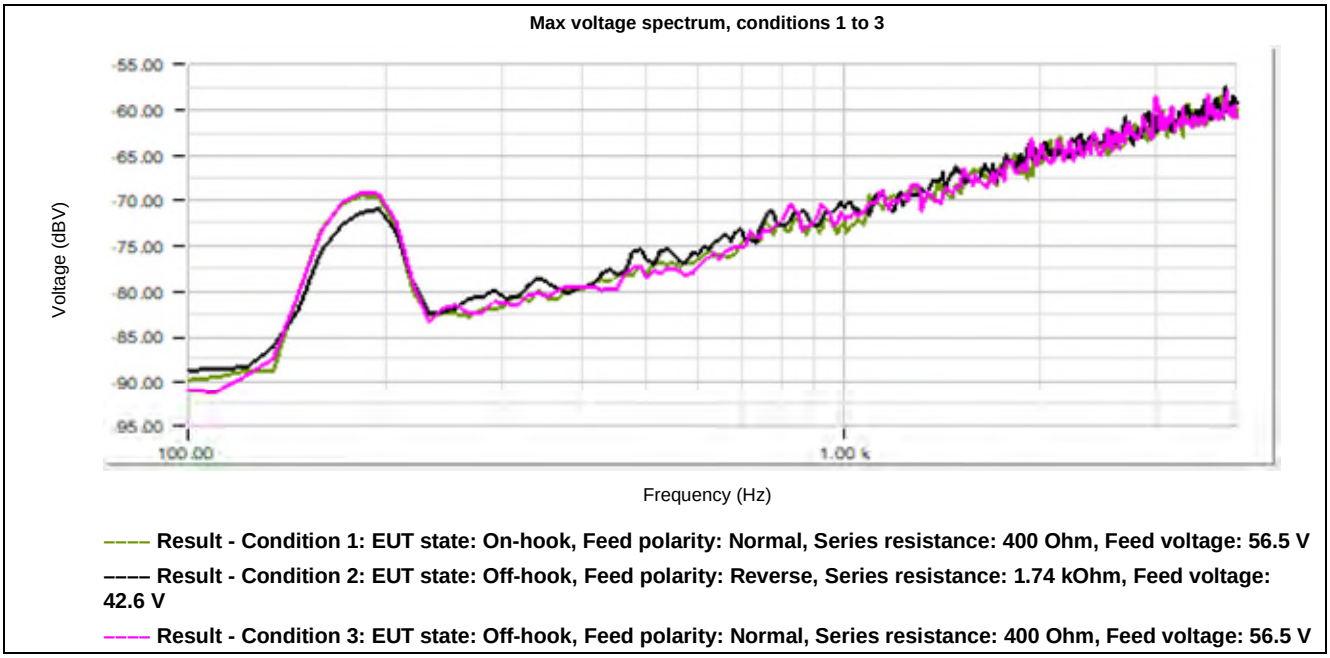
Signal power level (20 Hz - 300 kHz)	±0.1 dB
Signal power level (300 kHz - 30 MHz)	±2.52 dB
Peak to peak voltage (frequency 10 Hz - 5 kHz)	±0.22%

General parameters

Parameter	Value
Stimulus signal	D:\TCA\sounds\IEEE_269-2010_Male_mono_48_kHz.wav
Acoustic test setup	Test head

Test ranges

Frequency				
Start	**Stop**	**Acquisition settings**	**Termination**	**Transfer function**
100.00 Hz	4.00 kHz	Acquisition time = 100 ms, Overall meas. time = 30 s	600 Ohm Metallic / 500 Ohm Longitudinal	u(f)*f/Fmax



Test specification:	5.1.7 / 3.3.2.1 Longitudinal voltage at frequencies below 4 kHz		
Test purpose:	To verify that longitudinal rms voltage averaged over 100 ms within the 0.1 - 4 kHz frequency range does not exceed the test limit. The EUT should be tested in on-hook and all possible off-hook states.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 12:25:04 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 42.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S. USB grounded			

Max voltage

Maximum voltage	Limit	Verdict
Condition 1: EUT state: On-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V		**Pass**
-50.97 dBV	-30 dBV	Pass
Condition 2: EUT state: Off-hook, Feed polarity: Reverse, Series resistance: 1.74 kOhm, Feed voltage: 42.6 V		**Pass**
-50.53 dBV	-30 dBV	Pass
Condition 3: EUT state: Off-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V		**Pass**
-50.91 dBV	-30 dBV	Pass

Test specification:	5.1.7 / 3.3.2.1 Longitudinal voltage at frequencies below 4 kHz		
Test purpose:	To verify that longitudinal rms voltage averaged over 100 ms within the 0.1 - 4 kHz frequency range does not exceed the test limit. The EUT should be tested in on-hook and all possible off-hook states.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 1:17:04 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 42.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S. USB not grounded			

Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

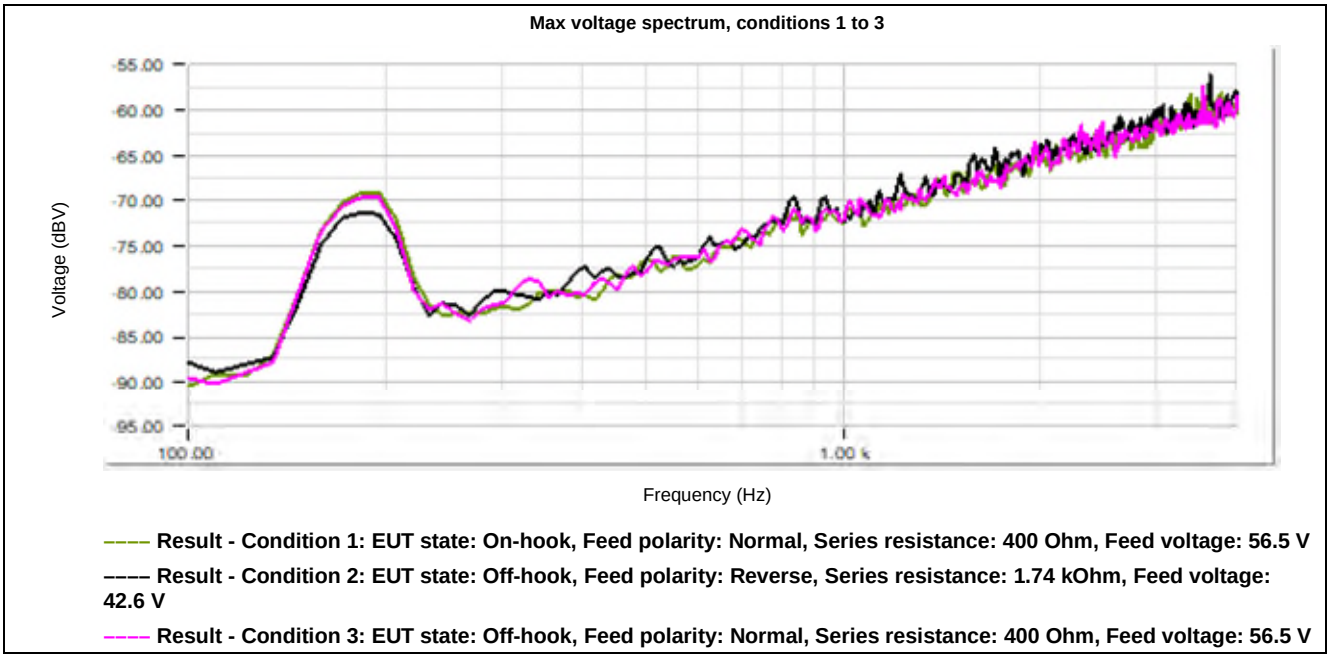
Signal power level (20 Hz - 300 kHz)	±0.1 dB
Signal power level (300 kHz - 30 MHz)	±2.52 dB
Peak to peak voltage (frequency 10 Hz - 5 kHz)	±0.22%

General parameters

Parameter	Value
Stimulus signal	D:\TCA\sounds\IEEE_269-2010_Male_mono_48_kHz.wav
Acoustic test setup	Test head

Test ranges

Frequency				
Start	**Stop**	**Acquisition settings**	**Termination**	**Transfer function**
100.00 Hz	4.00 kHz	Acquisition time = 100 ms, Overall meas. time = 30 s	600 Ohm Metallic / 500 Ohm Longitudinal	u(f)*f/Fmax



Test specification:	5.1.7 / 3.3.2.1 Longitudinal voltage at frequencies below 4 kHz		
Test purpose:	To verify that longitudinal rms voltage averaged over 100 ms within the 0.1 - 4 kHz frequency range does not exceed the test limit. The EUT should be tested in on-hook and all possible off-hook states.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 1:17:04 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 42.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S. USB not grounded			

Max voltage

Maximum voltage	Limit	Verdict
Condition 1: EUT state: On-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V		**Pass**
-51.12 dBV	-30 dBV	Pass
Condition 2: EUT state: Off-hook, Feed polarity: Reverse, Series resistance: 1.74 kOhm, Feed voltage: 42.6 V		**Pass**
-49.91 dBV	-30 dBV	Pass
Condition 3: EUT state: Off-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V		**Pass**
-50.75 dBV	-30 dBV	Pass

Test specification:	5.1.8.1 / 3.4.6 (2) Metallic voltage 8 kHz - 12 kHz		
Test purpose:	To verify that metallic rms voltage averaged over 100 ms in all of the possible 8-kHz bands within the 8 - 12 kHz frequency range does not exceed the test limit. The EUT should be tested in on-hook and all possible off-hook states.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/13/2024 1:55:00 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.0 kPa	**Relative Humidity:** 41.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: B.E.S. USB not grounded			

Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

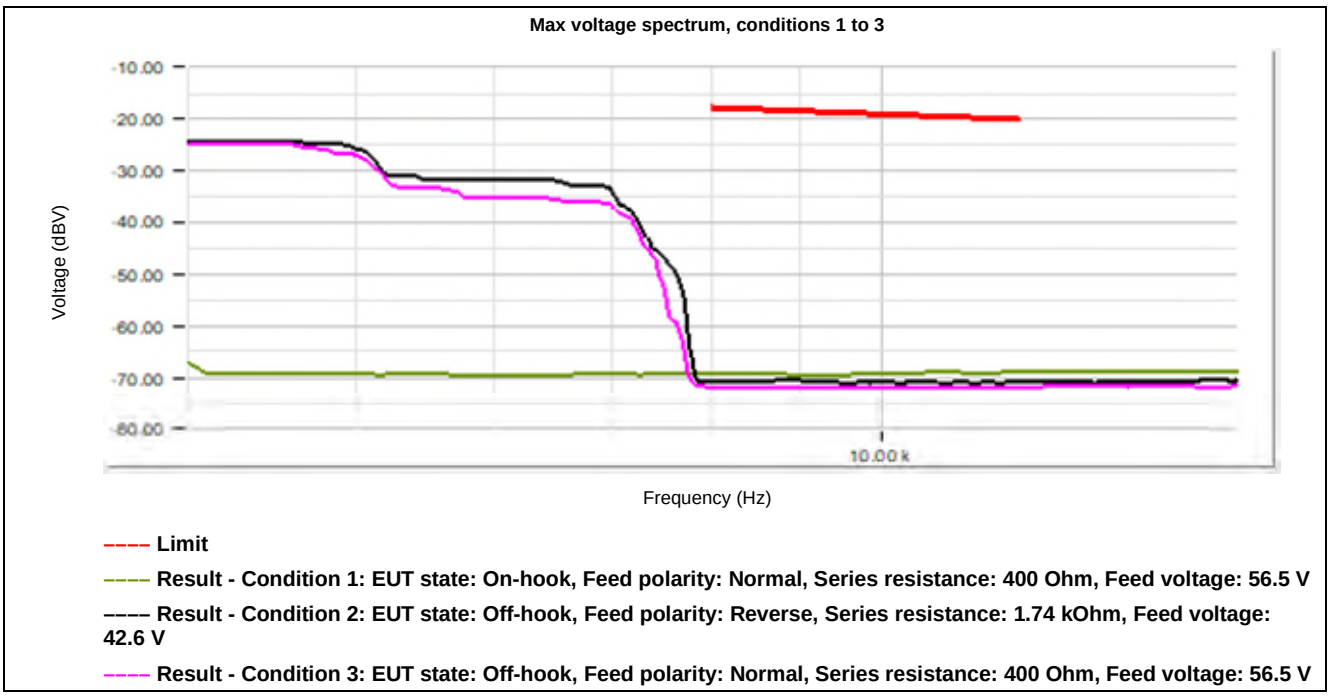
Signal power level (20 Hz - 300 kHz)	±0.1 dB
Signal power level (300 kHz - 30 MHz)	±2.52 dB
Peak to peak voltage (frequency 10 Hz - 5 kHz)	±0.22%

General parameters

Parameter	Value
Stimulus signal	D:\TCA\sounds\IEEE_269-2010_Male_mono_48_kHz.wav
Acoustic test setup	HATS

Test ranges

Frequency				
Start	**Stop**	**RMS bandwidth**	**Acquisition settings**	**Termination**
4.00 kHz	16.00 kHz	8 kHz	Resolution bandwidth = 100.00 Hz, Averaging interval = 100.00 ms, Overall meas. time = 20 s	300 Ohm



Test specification:	5.1.8.1 / 3.4.6 (2) Metallic voltage 8 kHz - 12 kHz		
Test purpose:	To verify that metallic rms voltage averaged over 100 ms in all of the possible 8-kHz bands within the 8 - 12 kHz frequency range does not exceed the test limit. The EUT should be tested in on-hook and all possible off-hook states.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/13/2024 2:22:22 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.0 kPa	**Relative Humidity:** 41.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: B.E.S. USB Grounded			

Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

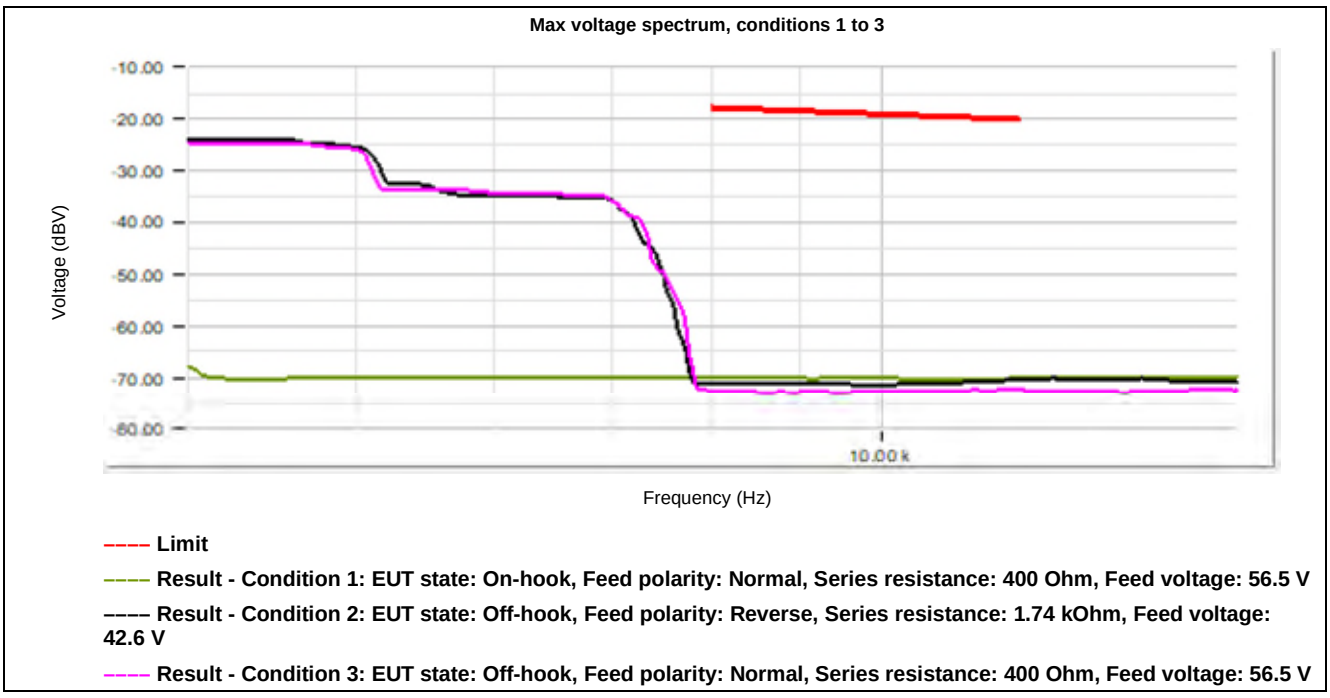
Signal power level (20 Hz - 300 kHz)	±0.1 dB
Signal power level (300 kHz - 30 MHz)	±2.52 dB
Peak to peak voltage (frequency 10 Hz - 5 kHz)	±0.22%

General parameters

Parameter	Value
Stimulus signal	D:\TCA\sounds\IEEE_269-2010_Male_mono_48_kHz.wav
Acoustic test setup	HATS

Test ranges

Frequency				
Start	**Stop**	**RMS bandwidth**	**Acquisition settings**	**Termination**
4.00 kHz	16.00 kHz	8 kHz	Resolution bandwidth = 100.00 Hz, Averaging interval = 100.00 ms, Overall meas. time = 20 s	300 Ohm



Test specification:	5.1.8.1 / 3.4.6 (2) Metallic voltage 8 kHz - 12 kHz		
Test purpose:	To verify that metallic rms voltage averaged over 100 ms in all of the possible 8-kHz bands within the 8 - 12 kHz frequency range does not exceed the test limit. The EUT should be tested in on-hook and all possible off-hook states.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 12:27:13 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 42.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S. USB grounded			

Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

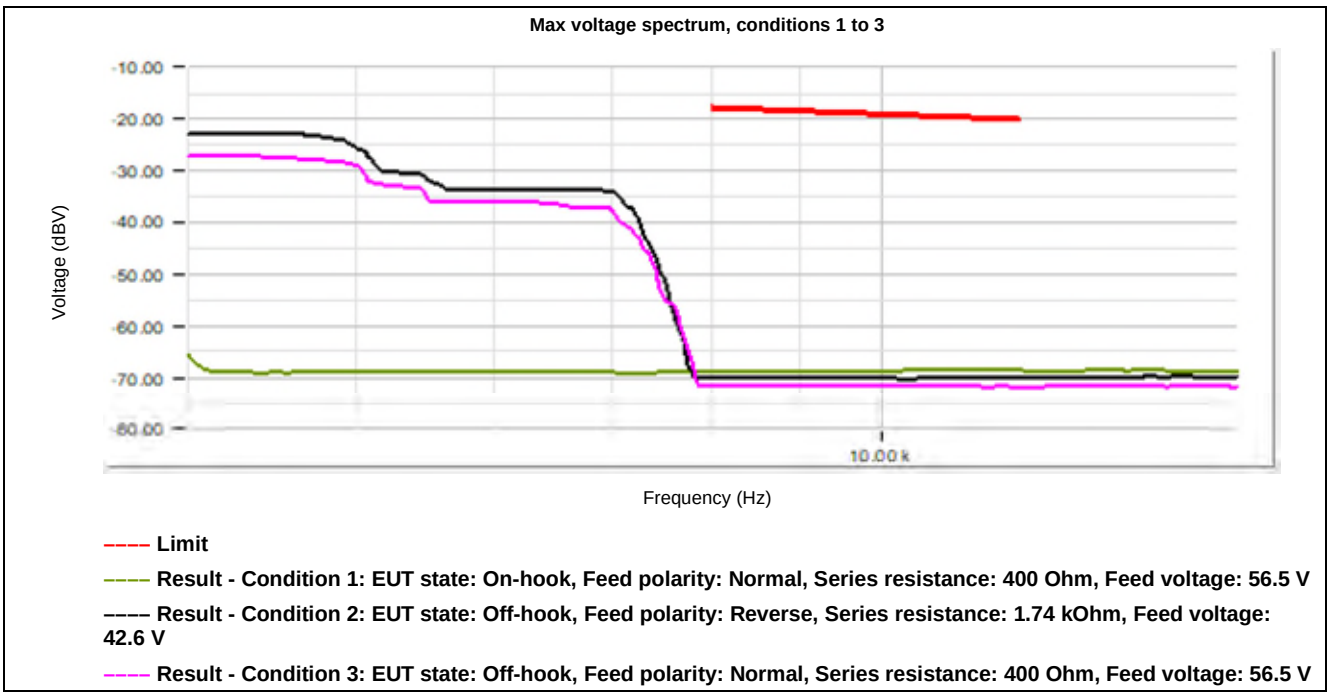
Signal power level (20 Hz - 300 kHz)	±0.1 dB
Signal power level (300 kHz - 30 MHz)	±2.52 dB
Peak to peak voltage (frequency 10 Hz - 5 kHz)	±0.22%

General parameters

Parameter	Value
Stimulus signal	D:\TCA\sounds\IEEE_269-2010_Male_mono_48_kHz.wav
Acoustic test setup	HATS

