TEST REPORT

FCC Volume Control Test for SM-S721U

APPLICANT
SAMSUNG Electronics Co., Ltd.

REPORT NO.
HCT-TE-2407-FC001

DATE OF ISSUE
July 19, 2024

Tested by
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FCC ID
A3LSMS721U

Applicant	SAMSUNG Electronics Co., Ltd. 129, Samsung-ro, Yeongtong-gu, Suwon-Si, Gyeonggi-do, 16677, Rep. of Korea
Product Name Model Name Multi Model Name	Mobile Phone SM-S721U SM-S721U1
Date of Test	June 03, 2024 ~ July 17, 2024
Location of Test	■ Permanent Testing Lab ☐ On Site Testing Lab (Address : 2-6, 73, 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Republic of Korea)
Test Standard	FCC 47 CFR § 20.19 ANSI C63.19-2019 ANSI/TIA-5050:2018
Test Results	Refer to test summary of clause 6

REVISION HISTORY

The revision history for this test report is shown in table.

Revision No.	Date of Issue	Description
0	July 19, 2024	Initial Release

Notice

Content
The results shown in this test report only apply to the sample(s), as received, provided by the applicant, unless otherwise stated. The test results have only been applied with the test methods required by the standard(s). The laboratory is not accredited for the test results marked *. Information provided by the applicant is marked **. Test results provided by external providers are marked ***. When confirmation of authenticity of this test report is required, please contact www.hct.co.kr The test results in this test report are not associated with the ((KS Q) ISO/IEC 17025) accreditation by KOLAS (Korea Laboratory Accreditation Scheme) / A2LA (American Association for Laboratory Accreditation) that are under the ILAC (International Laboratory Accreditation Cooperation) Mutual Recognition Agreement (MRA).

CONTENTS

1. Test Regulations

The results in this report apply only to sample tested.
The tests were performed according to the following regulations:

FCC Rule Part(s)	FCC 47 CFR § 20.19, ANSI C63.19-2019
Test Standard	ANSI C63.19-2019 ANSI/TIA-5050:2018 KDB 285076 D01 HAC Guidance v06r04 KDB 285076 D03 HAC FAQ v01r06 KDB 285076 D04 Volume Control v02 KDB 285076 D05 HAC Waiver DA 23-914 v01 TCB workshop updates

Under the revised KDB 285076 D04 Volume Control v02 on September 29, 2023, we demonstrate compliance to a Volume Control requirement using amended test method by the waiver DA23-914.

Further details on application of the waiver DA23-914 are described in section 4.2.3 of this report.

2. Test Location

2.1 Test Laboratory

Company Name	HCT Co., Ltd.
Address	2-6, 73, 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383 KOREA
Telephone	031-645-6300
Fax	031-645-6401

2.2 Test Facilities

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

National Radio Research Agency	Designation No. KR0032 (Including MRA: CANADA, Vietnam, USA)
KOLAS	Accreditations No. KT197
A2LA	Certificate Number: 4114.01

3. Device Under Test Description

3.1 DUT General Specification

Brand	SAMSUNG
Product Name	Mobile Phone
Model Name	SM-S721U
Multi Model Name	SM-S721U1
Hardware Version	REV1.0
Software Version	S721U.00

3.2 DUT Wireless Specification

Air Interface	Bands (MHz)	Type	Volume Control Tested	Voice Service	Audio Codec Evaluated
GSM	850	VO	Yes	-	HR V1, FR V1, FR V2
	1900				
	GPRS/EDGE	VD	No	Google Meet	OPUS
WCDMA (UMTS)	850 (B5)	VO	Yes	-	AMR-NB, AMR-WB
	1700 (B4)				
	1900 (B2)				
	HSPA	VD	No	Google Meet	OPUS
LTE-FDD	680 (B71)	VD	Yes	VoLTE / Google Meet	AMR-NB, AMR- WB, EVS-NB, EVS-WB, EVS-SWB / OPUS
	700 (B12/13/14)				
	850 (B5/26)				
	1700 (B4/66)				
	1900 (B2/25)				
	2300 (B30)				
	2500 (B7)				
LTE-TDD	2600 (B41(B38))	VD	Yes		
	3600 (B48)				
NR-FDD	680 (n71)	VD	Yes	VoNR / Google Meet	AMR-NB, AMR- WB, EVS-NB, EVS-WB, EVS-SWB / OPUS
	700 (n12)				
	850 (n5/n26)				
	1700 (n66)				
	1900 (n2/25)				
	2300 (n30)				
NR-TDD	2600 (n41)	VD	Yes		
	3800 (n77/78)				
	25000 (n258)		No	Google Meet	OPUS
	28000 (n261)				
	39000 (n260)				
Wi-Fi	2450	VD	Yes	Wi-Fi Calling / Google Meet	AMR-NB, AMR- WB, EVS-NB, EVS-WB, EVS-SWB / OPUS
	5200 (U-NII-1)				
	5300 (U-NII-2A)				
	5500 (U-NII-2C)				
	5800 (U-NII-3)				
	5900 (U-NII-4)				
	6200 (U-NII-5)				
	6500 (U-NII-6)		No		
	6700 (U-NII-7)				
	7000 (U-NII-8)				
BT	2450	DT	No	-	-
VO: Legacy Cellular Voice Service DT: Digital Transport only (no voice) VD: IP Voice service over Digital Transport			Note: n251, n260, n261, Wi-Fi 6 GHz are currently outside the scope of ANSI C63.19 and FCC HAC regulations and UNII band 5 was evaluated for operations which are entirely below 6 GHz.		

-. In accordance with KDB 285076 D05 HAC Waiver DA 23-914 v01, Volume Control test was performed only on CMRS narrowband and CMRS wideband voice codecs operating over licensed-frequency bands and Wi-Fi Calling. Additionally, in accordance with same waiver, super-wideband codec and OTT codecs had not been confirmed to comply with TIA-5050 standard.

4. Test Descriptions

4.1 Test Information

4.1.1 General Test Condition

Device Transmit Power	Maximum Level[Note1]
Tone Control	HAC Mode ON
Acoustic Interface	Type 3.3 Ear Simulator (HATS)
Test Signal	IEEE 269-2010 Male mono 48 kHz
Test Signal Level	-20 dBm0 to RETP[Note2]
Volume Setting	-1 volume from maximum level
Back ground Noise (Chamber ambient noise)	21.4 dBA

Note1. P_{max} results were referred to FCC SAR Test Report, Report No: FCC-SR-2407-FC004

Note2. The RETP (Receive Electrical Test Point) is the point in the device test arrangement where signals are applied to the DUT in the receive direction.

4.1.2 Mounting Force

Mounting Force is the force against the artificial ear pinna simulator when handset is placed standard test position. And the 2 N force is used for testing requirements related to use by persons with hearing devices and 8 N force is used for testing requirements related to use by persons without hearing device, test is performed on each side.

4.1.3 Frequency band for transmission modes

Test Item	Narrowband Band (Hz)	Wideband Band (Hz)
Receiving volume control	100 ~ 4 000	100 ~ 7 720
Receiving distortion and noise	400 ~ 3 150	250 ~ 5 000
Receiving frequency response	100 ~ 4 000	100 ~ 8 000

4.1.4 Conversational Gain Calculation

Conversational gain for volume control measurement is calculated by formula below.

Monoaural Conversational Gain = (Measured dBSPL Level - 70 dBSPL) dB

4.1.5 Stimulus signal for distortion test

1) Random pink noise for stimulus signal has 250 ms 'on' and 150 ms 'off' cycle.

2) PN-SDNR (Pulsed Noise Signal to Distortion and Noise Ratio) is calculated by formula below.

$$\text{PN-SDNR (dB)} = 20 * \text{Log} \left[\frac{\text{measured stimulus amplitude}}{\text{measured distortion amplitude}} \right]$$

3) Lower and upper edge for stimulus measurements are shown in table below.

Stimulus Measurement Lower Band Edge	Stimulus Lower Band Edge	Nominal Center Frequency	Stimulus Upper Band Edge	Stimulus Measurement Upper Band Edge	Handset Operating Mode
190	225	250	280	315	Wideband only
245	280	315	355	390	
320	355	400	445	480	Narrowband & Wideband
410	445	500	560	595	
525	560	630	710	745	
675	710	800	890	925	
855	890	1 000	1 120	1 155	
1 085	1 120	1 250	1 415	1 450	
1 375	1 410	1 600	1 780	1 815	
1 745	1 780	2 000	2 240	2 275	
2 205	2 240	2 500	2 820	2 855	
2 785	2 820	3 150	3 550	3 585	
3 515	3 550	4 000	4 465	4 500	Wideband only
4 430	4 465	5 000	5 625	5 660	

4.1.6 Definition of Frequency Response

The receive frequency response is the ratio of the output of sound pressure at the listener reference point to the voltage input to the reference codec, or digital bit stream equivalent, as shown in follow formula for each frequency or frequency band.

$$S_{JE} = 20\log_{10}(P_E/V_R) \text{ dB re 1 Pa/V}$$

Where

S_{JE} = Receive Sensitivity, Juntion to Ear, at f_i
P_E = LRP sound pressure measured by ear simlator at DRP and translated to the FF or DF, at f_i
V_R = RMS input voltage to the reference codec, or digital bit stream equivalent, at f_i

4.1.7 DRP to FF and DF Transformation Value at 1/12 Octave Center Frequencies

Function	Freq. (Hz)	DRP to FF (dB)	Freq. (Hz)	DRP to FF (dB)	Freq. (Hz)	DRP to FF (dB)	Freq. (Hz)	DRP to FF (dB)
DRP to FF	91.7	0.00	290	-0.70	917	-4.94	2 900	-17.48
	97.2	0.00	307	-0.83	972	-5.07	3 070	-17.43
	103	0.00	325	-0.98	1 030	-5.07	3 250	-17.13
	109	0.00	345	-1.16	1 090	-5.03	3 450	-16.59
	115	0.00	365	-1.36	1 150	-4.96	3 650	-15.94
	122	0.00	387	-1.58	1 220	-4.94	3 870	-15.11
	130	-0.01	410	-1.77	1 300	-5.09	4 100	-14.20
	137	-0.01	434	-1.94	1 370	-5.30	4 340	-13.25
	145	-0.01	460	-2.10	1 450	-5.65	4 600	-12.35
	154	-0.02	487	-2.27	1 540	-6.19	4 870	-11.60
	163	-0.03	516	-2.45	1 630	-6.95	5 160	-11.04
	173	-0.05	546	-2.59	1 730	-8.04	5 460	-10.31
	183	-0.08	579	-2.69	1 830	-9.33	5 790	-9.55
	194	-0.11	613	-2.80	1 940	-10.67	6 130	-8.70
	205	-0.16	649	-2.94	2 050	-11.86	6 490	-7.80
	218	-0.22	688	-3.19	2 180	-13.39	6 880	-6.67
	230	-0.29	729	-3.52	2 300	-14.76	7 290	-5.08
	244	-0.39	772	-3.92	2 440	-15.89	7 720	-3.61
	259	-0.48	818	-4.35	2 590	-16.79	8 180	-2.97
	274	-0.59	866	-4.69	2 740	-17.34	8 660	-3.42
DRP to DF	91.7	0.00	290	-0.63	917	-3.99	2 900	-13.98
	97.2	0.00	307	-0.72	972	-4.21	3 070	-13.88
	103	0.00	325	-0.81	1 030	-4.45	3 250	-13.77
	109	0.00	345	-0.93	1 090	-4.66	3 450	-13.48
	115	-0.01	365	-1.05	1 150	-4.86	3 650	-13.01
	122	-0.03	387	-1.19	1 220	-5.10	3 870	-12.29
	130	-0.05	410	-1.32	1 300	-5.43	4 100	-11.54
	137	-0.06	434	-1.44	1 370	-5.80	4 340	-10.95
	145	-0.07	460	-1.58	1 450	-6.29	4 600	-10.32
	154	-0.07	487	-1.78	1 540	-6.95	4 870	-9.64
	163	-0.07	516	-2.04	1 630	-7.73	5 160	-9.03
	173	-0.09	546	-2.32	1 730	-8.60	5 460	-8.40
	183	-0.11	579	-2.63	1 830	-9.39	5 790	-7.85
	194	-0.15	613	-2.87	1 940	-10.24	6 130	-7.36
	205	-0.19	649	-3.07	2 050	-11.07	6 490	-6.91
	218	-0.24	688	-3.21	2 180	-11.95	6 880	-6.39
	230	-0.30	729	-3.32	2 300	-12.76	7 290	-6.00
	244	-0.36	772	-3.45	2 440	-13.49	7 720	-6.23
	259	-0.46	818	-3.59	2 590	-13.84	8 180	-7.17
	274	-0.55	866	-3.78	2 740	-13.99	8 660	-7.74

4.2 Test Configuration

4.2.1 Test Diagram

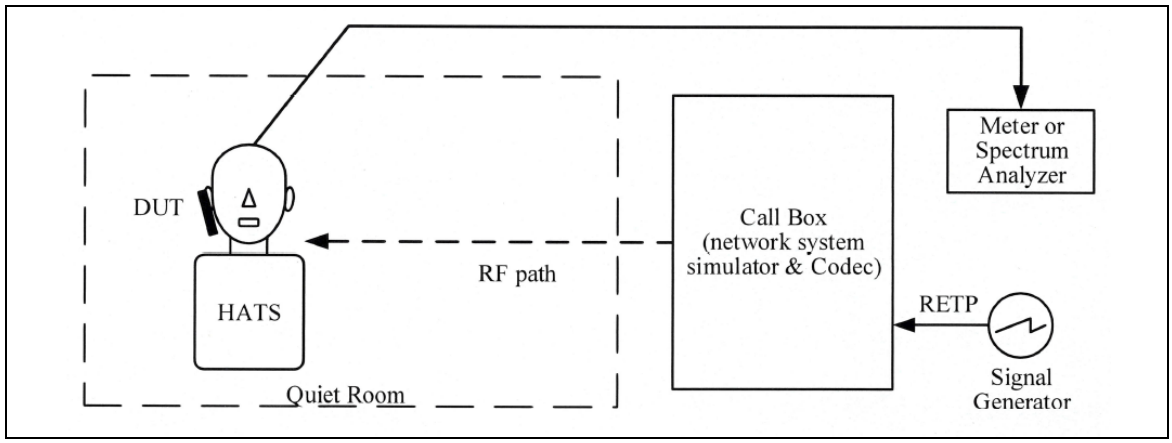


Figure 1. Volume Control Test Set-up

1) In order to satisfy the quiet room condition below 40 dBA background noise according to TIA-5050 standard, HATS and DUT were placed in Anechoic Chamber and the noise level was checked using Sound Level Meter Type 2250.

2) labCORE equipment is used for signal generator and meter. This equipment directly provided operating voltage for HATS's microphone and -20 dBm0 sound source to Call Box RETP Point.

3) CMW500 Call box was used for GSM, WCDMA, LTE and WIFI call tests, where the audio input level was set to 1.572 V so that the signal source level supplied from labCORE to RETP matched -20 dBm0.

4) When testing NR calls using UXM Call box, we used USB audio JIG U8903B-UAM because equipment does not provide direct audio input. In addition, since JIG output is connected to MIC input of SIP virtual terminal software called IMS Client, equipment microphone level was set to equivalent to the level of CMW 500, which already RETP condition was known. Finally, we conducted NR call test after confirming CMW500 LTE Call and UMX NSA mode have same level of measurement results.

4.2.2 Handset Positioning

In all tests, handset was placed at the STP (Standard Test Position) of IEEE std 269 and ITU-T P.64 annex E by adjusting the handset positioner Type 4606 of HATS Type 4821C.

4.2.3 Waiver DA23-914 for Volume Control Test

This test report demonstrate compliance with Volume Control requirements of TIA-5050 standard relaxed by applying Waiver DA23-914. And for detailed information on test application, refer to Technical testing guidance of KDB 285076 D05 HAC Waiver DA 23-914 v01:

2.a. Under the waiver, only CMRS narrowband and CMRS wideband voice codecs are required to comply with the volume control requirements of the TIA 5050-2018 Volume Control Standard as amended as follows
→ According to this content, test codec is limited to AMR and EVS codecs.

2.a.1. For the 2N mounting force test, one narrowband and one wideband voice codec embedded with the handset must pass with at least one volume control setting with a conversational gain of ≥ 6 dB for all voice services, bands of operation and air interfaces over which it operates using one codec bit rate of the applicant's choosing.
→ According to this content, only EVS-NB 24.4 kbps and EVS-WB 24.4 kbps codecs were tested for all air interface and bands of DUT.

2.a.2. For the 8N mounting force test, one narrowband and one wideband voice codec embedded with the handset must pass with at least one volume control setting with a conversational gain of ≥ 6 dB for all voice services, bands of operation and air interfaces over which they operate but is not required to meet or exceed the full 18 dB of conversational gain specified in section 5.1.1 of the TIA 5050 Volume Control Standard using one codec bit rate of the applicant's choosing.
→ According to this content, we reported conversational gain result even if it less than 18 dB for 8 N mounting force test.

2.b. For all other narrowband and wideband codecs not evaluated in 2.a. above, TIA 5050-2018 Receive Distortion and Noise Performance and Receive Acoustic Frequency Response Performance evaluations are not required; however, these codecs shall be assessed for conversational gain and documented in the test report at the 2N and 8N levels with a gain of ≥ 6 dB for all voice services, bands of operation and air interfaces over which they operate. The handset volume setting used to comply with 2.a. shall be used for these other CMRS codec evaluations.
→ According to this, Conversational Gain tests were performed for different bit rates of EVS-NB and WB. And other codecs such as FR V2 for GSM and AMR-NB, WB were also tested.

2.c. Any other codec for voice services embedded in the handset, not identified in 2.a. and 2.b. above, is not required to comply or demonstrate in the test reports for conversational gain.
→ According to this content, we did not test 'Google Meet' supported by DUT.