Test ranges

Frequency				
Start	**Stop**	**RMS bandwidth**	**Acquisition settings**	**Termination**
4.00 kHz	16.00 kHz	8 kHz	Resolution bandwidth = 100.00 Hz, Averaging interval = 100.00 ms, Overall meas. time = 20 s	300 Ohm



Test specification:	5.1.8.1 / 3.4.6 (2) Metallic voltage 8 kHz - 12 kHz		
Test purpose:	To verify that metallic rms voltage averaged over 100 ms in all of the possible 8-kHz bands within the 8 - 12 kHz frequency range does not exceed the test limit. The EUT should be tested in on-hook and all possible off-hook states.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 1:14:24 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 42.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S. USB not grounded			

Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

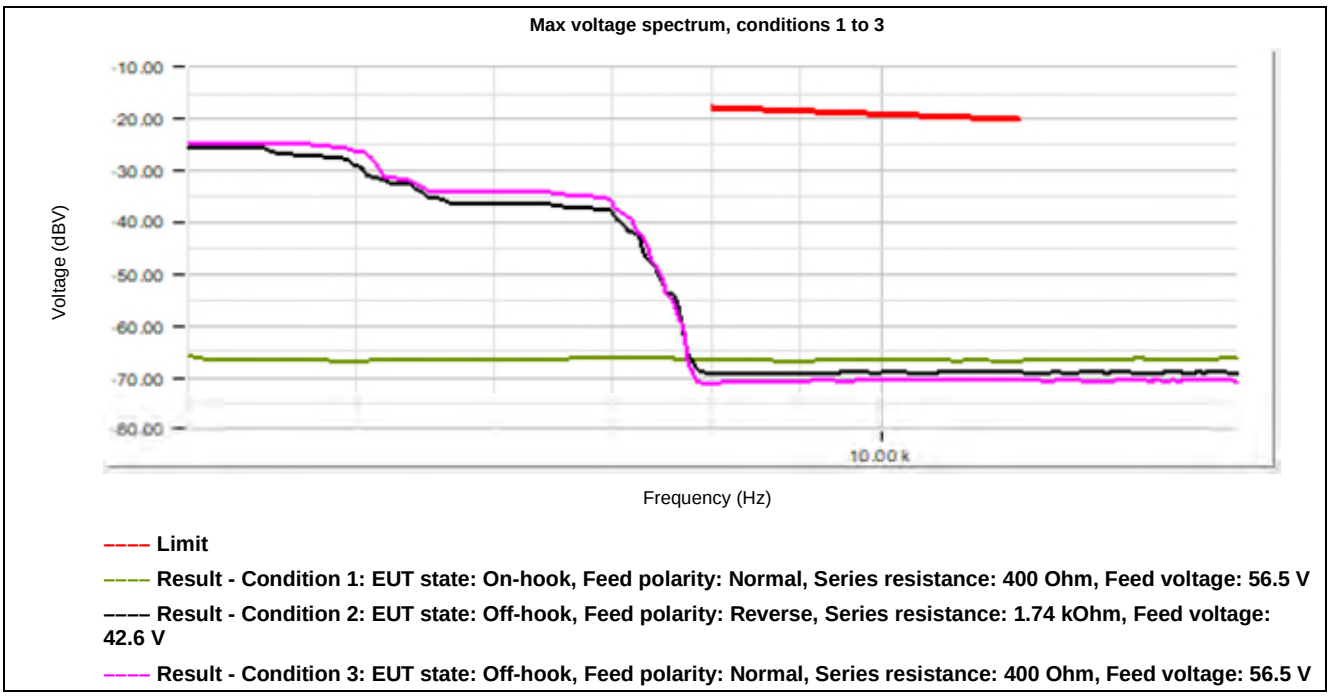
Signal power level (20 Hz - 300 kHz)	±0.1 dB
Signal power level (300 kHz - 30 MHz)	±2.52 dB
Peak to peak voltage (frequency 10 Hz - 5 kHz)	±0.22%

General parameters

Parameter	Value
Stimulus signal	D:\TCA\sounds\IEEE_269-2010_Male_mono_48_kHz.wav
Acoustic test setup	HATS

Test ranges

Frequency				
Start	**Stop**	**RMS bandwidth**	**Acquisition settings**	**Termination**
4.00 kHz	16.00 kHz	8 kHz	Resolution bandwidth = 100.00 Hz, Averaging interval = 100.00 ms, Overall meas. time = 20 s	300 Ohm



Test specification:	5.1.8.1 / 3.4.6 (2) Metallic voltage 12 kHz - 266 kHz		
Test purpose:	To verify that metallic rms voltage averaged over 100 ms in all of the possible 8-kHz bands within the 12 - 266 kHz frequency range does not exceed the test limit. The EUT should be tested in on-hook and all possible off-hook states.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/13/2024 2:02:27 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.0 kPa	**Relative Humidity:** 41.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: B.E.S. USB not grounded			

Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

Signal power level (20 Hz - 300 kHz)	±0.1 dB
Signal power level (300 kHz - 30 MHz)	±2.5 dB
Peak to peak voltage (frequency 10 Hz - 5 kHz)	±0.22%

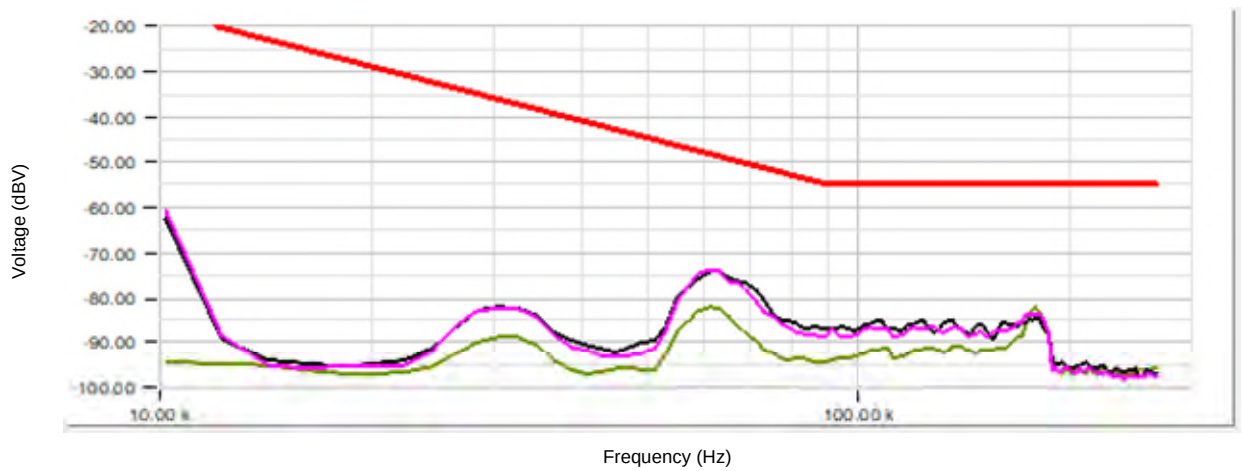
General parameters

Parameter	Value
Stimulus signal	D:\TCA\sounds\IEEE_269-2010_Male_mono_48_kHz.wav
Acoustic test setup	Test head

Test ranges

Frequency				
Start	**Stop**	**RMS bandwidth**	**Acquisition settings**	**Termination**
12.00 kHz	266.00 kHz	0 Hz	Resolution bandwidth = 8.00 kHz, Averaging interval = 100.00 ms, Overall meas. time = 30 s	135 Ohm

Max voltage spectrum, conditions 1 to 3



Limit

Result - Condition 1: EUT state: On-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V

Result - Condition 2: EUT state: Off-hook, Feed polarity: Reverse, Series resistance: 1.74 kOhm, Feed voltage: 42.6 V

Result - Condition 3: EUT state: Off-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V

Test specification:	5.1.8.1 / 3.4.6 (2) Metallic voltage 12 kHz - 266 kHz		
Test purpose:	To verify that metallic rms voltage averaged over 100 ms in all of the possible 8-kHz bands within the 12 - 266 kHz frequency range does not exceed the test limit. The EUT should be tested in on-hook and all possible off-hook states.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/13/2024 2:25:08 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.0 kPa	**Relative Humidity:** 41.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: B.E.S. USB Grounded			

Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

Signal power level (20 Hz - 300 kHz)	±0.1 dB
Signal power level (300 kHz - 30 MHz)	±2.5 dB
Peak to peak voltage (frequency 10 Hz - 5 kHz)	±0.22%

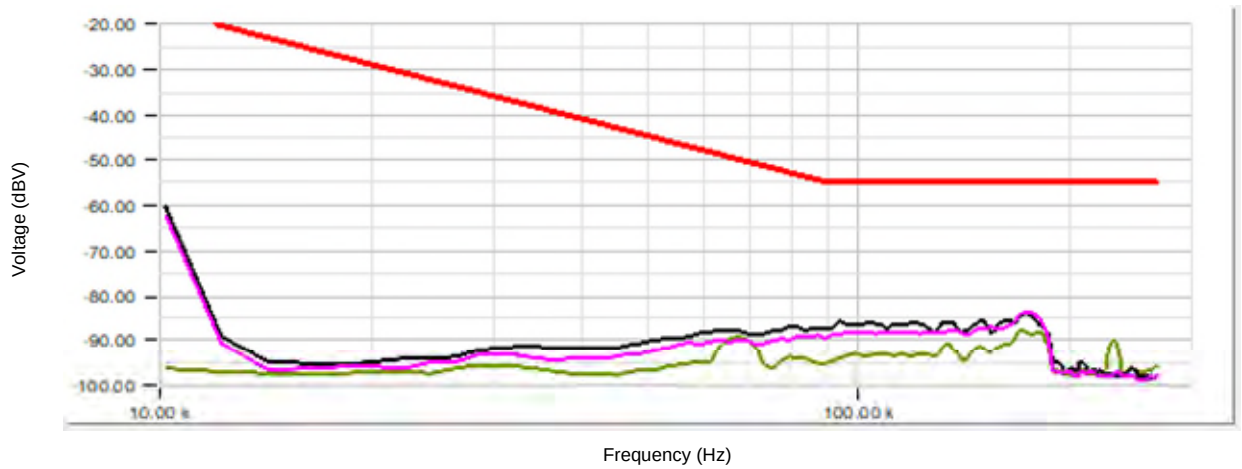
General parameters

Parameter	Value
Stimulus signal	D:\TCA\sounds\IEEE_269-2010_Male_mono_48_kHz.wav
Acoustic test setup	Test head

Test ranges

Frequency				
Start	**Stop**	**RMS bandwidth**	**Acquisition settings**	**Termination**
12.00 kHz	266.00 kHz	0 Hz	Resolution bandwidth = 8.00 kHz, Averaging interval = 100.00 ms, Overall meas. time = 30 s	135 Ohm

Max voltage spectrum, conditions 1 to 3



Limit

Result - Condition 1: EUT state: On-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V

Result - Condition 2: EUT state: Off-hook, Feed polarity: Reverse, Series resistance: 1.74 kOhm, Feed voltage: 42.6 V

Result - Condition 3: EUT state: Off-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V

Test specification:	5.1.8.1 / 3.4.6 (2) Metallic voltage 12 kHz - 266 kHz		
Test purpose:	To verify that metallic rms voltage averaged over 100 ms in all of the possible 8-kHz bands within the 12 - 266 kHz frequency range does not exceed the test limit. The EUT should be tested in on-hook and all possible off-hook states.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 12:46:40 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 42.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S. USB grounded			

Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

Signal power level (20 Hz - 300 kHz)	±0.1 dB
Signal power level (300 kHz - 30 MHz)	±2.5 dB
Peak to peak voltage (frequency 10 Hz - 5 kHz)	±0.22%

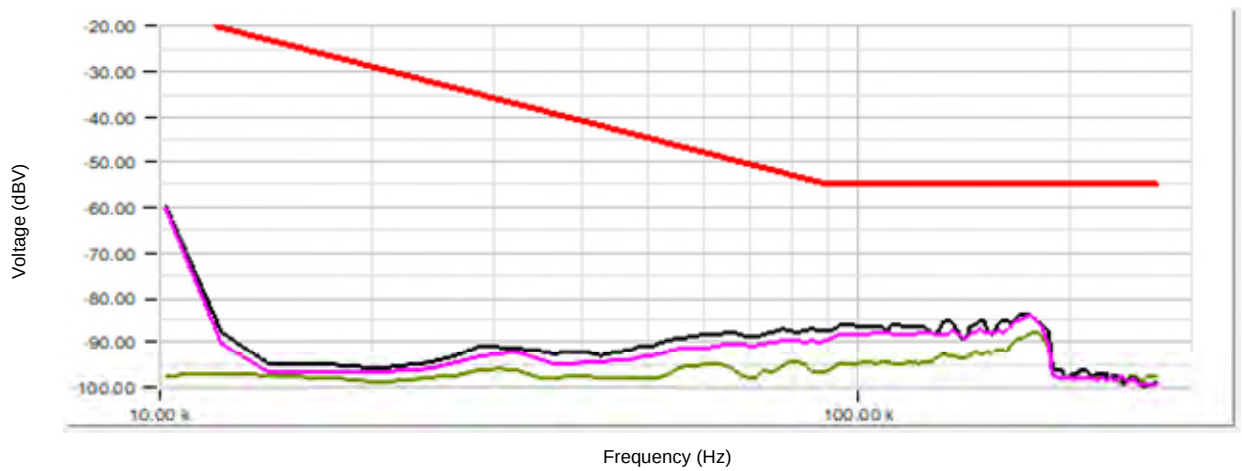
General parameters

Parameter	Value
Stimulus signal	D:\TCA\sounds\IEEE_269-2010_Male_mono_48_kHz.wav
Acoustic test setup	Test head

Test ranges

Frequency				
Start	**Stop**	**RMS bandwidth**	**Acquisition settings**	**Termination**
12.00 kHz	266.00 kHz	0 Hz	Resolution bandwidth = 8.00 kHz, Averaging interval = 100.00 ms, Overall meas. time = 30 s	135 Ohm

Max voltage spectrum, conditions 1 to 3



---- Limit

---- Result - Condition 1: EUT state: On-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V

---- Result - Condition 2: EUT state: Off-hook, Feed polarity: Reverse, Series resistance: 1.74 kOhm, Feed voltage: 42.6 V

---- Result - Condition 3: EUT state: Off-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V

Test specification:	5.1.8.1 / 3.4.6 (2) Metallic voltage 12 kHz - 266 kHz		
Test purpose:	To verify that metallic rms voltage averaged over 100 ms in all of the possible 8-kHz bands within the 12 - 266 kHz frequency range does not exceed the test limit. The EUT should be tested in on-hook and all possible off-hook states.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 1:12:31 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 42.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S. USB not grounded			

Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

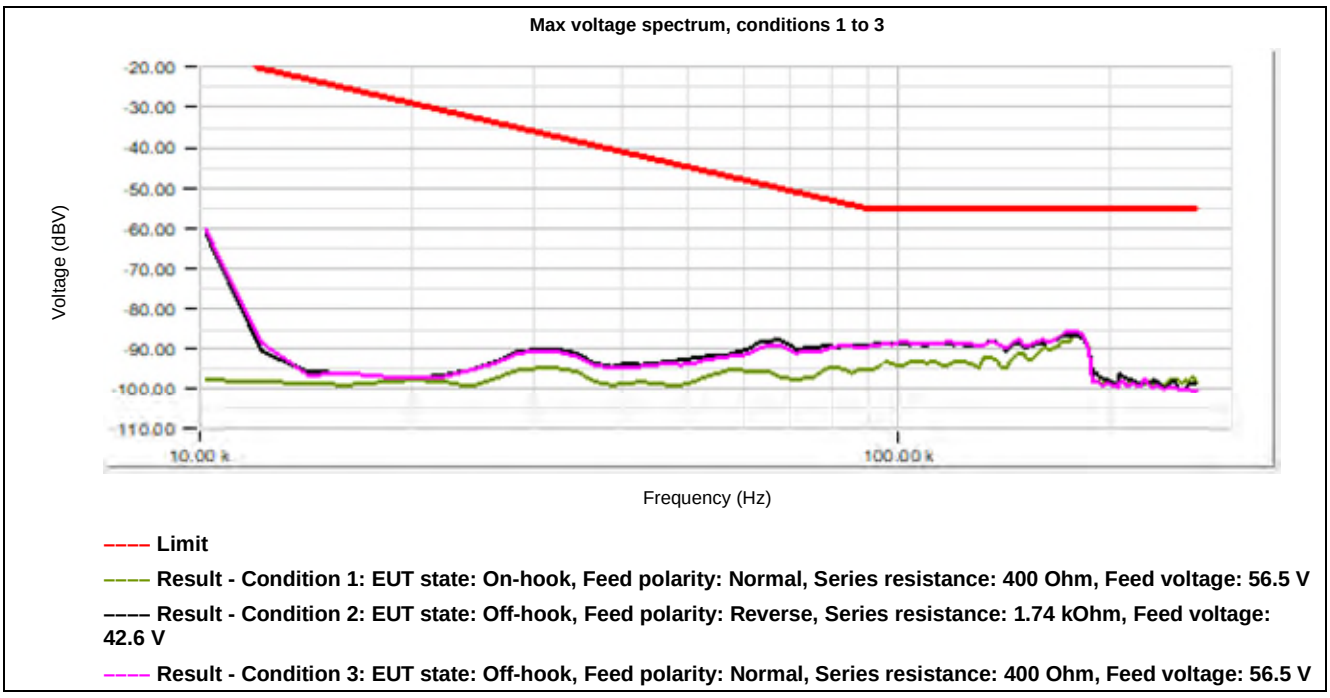
Signal power level (20 Hz - 300 kHz)	±0.1 dB
Signal power level (300 kHz - 30 MHz)	±2.5 dB
Peak to peak voltage (frequency 10 Hz - 5 kHz)	±0.22%

General parameters

Parameter	Value
Stimulus signal	D:\TCA\sounds\IEEE_269-2010_Male_mono_48_kHz.wav
Acoustic test setup	Test head

Test ranges

Frequency				
Start	**Stop**	**RMS bandwidth**	**Acquisition settings**	**Termination**
12.00 kHz	266.00 kHz	0 Hz	Resolution bandwidth = 8.00 kHz, Averaging interval = 100.00 ms, Overall meas. time = 30 s	135 Ohm



Test specification:	5.1.8.2 / 3.4.6 (3) Metallic voltage 270 kHz - 30 MHz		
Test purpose:	To verify that metallic rms voltage averaged over 2 us at 270 kHz - 30 MHz frequency range does not exceed -15 dBV. The EUT should be tested in on-hook and all possible off-hook states.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/13/2024 2:05:04 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.0 kPa	**Relative Humidity:** 41.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: B.E.S. USB not grounded			

Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

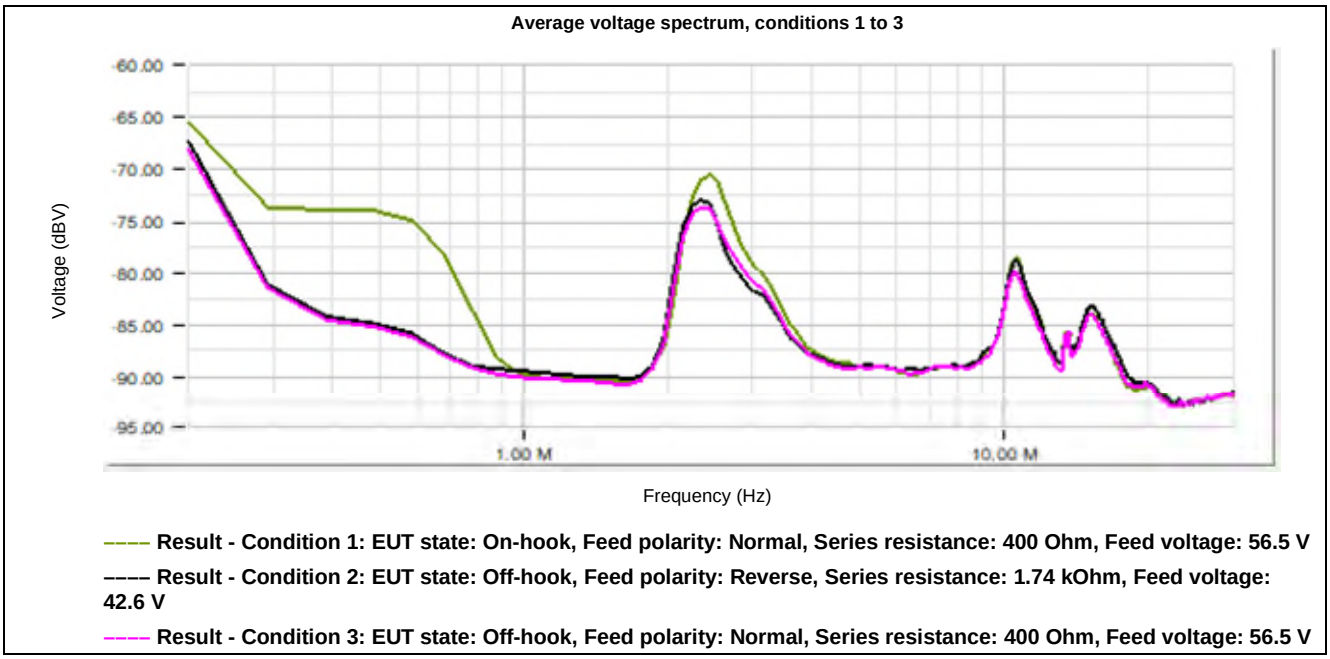
Signal power level (20 Hz - 300 kHz)	±0.1 dB
Signal power level (300 kHz - 30 MHz)	±2.52 dB
Peak to peak voltage (frequency 10 Hz - 5 kHz)	±0.22%