4.3 Measurement Uncertainty

Test Item	Uncertainty
Receiving volume control	1.3 dB
Receiving distortion and noise	1.4 dB
Receiving frequency response	1.3 dB
NOTE : All uncertainty values are expanded standard uncertainty to give a confidence level of 95 %, based on coverage factor k=2	

4.4 Test Environment

Temperature	(22.0 ± 3.0) °C
Relative humidity	(52.5 ± 22.5) %
Atmospheric pressure	(96.0 ± 10.0) kPa

5. Measuring Instrument Calibration

The measuring equipment used to perform the tests documented in this report has been calibrated in accordance with the manufacturers' recommendations and is traceable to recognized national standards.

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date (M.D.Y)
Head and Torso Simulator	B&K	Type 4128C	2515986	N/A
Anechoic Chamber	B&K	N/A	N/A	N/A
Sound Level Meter	B&K	Type 2250	2506747	02.22.2025
Sound Calibrator	B&K	Type 4231	2513225	12.06.2024
ACQUA compact	Head Acoustic	labCORE	77000427	05.29.2025
Radio Communication Tester	R & S	CMW 500	167916	09.21.2024
Radio Communication Tester	R & S	CMW 500	167918	03.20.2025
Up/Down-Converter	R & S	CMW-Z800A	100218	N/A
USB Audio Module	KEYSIGHT	U8903B-UAM	101006	N/A
UXM 5G Wireless Test Set	KEYSIGHT	E7515B	MY60102101	04.25.2025

6. Test Result Summary

6.1 TIA-5050 full test results for codecs of applicant's choosing

According to sections 2.a. of KDB 285076 D05 HAC Waiver DA 23-014 v01, only the highest bit rate of EVS-NB and EVS-WB codecs selected by the applicant were tested.

All tests were performed with EUT volume set to MAX -1 level and HAC tone control mode turned on.

1) Narrow Band Codec: EVS-NB 24.4 kbps - Mounting Force 2 N

Air Inter.	Band (Ant.)	Channel	Freq. (MHz)	BW (MHz)	Modulation		RB	Conv. Gain (dB)	Min PN-SDNR (dB)	Frequency Response		F.R. Plot Page
										LRP	Margin (dB)	
LTE FDD	B25 (Ant.A)	CH.26365	1 882.5	20	QPSK		1/0	20.00	29.26	DF	1.65	
							50/49	20.23	25.31	DF	1.64	
							100/0	19.92	28.63	DF	1.62	
					256QAM		50/25	20.10	24.40	DF	1.61	
				10	16QAM		1/0	19.54	28.42	DF	1.67	
				1.4	16QAM		1/0	19.97	23.55	DF	1.56	
		CH.26235	1 869.5	20	QPSK		50/49	20.02	28.40	DF	1.63	
		CH.26275	1 873.5	20	QPSK		50/49	20.02	28.30	DF	1.63	
	B25 (Ant.F)	CH.26365	1 882.5	20	QPSK		100/0	20.56	26.11	DF	1.71	
	B7 (Ant.B)	CH.21100	2 535	10	64QAM		50/0	19.84	24.96	DF	1.07	
	B7 (Ant.F)	CH.20850	2 510	20	256QAM		100/0	19.69	25.19	DF	1.13	
	B12 (Ant.A)	CH.23095	707.5	5	QPSK		1/0	19.75	26.84	DF	1.70	
	B13 (Ant.A)	CH.23230	782	10	16QAM		1/0	19.64	27.29	DF	1.64	
	B14 (Ant.A)	CH.23330	793	10	QPSK		50/0	19.17	25.16	DF	1.67	
	B26 (Ant.A)	CH.26865	831.5	15	64QAM		1/49	19.51	24.23	DF	1.10	
	B30 (Ant.A)	CH.27710	2 310	10	16QAM		1/49	19.71	30.06	DF	1.01	
	B30 (Ant.F)	CH.27690	2 308	5	QPSK		1/0	19.61	28.64	DF	1.06	
	B66 (Ant.A)	CH.132322	1 745	20	16QAM		50/25	19.77	29.11	DF	1.05	
	B66 (Ant.F)	CH.132652	1 778	5	QPSK		1/0	19.44	25.63	DF	1.05	
	B71 (Ant.A)	CH.133297	680.5	20	16QAM		1/0	19.81	30.08	DF	1.13	
LTE TDD	B41 PC2 (Ant.B)	CH.40620	2 593	20	QPSK		50/25	19.74	28.09	DF	1.59	
							1/99	19.98	28.39	DF	1.63	
					16QAM		50/25	20.01	28.07	DF	1.65	
					64QAM		50/25	19.88	27.63	DF	1.51	
				5	QPSK		1/0	19.70	28.21	DF	1.60	
		CH.39750	2 506	20	QPSK		50/25	19.68	27.68	DF	1.64	
		CH.41490	2 680	20	QPSK		50/25	20.01	24.47	DF	1.62	
	B41 PC3 (Ant.B)	CH.40620	2 593	20	QPSK		50/25	19.94	28.27	DF	1.61	
	B41 PC2 (Ant.F)	CH.40620	2 593	20	QPSK		50/25	19.61	27.82	DF	1.60	
	B41 PC3 (Ant.F)	CH.40620	2 593	20	QPSK		50/25	19.95	28.34	DF	1.77	
	B48 (Ant.F)	CH.55990	3 625	10	QPSK		50/25	20.13	28.96	DF	1.52	
NR FDD	n25 (Ant.A)	CH.376500	1 882.5	40	DFT-s-OFDM	QPSK	1/1	20.09	26.48	DF	1.23	
							108/108	19.72	26.67	DF	1.31	
						64QAM	108/54	19.77	27.24	DF	1.27	
					CP-OFDM	QPSK	1/108	20.32	26.85	DF	1.25	
							215/1	19.76	28.54	DF	1.27	
						16QAM	108/54	19.85	27.81	DF	1.09	

Air Inter.	Band (Ant.)	Channel	Freq. (MHz)	BW (MHz)	Modulation		RB	Conv. Gain (dB)	Min PN-SDNR (dB)	Frequency Response		F.R. Plot Page
										LRP	Margin (dB)	
NR FDD	n25 (Ant.A)	CH.376500	1 882.5	30	CP-OFDM	256QAM	1/1	19.85	28.83	DF	1.17	
				15	CP-OFDM	256QAM	1/1	19.52	27.23	DF	1.16	
		CH.378200	1 891.00	40	DFT-s-OFDM	QPSK	216/0	19.90	28.05	DF	1.26	
		CH.378400	1 892.00	40	CP-OFDM	16QAM	108/54	19.54	27.41	DF	1.27	
	n25 (Ant.F)	CH.376500	1 882.5	40	DFT-s-OFDM	QPSK	108/54	19.79	29.83	DF	1.16	
	n7 (Ant.B)	CH.507000	2 535	40	CP-OFDM	256QAM	1/1	19.70	25.54	DF	1.26	
	n7 (Ant.F)	CH.507000	2 535	20	DFT-s-OFDM	QPSK	100/0	19.80	29.92	DF	1.21	
	n12 (Ant.A)	CH.141500	707.5	15	CP-OFDM	256QAM	1/1	20.19	29.27	DF	1.13	
	n26 (Ant.A)	CH.166300	831.5	20	CP-OFDM	16QAM	1/54	20.64	23.92	DF	1.37	
	n30 (Ant.A)	CH.462000	2 310	10	DFT-s-OFDM	64QAM	1/1	19.50	29.78	DF	1.21	
	n30 (Ant.F)	CH.462500	2 312.5	5	CP-OFDM	QPSK	0/25	19.69	24.91	DF	1.24	
	n66 (Ant.A)	CH.349000	1 745	40	CP-OFDM	256QAM	1/1	19.79	27.66	DF	1.18	
	n66 (Ant.F)	CH.352400	1762	10	DFT-s-OFDM	64QAM	1/1	19.70	28.46	DF	1.23	
	n70 (Ant.A)	CH.340500	1 702.5	15	CP-OFDM	64QAM	1/1	19.78	24.64	DF	1.20	
	n71 (Ant.A)	CH.136100	680.5	20	DFT-s-OFDM	16QAM	1/1	20.79	29.60	DF	1.15	
NR TDD	n77 (Ant.F)	CH.656000	3 840	100	CP-OFDM	QPSK	137/0	20.59	29.54	DF	1.25	
							137/136	20.69	28.90	DF	1.14	
						256QAM	273/0	18.95	29.94	DF	1.15	
					DFT-s-OFDM	BPSK	270/0	19.10	30.04	DF	1.14	
						16QAM	270/0	19.00	30.31	DF	1.06	
				60	DFT-s-OFDM	64QAM	162/0	19.94	29.32	DF	1.07	
				20	DFT-s-OFDM	64QAM	50/0	20.58	24.48	DF	1.01	
				10	DFT-s-OFDM	64QAM	24/0	19.83	28.29	DF	1.07	
	n77 DoD (Ant.F)	CH.633334	3 500.01	80	DFT-s-OFDM	64QAM	216/0	20.31	26.75	DF	1.12	
	n41 (Ant.I)	CH.518598	2 529.99	80	DFT-s-OFDM	64QAM	216/0	20.61	25.49	DF	1.12	
	n38 (Ant.B)	CH.519000	2 595	40	DFT-s-OFDM	QPSK	1/105	20.29	27.48	DF	1.10	
	n48 (Ant.F)	CH.641666	3 624.99	40	DFT-s-OFDM	64QAM	100/0	19.56	28.30	DF	1.13	
WIFI 2.4 GHz	802.11b	CH.6	2 437	20	DSSS		N/A	20.06	24.22	DF	1.66	
					CCK		N/A	19.44	27.28	DF	1.61	
		CH.1	2 412	20	DSSS		N/A	20.13	25.61	DF	1.68	
		CH.11	2 462	20	DSSS		N/A	19.62	26.91	DF	1.60	
	802.11g	CH.6	2 437	20	64QAM		N/A	19.78	25.81	DF	1.90	
	802.11n	CH.6	2 437	20	MCS 3		N/A	19.90	27.44	FF	1.53	
	802.11ac	CH.6	2 437	20	MCS 0		N/A	20.78	26.34	DF	1.38	
	802.11ax	CH.6	2 437	20	MCS 0		N/A	19.73	23.63	DF	1.62	
WIFI 5 GHz	802.11a	CH.40 (U-NII-1)	5 200	20	BPSK		N/A	20.50	25.81	DF	1.01	
					64QAM		N/A	19.46	26.23	DF	1.02	
		CH.52 (U-NII-2A)	5 260	20	64QAM		N/A	19.92	27.60	DF	1.09	
	802.11n_HT20	CH.40 (U-NII-1)	5 200	20	MCS 3		N/A	19.34	28.12	DF	1.02	
		CH.64 (U-NII-2A)	5 320	20	MCS 7		N/A	20.04	28.78	DF	1.03	
	802.11n_HT40	CH.102 (U-NII-2C)	5 510	40	MCS 7		N/A	20.48	23.83	DF	1.03	
	802.11ac_VHT20	CH.40 (U-NII-1)	5 200	20	MCS 0		N/A	19.42	28.24	DF	1.01	
		CH.120 (U-NII-2C)	5 600	20	MCS 4		N/A	20.03	28.62	DF	1.02	
		CH.173 (U-NII-4)	5 865	20	MCS 4		N/A	20.99	28.47	DF	1.07	
	802.11ac_VHT40	CH.159 (U-NII-3)	5 795	40	MCS 4		N/A	19.38	28.59	DF	1.01	
	802.11ac_VHT80	CH.106 (U-NII-2C)	5 530	80	MCS 0		N/A	20.61	28.43	DF	1.15	
	802.11ac_VHT160	CH 114 (U-NII-2C)	5 570	160	MCS 0		N/A	20.84	26.41	DF	1.03	
	802.11ax_HE20	CH.140 (U-NII-2C)	5 700	20	MCS 0		N/A	20.67	28.44	DF	1.01	
		CH.173 (U-NII-4)	5 865	20	MCS 6		N/A	20.98	25.78	DF	1.06	
		CH.5 (U-NII-5)	5 975	20	MCS 0		N/A	19.45	27.46	DF	1.00	51
	802.11ax_HE40	CH.38 (U-NII-1)	5 190	40	MCS 6		N/A	20.63	24.05	DF	1.18	
		CH.159 (U-NII-3)	5 795	40	MCS 11		N/A	20.46	22.34	DF	1.03	
	802.11ax_HE80	CH.58 (U-NII-2A)	5 290	80	MCS 0		N/A	20.53	24.91	DF	1.12	
	802.11ax_HE160	CH.114 (U-NII-2C)	5 570	160	MCS 11		N/A	20.85	25.20	DF	1.13	

2) Narrow Band Codec: EVS-NB 24.4 kbps - Mounting Force 8 N

Air Inter.	Band (Ant.)	Channel	Freq. (MHz)	BW (MHz)	Modulation		RB	Conv. Gain (dB)	Min PN-SDNR (dB)	Frequency Response		F.R. Plot Page
										LRP	Margin (dB)	
LTE FDD	B25 (Ant.A)	CH.26365	1 882.5	20	QPSK		1/0	22.39	27.71	DF	1.64	
							50/49	22.40	25.69	DF	1.66	
							100/0	22.06	24.18	DF	1.63	
					256QAM		50/25	22.14	27.82	DF	1.66	
				10	16QAM		1/0	22.49	24.50	DF	1.70	
				1.4	16QAM		1/0	22.21	26.49	DF	1.67	
		CH.26235	1 869.5	20	QPSK		50/49	22.15	27.44	DF	1.71	
		CH.26275	1 873.5	20	QPSK		50/49	22.16	25.91	DF	1.70	
	B25 (Ant.F)	CH.26365	1 882.5	20	QPSK		100/0	22.10	25.35	DF	1.81	
	B7 (Ant.B)	CH.21100	2 535	10	64QAM		50/0	21.07	26.41	DF	1.22	
	B7 (Ant.F)	CH.20850	2 510	20	256QAM		100/0	21.18	25.03	DF	1.12	
	B12 (Ant.A)	CH.23095	707.5	5	QPSK		1/0	21.83	25.82	DF	1.66	
	B13 (Ant.A)	CH.23230	782	10	16QAM		1/0	21.69	25.54	DF	1.63	
	B14 (Ant.A)	CH.23330	793	10	QPSK		50/0	21.68	27.24	DF	1.69	
	B26 (Ant.A)	CH.26865	831.5	15	64QAM		1/49	21.08	24.67	DF	1.17	
	B30 (Ant.A)	CH.27710	2 310	10	16QAM		1/49	21.03	25.61	DF	1.26	
	B30 (Ant.F)	CH.27690	2 308	5	QPSK		1/0	20.87	28.33	DF	1.22	
	B66 (Ant.A)	CH.132322	1 745	20	16QAM		50/25	21.06	29.10	DF	1.14	
	B66 (Ant.F)	CH.132652	1 778	5	QPSK		1/0	21.09	27.40	DF	1.17	
	B71 (Ant.A)	CH.133297	680.5	20	16QAM		1/0	21.07	29.58	DF	1.13	
LTE TDD	B41 PC2 (Ant.B)	CH.40620	2 593	20	QPSK		50/25	22.24	27.43	DF	1.58	
							1/99	22.16	27.15	DF	1.72	
					16QAM		50/25	22.15	24.56	DF	1.73	
					64QAM		50/25	21.52	27.92	DF	1.81	
				5	QPSK		1/0	22.09	27.78	DF	1.70	
		CH.39750	2 506	20	QPSK		50/25	22.09	27.13	DF	1.68	
		CH.41490	2 680	20	QPSK		50/25	22.03	28.00	DF	1.66	
	B41 PC3 (Ant.B)	CH.40620	2 593	20	QPSK		50/25	22.15	25.75	DF	1.64	
	B41 PC2 (Ant.F)	CH.40620	2 593	20	QPSK		50/25	22.08	27.72	DF	1.58	
	B41 PC3 (Ant.F)	CH.40620	2 593	20	QPSK		50/25	22.00	27.53	DF	1.72	
	B48 (Ant.F)	CH.55990	3 625	10	QPSK		50/25	21.45	28.56	DF	1.60	
NR FDD	n25 (Ant.A)	CH.376500	1 882.5	40	DFT-s-OFDM	QPSK	1/1	21.20	26.18	DF	1.41	
							108/108	21.16	27.27	DF	1.38	
						64QAM	108/54	20.73	27.79	DF	1.41	
					CP-OFDM	QPSK	1/108	21.99	28.51	DF	1.35	
							215/1	20.91	29.61	DF	1.38	
						16QAM	108/54	20.94	28.58	DF	1.32	
				30	CP-OFDM	256QAM	1/1	20.54	27.41	DF	1.41	
				15	CP-OFDM	256QAM	1/1	21.08	26.03	DF	1.35	
		CH.378200	1 891.00	40	DFT-s-OFDM	QPSK	216/0	20.95	26.15	DF	1.48	
		CH.378400	1 892.00	40	CP-OFDM	16QAM	108/54	20.56	28.08	DF	1.32	
	n25 (Ant.F)	CH.376500	1 882.5	40	DFT-s-OFDM	QPSK	108/54	20.88	25.41	DF	1.36	
	n7 (Ant.B)	CH.507000	2 535	40	CP-OFDM	256QAM	1/1	20.88	26.65	DF	1.50	
	n7 (Ant.F)	CH.507000	2 535	20	DFT-s-OFDM	QPSK	100/0	21.15	27.40	DF	1.39	
	n12 (Ant.A)	CH.141500	707.5	15	CP-OFDM	256QAM	1/1	21.01	28.08	DF	1.34	
	n26 (Ant.A)	CH.166300	831.5	20	CP-OFDM	16QAM	1/54	22.14	26.33	DF	1.44	
	n30 (Ant.A)	CH.462000	2 310	10	DFT-s-OFDM	64QAM	1/1	21.29	28.52	DF	1.34	
	n30 (Ant.F)	CH.462500	2 312.5	5	CP-OFDM	QPSK	0/25	21.16	29.91	DF	1.29	
	n66 (Ant.A)	CH.349000	1 745	40	CP-OFDM	256QAM	1/1	21.20	30.11	DF	1.31	
	n66 (Ant.F)	CH.352400	1762	10	DFT-s-OFDM	64QAM	1/1	21.25	28.97	DF	1.25	
	n70 (Ant.A)	CH.340500	1 702.5	15	CP-OFDM	64QAM	1/1	21.31	26.67	DF	1.20	
	n71 (Ant.A)	CH.136100	680.5	20	DFT-s-OFDM	16QAM	1/1	22.39	28.41	DF	1.36	