General parameters

Parameter	Value
Stimulus signal	D:\TCA\sounds\IEEE_269-2010_Male_mono_48_kHz.wav
Acoustic test setup	Test head

Test ranges

Frequency				
Start	**Stop**	**Acquisition settings**	**Termination**	**Filter**
270.00 kHz	30.00 MHz	Acquisition time = 10 us, Overall meas. time = 20 s	135 Ohm	250kHz high pass filter



Test specification:	5.1.8.2 / 3.4.6 (3) Metallic voltage 270 kHz - 30 MHz		
Test purpose:	To verify that metallic rms voltage averaged over 2 us at 270 kHz - 30 MHz frequency range does not exceed -15 dBV. The EUT should be tested in on-hook and all possible off-hook states.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/13/2024 2:05:04 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.0 kPa	**Relative Humidity:** 41.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: B.E.S. USB not grounded			

Max voltage

Voltage	Limit	Verdict
Condition 1: EUT state: On-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V		**Pass**
-49.74 dBV	-15 dBV	Pass
Condition 2: EUT state: Off-hook, Feed polarity: Reverse, Series resistance: 1.74 kOhm, Feed voltage: 42.6 V		**Pass**
-51.45 dBV	-15 dBV	Pass
Condition 3: EUT state: Off-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V		**Pass**
-51.66 dBV	-15 dBV	Pass

Test specification:	5.1.8.2 / 3.4.6 (3) Metallic voltage 270 kHz - 30 MHz		
Test purpose:	To verify that metallic rms voltage averaged over 2 us at 270 kHz - 30 MHz frequency range does not exceed -15 dBV. The EUT should be tested in on-hook and all possible off-hook states.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/13/2024 2:27:39 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.0 kPa	**Relative Humidity:** 41.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: B.E.S. USB Grounded			

Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

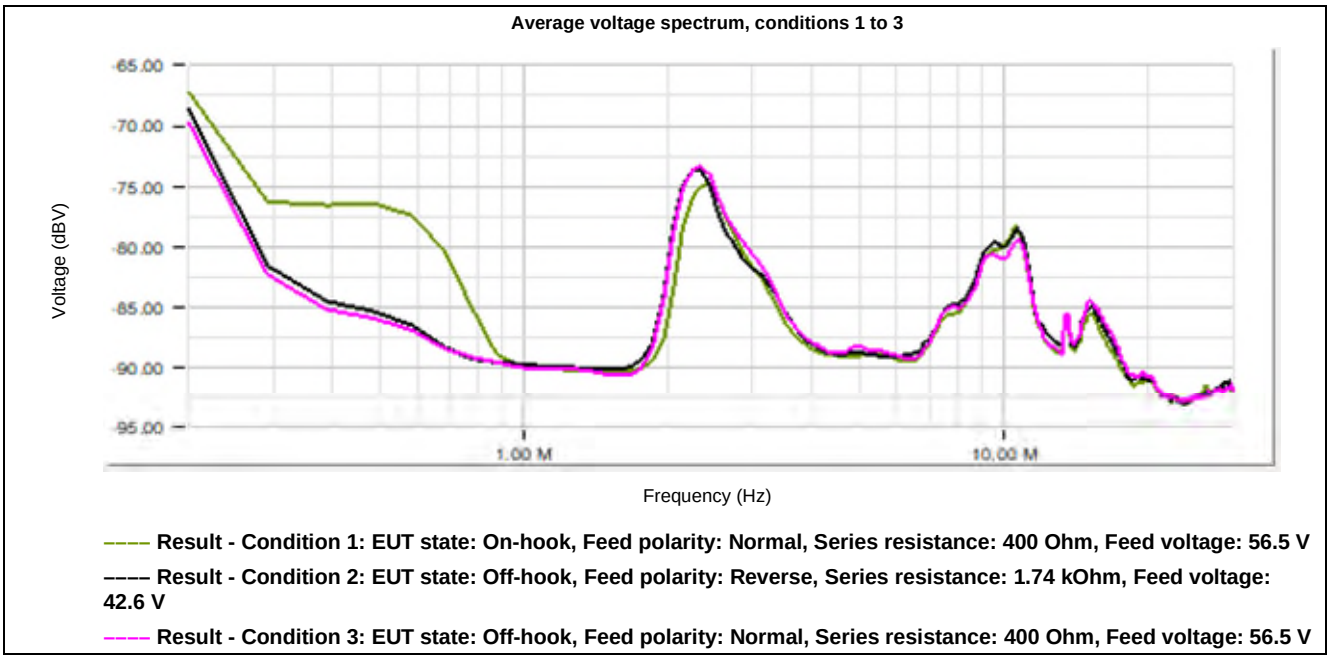
Signal power level (20 Hz - 300 kHz)	±0.1 dB
Signal power level (300 kHz - 30 MHz)	±2.52 dB
Peak to peak voltage (frequency 10 Hz - 5 kHz)	±0.22%

General parameters

Parameter	Value
Stimulus signal	D:\TCA\sounds\IEEE_269-2010_Male_mono_48_kHz.wav
Acoustic test setup	Test head

Test ranges

Frequency				
Start	**Stop**	**Acquisition settings**	**Termination**	**Filter**
270.00 kHz	30.00 MHz	Acquisition time = 10 us, Overall meas. time = 20 s	135 Ohm	250kHz high pass filter



Test specification:	5.1.8.2 / 3.4.6 (3) Metallic voltage 270 kHz - 30 MHz		
Test purpose:	To verify that metallic rms voltage averaged over 2 us at 270 kHz - 30 MHz frequency range does not exceed -15 dBV. The EUT should be tested in on-hook and all possible off-hook states.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/13/2024 2:27:39 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.0 kPa	**Relative Humidity:** 41.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: B.E.S. USB Grounded			

Max voltage

Voltage	Limit	Verdict
Condition 1: EUT state: On-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V		**Pass**
-51.34 dBV	-15 dBV	Pass
Condition 2: EUT state: Off-hook, Feed polarity: Reverse, Series resistance: 1.74 kOhm, Feed voltage: 42.6 V		**Pass**
-51.59 dBV	-15 dBV	Pass
Condition 3: EUT state: Off-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V		**Pass**
-51.95 dBV	-15 dBV	Pass

Test specification:	5.1.8.2 / 3.4.6 (3) Metallic voltage 270 kHz - 30 MHz		
Test purpose:	To verify that metallic rms voltage averaged over 2 us at 270 kHz - 30 MHz frequency range does not exceed -15 dBV. The EUT should be tested in on-hook and all possible off-hook states.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 12:33:15 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 42.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S. USB grounded			

Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

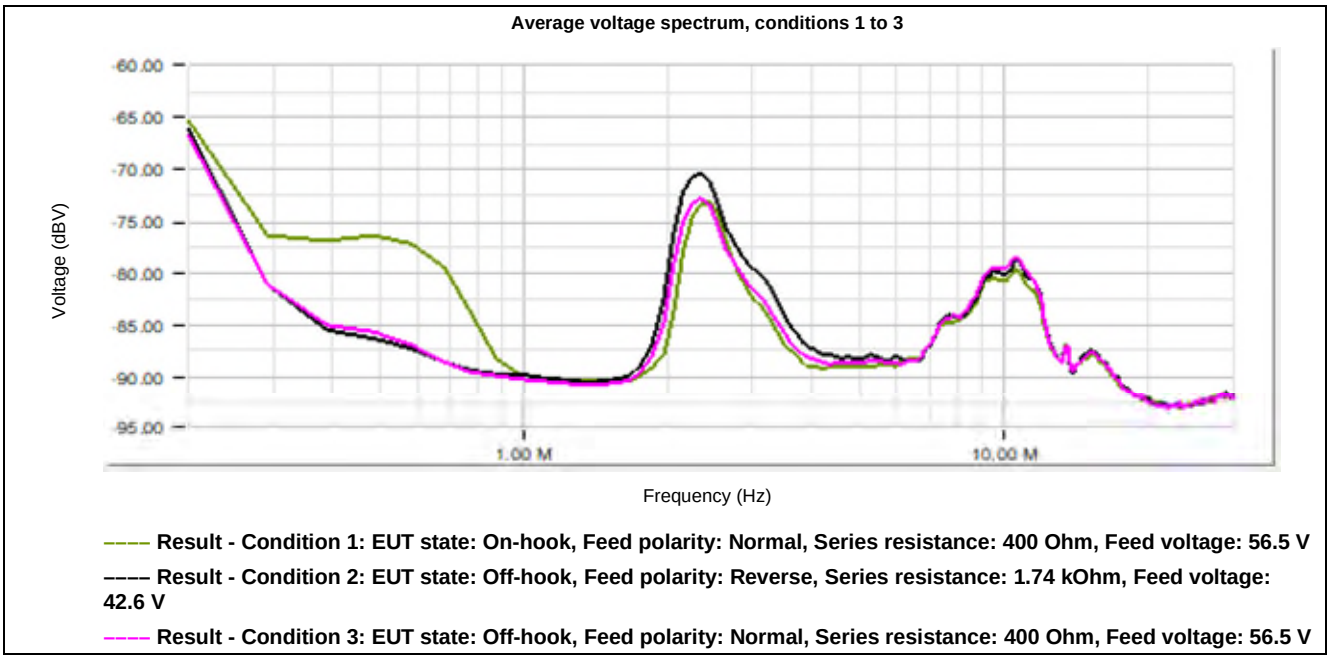
Signal power level (20 Hz - 300 kHz)	±0.1 dB
Signal power level (300 kHz - 30 MHz)	±2.52 dB
Peak to peak voltage (frequency 10 Hz - 5 kHz)	±0.22%

General parameters

Parameter	Value
Stimulus signal	D:\TCA\sounds\IEEE_269-2010_Male_mono_48_kHz.wav
Acoustic test setup	Test head

Test ranges

Frequency				
Start	**Stop**	**Acquisition settings**	**Termination**	**Filter**
270.00 kHz	30.00 MHz	Acquisition time = 10 us, Overall meas. time = 20 s	135 Ohm	250kHz high pass filter



Test specification:	5.1.8.2 / 3.4.6 (3) Metallic voltage 270 kHz - 30 MHz		
Test purpose:	To verify that metallic rms voltage averaged over 2 us at 270 kHz - 30 MHz frequency range does not exceed -15 dBV. The EUT should be tested in on-hook and all possible off-hook states.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 12:33:15 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 42.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S. USB grounded			

Max voltage

Voltage	Limit	Verdict
Condition 1: EUT state: On-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V		**Pass**
-51.65 dBV	-15 dBV	Pass
Condition 2: EUT state: Off-hook, Feed polarity: Reverse, Series resistance: 1.74 kOhm, Feed voltage: 42.6 V		**Pass**
-50.79 dBV	-15 dBV	Pass
Condition 3: EUT state: Off-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V		**Pass**
-50.01 dBV	-15 dBV	Pass

Test specification:	5.1.8.2 / 3.4.6 (3) Metallic voltage 270 kHz - 30 MHz		
Test purpose:	To verify that metallic rms voltage averaged over 2 us at 270 kHz - 30 MHz frequency range does not exceed -15 dBV. The EUT should be tested in on-hook and all possible off-hook states.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 1:09:16 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 42.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S. USB not grounded			

Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

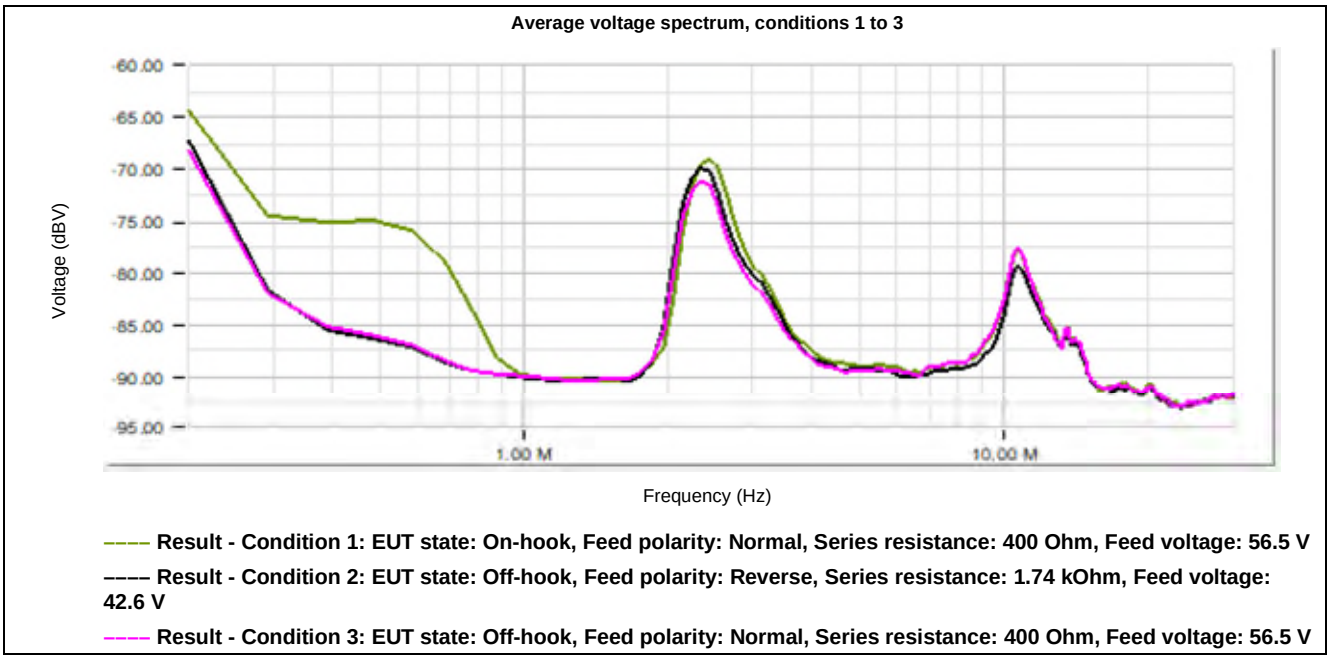
Signal power level (20 Hz - 300 kHz)	±0.1 dB
Signal power level (300 kHz - 30 MHz)	±2.52 dB
Peak to peak voltage (frequency 10 Hz - 5 kHz)	±0.22%

General parameters

Parameter	Value
Stimulus signal	D:\TCA\sounds\IEEE_269-2010_Male_mono_48_kHz.wav
Acoustic test setup	Test head

Test ranges

Frequency				
Start	**Stop**	**Acquisition settings**	**Termination**	**Filter**
270.00 kHz	30.00 MHz	Acquisition time = 10 us, Overall meas. time = 20 s	135 Ohm	250kHz high pass filter



Test specification:	5.1.8.2 / 3.4.6 (3) Metallic voltage 270 kHz - 30 MHz		
Test purpose:	To verify that metallic rms voltage averaged over 2 us at 270 kHz - 30 MHz frequency range does not exceed -15 dBV. The EUT should be tested in on-hook and all possible off-hook states.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 1:09:16 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 42.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S. USB not grounded			

Max voltage

Voltage	Limit	Verdict
Condition 1: EUT state: On-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V		**Pass**
-47.76 dBV	-15 dBV	Pass
Condition 2: EUT state: Off-hook, Feed polarity: Reverse, Series resistance: 1.74 kOhm, Feed voltage: 42.6 V		**Pass**
-49.29 dBV	-15 dBV	Pass
Condition 3: EUT state: Off-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V		**Pass**
-48.30 dBV	-15 dBV	Pass

Test specification:	5.1.8.3 / 3.3.2.2 Longitudinal voltage 8 kHz - 12 kHz		
Test purpose:	To verify that longitudinal rms voltage averaged over 100 ms in all of the possible 8-kHz bands within the 8 - 12 kHz frequency range does not exceed the test limit. The EUT should be tested in on-hook and all possible off-hook states.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/13/2024 2:07:16 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.0 kPa	**Relative Humidity:** 41.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: B.E.S. USB not grounded			

Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

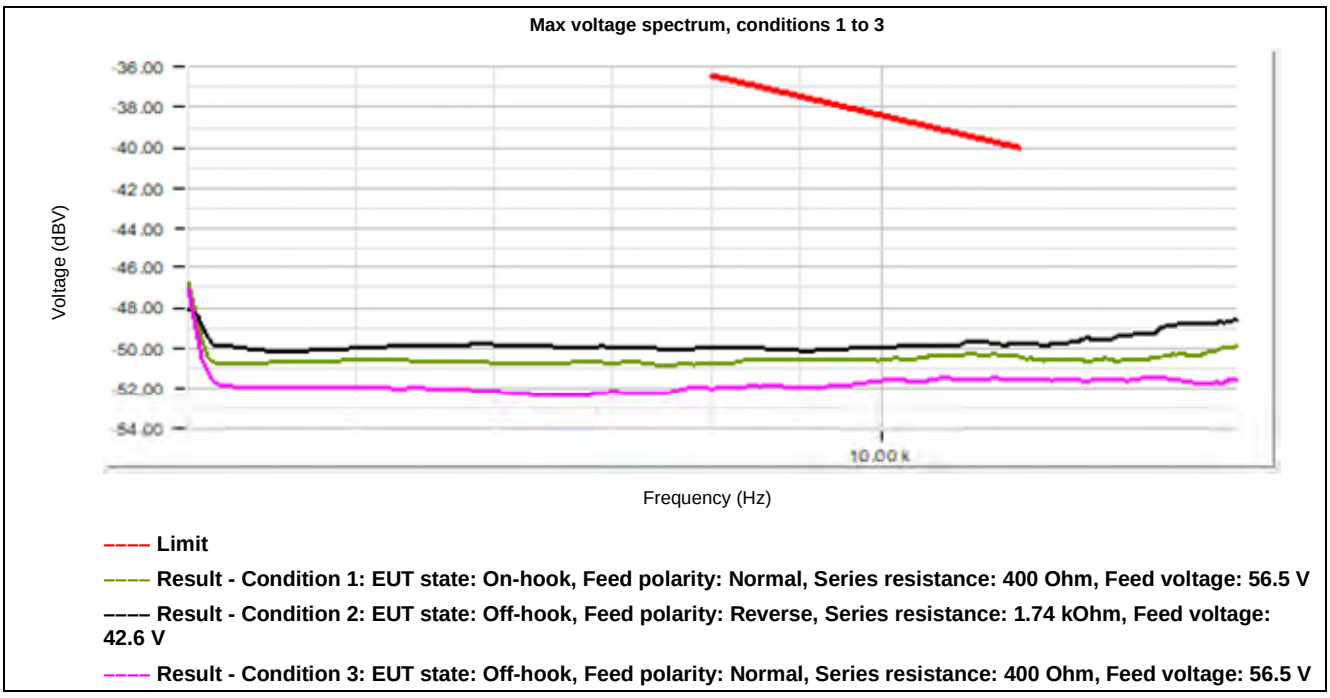
Signal power level (20 Hz - 300 kHz)	±0.1 dB
Signal power level (300 kHz - 30 MHz)	±2.52 dB
Peak to peak voltage (frequency 10 Hz - 5 kHz)	±0.22%

General parameters

Parameter	Value
Stimulus signal	D:\TCA\sounds\IEEE_269-2010_Male_mono_48_kHz.wav
Acoustic test setup	Test head

Test ranges

Frequency				
Start	**Stop**	**RMS bandwidth**	**Acquisition settings**	**Termination**
4.00 kHz	16.00 kHz	8 kHz	Resolution bandwidth = 100.00 Hz, Averaging interval = 100.00 ms, Overall meas. time = 20 s	300 Ohm Metallic / 500 Ohm Longitudinal



Test specification:	5.1.8.3 / 3.3.2.2 Longitudinal voltage 8 kHz - 12 kHz		
Test purpose:	To verify that longitudinal rms voltage averaged over 100 ms in all of the possible 8-kHz bands within the 8 - 12 kHz frequency range does not exceed the test limit. The EUT should be tested in on-hook and all possible off-hook states.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/13/2024 2:29:31 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.0 kPa	**Relative Humidity:** 41.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: B.E.S. USB Grounded			

Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

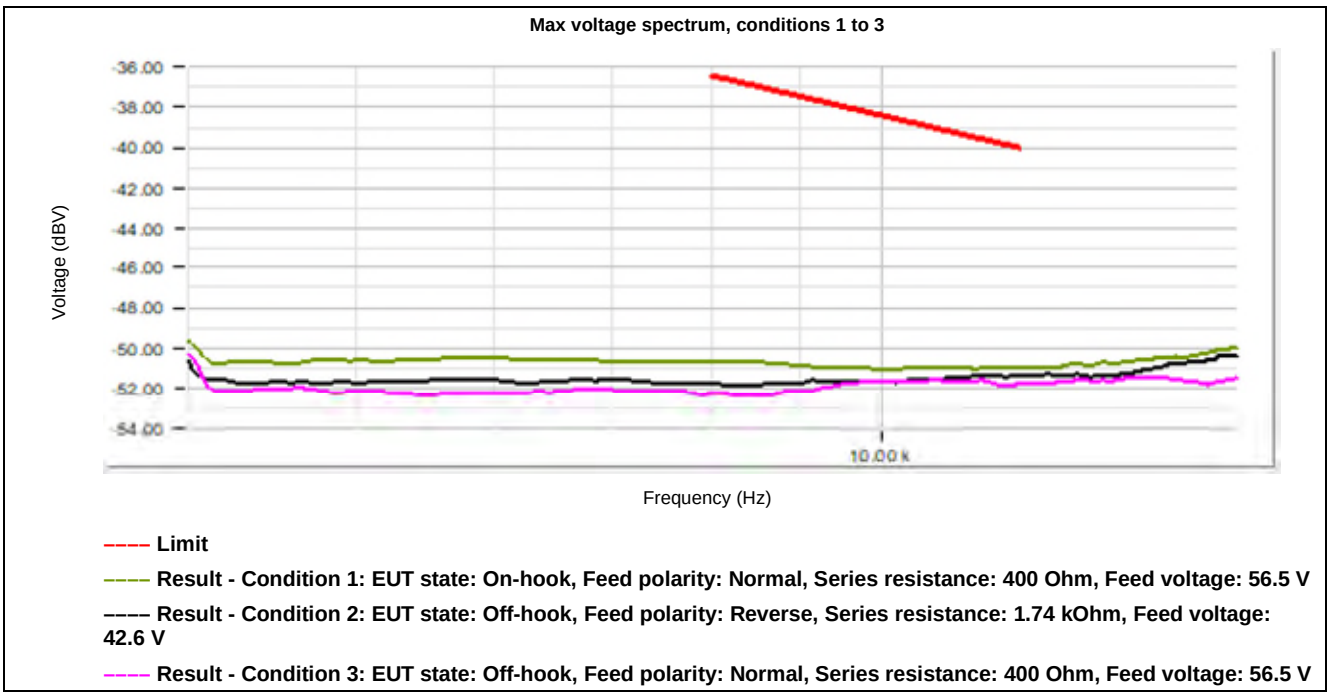
Signal power level (20 Hz - 300 kHz)	±0.1 dB
Signal power level (300 kHz - 30 MHz)	±2.52 dB
Peak to peak voltage (frequency 10 Hz - 5 kHz)	±0.22%

General parameters

Parameter	Value
Stimulus signal	D:\TCA\sounds\IEEE_269-2010_Male_mono_48_kHz.wav
Acoustic test setup	Test head

Test ranges

Frequency				
Start	**Stop**	**RMS bandwidth**	**Acquisition settings**	**Termination**
4.00 kHz	16.00 kHz	8 kHz	Resolution bandwidth = 100.00 Hz, Averaging interval = 100.00 ms, Overall meas. time = 20 s	300 Ohm Metallic / 500 Ohm Longitudinal



Test specification:	5.1.8.3 / 3.3.2.2 Longitudinal voltage 8 kHz - 12 kHz		
Test purpose:	To verify that longitudinal rms voltage averaged over 100 ms in all of the possible 8-kHz bands within the 8 - 12 kHz frequency range does not exceed the test limit. The EUT should be tested in on-hook and all possible off-hook states.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 12:36:02 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 42.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S. USB grounded			

Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

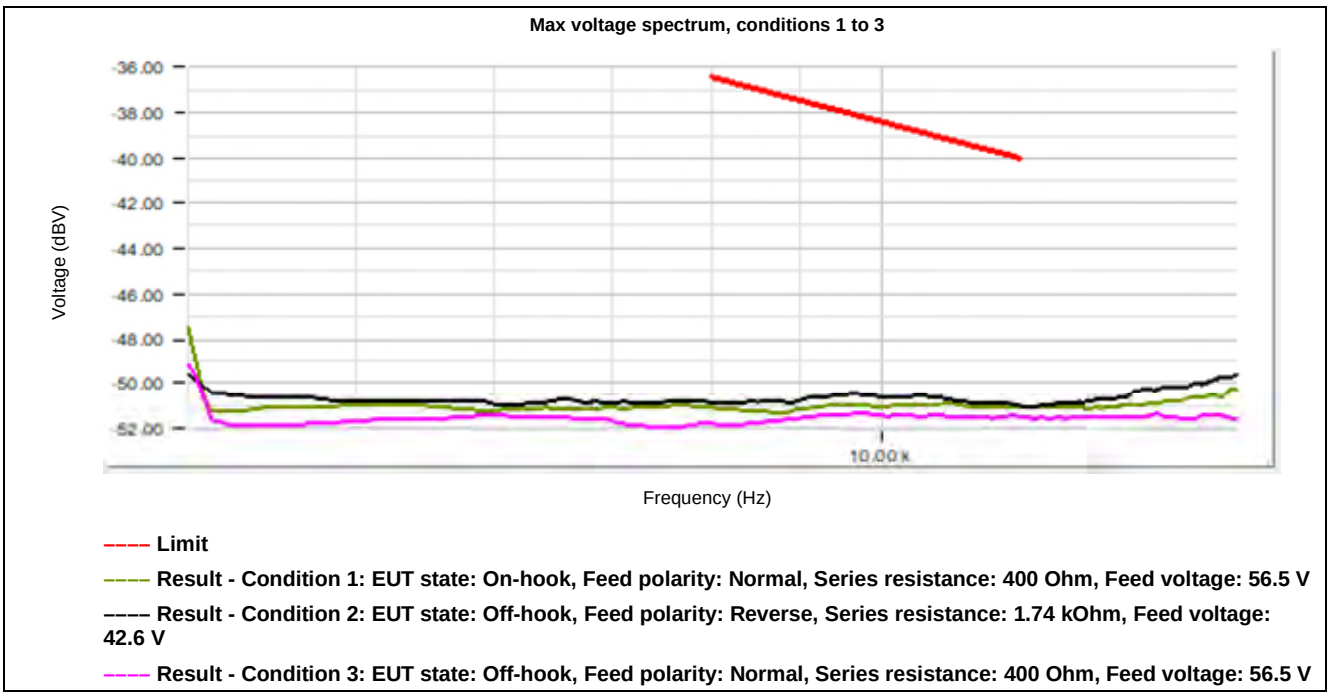
Signal power level (20 Hz - 300 kHz)	±0.1 dB
Signal power level (300 kHz - 30 MHz)	±2.52 dB
Peak to peak voltage (frequency 10 Hz - 5 kHz)	±0.22%

General parameters

Parameter	Value
Stimulus signal	D:\TCA\sounds\IEEE_269-2010_Male_mono_48_kHz.wav
Acoustic test setup	Test head

Test ranges

Frequency				
Start	**Stop**	**RMS bandwidth**	**Acquisition settings**	**Termination**
4.00 kHz	16.00 kHz	8 kHz	Resolution bandwidth = 100.00 Hz, Averaging interval = 100.00 ms, Overall meas. time = 20 s	300 Ohm Metallic / 500 Ohm Longitudinal



Test specification:	5.1.8.3 / 3.3.2.2 Longitudinal voltage 8 kHz - 12 kHz		
Test purpose:	To verify that longitudinal rms voltage averaged over 100 ms in all of the possible 8-kHz bands within the 8 - 12 kHz frequency range does not exceed the test limit. The EUT should be tested in on-hook and all possible off-hook states.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 1:06:26 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 42.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S. USB not grounded			

Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

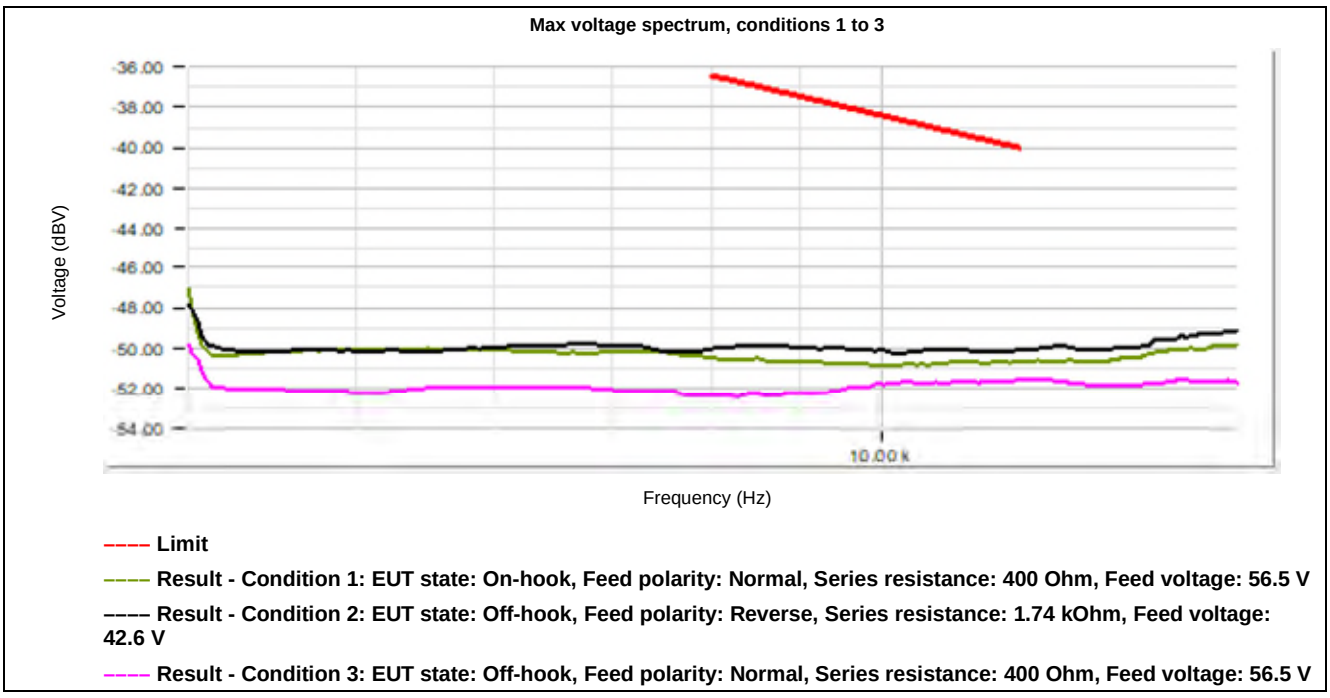
Signal power level (20 Hz - 300 kHz)	±0.1 dB
Signal power level (300 kHz - 30 MHz)	±2.52 dB
Peak to peak voltage (frequency 10 Hz - 5 kHz)	±0.22%

General parameters

Parameter	Value
Stimulus signal	D:\TCA\sounds\IEEE_269-2010_Male_mono_48_kHz.wav
Acoustic test setup	Test head

Test ranges

Frequency				
Start	**Stop**	**RMS bandwidth**	**Acquisition settings**	**Termination**
4.00 kHz	16.00 kHz	8 kHz	Resolution bandwidth = 100.00 Hz, Averaging interval = 100.00 ms, Overall meas. time = 20 s	300 Ohm Metallic / 500 Ohm Longitudinal



Test specification:	5.1.8.3 / 3.3.2.2 Longitudinal voltage 12 kHz - 270 kHz		
Test purpose:	To verify that longitudinal rms voltage averaged over 100 ms in all of the possible 8-kHz bands within the 12 - 270 kHz frequency range does not exceed the test limit.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/13/2024 2:09:08 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.0 kPa	**Relative Humidity:** 41.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: B.E.S. USB not grounded			

Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

Signal power level (20 Hz - 300 kHz)	±0.1 dB
Signal power level (300 kHz - 30 MHz)	±2.52 dB
Peak to peak voltage (frequency 10 Hz - 5 kHz)	±0.22%

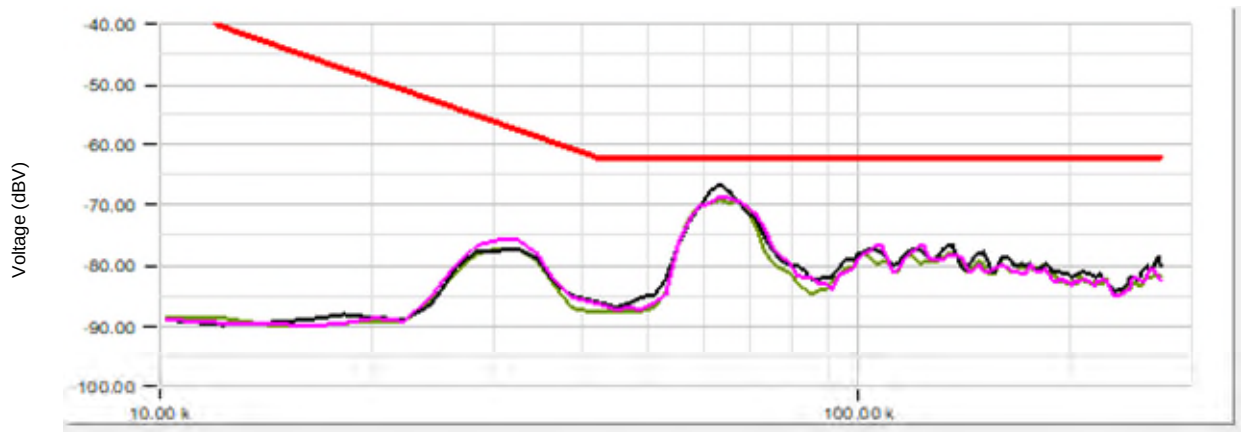
General parameters

Parameter	Value
Acoustic test setup	Test head

Test ranges

Frequency			
Start	**Stop**	**Acquisition settings**	**Termination**
12.00 kHz	270.00 kHz	Resolution bandwidth = 8.00 kHz, Averaging interval = 100.00 ms, Overall meas. time = 20 s	135 Ohm Metallic / 90 Ohm Longitudinal

Max voltage spectrum, conditions 1 to 3



Limit

Result - Condition 1: EUT state: On-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V

Result - Condition 2: EUT state: Off-hook, Feed polarity: Reverse, Series resistance: 1.74 kOhm, Feed voltage: 42.6 V

Result - Condition 3: EUT state: Off-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V

Test specification:	5.1.8.3 / 3.3.2.2 Longitudinal voltage 12 kHz - 270 kHz		
Test purpose:	To verify that longitudinal rms voltage averaged over 100 ms in all of the possible 8-kHz bands within the 12 - 270 kHz frequency range does not exceed the test limit.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/13/2024 2:31:26 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.0 kPa	**Relative Humidity:** 41.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: B.E.S. USB Grounded			

Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

Signal power level (20 Hz - 300 kHz)	±0.1 dB
Signal power level (300 kHz - 30 MHz)	±2.52 dB
Peak to peak voltage (frequency 10 Hz - 5 kHz)	±0.22%

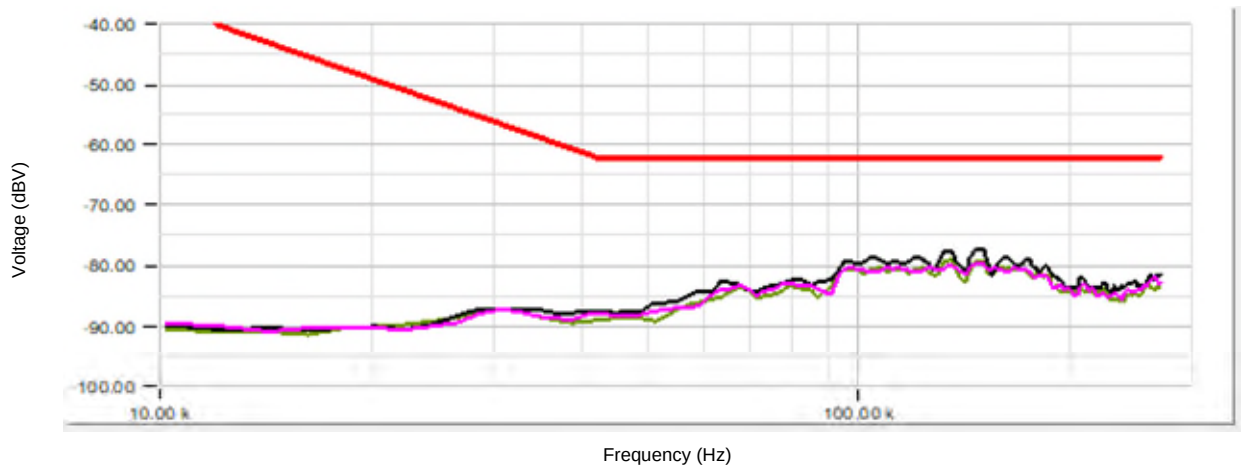
General parameters

Parameter	Value
Acoustic test setup	Test head

Test ranges

Frequency			
Start	**Stop**	**Acquisition settings**	**Termination**
12.00 kHz	270.00 kHz	Resolution bandwidth = 8.00 kHz, Averaging interval = 100.00 ms, Overall meas. time = 20 s	135 Ohm Metallic / 90 Ohm Longitudinal

Max voltage spectrum, conditions 1 to 3



Limit

Result - Condition 1: EUT state: On-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V

Result - Condition 2: EUT state: Off-hook, Feed polarity: Reverse, Series resistance: 1.74 kOhm, Feed voltage: 42.6 V

Result - Condition 3: EUT state: Off-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V

Test specification:	5.1.8.3 / 3.3.2.2 Longitudinal voltage 12 kHz - 270 kHz		
Test purpose:	To verify that longitudinal rms voltage averaged over 100 ms in all of the possible 8-kHz bands within the 12 - 270 kHz frequency range does not exceed the test limit.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 12:40:17 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 42.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S. USB grounded			

Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

Signal power level (20 Hz - 300 kHz)	±0.1 dB
Signal power level (300 kHz - 30 MHz)	±2.52 dB
Peak to peak voltage (frequency 10 Hz - 5 kHz)	±0.22%

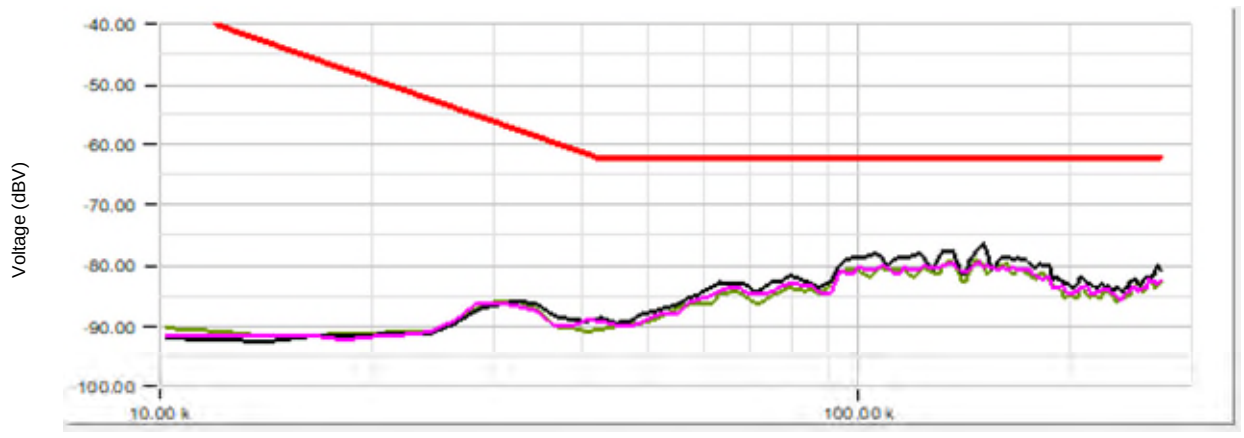
General parameters

Parameter	Value
Acoustic test setup	Test head

Test ranges

Frequency			
Start	**Stop**	**Acquisition settings**	**Termination**
12.00 kHz	270.00 kHz	Resolution bandwidth = 8.00 kHz, Averaging interval = 100.00 ms, Overall meas. time = 20 s	135 Ohm Metallic / 90 Ohm Longitudinal

Max voltage spectrum, conditions 1 to 3



Limit

Result - Condition 1: EUT state: On-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V

Result - Condition 2: EUT state: Off-hook, Feed polarity: Reverse, Series resistance: 1.74 kOhm, Feed voltage: 42.6 V