Air Inter.	Band (Ant.)	Channel	Freq. (MHz)	BW (MHz)	Modulation		RB	Conv. Gain (dB)	Min PN-SDNR (dB)	Frequency Response		F.R. Plot Page
										LRP	Margin (dB)	
NR TDD	n77 (Ant.F)	CH.656000	3 840	100	CP-OFDM	QPSK	137/0	22.50	27.73	DF	1.15	
							137/136	22.49	29.45	DF	1.15	
						256QAM	273/0	21.73	29.07	DF	1.23	
					DFT-s-OFDM	BPSK	270/0	21.91	29.29	DF	1.12	
						16QAM	270/0	22.14	28.74	DF	1.18	
				60	DFT-s-OFDM	64QAM	162/0	22.78	28.71	DF	1.28	
				20	DFT-s-OFDM	64QAM	50/0	22.86	28.59	DF	1.22	
				10	DFT-s-OFDM	64QAM	24/0	22.64	24.38	DF	1.20	
	n77 DoD (Ant.F)	CH.633334	3 500.01	80	DFT-s-OFDM	64QAM	216/0	22.87	28.53	DF	1.25	
	n41 (Ant.I)	CH.518598	2 529.99	80	DFT-s-OFDM	64QAM	216/0	22.84	23.97	DF	1.21	
	n38 (Ant.B)	CH.519000	2 595	40	DFT-s-OFDM	QPSK	1/105	22.64	28.71	DF	1.15	
	n48 (Ant.F)	CH.641666	3 624.99	40	DFT-s-OFDM	64QAM	100/0	22.58	28.53	DF	1.17	
WIFI 2.4 GHz	802.11b	CH.6	2 437	20	DSSS		N/A	22.49	24.71	DF	1.75	
					CCK		N/A	22.32	25.27	DF	1.71	
		CH.1	2 412	20	DSSS		N/A	22.59	25.08	DF	1.67	
		CH.11	2 462	20	DSSS		N/A	22.47	27.54	DF	1.66	
	802.11g	CH.6	2 437	20	64QAM		N/A	22.51	27.24	DF	1.63	
	802.11n	CH.6	2 437	20	MCS 3		N/A	22.00	27.64	DF	1.66	
	802.11ac	CH.6	2 437	20	MCS 0		N/A	22.14	27.13	DF	1.06	
	802.11ax	CH.6	2 437	20	MCS 0		N/A	22.38	24.23	DF	1.61	
WIFI 5 GHz	802.11a	CH.40 (U-NII-1)	5 200	20	BPSK		N/A	21.67	28.25	DF	1.12	
					64QAM		N/A	21.05	25.17	DF	1.21	
		CH.52 (U-NII-2A)	5 260	20	64QAM		N/A	21.07	29.12	DF	1.10	
	802.11n_HT20	CH.40 (U-NII-1)	5 200	20	MCS 3		N/A	21.16	28.77	DF	1.13	
		CH.64 (U-NII-2A)	5 320	20	MCS 7		N/A	21.14	28.80	DF	1.08	
	802.11n_HT40	CH.102 (U-NII-2C)	5 510	40	MCS 7		N/A	21.78	26.43	DF	1.16	
	802.11ac_VHT20	CH.40 (U-NII-1)	5 200	20	MCS 0		N/A	21.12	28.34	DF	1.15	
		CH.120 (U-NII-2C)	5 600	20	MCS 4		N/A	21.42	26.09	DF	1.04	
		CH.173 (U-NII-4)	5 865	20	MCS 4		N/A	22.13	28.43	DF	1.10	
	802.11ac_VHT40	CH.159 (U-NII-3)	5 795	40	MCS 4		N/A	21.52	28.54	DF	1.04	
	802.11ac_VHT80	CH.106 (U-NII-2C)	5 530	80	MCS 0		N/A	22.15	28.44	DF	1.17	
	802.11ac_VHT160	CH 114 (U-NII-2C)	5 570	160	MCS 0		N/A	22.13	28.52	DF	1.18	
	802.11ax_HE20	CH.140 (U-NII-2C)	5 700	20	MCS 0		N/A	22.13	28.50	DF	1.12	
		CH.173 (U-NII-4)	5 865	20	MCS 6		N/A	22.17	28.59	DF	1.20	
		CH.5 (U-NII-5)	5 975	20	MCS 0		N/A	21.72	24.91	DF	1.00	51
	802.11ax_HE40	CH.38 (U-NII-1)	5 190	40	MCS 6		N/A	22.09	23.38	DF	1.12	
		CH.159 (U-NII-3)	5 795	40	MCS 11		N/A	22.08	25.78	DF	1.12	
	802.11ax_HE80	CH.58 (U-NII-2A)	5 290	80	MCS 0		N/A	21.88	26.82	DF	1.14	
	802.11ax_HE160	CH.114 (U-NII-2C)	5 570	160	MCS 11		N/A	21.96	24.92	DF	1.19	

3) Wide Band Codec: EVS-WB 24.4 kbps - Mounting Force 2 N

Air Inter.	Band (Ant.)	Channel	Freq. (MHz)	BW (MHz)	Modulation		RB	Conv. Gain (dB)	Min PN-SDNR (dB)	Frequency Response		F.R. Plot Page
										LRP	Margin (dB)	
LTE FDD	B25 (Ant.A)	CH.26365	1 882.5	20	QPSK		1/0	18.57	25.20	DF	2.27	
							50/49	19.35	25.32	DF	2.42	
							100/0	19.13	21.61	DF	1.97	
					256QAM		50/25	19.18	22.22	DF	2.17	
				10	16QAM		1/0	18.84	22.58	DF	2.22	
				1.4	16QAM		1/0	19.06	24.35	DF	2.08	
		CH.26235	1 869.5	20	QPSK		50/49	19.07	25.03	DF	2.21	
		CH.26275	1 873.5	20	QPSK		50/49	19.21	25.95	DF	1.84	
	B25 (Ant.F)	CH.26365	1 882.5	20	QPSK		100/0	19.91	24.95	DF	2.33	
	B7 (Ant.B)	CH.21100	2 535	10	64QAM		50/0	20.00	24.41	DF	2.17	
	B7 (Ant.F)	CH.20850	2 510	20	256QAM		100/0	19.82	25.65	DF	2.43	
	B12 (Ant.A)	CH.23095	707.5	5	QPSK		1/0	18.76	23.53	DF	2.21	
	B13 (Ant.A)	CH.23230	782	10	16QAM		1/0	18.77	23.14	DF	2.19	
	B14 (Ant.A)	CH.23330	793	10	QPSK		50/0	19.53	24.89	DF	1.98	
	B26 (Ant.A)	CH.26865	831.5	15	64QAM		1/49	19.72	25.19	DF	2.31	
	B30 (Ant.A)	CH.27710	2 310	10	16QAM		1/49	20.03	24.83	DF	2.35	
	B30 (Ant.F)	CH.27690	2 308	5	QPSK		1/0	19.93	24.52	DF	2.22	
	B66 (Ant.A)	CH.132322	1 745	20	16QAM		50/25	20.10	24.72	DF	2.20	
	B66 (Ant.F)	CH.132652	1 778	5	QPSK		1/0	19.62	25.48	DF	2.46	
	B71 (Ant.A)	CH.133297	680.5	20	16QAM		1/0	20.10	24.54	DF	2.16	
LTE TDD	B41 PC2 (Ant.B)	CH.40620	2 593	20	QPSK		50/25	18.90	25.13	DF	2.32	
							1/99	19.13	25.23	DF	2.30	
					16QAM		50/25	19.15	25.99	DF	2.05	
					64QAM		50/25	19.11	25.05	DF	2.45	
				5	QPSK		1/0	18.77	25.32	DF	2.30	
		CH.39750	2 506	20	QPSK		50/25	18.76	25.93	DF	2.39	
		CH.41490	2 680	20	QPSK		50/25	19.24	25.53	DF	2.23	
	B41 PC3 (Ant.B)	CH.40620	2 593	20	QPSK		50/25	19.09	25.38	DF	2.39	
	B41 PC2 (Ant.F)	CH.40620	2 593	20	QPSK		50/25	18.73	25.48	DF	2.45	
	B41 PC3 (Ant.F)	CH.40620	2 593	20	QPSK		50/25	19.09	25.48	DF	2.45	
	B48 (Ant.F)	CH.55990	3 625	10	QPSK		50/25	19.29	25.67	DF	2.48	
NR FDD	n25 (Ant.A)	CH.376500	1 882.5	40	DFT-s-OFDM	QPSK	1/1	20.16	23.93	DF	2.24	
							108/108	20.18	23.34	DF	2.13	
						64QAM	108/54	20.18	24.16	DF	2.18	
					CP-OFDM	QPSK	1/108	20.20	25.53	DF	1.97	
							215/1	20.11	24.18	DF	2.49	
						16QAM	108/54	20.08	24.74	DF	2.07	
			1 882.5	30	CP-OFDM	256QAM	1/1	20.13	23.64	DF	2.11	
				15	CP-OFDM	256QAM	1/1	19.93	24.52	DF	2.07	
		CH.378200	1 891.00	40	DFT-s-OFDM	QPSK	216/0	20.03	24.61	DF	2.15	
		CH.378400	1 892.00	40	CP-OFDM	16QAM	108/54	20.15	25.27	DF	1.98	
	n25 (Ant.F)	CH.376500	1 882.5	40	DFT-s-OFDM	QPSK	108/54	20.19	24.19	DF	1.44	52
	n7 (Ant.B)	CH.507000	2 535	40	CP-OFDM	256QAM	1/1	20.12	24.08	DF	2.26	
	n7 (Ant.F)	CH.507000	2 535	20	DFT-s-OFDM	QPSK	100/0	20.08	24.55	DF	2.14	
	n12 (Ant.A)	CH.141500	707.5	15	CP-OFDM	256QAM	1/1	20.72	24.68	DF	2.37	
	n26 (Ant.A)	CH.166300	831.5	20	CP-OFDM	16QAM	1/54	20.59	24.77	DF	2.18	
	n30 (Ant.A)	CH.462000	2 310	10	DFT-s-OFDM	64QAM	1/1	19.96	25.16	DF	2.25	
	n30 (Ant.F)	CH.462500	2 312.5	5	CP-OFDM	QPSK	0/25	20.08	23.58	DF	1.86	
	n66 (Ant.A)	CH.349000	1 745	40	CP-OFDM	256QAM	1/1	20.16	23.87	DF	1.78	
	n66 (Ant.F)	CH.352400	1762	10	DFT-s-OFDM	64QAM	1/1	19.94	27.23	DF	1.97	
	n70 (Ant.A)	CH.340500	1 702.5	15	CP-OFDM	64QAM	1/1	20.41	26.74	DF	1.93	
	n71 (Ant.A)	CH.136100	680.5	20	DFT-s-OFDM	16QAM	1/1	20.41	26.07	DF	2.12	