Result - Condition 3: EUT state: Off-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V

Test specification:	5.1.8.3 / 3.3.2.2 Longitudinal voltage 12 kHz - 270 kHz		
Test purpose:	To verify that longitudinal rms voltage averaged over 100 ms in all of the possible 8-kHz bands within the 12 - 270 kHz frequency range does not exceed the test limit.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 1:04:02 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 42.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S. USB not grounded			

Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

Signal power level (20 Hz - 300 kHz)	±0.1 dB
Signal power level (300 kHz - 30 MHz)	±2.52 dB
Peak to peak voltage (frequency 10 Hz - 5 kHz)	±0.22%

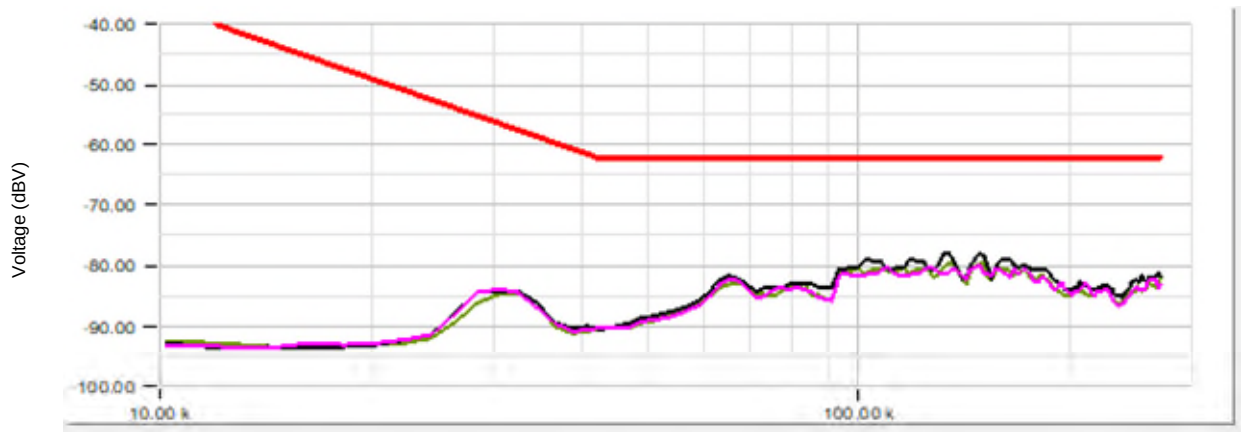
General parameters

Parameter	Value
Acoustic test setup	Test head

Test ranges

Frequency			
Start	**Stop**	**Acquisition settings**	**Termination**
12.00 kHz	270.00 kHz	Resolution bandwidth = 8.00 kHz, Averaging interval = 100.00 ms, Overall meas. time = 20 s	135 Ohm Metallic / 90 Ohm Longitudinal

Max voltage spectrum, conditions 1 to 3



Limit

Result - Condition 1: EUT state: On-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V

Result - Condition 2: EUT state: Off-hook, Feed polarity: Reverse, Series resistance: 1.74 kOhm, Feed voltage: 42.6 V

Result - Condition 3: EUT state: Off-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V

Test specification:	5.1.8.4 / 3.3.2.3 Longitudinal voltage 270 kHz - 6 MHz		
Test purpose:	To verify that longitudinal rms voltage in the 270 kHz - 6 MHz frequency range does not exceed -30 dBV. The EUT should be tested in on-hook and all possible off-hook states.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/13/2024 2:11:54 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.0 kPa	**Relative Humidity:** 41.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: B.E.S. USB not grounded			

Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

Signal power level (20 Hz - 300 kHz)	±0.1 dB
Signal power level (300 kHz - 30 MHz)	±2.52 dB
Peak to peak voltage (frequency 10 Hz - 5 kHz)	±0.22%

General parameters

Parameter	Value
Stimulus signal	D:\TCA\sounds\IEEE_269-2010_Male_mono_48_kHz.wav
Acoustic test setup	Test head

Test ranges

Frequency				
Start	**Stop**	**Acquisition settings**	**Termination**	**Filter**
270.00 kHz	6.00 MHz	Acquisition time = 100 us, Overall meas. time = 20 s	135 Ohm Metallic / 90 Ohm Longitudinal	250kHz high pass filter

Max voltage

Voltage	Limit	Verdict
Condition 1: EUT state: On-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V		**Pass**
-39.69 dBV	-30 dBV	Pass
Condition 2: EUT state: Off-hook, Feed polarity: Reverse, Series resistance: 1.74 kOhm, Feed voltage: 42.6 V		**Pass**
-40.27 dBV	-30 dBV	Pass
Condition 3: EUT state: Off-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V		**Pass**
-40.55 dBV	-30 dBV	Pass

Test specification:	5.1.8.4 / 3.3.2.3 Longitudinal voltage 270 kHz - 6 MHz		
Test purpose:	To verify that longitudinal rms voltage in the 270 kHz - 6 MHz frequency range does not exceed -30 dBV. The EUT should be tested in on-hook and all possible off-hook states.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/13/2024 2:33:24 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.0 kPa	**Relative Humidity:** 41.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: B.E.S. USB Grounded			

Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

Signal power level (20 Hz - 300 kHz)	±0.1 dB
Signal power level (300 kHz - 30 MHz)	±2.52 dB
Peak to peak voltage (frequency 10 Hz - 5 kHz)	±0.22%

General parameters

Parameter	Value
Stimulus signal	D:\TCA\sounds\IEEE_269-2010_Male_mono_48_kHz.wav
Acoustic test setup	Test head

Test ranges

Frequency				
Start	**Stop**	**Acquisition settings**	**Termination**	**Filter**
270.00 kHz	6.00 MHz	Acquisition time = 100 us, Overall meas. time = 20 s	135 Ohm Metallic / 90 Ohm Longitudinal	250kHz high pass filter

Max voltage

Voltage	Limit	Verdict
Condition 1: EUT state: On-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V		**Pass**
-40.65 dBV	-30 dBV	Pass
Condition 2: EUT state: Off-hook, Feed polarity: Reverse, Series resistance: 1.74 kOhm, Feed voltage: 42.6 V		**Pass**
-41.15 dBV	-30 dBV	Pass
Condition 3: EUT state: Off-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V		**Pass**
-41.43 dBV	-30 dBV	Pass

Test specification:	5.1.8.4 / 3.3.2.3 Longitudinal voltage 270 kHz - 6 MHz		
Test purpose:	To verify that longitudinal rms voltage in the 270 kHz - 6 MHz frequency range does not exceed -30 dBV. The EUT should be tested in on-hook and all possible off-hook states.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 12:43:37 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 42.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S. USB grounded			

Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

Signal power level (20 Hz - 300 kHz)	±0.1 dB
Signal power level (300 kHz - 30 MHz)	±2.52 dB
Peak to peak voltage (frequency 10 Hz - 5 kHz)	±0.22%

General parameters

Parameter	Value
Stimulus signal	D:\TCA\sounds\IEEE_269-2010_Male_mono_48_kHz.wav
Acoustic test setup	Test head

Test ranges

Frequency				
Start	**Stop**	**Acquisition settings**	**Termination**	**Filter**
270.00 kHz	6.00 MHz	Acquisition time = 100 us, Overall meas. time = 20 s	135 Ohm Metallic / 90 Ohm Longitudinal	250kHz high pass filter

Max voltage

Voltage	Limit	Verdict
Condition 1: EUT state: On-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V		**Pass**
-40.09 dBV	-30 dBV	Pass
Condition 2: EUT state: Off-hook, Feed polarity: Reverse, Series resistance: 1.74 kOhm, Feed voltage: 42.6 V		**Pass**
-40.69 dBV	-30 dBV	Pass
Condition 3: EUT state: Off-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V		**Pass**
-40.36 dBV	-30 dBV	Pass

Test specification:	5.1.8.4 / 3.3.2.3 Longitudinal voltage 270 kHz - 6 MHz		
Test purpose:	To verify that longitudinal rms voltage in the 270 kHz - 6 MHz frequency range does not exceed -30 dBV. The EUT should be tested in on-hook and all possible off-hook states.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 12:58:24 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 42.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S. USB not grounded			

Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

Signal power level (20 Hz - 300 kHz)	±0.1 dB
Signal power level (300 kHz - 30 MHz)	±2.52 dB
Peak to peak voltage (frequency 10 Hz - 5 kHz)	±0.22%

General parameters

Parameter	Value
Stimulus signal	D:\TCA\sounds\IEEE_269-2010_Male_mono_48_kHz.wav
Acoustic test setup	Test head

Test ranges

Frequency				
Start	**Stop**	**Acquisition settings**	**Termination**	**Filter**
270.00 kHz	6.00 MHz	Acquisition time = 100 us, Overall meas. time = 20 s	135 Ohm Metallic / 90 Ohm Longitudinal	250kHz high pass filter

Max voltage

Voltage	Limit	Verdict
Condition 1: EUT state: On-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V		**Pass**
-38.86 dBV	-30 dBV	Pass
Condition 2: EUT state: Off-hook, Feed polarity: Reverse, Series resistance: 1.74 kOhm, Feed voltage: 42.6 V		**Pass**
-39.65 dBV	-30 dBV	Pass
Condition 3: EUT state: Off-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V		**Pass**
-39.84 dBV	-30 dBV	Pass

Test specification:	5.1.10 / 3.6 Transverse balance for analog voiceband equipment (LS)		
Test purpose:	The minimum transverse balance in the off-hook state shall be 40 dB in 200 Hz - 4 kHz frequency range. In the on-hook state it shall be 60 dB in 200 Hz - 1 kHz range and 40 dB in 1 - 4 kHz.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/13/2024 2:15:48 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.0 kPa	**Relative Humidity:** 41.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: B.E.S. USB not grounded			

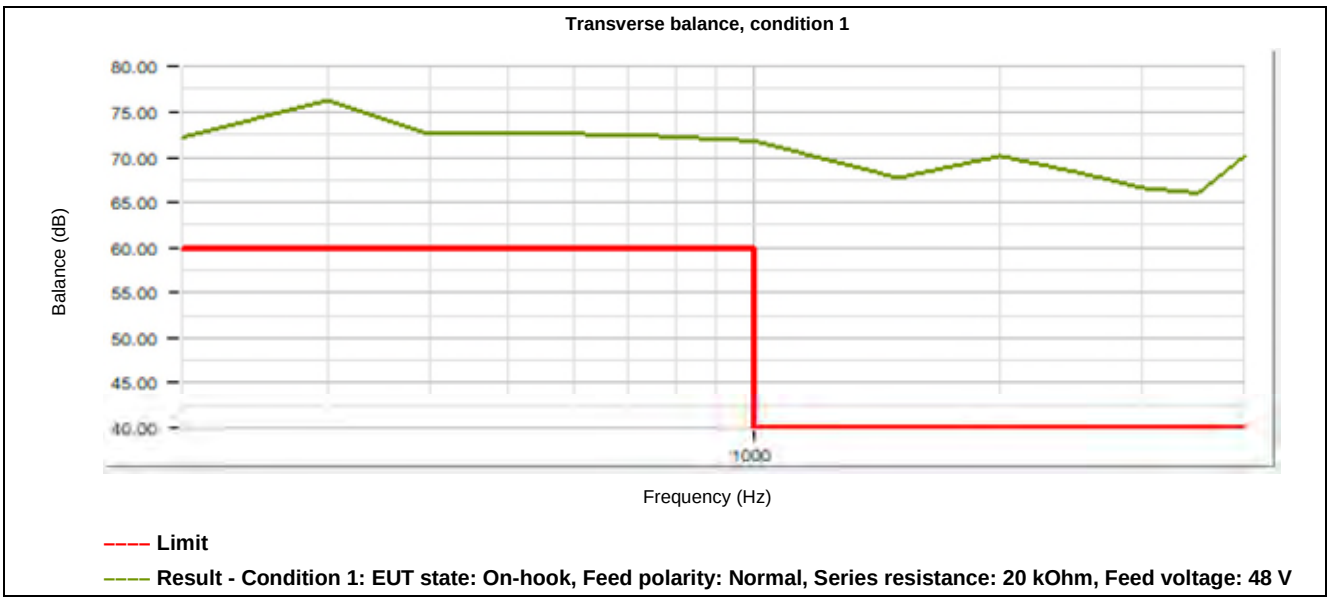
Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

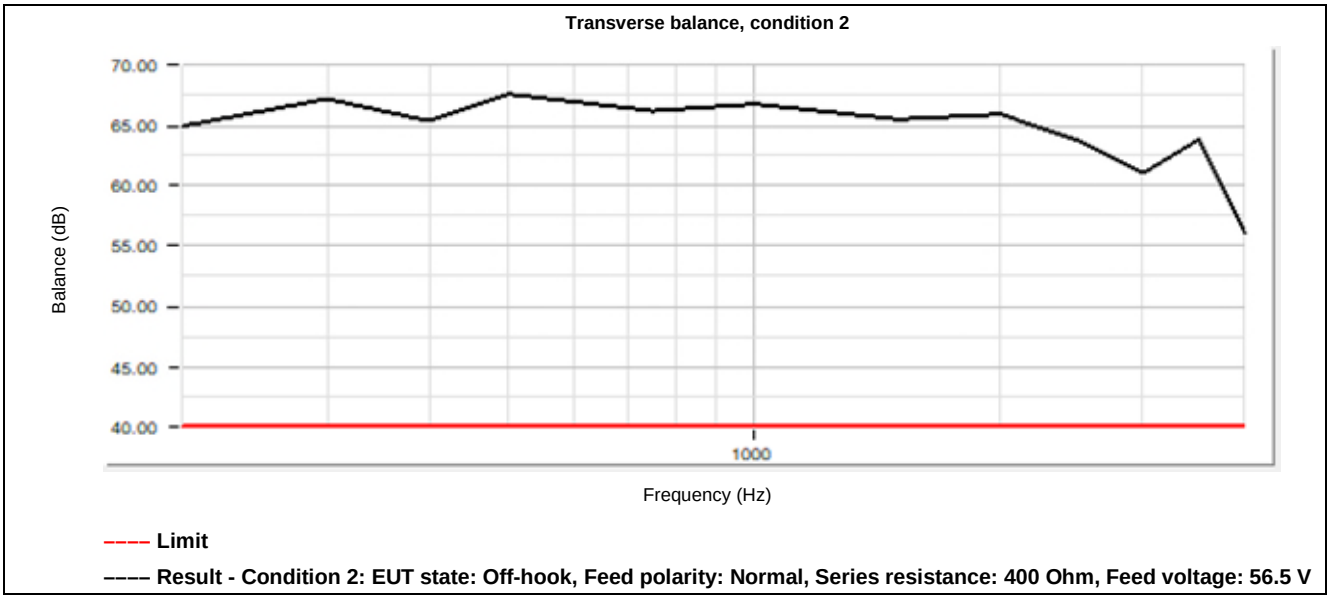
Balance (0 to 50 dB)	±0.84 dB
Balance (50 to 70 dB)	±1.89 dB

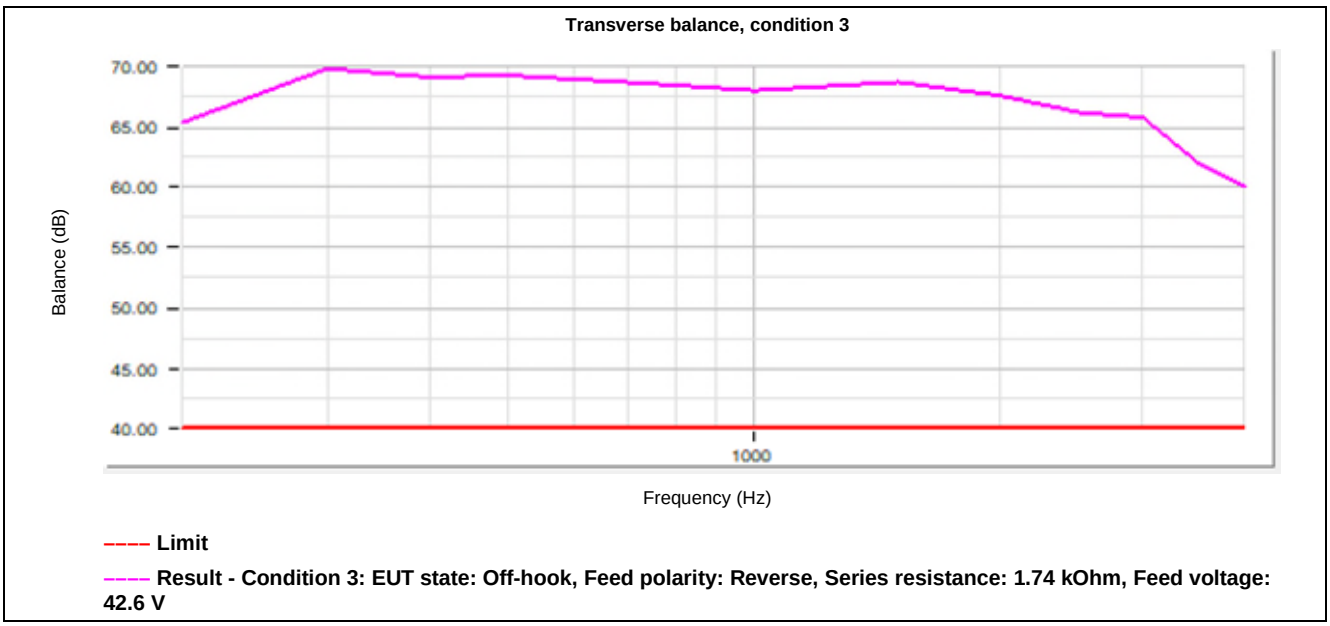
General parameters

Parameter	Value
Stimulus level	775 mV



Test specification:	5.1.10 / 3.6 Transverse balance for analog voiceband equipment (LS)		
Test purpose:	The minimum transverse balance in the off-hook state shall be 40 dB in 200 Hz - 4 kHz frequency range. In the on-hook state it shall be 60 dB in 200 Hz - 1 kHz range and 40 dB in 1 - 4 kHz.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/13/2024 2:15:48 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.0 kPa	**Relative Humidity:** 41.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: B.E.S. USB not grounded			





Transverse balance

Frequency	Balance	Limit	Verdict
Condition 1: EUT state: On-hook, Feed polarity: Normal, Series resistance: 20 kOhm, Feed voltage: 48 V			**Pass**
200 Hz	72.20 dB	60 dB	Pass
300 Hz	76.29 dB	60 dB	Pass

Test specification:	5.1.10 / 3.6 Transverse balance for analog voiceband equipment (LS)		
Test purpose:	The minimum transverse balance in the off-hook state shall be 40 dB in 200 Hz - 4 kHz frequency range. In the on-hook state it shall be 60 dB in 200 Hz - 1 kHz range and 40 dB in 1 - 4 kHz.		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	3/13/2024 2:15:48 PM		
Temperature: 23.3 °C	Air Pressure: 100.0 kPa	Relative Humidity: 41.1 %	Mains Power Supply: 120 Vac @ 60 Hz
Remarks: B.E.S. USB not grounded			

Frequency	Balance	Limit	Verdict
400 Hz	72.65 dB	60 dB	Pass
500 Hz	72.67 dB	60 dB	Pass
750 Hz	72.45 dB	60 dB	Pass
1000 Hz	71.86 dB	60 dB	Pass
1500 Hz	67.71 dB	40 dB	Pass
2000 Hz	70.11 dB	40 dB	Pass
2500 Hz	68.19 dB	40 dB	Pass
3000 Hz	66.66 dB	40 dB	Pass
3500 Hz	66.08 dB	40 dB	Pass
4000 Hz	70.14 dB	40 dB	Pass
Condition 2: EUT state: Off-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V			**Pass**
200 Hz	64.99 dB	40 dB	Pass
300 Hz	67.12 dB	40 dB	Pass
400 Hz	65.29 dB	40 dB	Pass
500 Hz	67.52 dB	40 dB	Pass
750 Hz	66.19 dB	40 dB	Pass
1000 Hz	66.74 dB	40 dB	Pass
1500 Hz	65.44 dB	40 dB	Pass
2000 Hz	65.93 dB	40 dB	Pass
2500 Hz	63.61 dB	40 dB	Pass
3000 Hz	61.08 dB	40 dB	Pass
3500 Hz	63.77 dB	40 dB	Pass
4000 Hz	56.14 dB	40 dB	Pass
Condition 3: EUT state: Off-hook, Feed polarity: Reverse, Series resistance: 1.74 kOhm, Feed voltage: 42.6 V			**Pass**
200 Hz	65.38 dB	40 dB	Pass
300 Hz	69.79 dB	40 dB	Pass
400 Hz	69.09 dB	40 dB	Pass
500 Hz	69.24 dB	40 dB	Pass
750 Hz	68.53 dB	40 dB	Pass
1000 Hz	68.05 dB	40 dB	Pass
1500 Hz	68.65 dB	40 dB	Pass
2000 Hz	67.59 dB	40 dB	Pass
2500 Hz	66.18 dB	40 dB	Pass
3000 Hz	65.78 dB	40 dB	Pass
3500 Hz	62.04 dB	40 dB	Pass
4000 Hz	60.02 dB	40 dB	Pass

Test specification:	5.1.10 / 3.6 Transverse balance for analog voiceband equipment (LS)		
Test purpose:	The minimum transverse balance in the off-hook state shall be 40 dB in 200 Hz - 4 kHz frequency range. In the on-hook state it shall be 60 dB in 200 Hz - 1 kHz range and 40 dB in 1 - 4 kHz.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/13/2024 2:37:40 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.0 kPa	**Relative Humidity:** 41.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: B.E.S. USB Grounded			

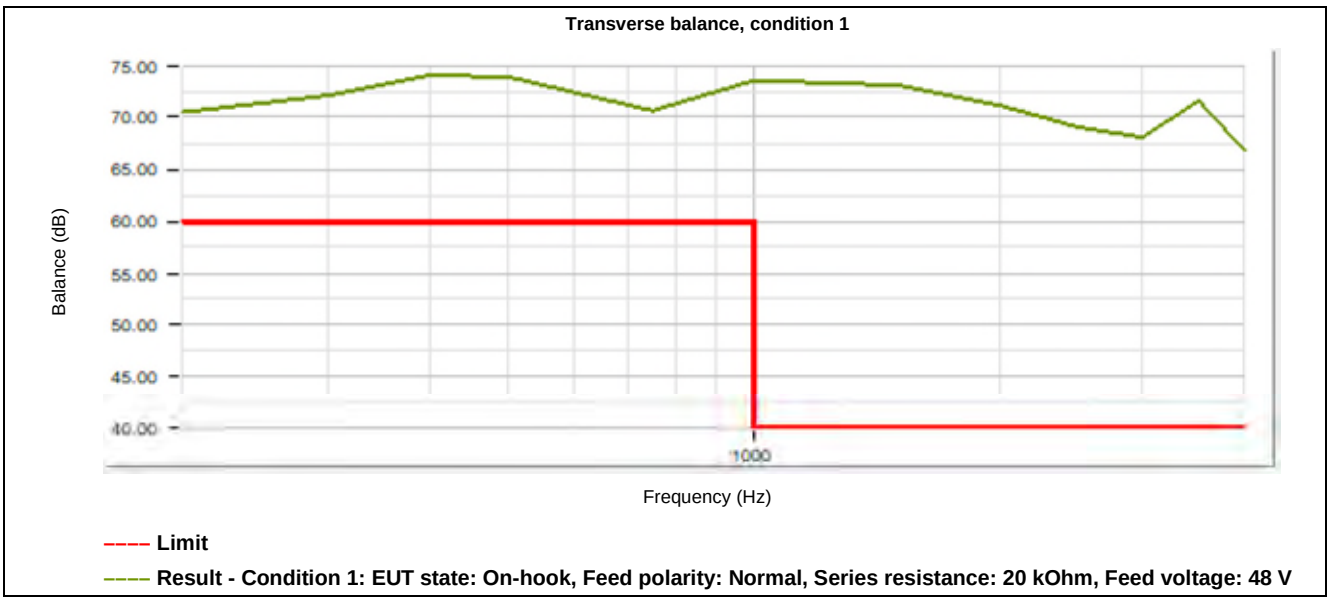
Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

Balance (0 to 50 dB)	±0.84 dB
Balance (50 to 70 dB)	±1.89 dB

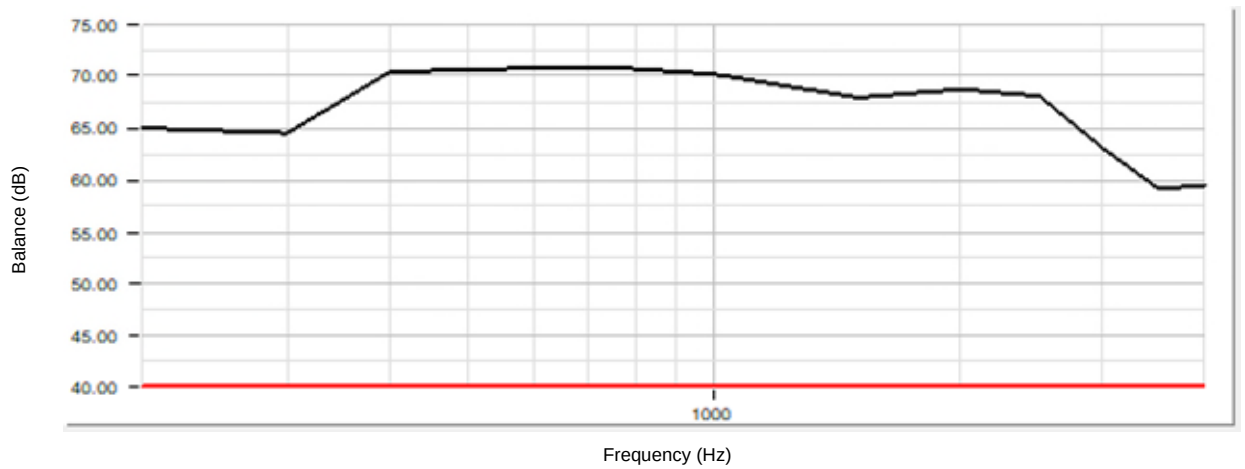
General parameters

Parameter	Value
Stimulus level	775 mV



Test specification:	5.1.10 / 3.6 Transverse balance for analog voiceband equipment (LS)		
Test purpose:	The minimum transverse balance in the off-hook state shall be 40 dB in 200 Hz - 4 kHz frequency range. In the on-hook state it shall be 60 dB in 200 Hz - 1 kHz range and 40 dB in 1 - 4 kHz.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/13/2024 2:37:40 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.0 kPa	**Relative Humidity:** 41.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: B.E.S. USB Grounded			

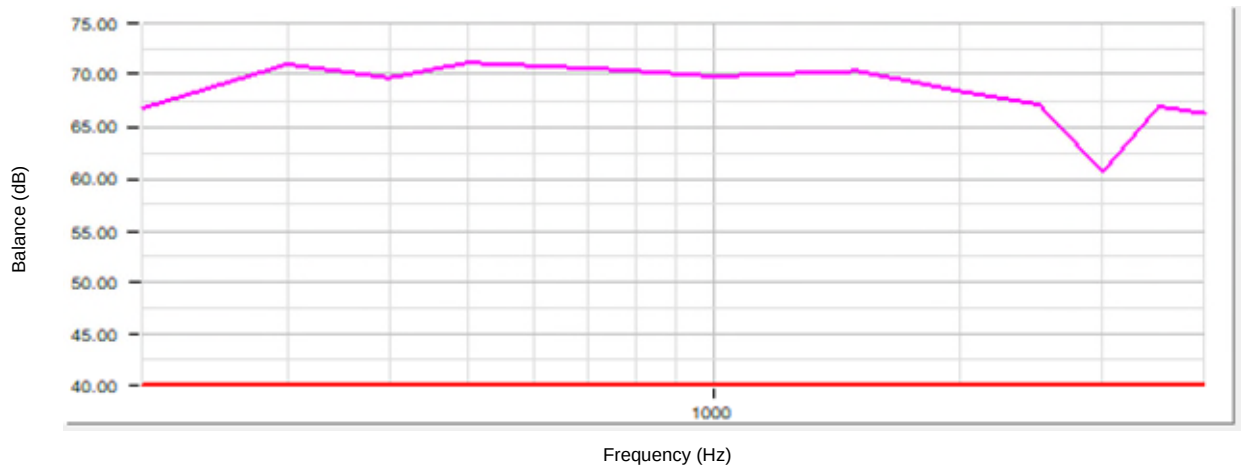
Transverse balance, condition 2



----- Limit

----- Result - Condition 2: EUT state: Off-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V

Transverse balance, condition 3



----- Limit

----- Result - Condition 3: EUT state: Off-hook, Feed polarity: Reverse, Series resistance: 1.74 kOhm, Feed voltage: 42.6 V

Transverse balance

Frequency	Balance	Limit	Verdict
Condition 1: EUT state: On-hook, Feed polarity: Normal, Series resistance: 20 kOhm, Feed voltage: 48 V			**Pass**
200 Hz	70.59 dB	60 dB	Pass
300 Hz	72.18 dB	60 dB	Pass

Test specification:	5.1.10 / 3.6 Transverse balance for analog voiceband equipment (LS)		
Test purpose:	The minimum transverse balance in the off-hook state shall be 40 dB in 200 Hz - 4 kHz frequency range. In the on-hook state it shall be 60 dB in 200 Hz - 1 kHz range and 40 dB in 1 - 4 kHz.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/13/2024 2:37:40 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.0 kPa	**Relative Humidity:** 41.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: B.E.S. USB Grounded			

Frequency	Balance	Limit	Verdict
400 Hz	74.07 dB	60 dB	Pass
500 Hz	74.06 dB	60 dB	Pass
750 Hz	70.66 dB	60 dB	Pass
1000 Hz	73.72 dB	60 dB	Pass
1500 Hz	73.22 dB	40 dB	Pass
2000 Hz	71.29 dB	40 dB	Pass
2500 Hz	69.12 dB	40 dB	Pass
3000 Hz	68.15 dB	40 dB	Pass
3500 Hz	71.78 dB	40 dB	Pass
4000 Hz	66.81 dB	40 dB	Pass
Condition 2: EUT state: Off-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V			**Pass**
200 Hz	65.10 dB	40 dB	Pass
300 Hz	64.60 dB	40 dB	Pass
400 Hz	70.40 dB	40 dB	Pass
500 Hz	70.66 dB	40 dB	Pass
750 Hz	70.92 dB	40 dB	Pass
1000 Hz	70.28 dB	40 dB	Pass
1500 Hz	67.97 dB	40 dB	Pass
2000 Hz	68.83 dB	40 dB	Pass
2500 Hz	68.09 dB	40 dB	Pass
3000 Hz	63.02 dB	40 dB	Pass
3500 Hz	59.17 dB	40 dB	Pass
4000 Hz	59.50 dB	40 dB	Pass
Condition 3: EUT state: Off-hook, Feed polarity: Reverse, Series resistance: 1.74 kOhm, Feed voltage: 42.6 V			**Pass**
200 Hz	66.80 dB	40 dB	Pass
300 Hz	71.01 dB	40 dB	Pass
400 Hz	69.67 dB	40 dB	Pass
500 Hz	71.20 dB	40 dB	Pass
750 Hz	70.60 dB	40 dB	Pass
1000 Hz	69.86 dB	40 dB	Pass
1500 Hz	70.36 dB	40 dB	Pass
2000 Hz	68.52 dB	40 dB	Pass
2500 Hz	67.16 dB	40 dB	Pass
3000 Hz	60.61 dB	40 dB	Pass
3500 Hz	66.97 dB	40 dB	Pass
4000 Hz	66.36 dB	40 dB	Pass

Test specification:	5.1.10 / 3.6 Transverse balance for analog voiceband equipment (LS)		
Test purpose:	The minimum transverse balance in the off-hook state shall be 40 dB in 200 Hz - 4 kHz frequency range. In the on-hook state it shall be 60 dB in 200 Hz - 1 kHz range and 40 dB in 1 - 4 kHz.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 12:51:17 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 42.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S. USB grounded			

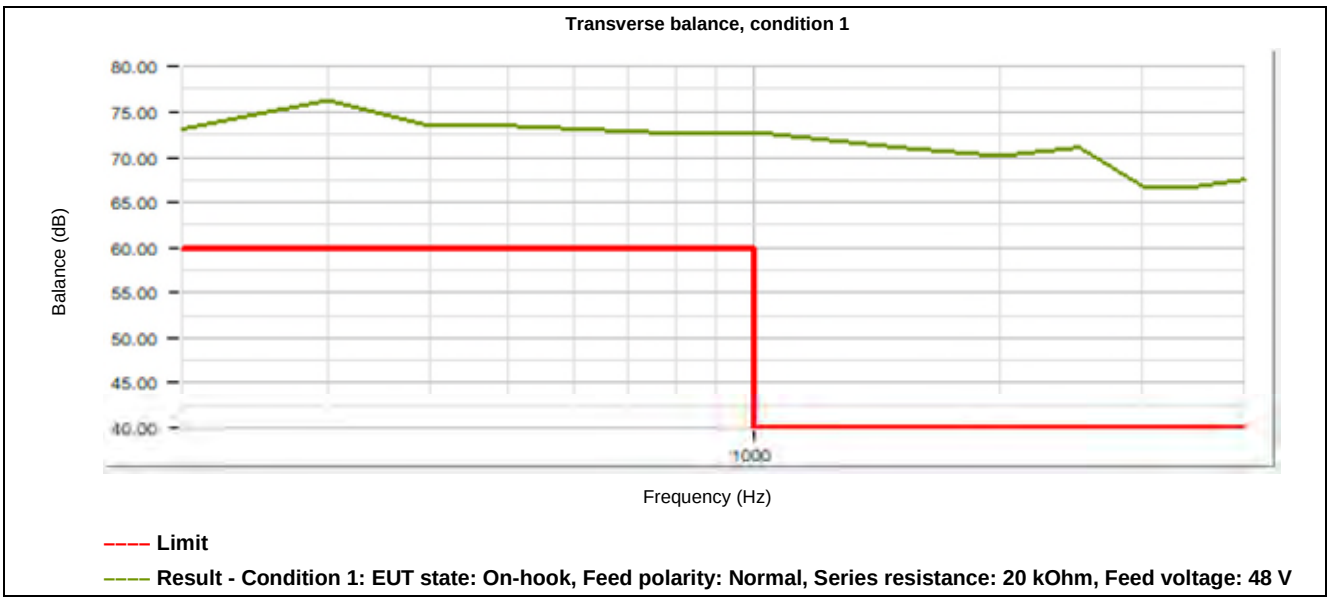
Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

Balance (0 to 50 dB)	±0.84 dB
Balance (50 to 70 dB)	±1.89 dB

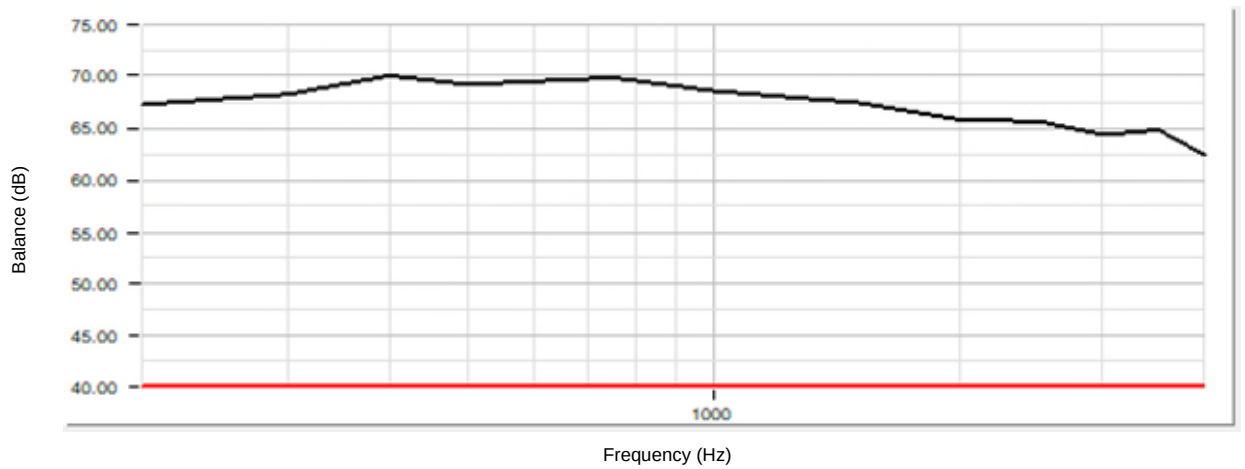
General parameters

Parameter	Value
Stimulus level	775 mV



Test specification:	5.1.10 / 3.6 Transverse balance for analog voiceband equipment (LS)		
Test purpose:	The minimum transverse balance in the off-hook state shall be 40 dB in 200 Hz - 4 kHz frequency range. In the on-hook state it shall be 60 dB in 200 Hz - 1 kHz range and 40 dB in 1 - 4 kHz.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 12:51:17 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 42.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S. USB grounded			

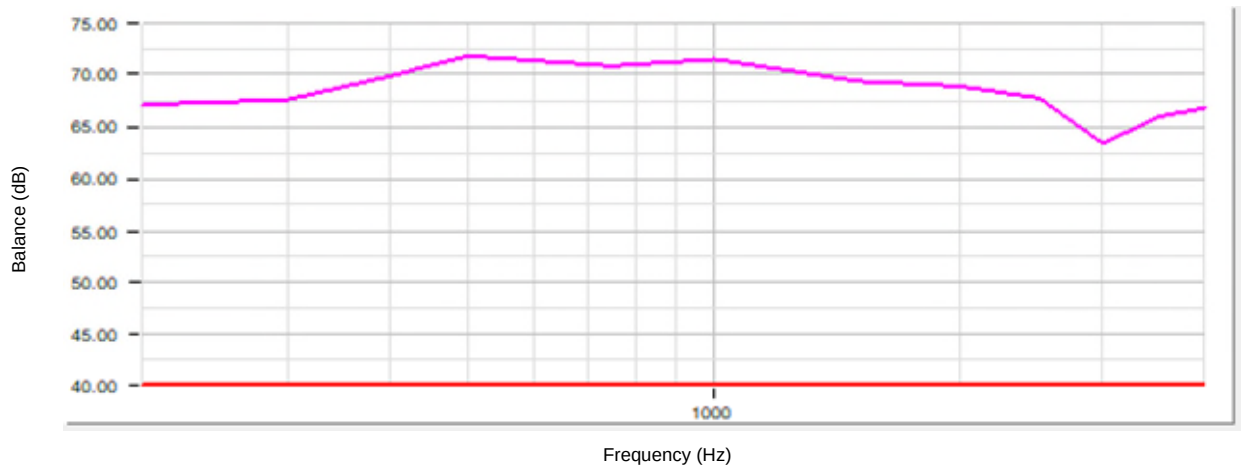
Transverse balance, condition 2



----- Limit

----- Result - Condition 2: EUT state: Off-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V

Transverse balance, condition 3



----- Limit

----- Result - Condition 3: EUT state: Off-hook, Feed polarity: Reverse, Series resistance: 1.74 kOhm, Feed voltage: 42.6 V

Transverse balance

Frequency	Balance	Limit	Verdict
Condition 1: EUT state: On-hook, Feed polarity: Normal, Series resistance: 20 kOhm, Feed voltage: 48 V			**Pass**
200 Hz	73.20 dB	60 dB	Pass
300 Hz	76.34 dB	60 dB	Pass

Test specification:	5.1.10 / 3.6 Transverse balance for analog voiceband equipment (LS)		
Test purpose:	The minimum transverse balance in the off-hook state shall be 40 dB in 200 Hz - 4 kHz frequency range. In the on-hook state it shall be 60 dB in 200 Hz - 1 kHz range and 40 dB in 1 - 4 kHz.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 12:51:17 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 42.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S. USB grounded			

Frequency	Balance	Limit	Verdict
400 Hz	73.48 dB	60 dB	Pass
500 Hz	73.46 dB	60 dB	Pass
750 Hz	72.67 dB	60 dB	Pass
1000 Hz	72.65 dB	60 dB	Pass
1500 Hz	71.10 dB	40 dB	Pass
2000 Hz	70.14 dB	40 dB	Pass
2500 Hz	70.99 dB	40 dB	Pass
3000 Hz	66.77 dB	40 dB	Pass
3500 Hz	66.86 dB	40 dB	Pass
4000 Hz	67.59 dB	40 dB	Pass
Condition 2: EUT state: Off-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V			**Pass**
200 Hz	67.30 dB	40 dB	Pass
300 Hz	68.31 dB	40 dB	Pass
400 Hz	70.11 dB	40 dB	Pass
500 Hz	69.30 dB	40 dB	Pass
750 Hz	69.94 dB	40 dB	Pass
1000 Hz	68.57 dB	40 dB	Pass
1500 Hz	67.41 dB	40 dB	Pass
2000 Hz	65.91 dB	40 dB	Pass
2500 Hz	65.73 dB	40 dB	Pass
3000 Hz	64.42 dB	40 dB	Pass
3500 Hz	64.84 dB	40 dB	Pass
4000 Hz	62.47 dB	40 dB	Pass
Condition 3: EUT state: Off-hook, Feed polarity: Reverse, Series resistance: 1.74 kOhm, Feed voltage: 42.6 V			**Pass**
200 Hz	67.16 dB	40 dB	Pass
300 Hz	67.63 dB	40 dB	Pass
400 Hz	69.96 dB	40 dB	Pass
500 Hz	71.93 dB	40 dB	Pass
750 Hz	70.87 dB	40 dB	Pass
1000 Hz	71.61 dB	40 dB	Pass
1500 Hz	69.40 dB	40 dB	Pass
2000 Hz	69.00 dB	40 dB	Pass
2500 Hz	67.74 dB	40 dB	Pass
3000 Hz	63.41 dB	40 dB	Pass
3500 Hz	66.08 dB	40 dB	Pass
4000 Hz	66.80 dB	40 dB	Pass