Air Inter.	Band (Ant.)	Channel	Freq. (MHz)	BW (MHz)	Modulation		RB	Conv. Gain (dB)	Min PN-SDNR (dB)	Frequency Response		F.R. Plot Page
										LRP	Margin (dB)	
NR TDD	n77 (Ant.F)	CH.656000	3 840	100	CP-OFDM	QPSK	137/0	20.52	23.78	DF	2.31	
							137/136	20.52	23.89	DF	2.22	
						256QAM	273/0	19.00	26.58	DF	2.24	
					DFT-s-OFDM	BPSK	270/0	19.18	24.68	DF	2.15	
						16QAM	270/0	19.27	24.49	DF	1.94	
				60	DFT-s-OFDM	64QAM	162/0	19.80	25.88	DF	2.32	
				20	DFT-s-OFDM	64QAM	50/0	19.91	24.03	DF	2.20	
				10	DFT-s-OFDM	64QAM	24/0	19.71	24.25	DF	2.10	
	n77 DoD (Ant.F)	CH.633334	3 500.01	80	DFT-s-OFDM	64QAM	216/0	20.42	24.39	DF	1.79	
	n41 (Ant.I)	CH.518598	2 529.99	80	DFT-s-OFDM	64QAM	216/0	20.10	27.50	DF	2.36	
	n38 (Ant.B)	CH.519000	2 595	40	DFT-s-OFDM	QPSK	1/105	20.22	25.61	DF	2.05	
	n48 (Ant.F)	CH.641666	3 624.99	40	DFT-s-OFDM	64QAM	100/0	19.91	27.37	DF	2.21	
WIFI 2.4 GHz	802.11b	CH.6	2 437	20	DSSS		N/A	19.40	25.16	DF	2.35	
					CCK		N/A	18.72	24.85	DF	2.30	
		CH.1	2 412	20	DSSS		N/A	19.42	25.46	DF	2.35	
		CH.11	2 462	20	DSSS		N/A	19.12	23.64	DF	2.18	
	802.11g	CH.6	2 437	20	64QAM		N/A	18.96	24.61	FF	1.71	
	802.11n	CH.6	2 437	20	MCS 3		N/A	19.28	24.77	DF	2.25	
	802.11ac	CH.6	2 437	20	MCS 0		N/A	20.27	26.39	DF	2.06	
	802.11ax	CH.6	2 437	20	MCS 0		N/A	19.30	25.42	DF	2.41	
WIFI 5 GHz	802.11a	CH.40 (U-NII-1)	5 200	20	BPSK		N/A	20.63	24.90	DF	1.87	
					64QAM		N/A	19.61	25.09	DF	2.42	
		CH.52 (U-NII-2A)	5 260	20	64QAM		N/A	20.13	25.11	DF	2.34	
	802.11n_HT20	CH.40 (U-NII-1)	5 200	20	MCS 3		N/A	19.51	25.17	DF	2.25	
		CH.64 (U-NII-2A)	5 320	20	MCS 7		N/A	20.18	25.82	DF	2.71	
	802.11n_HT40	CH.102 (U-NII-2C)	5 510	40	MCS 7		N/A	19.79	24.75	DF	2.90	
	802.11ac_VHT20	CH.40 (U-NII-1)	5 200	20	MCS 0		N/A	19.61	24.99	DF	2.66	
		CH.120 (U-NII-2C)	5 600	20	MCS 4		N/A	20.19	25.10	DF	2.57	
		CH.173 (U-NII-4)	5 865	20	MCS 4		N/A	20.24	25.34	DF	2.72	
	802.11ac_VHT40	CH.159 (U-NII-3)	5 795	40	MCS 4		N/A	19.53	25.01	DF	2.61	
	802.11ac_VHT80	CH.106 (U-NII-2C)	5 530	80	MCS 0		N/A	19.74	24.34	DF	2.59	
	802.11ac_VHT160	CH 114 (U-NII-2C)	5 570	160	MCS 0		N/A	20.39	24.41	DF	2.48	
	802.11ax_HE20	CH.140 (U-NII-2C)	5 700	20	MCS 0		N/A	19.89	24.79	DF	2.80	
		CH.173 (U-NII-4)	5 865	20	MCS 6		N/A	20.25	24.96	DF	2.57	
		CH.5 (U-NII-5)	5 975	20	MCS 0		N/A	18.51	24.53	DF	1.97	
	802.11ax_HE40	CH.38 (U-NII-1)	5 190	40	MCS 6		N/A	19.97	23.09	DF	2.27	
		CH.159 (U-NII-3)	5 795	40	MCS 11		N/A	20.38	24.89	DF	2.70	
	802.11ax_HE80	CH.58 (U-NII-2A)	5 290	80	MCS 0		N/A	19.91	22.65	DF	2.77	
	802.11ax_HE160	CH.114 (U-NII-2C)	5 570	160	MCS 11		N/A	20.36	24.58	DF	2.52	