Test specification:	5.1.10 / 3.6 Transverse balance for analog voiceband equipment (LS)		
Test purpose:	The minimum transverse balance in the off-hook state shall be 40 dB in 200 Hz - 4 kHz frequency range. In the on-hook state it shall be 60 dB in 200 Hz - 1 kHz range and 40 dB in 1 - 4 kHz.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 12:56:08 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 42.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S. USB not grounded			

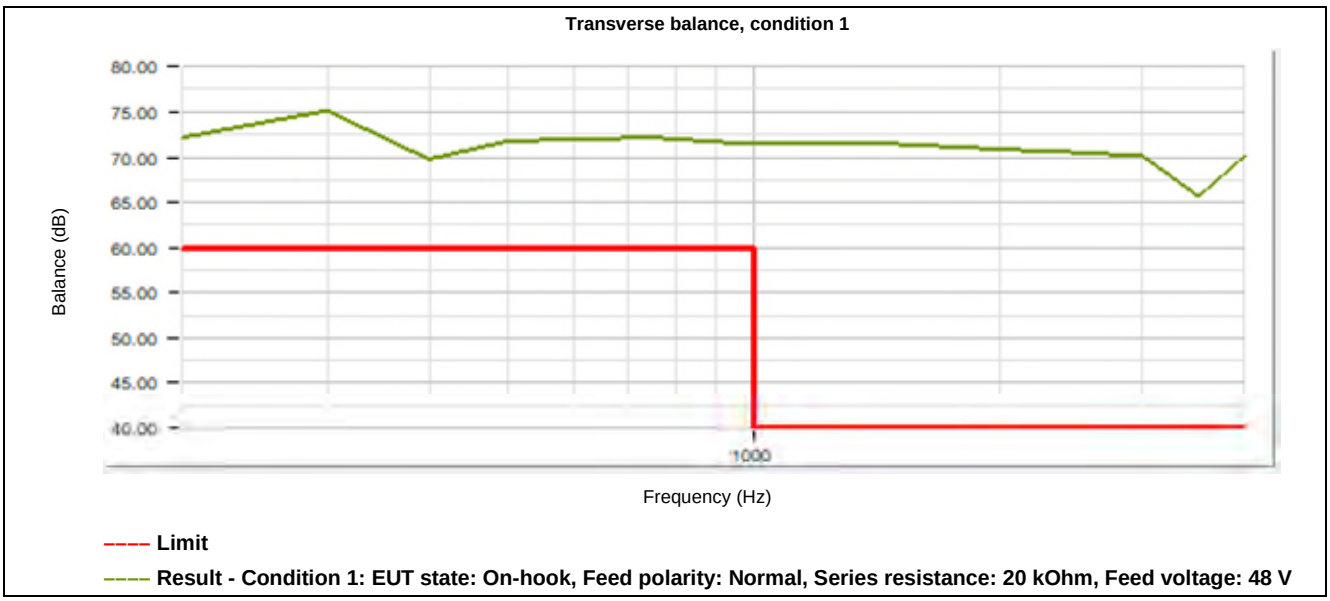
Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

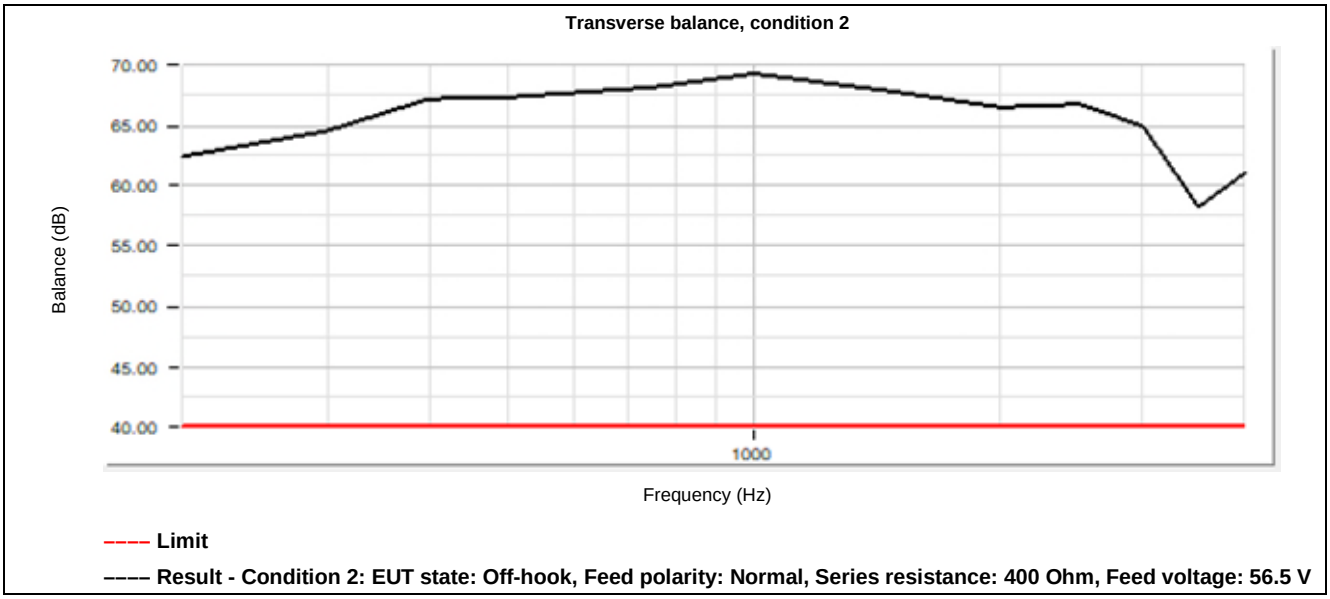
Balance (0 to 50 dB)	±0.84 dB
Balance (50 to 70 dB)	±1.89 dB

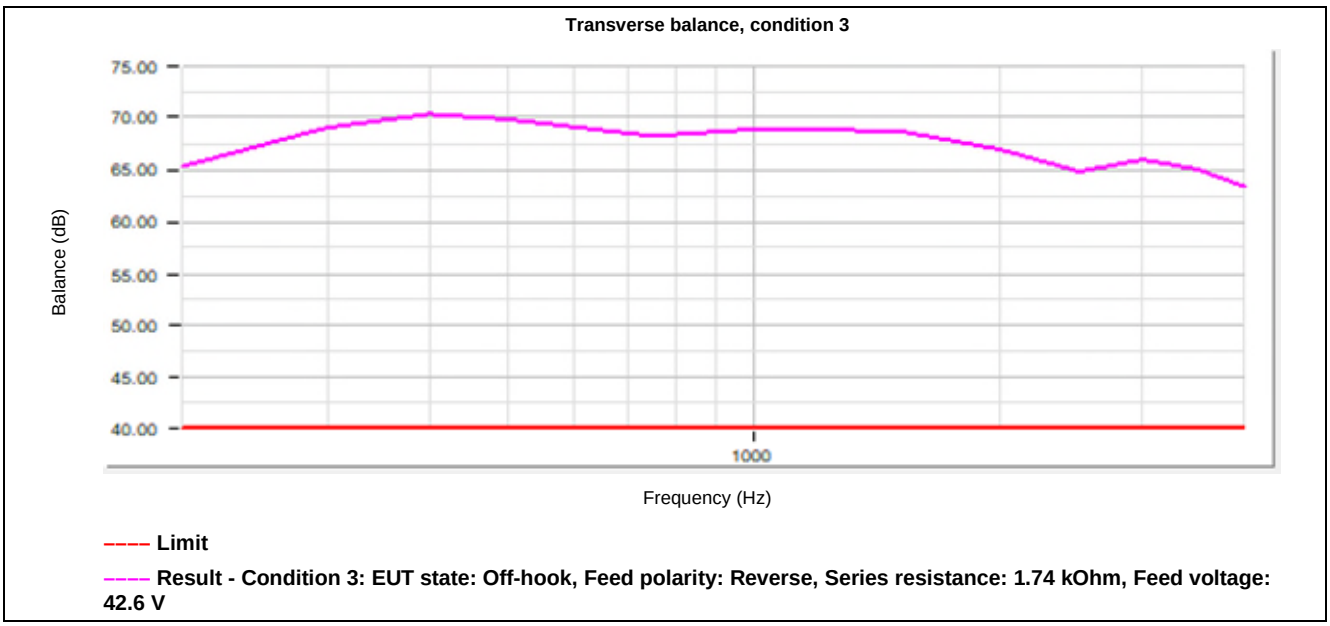
General parameters

Parameter	Value
Stimulus level	775 mV



Test specification:	5.1.10 / 3.6 Transverse balance for analog voiceband equipment (LS)		
Test purpose:	The minimum transverse balance in the off-hook state shall be 40 dB in 200 Hz - 4 kHz frequency range. In the on-hook state it shall be 60 dB in 200 Hz - 1 kHz range and 40 dB in 1 - 4 kHz.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 12:56:08 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 42.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S. USB not grounded			





Transverse balance

Frequency	Balance	Limit	Verdict
Condition 1: EUT state: On-hook, Feed polarity: Normal, Series resistance: 20 kOhm, Feed voltage: 48 V			**Pass**
200 Hz	72.25 dB	60 dB	Pass
300 Hz	75.09 dB	60 dB	Pass

Test specification:	5.1.10 / 3.6 Transverse balance for analog voiceband equipment (LS)		
Test purpose:	The minimum transverse balance in the off-hook state shall be 40 dB in 200 Hz - 4 kHz frequency range. In the on-hook state it shall be 60 dB in 200 Hz - 1 kHz range and 40 dB in 1 - 4 kHz.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 12:56:08 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 42.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S. USB not grounded			

Frequency	Balance	Limit	Verdict
400 Hz	69.79 dB	60 dB	Pass
500 Hz	71.86 dB	60 dB	Pass
750 Hz	72.10 dB	60 dB	Pass
1000 Hz	71.50 dB	60 dB	Pass
1500 Hz	71.53 dB	40 dB	Pass
2000 Hz	70.90 dB	40 dB	Pass
2500 Hz	70.58 dB	40 dB	Pass
3000 Hz	70.07 dB	40 dB	Pass
3500 Hz	65.62 dB	40 dB	Pass
4000 Hz	70.08 dB	40 dB	Pass
Condition 2: EUT state: Off-hook, Feed polarity: Normal, Series resistance: 400 Ohm, Feed voltage: 56.5 V			**Pass**
200 Hz	62.36 dB	40 dB	Pass
300 Hz	64.49 dB	40 dB	Pass
400 Hz	67.16 dB	40 dB	Pass
500 Hz	67.24 dB	40 dB	Pass
750 Hz	68.13 dB	40 dB	Pass
1000 Hz	69.23 dB	40 dB	Pass
1500 Hz	67.71 dB	40 dB	Pass
2000 Hz	66.50 dB	40 dB	Pass
2500 Hz	66.68 dB	40 dB	Pass
3000 Hz	64.99 dB	40 dB	Pass
3500 Hz	58.21 dB	40 dB	Pass
4000 Hz	61.05 dB	40 dB	Pass
Condition 3: EUT state: Off-hook, Feed polarity: Reverse, Series resistance: 1.74 kOhm, Feed voltage: 42.6 V			**Pass**
200 Hz	65.37 dB	40 dB	Pass
300 Hz	69.08 dB	40 dB	Pass
400 Hz	70.31 dB	40 dB	Pass
500 Hz	69.84 dB	40 dB	Pass
750 Hz	68.30 dB	40 dB	Pass
1000 Hz	68.93 dB	40 dB	Pass
1500 Hz	68.78 dB	40 dB	Pass
2000 Hz	67.04 dB	40 dB	Pass
2500 Hz	64.83 dB	40 dB	Pass
3000 Hz	66.03 dB	40 dB	Pass
3500 Hz	65.05 dB	40 dB	Pass
4000 Hz	63.41 dB	40 dB	Pass

Test specification:	5.1.11.2.1, 5.1.11.2.2 / 3.7.1 On-hook resistance, metallic and longitudinal		
Test purpose:	The on-hook DC resistance between the tip and ring conductors of a loop start interface, and between each of the tip and ring conductors and earth ground, shall be greater than 5 M ohms for all DC voltages up to and including 100 V and shall be greater than 30 k ohms for all DC voltages between 100 and 200 V		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 6:49:56 AM		
Temperature: 23.3 °C	**Air Pressure:** 100.0 kPa	**Relative Humidity:** 41.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: B.E.S.			

Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

Tip-Ring, Test voltage 1-200V

Resistance in range 30 kOhm - 10 MOhm ±0.8 %

Resistance in range 10- 30 MOhm ±2.5%

Tip, Ring to Ground, Test voltage 5-500V

Resistance in range 30 kOhm - 1 MOhm ±1%

Resistance in range 1 MOhm - 10 MOhm ±2%

Resistance in range 10- 30 MOhm ±2.5%

Current vs voltage, Resistance vs voltage

Voltage	Current	Resistance	Limit	Verdict
Condition 1: Test polarity: Normal, Meas. configuration: Tip - Ring				**Pass**
2 V	91.41 nA	23.08 MOhm	5 MOhm	Pass
3 V	132.56 nA	23.28 MOhm	5 MOhm	Pass
4 V	176.95 nA	23.12 MOhm	5 MOhm	Pass
5 V	215.36 nA	23.63 MOhm	5 MOhm	Pass
10 V	439.61 nA	23.17 MOhm	5 MOhm	Pass
20 V	856.19 nA	23.43 MOhm	5 MOhm	Pass
30 V	1.34 uA	22.39 MOhm	5 MOhm	Pass
40 V	1.84 uA	21.76 MOhm	5 MOhm	Pass
50 V	2.36 uA	21.35 MOhm	5 MOhm	Pass
60 V	2.87 uA	21.08 MOhm	5 MOhm	Pass
70 V	3.38 uA	20.86 MOhm	5 MOhm	Pass
80 V	3.90 uA	20.69 MOhm	5 MOhm	Pass
90 V	4.42 uA	20.59 MOhm	5 MOhm	Pass
100 V	4.93 uA	20.50 MOhm	5 MOhm	Pass
150 V	198.89 uA	658.98 kOhm	30 kOhm	Pass
200 V	731.18 uA	216.65 kOhm	30 kOhm	Pass
Condition 2: Test polarity: Reverse, Meas. configuration: Tip - Ring				**Pass**
2 V	93.86 nA	22.47 MOhm	5 MOhm	Pass
3 V	134.06 nA	23.01 MOhm	5 MOhm	Pass
4 V	175.52 nA	23.30 MOhm	5 MOhm	Pass
5 V	215.78 nA	23.58 MOhm	5 MOhm	Pass
10 V	437.87 nA	23.27 MOhm	5 MOhm	Pass
20 V	852.08 nA	23.54 MOhm	5 MOhm	Pass
30 V	1.34 uA	22.44 MOhm	5 MOhm	Pass

Test specification:	5.1.11.2.1, 5.1.11.2.2 / 3.7.1 On-hook resistance, metallic and longitudinal		
Test purpose:	The on-hook DC resistance between the tip and ring conductors of a loop start interface, and between each of the tip and ring conductors and earth ground, shall be greater than 5 M ohms for all DC voltages up to and including 100 V and shall be greater than 30 k ohms for all DC voltages between 100 and 200 V		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 6:49:56 AM		
Temperature: 23.3 °C	**Air Pressure:** 100.0 kPa	**Relative Humidity:** 41.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: B.E.S.			

Voltage	Current	Resistance	Limit	Verdict
40 V	1.84 uA	21.80 MOhm	5 MOhm	Pass
50 V	2.36 uA	21.29 MOhm	5 MOhm	Pass
60 V	2.87 uA	21.03 MOhm	5 MOhm	Pass
70 V	3.37 uA	20.90 MOhm	5 MOhm	Pass
80 V	3.90 uA	20.68 MOhm	5 MOhm	Pass
90 V	4.42 uA	20.55 MOhm	5 MOhm	Pass
100 V	4.94 uA	20.46 MOhm	5 MOhm	Pass
150 V	199.86 uA	655.65 kOhm	30 kOhm	Pass
200 V	732.59 uA	216.22 kOhm	30 kOhm	Pass
Condition 3: Test polarity: Normal, Meas. configuration: Tip - Ground				**Pass**
2 V	< 50.00 nA	> 40.00 MOhm	5 MOhm	Pass
3 V	< 50.00 nA	> 60.00 MOhm	5 MOhm	Pass
4 V	< 50.00 nA	> 80.00 MOhm	5 MOhm	Pass
5 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
10 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
20 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
30 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
40 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
50 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
60 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
70 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
80 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
90 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
100 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
150 V	< 50.00 nA	> 300.00 MOhm	30 kOhm	Pass
200 V	< 50.00 nA	> 300.00 MOhm	30 kOhm	Pass
Condition 4: Test polarity: Reverse, Meas. configuration: Tip - Ground				**Pass**
2 V	< 50.00 nA	> 40.00 MOhm	5 MOhm	Pass
3 V	< 50.00 nA	> 60.00 MOhm	5 MOhm	Pass
4 V	< 50.00 nA	> 80.00 MOhm	5 MOhm	Pass
5 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
10 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
20 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
30 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
40 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
50 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
60 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass

Test specification:	5.1.11.2.1, 5.1.11.2.2 / 3.7.1 On-hook resistance, metallic and longitudinal		
Test purpose:	The on-hook DC resistance between the tip and ring conductors of a loop start interface, and between each of the tip and ring conductors and earth ground, shall be greater than 5 M ohms for all DC voltages up to and including 100 V and shall be greater than 30 k ohms for all DC voltages between 100 and 200 V		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 6:49:56 AM		
Temperature: 23.3 °C	**Air Pressure:** 100.0 kPa	**Relative Humidity:** 41.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: B.E.S.			

Voltage	Current	Resistance	Limit	Verdict
70 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
80 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
90 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
100 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
150 V	< 50.00 nA	> 300.00 MOhm	30 kOhm	Pass
200 V	< 50.00 nA	> 300.00 MOhm	30 kOhm	Pass
Condition 5: Test polarity: Normal, Meas. configuration: Ring - Ground				**Pass**
2 V	< 50.00 nA	> 40.00 MOhm	5 MOhm	Pass
3 V	< 50.00 nA	> 60.00 MOhm	5 MOhm	Pass
4 V	< 50.00 nA	> 80.00 MOhm	5 MOhm	Pass
5 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
10 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
20 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
30 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
40 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
50 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
60 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
70 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
80 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
90 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
100 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
150 V	< 50.00 nA	> 300.00 MOhm	30 kOhm	Pass
200 V	< 50.00 nA	> 300.00 MOhm	30 kOhm	Pass
Condition 6: Test polarity: Reverse, Meas. configuration: Ring - Ground				**Pass**
2 V	< 50.00 nA	> 40.00 MOhm	5 MOhm	Pass
3 V	< 50.00 nA	> 60.00 MOhm	5 MOhm	Pass
4 V	< 50.00 nA	> 80.00 MOhm	5 MOhm	Pass
5 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
10 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
20 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
30 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
40 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
50 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
60 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
70 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
80 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
90 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass

Test specification:	5.1.11.2.1, 5.1.11.2.2 / 3.7.1 On-hook resistance, metallic and longitudinal		
Test purpose:	The on-hook DC resistance between the tip and ring conductors of a loop start interface, and between each of the tip and ring conductors and earth ground, shall be greater than 5 M ohms for all DC voltages up to and including 100 V and shall be greater than 30 k ohms for all DC voltages between 100 and 200 V		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 6:49:56 AM		
Temperature: 23.3 °C	**Air Pressure:** 100.0 kPa	**Relative Humidity:** 41.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: B.E.S.			

Voltage	Current	Resistance	Limit	Verdict
100 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
150 V	< 50.00 nA	> 300.00 MOhm	30 kOhm	Pass
200 V	< 50.00 nA	> 300.00 MOhm	30 kOhm	Pass

Test specification:	5.1.11.2.1, 5.1.11.2.2 / 3.7.1 On-hook resistance, metallic and longitudinal		
Test purpose:	The on-hook DC resistance between the tip and ring conductors of a loop start interface, and between each of the tip and ring conductors and earth ground, shall be greater than 5 M ohms for all DC voltages up to and including 100 V and shall be greater than 30 k ohms for all DC voltages between 100 and 200 V		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/22/2024 10:09:24 AM		
Temperature: 22.8 °C	**Air Pressure:** 102.0 kPa	**Relative Humidity:** 31.9 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S.			

Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

Tip-Ring, Test voltage 1-200V

Resistance in range 30 kohm - 10 Mohm	±0.8 %
Resistance in range 10- 30 Mohm	±2.5%

Tip, Ring to Ground, Test voltage 5-500V

Resistance in range 30 kohm - 1 Mohm	±1%
Resistance in range 1 Mohm - 10 Mohm	±2%
Resistance in range 10- 30 Mohm	±2.5%

Current vs voltage, Resistance vs voltage

Voltage	Current	Resistance	Limit	Verdict
Condition 1: Test polarity: Normal, Meas. configuration: Tip - Ring				**Pass**
2 V	108.70 nA	19.37 MOhm	5 MOhm	Pass
3 V	144.96 nA	21.25 MOhm	5 MOhm	Pass
4 V	185.15 nA	22.07 MOhm	5 MOhm	Pass
5 V	224.96 nA	22.60 MOhm	5 MOhm	Pass
10 V	445.25 nA	22.87 MOhm	5 MOhm	Pass
20 V	855.03 nA	23.46 MOhm	5 MOhm	Pass
30 V	1.34 uA	22.36 MOhm	5 MOhm	Pass
40 V	1.84 uA	21.77 MOhm	5 MOhm	Pass
50 V	2.37 uA	21.22 MOhm	5 MOhm	Pass
60 V	2.87 uA	21.06 MOhm	5 MOhm	Pass
70 V	3.38 uA	20.82 MOhm	5 MOhm	Pass
80 V	3.90 uA	20.68 MOhm	5 MOhm	Pass
90 V	4.41 uA	20.57 MOhm	5 MOhm	Pass
100 V	4.93 uA	20.44 MOhm	5 MOhm	Pass
150 V	201.15 uA	650.40 kOhm	30 kOhm	Pass
200 V	736.85 uA	214.86 kOhm	30 kOhm	Pass
Condition 2: Test polarity: Reverse, Meas. configuration: Tip - Ring				**Pass**
2 V	100.99 nA	20.86 MOhm	5 MOhm	Pass
3 V	139.52 nA	22.09 MOhm	5 MOhm	Pass
4 V	180.71 nA	22.62 MOhm	5 MOhm	Pass
5 V	222.91 nA	22.82 MOhm	5 MOhm	Pass
10 V	446.37 nA	22.81 MOhm	5 MOhm	Pass
20 V	855.76 nA	23.44 MOhm	5 MOhm	Pass
30 V	1.34 uA	22.45 MOhm	5 MOhm	Pass

Test specification:	5.1.11.2.1, 5.1.11.2.2 / 3.7.1 On-hook resistance, metallic and longitudinal		
Test purpose:	The on-hook DC resistance between the tip and ring conductors of a loop start interface, and between each of the tip and ring conductors and earth ground, shall be greater than 5 M ohms for all DC voltages up to and including 100 V and shall be greater than 30 k ohms for all DC voltages between 100 and 200 V		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/22/2024 10:09:24 AM		
Temperature: 22.8 °C	**Air Pressure:** 102.0 kPa	**Relative Humidity:** 31.9 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S.			

Voltage	Current	Resistance	Limit	Verdict
40 V	1.84 uA	21.72 MOhm	5 MOhm	Pass
50 V	2.36 uA	21.34 MOhm	5 MOhm	Pass
60 V	2.87 uA	21.07 MOhm	5 MOhm	Pass
70 V	3.38 uA	20.86 MOhm	5 MOhm	Pass
80 V	3.90 uA	20.68 MOhm	5 MOhm	Pass
90 V	4.41 uA	20.59 MOhm	5 MOhm	Pass
100 V	4.93 uA	20.46 MOhm	5 MOhm	Pass
150 V	201.07 uA	650.75 kOhm	30 kOhm	Pass
200 V	736.94 uA	214.89 kOhm	30 kOhm	Pass
Condition 3: Test polarity: Normal, Meas. configuration: Tip - Ground				**Pass**
2 V	< 50.00 nA	> 40.00 MOhm	5 MOhm	Pass
3 V	< 50.00 nA	> 60.00 MOhm	5 MOhm	Pass
4 V	< 50.00 nA	> 80.00 MOhm	5 MOhm	Pass
5 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
10 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
20 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
30 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
40 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
50 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
60 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
70 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
80 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
90 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
100 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
150 V	< 50.00 nA	> 300.00 MOhm	30 kOhm	Pass
200 V	< 50.00 nA	> 300.00 MOhm	30 kOhm	Pass
Condition 4: Test polarity: Reverse, Meas. configuration: Tip - Ground				**Pass**
2 V	< 50.00 nA	> 40.00 MOhm	5 MOhm	Pass
3 V	< 50.00 nA	> 60.00 MOhm	5 MOhm	Pass
4 V	< 50.00 nA	> 80.00 MOhm	5 MOhm	Pass
5 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
10 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
20 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
30 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
40 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
50 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
60 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass

Test specification:	5.1.11.2.1, 5.1.11.2.2 / 3.7.1 On-hook resistance, metallic and longitudinal		
Test purpose:	The on-hook DC resistance between the tip and ring conductors of a loop start interface, and between each of the tip and ring conductors and earth ground, shall be greater than 5 M ohms for all DC voltages up to and including 100 V and shall be greater than 30 k ohms for all DC voltages between 100 and 200 V		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/22/2024 10:09:24 AM		
Temperature: 22.8 °C	**Air Pressure:** 102.0 kPa	**Relative Humidity:** 31.9 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S.			

Voltage	Current	Resistance	Limit	Verdict
70 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
80 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
90 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
100 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
150 V	< 50.00 nA	> 300.00 MOhm	30 kOhm	Pass
200 V	< 50.00 nA	> 300.00 MOhm	30 kOhm	Pass
Condition 5: Test polarity: Normal, Meas. configuration: Ring - Ground				**Pass**
2 V	< 50.00 nA	> 40.00 MOhm	5 MOhm	Pass
3 V	< 50.00 nA	> 60.00 MOhm	5 MOhm	Pass
4 V	< 50.00 nA	> 80.00 MOhm	5 MOhm	Pass
5 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
10 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
20 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
30 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
40 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
50 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
60 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
70 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
80 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
90 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
100 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
150 V	< 50.00 nA	> 300.00 MOhm	30 kOhm	Pass
200 V	< 50.00 nA	> 300.00 MOhm	30 kOhm	Pass
Condition 6: Test polarity: Reverse, Meas. configuration: Ring - Ground				**Pass**
2 V	< 50.00 nA	> 40.00 MOhm	5 MOhm	Pass
3 V	< 50.00 nA	> 60.00 MOhm	5 MOhm	Pass
4 V	< 50.00 nA	> 80.00 MOhm	5 MOhm	Pass
5 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
10 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
20 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
30 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
40 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
50 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
60 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
70 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
80 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
90 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass

Test specification:	5.1.11.2.1, 5.1.11.2.2 / 3.7.1 On-hook resistance, metallic and longitudinal		
Test purpose:	The on-hook DC resistance between the tip and ring conductors of a loop start interface, and between each of the tip and ring conductors and earth ground, shall be greater than 5 M ohms for all DC voltages up to and including 100 V and shall be greater than 30 k ohms for all DC voltages between 100 and 200 V		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/22/2024 10:09:24 AM		
Temperature: 22.8 °C	**Air Pressure:** 102.0 kPa	**Relative Humidity:** 31.9 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S.			

Voltage	Current	Resistance	Limit	Verdict
100 V	< 50.00 nA	> 100.00 MOhm	5 MOhm	Pass
150 V	< 50.00 nA	> 300.00 MOhm	30 kOhm	Pass
200 V	< 50.00 nA	> 300.00 MOhm	30 kOhm	Pass

Test specification:	5.1.11.2.3 / 3.7.2 DC current during ringing, 5.1.11.2.4 / 3.7.3 Ringing impedance (metallic), REN - Ringing type A		
Test purpose:	During the application of simulated ringing, as listed in table 6, to a loop start interface, the total DC current shall not exceed 3.0 mA and the impedance between the tip and ring conductors shall be greater than or equal to the value specified in table 6.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 7:28:29 AM		
Temperature: 23.8 °C	**Air Pressure:** 100.7 kPa	**Relative Humidity:** 38.6 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: B.E.S.			

Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

DC current	±2.6%
AC current	±0.72%
Phase	±0.43%
Impedance	±1.69%

General parameters

Parameter	Value
Feed voltage	56.5 V

DC Current, Impedance, REN

DC Current	Limit	Impedance	Limit	REN	Verdict
Condition 1: Feed polarity: Normal, Ring frequency: 20.00 Hz, Ring level: 40.00 Vrms					**Pass**
< 50.00 uA	3 mA	11.84 kOhm	1.4 kOhm	0.59	Pass
Condition 2: Feed polarity: Reverse, Ring frequency: 20.00 Hz, Ring level: 40.00 Vrms					**Pass**
< 50.00 uA	3 mA	11.83 kOhm	1.4 kOhm	0.59	Pass
Condition 3: Feed polarity: Normal, Ring frequency: 20.00 Hz, Ring level: 130.00 Vrms					**Pass**
507.30 uA	3 mA	11.83 kOhm	1.4 kOhm	0.59	Pass
Condition 4: Feed polarity: Reverse, Ring frequency: 20.00 Hz, Ring level: 130.00 Vrms					**Pass**
636.17 uA	3 mA	11.82 kOhm	1.4 kOhm	0.59	Pass
Condition 5: Feed polarity: Normal, Ring frequency: 30.00 Hz, Ring level: 40.00 Vrms					**Pass**
< 50.00 uA	3 mA	10.02 kOhm	1 kOhm	0.5	Pass
Condition 6: Feed polarity: Reverse, Ring frequency: 30.00 Hz, Ring level: 40.00 Vrms					**Pass**
< 50.00 uA	3 mA	10.01 kOhm	1 kOhm	0.5	Pass
Condition 7: Feed polarity: Normal, Ring frequency: 30.00 Hz, Ring level: 130.00 Vrms					**Pass**
593.26 uA	3 mA	8.88 kOhm	1 kOhm	0.56	Pass
Condition 8: Feed polarity: Reverse, Ring frequency: 30.00 Hz, Ring level: 130.00 Vrms					**Pass**
462.82 uA	3 mA	10.03 kOhm	1 kOhm	0.5	Pass

Test specification:	5.1.11.2.3 / 3.7.2 DC current during ringing, 5.1.11.2.4 / 3.7.3 Ringing impedance (metallic), REN - Ringing type A		
Test purpose:	During the application of simulated ringing, as listed in table 6, to a loop start interface, the total DC current shall not exceed 3.0 mA and the impedance between the tip and ring conductors shall be greater than or equal to the value specified in table 6.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 7:28:29 AM		
Temperature: 23.8 °C	**Air Pressure:** 100.7 kPa	**Relative Humidity:** 38.6 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: B.E.S.			

Max REN

REN	Verdict
Condition 1: Feed polarity: Normal, Ring frequency: 20.00 Hz, Ring level: 40.00 Vrms	**-**
0.59	-
Condition 2: Feed polarity: Reverse, Ring frequency: 20.00 Hz, Ring level: 40.00 Vrms	**-**
0.59	-
Condition 3: Feed polarity: Normal, Ring frequency: 20.00 Hz, Ring level: 130.00 Vrms	**-**
0.59	-
Condition 4: Feed polarity: Reverse, Ring frequency: 20.00 Hz, Ring level: 130.00 Vrms	**-**
0.59	-
Condition 5: Feed polarity: Normal, Ring frequency: 30.00 Hz, Ring level: 40.00 Vrms	**-**
0.59	-
Condition 6: Feed polarity: Reverse, Ring frequency: 30.00 Hz, Ring level: 40.00 Vrms	**-**
0.59	-
Condition 7: Feed polarity: Normal, Ring frequency: 30.00 Hz, Ring level: 130.00 Vrms	**-**
0.59	-
Condition 8: Feed polarity: Reverse, Ring frequency: 30.00 Hz, Ring level: 130.00 Vrms	**-**
0.59	-

Test specification:	5.1.11.2.3 / 3.7.2 DC current during ringing, 5.1.11.2.4 / 3.7.3 Ringing impedance (metallic), REN - Ringing type A		
Test purpose:	During the application of simulated ringing, as listed in table 6, to a loop start interface, the total DC current shall not exceed 3.0 mA and the impedance between the tip and ring conductors shall be greater than or equal to the value specified in table 6.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 1:23:28 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 42.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S.			

Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

DC current	±2.6%
AC current	±0.72%
Phase	±0.43%
Impedance	±1.69%

General parameters

Parameter	Value
Feed voltage	56.5 V

DC Current, Impedance, REN

DC Current	Limit	Impedance	Limit	REN	Verdict
Condition 1: Feed polarity: Normal, Ring frequency: 20.00 Hz, Ring level: 40.00 Vrms					**Pass**
< 50.00 uA	3 mA	11.84 kOhm	1.4 kOhm	0.59	Pass
Condition 2: Feed polarity: Reverse, Ring frequency: 20.00 Hz, Ring level: 40.00 Vrms					**Pass**
< 50.00 uA	3 mA	11.83 kOhm	1.4 kOhm	0.59	Pass
Condition 3: Feed polarity: Normal, Ring frequency: 20.00 Hz, Ring level: 130.00 Vrms					**Pass**
399.19 uA	3 mA	11.84 kOhm	1.4 kOhm	0.59	Pass
Condition 4: Feed polarity: Reverse, Ring frequency: 20.00 Hz, Ring level: 130.00 Vrms					**Pass**
565.30 uA	3 mA	11.82 kOhm	1.4 kOhm	0.59	Pass
Condition 5: Feed polarity: Normal, Ring frequency: 30.00 Hz, Ring level: 40.00 Vrms					**Pass**
< 50.00 uA	3 mA	10.03 kOhm	1 kOhm	0.5	Pass
Condition 6: Feed polarity: Reverse, Ring frequency: 30.00 Hz, Ring level: 40.00 Vrms					**Pass**
< 50.00 uA	3 mA	10.02 kOhm	1 kOhm	0.5	Pass
Condition 7: Feed polarity: Normal, Ring frequency: 30.00 Hz, Ring level: 130.00 Vrms					**Pass**
547.22 uA	3 mA	10.05 kOhm	1 kOhm	0.5	Pass
Condition 8: Feed polarity: Reverse, Ring frequency: 30.00 Hz, Ring level: 130.00 Vrms					**Pass**
450.85 uA	3 mA	8.87 kOhm	1 kOhm	0.56	Pass

Test specification:	5.1.11.2.3 / 3.7.2 DC current during ringing, 5.1.11.2.4 / 3.7.3 Ringing impedance (metallic), REN - Ringing type A		
Test purpose:	During the application of simulated ringing, as listed in table 6, to a loop start interface, the total DC current shall not exceed 3.0 mA and the impedance between the tip and ring conductors shall be greater than or equal to the value specified in table 6.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 1:23:28 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 42.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S.			

Max REN

REN	Verdict
Condition 1: Feed polarity: Normal, Ring frequency: 20.00 Hz, Ring level: 40.00 Vrms	**-**
0.59	-
Condition 2: Feed polarity: Reverse, Ring frequency: 20.00 Hz, Ring level: 40.00 Vrms	**-**
0.59	-
Condition 3: Feed polarity: Normal, Ring frequency: 20.00 Hz, Ring level: 130.00 Vrms	**-**
0.59	-
Condition 4: Feed polarity: Reverse, Ring frequency: 20.00 Hz, Ring level: 130.00 Vrms	**-**
0.59	-
Condition 5: Feed polarity: Normal, Ring frequency: 30.00 Hz, Ring level: 40.00 Vrms	**-**
0.59	-
Condition 6: Feed polarity: Reverse, Ring frequency: 30.00 Hz, Ring level: 40.00 Vrms	**-**
0.59	-
Condition 7: Feed polarity: Normal, Ring frequency: 30.00 Hz, Ring level: 130.00 Vrms	**-**
0.59	-
Condition 8: Feed polarity: Reverse, Ring frequency: 30.00 Hz, Ring level: 130.00 Vrms	**-**
0.59	-

Test specification:	5.1.11.2.5 / 3.7.3 (2) Ringing frequency impedance (longitudinal)		
Test purpose:	During the application of simulated ringing as listed in table 6 to a loop start interface, the impedance between each of the tip and ring conductors and ground shall be greater than 100 kOhms.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 7:36:20 AM		
Temperature: 23.8 °C	**Air Pressure:** 100.7 kPa	**Relative Humidity:** 38.6 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: B.E.S.			

Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

DC current	±2.6%
AC current	±0.72%
Phase	±0.43%
Impedance	±1.69%

General parameters

Parameter	Value
DC voltage	56.5 V

Impedance

Impedance	Limit	Verdict
Condition 1: Polarity: Normal, Meas. configuration: Tip - Ground, Ring frequency: 15.30 Hz, Ring level: 40.00 Vrms		**Pass**
> 800.00 kOhm	100 kOhm	Pass
Condition 2: Polarity: Reverse, Meas. configuration: Tip - Ground, Ring frequency: 15.30 Hz, Ring level: 130.00 Vrms		**Pass**
> 1.50 MOhm	100 kOhm	Pass
Condition 3: Polarity: Reverse, Meas. configuration: Ring - Ground, Ring frequency: 15.30 Hz, Ring level: 40.00 Vrms		**Pass**
> 800.00 kOhm	100 kOhm	Pass
Condition 4: Polarity: Normal, Meas. configuration: Ring - Ground, Ring frequency: 15.30 Hz, Ring level: 130.00 Vrms		**Pass**
> 1.50 MOhm	100 kOhm	Pass
Condition 5: Polarity: Normal, Meas. configuration: Tip - Ground, Ring frequency: 68.00 Hz, Ring level: 62.00 Vrms		**Pass**
> 1.24 MOhm	100 kOhm	Pass
Condition 6: Polarity: Reverse, Meas. configuration: Tip - Ground, Ring frequency: 68.00 Hz, Ring level: 130.00 Vrms		**Pass**
> 1.50 MOhm	100 kOhm	Pass
Condition 7: Polarity: Reverse, Meas. configuration: Ring - Ground, Ring frequency: 68.00 Hz, Ring level: 62.00 Vrms		**Pass**
> 1.24 MOhm	100 kOhm	Pass
Condition 8: Polarity: Normal, Meas. configuration: Ring - Ground, Ring frequency: 68.00 Hz, Ring level: 130.00 Vrms		**Pass**
> 1.50 MOhm	100 kOhm	Pass

Test specification:	5.1.11.2.5 / 3.7.3 (2) Ringing frequency impedance (longitudinal)		
Test purpose:	During the application of simulated ringing as listed in table 6 to a loop start interface, the impedance between each of the tip and ring conductors and ground shall be greater than 100 kOhms.		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	3/14/2024 1:44:38 PM		
Temperature: 23.3 °C	**Air Pressure:** 100.8 kPa	**Relative Humidity:** 42.1 %	**Mains Power Supply:** 120 Vac @ 60 Hz
Remarks: A.E.S.			

Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

DC current	±2.6%
AC current	±0.72%
Phase	±0.43%
Impedance	±1.69%

General parameters

Parameter	Value
DC voltage	56.5 V

Impedance

Impedance	Limit	Verdict
Condition 1: Polarity: Normal, Meas. configuration: Tip - Ground, Ring frequency: 15.30 Hz, Ring level: 40.00 Vrms		**Pass**
> 800.00 kOhm	100 kOhm	Pass
Condition 2: Polarity: Reverse, Meas. configuration: Tip - Ground, Ring frequency: 15.30 Hz, Ring level: 130.00 Vrms		**Pass**
> 1.50 MOhm	100 kOhm	Pass
Condition 3: Polarity: Reverse, Meas. configuration: Ring - Ground, Ring frequency: 15.30 Hz, Ring level: 40.00 Vrms		**Pass**
> 800.00 kOhm	100 kOhm	Pass
Condition 4: Polarity: Normal, Meas. configuration: Ring - Ground, Ring frequency: 15.30 Hz, Ring level: 130.00 Vrms		**Pass**
> 1.50 MOhm	100 kOhm	Pass
Condition 5: Polarity: Normal, Meas. configuration: Tip - Ground, Ring frequency: 68.00 Hz, Ring level: 62.00 Vrms		**Pass**
> 1.24 MOhm	100 kOhm	Pass
Condition 6: Polarity: Reverse, Meas. configuration: Tip - Ground, Ring frequency: 68.00 Hz, Ring level: 130.00 Vrms		**Pass**
> 1.50 MOhm	100 kOhm	Pass
Condition 7: Polarity: Reverse, Meas. configuration: Ring - Ground, Ring frequency: 68.00 Hz, Ring level: 62.00 Vrms		**Pass**
> 1.24 MOhm	100 kOhm	Pass
Condition 8: Polarity: Normal, Meas. configuration: Ring - Ground, Ring frequency: 68.00 Hz, Ring level: 130.00 Vrms		**Pass**
> 1.50 MOhm	100 kOhm	Pass