4) Wide Band Codec: EVS-WB 24.4 kbps - Mounting Force 8 N

Air Inter.	Band (Ant.)	Channel	Freq. (MHz)	BW (MHz)	Modulation		RB	Conv. Gain (dB)	Min PN-SDNR (dB)	Frequency Response		F.R. Plot Page
										LRP	Margin (dB)	
LTE FDD	B25 (Ant.A)	CH.26365	1 882.5	20	QPSK		1/0	21.36	24.73	DF	1.58	
							50/49	21.69	24.75	DF	1.60	
							100/0	21.34	24.75	DF	1.70	
					256QAM		50/25	21.36	25.54	DF	1.66	
				10	16QAM		1/0	21.56	25.04	DF	1.63	
				1.4	16QAM		1/0	21.49	25.02	DF	1.61	
		CH.26235	1 869.5	20	QPSK		50/49	21.36	24.54	DF	1.64	
		CH.26275	1 873.5	20	QPSK		50/49	21.35	24.56	DF	1.64	
	B25 (Ant.F)	CH.26365	1 882.5	20	QPSK		100/0	21.52	24.89	DF	1.47	
	B7 (Ant.B)	CH.21100	2 535	10	64QAM		50/0	21.27	24.70	DF	2.00	
	B7 (Ant.F)	CH.20850	2 510	20	256QAM		100/0	21.24	24.31	DF	1.57	
	B12 (Ant.A)	CH.23095	707.5	5	QPSK		1/0	21.05	24.94	DF	1.52	
	B13 (Ant.A)	CH.23230	782	10	16QAM		1/0	20.94	24.86	DF	1.68	
	B14 (Ant.A)	CH.23330	793	10	QPSK		50/0	21.82	24.91	DF	1.15	
	B26 (Ant.A)	CH.26865	831.5	15	64QAM		1/49	21.30	23.04	DF	1.83	
	B30 (Ant.A)	CH.27710	2 310	10	16QAM		1/49	21.31	24.42	DF	1.76	
	B30 (Ant.F)	CH.27690	2 308	5	QPSK		1/0	21.37	24.53	DF	1.75	
	B66 (Ant.A)	CH.132322	1 745	20	16QAM		50/25	21.33	24.59	DF	1.99	
	B66 (Ant.F)	CH.132652	1 778	5	QPSK		1/0	21.34	24.81	DF	1.84	
	B71 (Ant.A)	CH.133297	680.5	20	16QAM		1/0	21.38	25.10	DF	1.89	
LTE TDD	B41 PC2 (Ant.B)	CH.40620	2 593	20	QPSK		50/25	21.51	25.08	DF	1.77	
							1/99	21.48	24.89	DF	1.69	
					16QAM		50/25	21.51	25.52	DF	1.80	
					64QAM		50/25	20.87	24.68	DF	2.09	
				5	QPSK		1/0	21.40	25.02	DF	1.80	
		CH.39750	2 506	20	QPSK		50/25	21.43	25.48	DF	1.52	
		CH.41490	2 680	20	QPSK		50/25	21.31	25.10	DF	1.98	
	B41 PC3 (Ant.B)	CH.40620	2 593	20	QPSK		50/25	21.50	25.54	DF	1.89	
	B41 PC2 (Ant.F)	CH.40620	2 593	20	QPSK		50/25	21.48	25.27	DF	1.90	
	B41 PC3 (Ant.F)	CH.40620	2 593	20	QPSK		50/25	21.32	25.89	DF	1.79	
	B48 (Ant.F)	CH.55990	3 625	10	QPSK		50/25	20.82	25.36	DF	2.09	
NR FDD	n25 (Ant.A)	CH.376500	1 882.5	40	DFT-s-OFDM	QPSK	1/1	21.72	23.21	DF	1.76	
							108/108	21.72	23.11	DF	1.71	
						64QAM	108/54	21.49	24.52	DF	1.62	
					CP-OFDM	QPSK	1/108	21.65	22.65	DF	1.81	
							215/1	21.34	23.98	DF	1.84	
						16QAM	108/54	21.37	24.51	DF	1.93	
				30	CP-OFDM	256QAM	1/1	21.48	24.39	DF	2.12	
				15	CP-OFDM	256QAM	1/1	21.44	24.44	DF	1.89	
		CH.378200	1 891.00	40	DFT-s-OFDM	QPSK	216/0	21.40	24.07	DF	1.65	
		CH.378400	1 892.00	40	CP-OFDM	16QAM	108/54	21.34	24.28	DF	1.70	
	n25 (Ant.F)	CH.376500	1 882.5	40	DFT-s-OFDM	QPSK	108/54	21.35	24.07	DF	2.09	
	n7 (Ant.B)	CH.507000	2 535	40	CP-OFDM	256QAM	1/1	21.37	24.64	DF	1.98	
	n7 (Ant.F)	CH.507000	2 535	20	DFT-s-OFDM	QPSK	100/0	21.72	27.05	DF	1.67	
	n12 (Ant.A)	CH.141500	707.5	15	CP-OFDM	256QAM	1/1	21.81	23.80	DF	1.88	
	n26 (Ant.A)	CH.166300	831.5	20	CP-OFDM	16QAM	1/54	22.07	24.72	DF	1.64	
	n30 (Ant.A)	CH.462000	2 310	10	DFT-s-OFDM	64QAM	1/1	21.72	25.54	DF	1.81	
	n30 (Ant.F)	CH.462500	2 312.5	5	CP-OFDM	QPSK	0/25	21.75	24.09	DF	1.56	
	n66 (Ant.A)	CH.349000	1 745	40	CP-OFDM	256QAM	1/1	21.55	23.40	DF	1.37	
	n66 (Ant.F)	CH.352400	1762	10	DFT-s-OFDM	64QAM	1/1	21.54	24.15	DF	1.64	
	n70 (Ant.A)	CH.340500	1 702.5	15	CP-OFDM	64QAM	1/1	21.71	23.45	DF	1.79	
	n71 (Ant.A)	CH.136100	680.5	20	DFT-s-OFDM	16QAM	1/1	21.92	23.79	DF	1.92	

Air Inter.	Band (Ant.)	Channel	Freq. (MHz)	BW (MHz)	Modulation		RB	Conv. Gain (dB)	Min PN-SDNR (dB)	Frequency Response		F.R. Plot Page
										LRP	Margin (dB)	
NR TDD	n77 (Ant.F)	CH.656000	3 840	100	CP-OFDM	QPSK	137/0	22.08	25.31	DF	1.85	
							137/136	22.10	23.16	DF	1.60	
						256QAM	273/0	22.19	24.59	DF	1.47	
					DFT-s-OFDM	BPSK	270/0	21.98	24.06	DF	1.24	
						16QAM	270/0	22.18	25.33	DF	1.48	
				60	DFT-s-OFDM	64QAM	162/0	22.59	24.35	DF	1.12	52
				20	DFT-s-OFDM	64QAM	50/0	22.57	23.71	DF	1.44	
				10	DFT-s-OFDM	64QAM	24/0	22.54	25.71	DF	1.56	
	n77 DoD (Ant.F)	CH.633334	3 500.01	80	DFT-s-OFDM	64QAM	216/0	22.41	23.82	DF	1.43	
	n41 (Ant.I)	CH.518598	2 529.99	80	DFT-s-OFDM	64QAM	216/0	22.55	24.75	DF	1.33	
	n38 (Ant.B)	CH.519000	2 595	40	DFT-s-OFDM	QPSK	1/105	22.49	24.87	DF	1.32	
	n48 (Ant.F)	CH.641666	3 624.99	40	DFT-s-OFDM	64QAM	100/0	22.66	23.68	DF	1.53	
WIFI 2.4 GHz	802.11b	CH.6	2 437	20	DSSS		N/A	22.02	24.82	DF	1.57	
					CCK		N/A	21.77	23.02	DF	1.44	
		CH.1	2 412	20	DSSS		N/A	22.07	26.06	DF	1.45	
		CH.11	2 462	20	DSSS		N/A	21.85	24.77	DF	1.51	
	802.11g	CH.6	2 437	20	64QAM		N/A	21.90	23.49	DF	1.41	
	802.11n	CH.6	2 437	20	MCS 3		N/A	21.47	24.49	DF	1.61	
	802.11ac	CH.6	2 437	20	MCS 0		N/A	21.61	24.79	DF	2.01	
	802.11ax	CH.6	2 437	20	MCS 0		N/A	21.84	24.02	DF	1.59	
WIFI 5 GHz	802.11a	CH.40 (U-NII-1)	5 200	20	BPSK		N/A	21.80	24.85	DF	1.84	
					64QAM		N/A	21.20	24.92	DF	2.01	
		CH.52 (U-NII-2A)	5 260	20	64QAM		N/A	21.28	25.26	DF	2.44	
	802.11n_HT20	CH.40 (U-NII-1)	5 200	20	MCS 3		N/A	21.30	25.13	DF	2.17	
		CH.64 (U-NII-2A)	5 320	20	MCS 7		N/A	21.31	24.95	DF	1.71	
	802.11n_HT40	CH.102 (U-NII-2C)	5 510	40	MCS 7		N/A	21.24	24.14	DF	2.44	
	802.11ac_VHT20	CH.40 (U-NII-1)	5 200	20	MCS 0		N/A	21.29	25.07	DF	2.68	
		CH.120 (U-NII-2C)	5 600	20	MCS 4		N/A	21.65	25.02	DF	2.15	
		CH.173 (U-NII-4)	5 865	20	MCS 4		N/A	21.56	24.16	DF	2.45	
	802.11ac_VHT40	CH.159 (U-NII-3)	5 795	40	MCS 4		N/A	21.65	25.11	DF	1.95	
	802.11ac_VHT80	CH.106 (U-NII-2C)	5 530	80	MCS 0		N/A	21.59	24.22	DF	2.22	
	802.11ac_VHT160	CH 114 (U-NII-2C)	5 570	160	MCS 0		N/A	21.54	23.84	DF	2.54	
	802.11ax_HE20	CH.140 (U-NII-2C)	5 700	20	MCS 0		N/A	21.61	25.15	DF	2.38	
		CH.173 (U-NII-4)	5 865	20	MCS 6		N/A	21.57	23.18	DF	2.61	
		CH.5 (U-NII-5)	5 975	20	MCS 0		N/A	21.05	25.02	DF	2.11	
	802.11ax_HE40	CH.38 (U-NII-1)	5 190	40	MCS 6		N/A	21.50	24.48	DF	2.36	
		CH.159 (U-NII-3)	5 795	40	MCS 11		N/A	21.76	22.24	DF	2.24	
	802.11ax_HE80	CH.58 (U-NII-2A)	5 290	80	MCS 0		N/A	21.16	24.41	FF	1.52	
	802.11ax_HE160	CH.114 (U-NII-2C)	5 570	160	MCS 11		N/A	21.54	25.25	DF	2.41	

6.2 Conversational Gain for other codecs

According to section 2.b. of KDB 285076 D05 HAC Waiver DA 23-914 v01, only conversational gain was tested for codecs not evaluated in section 6.1 and its worst-case data is:

Mount Force	Trans. Mode	Air Inter.	Codec	Band	Channel	BW	Modulation	RB	Limit (dB)	Conv. Gain (dB)
2 N	NB	GSM	HR V1	850 (Ant.A)	CH.190	N/A			6	20.16
		WCDMA	AMR-NB 4.75 kbps	B2 (Ant.A)	CH.9262	N/A				19.57
		LTE FDD	AMR-NB 4.75 kbps	B14 (Ant.A)	CH.23330	10	QPSK	50/0		18.78
			EVS-NB 5.9 kbps	B14 (Ant.A)	CH.23330	10	QPSK	50/0		18.90
		LTE TDD	AMR-NB 4.75 kbps	B41 PC2 (Ant.B)	CH.39750	20	QPSK	50/25		18.65
			EVS-NB 5.9 kbps	B41 PC2 (Ant.B)	CH.40620	5	QPSK	1/0		19.10
		NR FDD	AMR-NB 4.75 kbps	n7 (Ant.B)	CH.507000	40	CP-OFDM 256QAM	1/1		18.64
			EVS-NB 5.9 kbps	n30 (Ant.F)	CH.462500	5	CP-OFDM QPSK	0/25		18.87
		NR TDD	AMR-NB 4.75 kbps	n77 (Ant.F)	CH.656000	100	DFT-s-OFDM BPSK	270/0		18.22
			EVS-NB 5.9 kbps	n77 (Ant.F)	CH.656000	100	CP-OFDM 256QAM	273/0		18.71
		WIFI 2.4 GHz	AMR-NB 4.75 kbps	802.11b	CH.6	20	CCK	N/A		18.58
			EVS-NB 5.9 kbps	802.11b	CH.6	20	CCK	N/A		18.72
		WIFI 5 GHz	AMR-NB 4.75 kbps	802.11ac_VHT40	CH.159 (U-NII-3)	40	MCS 9	N/A		18.76
			EVS-NB 5.9 kbps	802.11n_HT20	CH.40 (U-NII-1)	20	MCS 3	N/A		18.92
	WB	WCDMA	AMR-WB 6.6 kbps	B4 (Ant.A)	CH.1412	N/A			6	19.47
		LTE FDD	AMR-WB 6.6 kbps	B13 (Ant.A)	CH.23230	10	16QAM	1/0		18.49
			EVS-WB 5.9 kbps	B13 (Ant.A)	CH.23230	10	16QAM	1/0		18.11
		LTE TDD	AMR-WB 6.6 kbps	B41 PC2 (Ant.B)	CH.40620	5	QPSK	1/0		18.52
			EVS-WB 5.9 kbps	B41 PC2 (Ant.F)	CH.40620	20	QPSK	50/25		18.28
		NR FDD	AMR-WB 6.6 kbps	n25 (Ant.A)	CH.376500	15	CP-OFDM 256QAM	1/1		19.38
			EVS-WB 5.9 kbps	n25 (Ant.A)	CH.376500	15	CP-OFDM 256QAM	1/1		19.25
		NR TDD	AMR-WB 6.6 kbps	n77 (Ant.F)	CH.656000	100	CP-OFDM 256QAM	273/0		18.47
			EVS-WB 5.9 kbps	n77 (Ant.F)	CH.656000	100	CP-OFDM 256QAM	273/0		18.42
		WIFI 2.4 GHz	AMR-WB 6.6 kbps	802.11b	CH.6	20	CCK	N/A		18.20
			EVS-WB 5.9 kbps	802.11b	CH.6	20	CCK	N/A		18.09
		WIFI 5 GHz	AMR-WB 6.6 kbps	802.11ax_HE20	CH.5 (U-NII-5)	20	MCS 0	N/A		18.34
			EVS-WB 5.9 kbps	802.11ax_HE20	CH.5 (U-NII-5)	20	MCS 0	N/A		18.10
8 N	NB	GSM	HR V1	1900 (Ant.A)	CH.661	N/A			6	21.91
		WCDMA	AMR-NB 4.75 kbps	B2 (Ant.A)	CH.9262	N/A				21.27
		LTE FDD	AMR-NB 4.75 kbps	B7 (Ant.B)	CH.21100	10	64QAM	50/0		20.14
			EVS-NB 5.9 kbps	B30 (Ant.A)	CH.27710	10	16QAM	1/49		20.47
		LTE TDD	AMR-NB 4.75 kbps	B48 (Ant.F)	CH.55340	20	QPSK	50/25		20.66
			EVS-NB 5.9 kbps	B41 PC2 (Ant.B)	CH.40620	20	64QAM	50/25		20.99
		NR FDD	AMR-NB 4.75 kbps	n25 (Ant.A)	CH.378400	40	CP-OFDM 16QAM	108/54		19.97
			EVS-NB 5.9 kbps	n25 (Ant.A)	CH.378200	40	DFT-s-OFDM QPSK	216/0		20.06
		NR TDD	AMR-NB 4.75 kbps	n77 (Ant.F)	CH.656000	100	DFT-s-OFDM 16QAM	270/0		20.84
			EVS-NB 5.9 kbps	n77 (Ant.F)	CH.656000	100	CP-OFDM QPSK	137/136		21.03
		WIFI 2.4 GHz	AMR-NB 4.75 kbps	802.11n	CH.6	20	MCS 3	N/A		21.37
			EVS-NB 5.9 kbps	802.11b	CH.6	20	CCK	N/A		21.54
		WIFI 5 GHz	AMR-NB 4.75 kbps	802.11n_HT20	CH.64 (U-NII-2A)	20	MCS 7	N/A		20.38
			EVS-NB 5.9 kbps	802.11n_HT20	CH.40 (U-NII-1)	20	MCS 3	N/A		20.63
	WB	WCDMA	AMR-WB 6.6 kbps	B5 (Ant.A)	CH.4183	N/A			6	21.22
		LTE FDD	AMR-WB 6.6 kbps	B12 (Ant.A)	CH.23095	5	QPSK	1/0		20.73
			EVS-WB 5.9 kbps	B13 (Ant.A)	CH.23230	10	16QAM	1/0		20.48
		LTE TDD	AMR-WB 6.6 kbps	B41 PC2 (Ant.B)	CH.40620	20	64QAM	50/25		20.25
			EVS-WB 5.9 kbps	B41 PC2 (Ant.B)	CH.40620	20	64QAM	50/25		19.69

Mount Force	Trans. Mode	Air Inter.	Codec	Band	Channel	BW	Modulation	RB	Limit (dB)	Conv. Gain (dB)
8 N	WB	NR FDD	AMR-WB 6.6 kbps	n25 (Ant.A)	CH.376500	30	CP-OFDM 256QAM	1/1	6	20.92
			EVS-WB 5.9 kbps	n25 (Ant.A)	CH.376500	30	CP-OFDM 256QAM	1/1		20.71
		NR TDD	AMR-WB 6.6 kbps	n77 (Ant.F)	CH.656000	100	DFT-s-OFDM 16QAM	270/0		21.50
			EVS-WB 5.9 kbps	n77 (Ant.F)	CH.656000	100	CP-OFDM 256QAM	273/0		21.12
		WIFI 2.4 GHz	AMR-WB 6.6 kbps	802.11ax	CH.6	20	MCS 0	N/A		20.68
			EVS-WB 5.9 kbps	802.11n	CH.6	20	MCS 3	N/A		20.32
		WIFI 5 GHz	AMR-WB 6.6 kbps	802.11ax_HE20	CH.5 (U-NII-5)	20	MCS 0	N/A		20.86
			EVS-WB 5.9 kbps	802.11ax_HE160	CH.114 (U-NII-2C)	160	MCS 11	N/A		20.47

All tests were performed with EUT volume set to MAX -1 level and HAC tone control mode turned on.

7. Test Details

7.1 Receive Volume Control Performance

7.1.1 Test Limit

1) With a mounting force of 8N, the DUT shall have at least one volume control setting that will produce a conversational gain of ≥ 18 dB with the output distortion and frequency response meeting the requirements.
2) With a mounting force of 2N, the DUT shall have at least one volume control setting that will produce a conversational gain of ≥ 6 dB with the output distortion and frequency response meeting the requirements.

** Because the 18 dB limit for 8 N mounting force test is waived by waiver DA23-914, this test report only confirmed the 6 dB limit for the entire codecs.*

7.1.2 Test Procedure

1) Configure the DUT with a mounting force of 8N and test equipment as shown in Figure 1 in an active call state with the applicable codec for the transmission mode under test.
2) Set the DUT volume control to the maximum setting.
3) If the DUT has an adjustable tone control feature, a tone control setting that meets the frequency response requirements.
4) Apply the real speech test signal at a level of -20 dBm0 at the RETP and measure the acoustic output at the Drum Reference Point (DRP) over one complete sequence of the test signal.
5) Translate the measurement made at the DRP to the Free Field (FF) using the translation data.
6) Over the applicable frequency band, determine the ASL in dBSPL for the resulting sound pressure level in accordance with Method B of ITU-T Recommendation P. 56:

a. Narrowband 100 Hz through 4 000 Hz.
b. Wideband 100 Hz through 7 720 Hz.

7) Calculate the Conversational Gain by subtracting 70 dB from the measured dBSPL.
8) Measure the output distortion. If a distortion failure occurs at the maximum volume control setting, reduce the volume control setting and repeat the measurement to determine if a setting can be found for which the conversational gain requirement is met without a distortion failure.
9) Repeat steps 2) to 8) with a mounting force of 2N.

7.1.3 Test Result

All tests were performed with EUT volume set to MAX -1 level and HAC tone control mode turned on.

1) Codec Bitrate Investigation

: For codecs with bit rate, check the bit rate with the worst conversational gain

Air Inter.	Band (Ant.)	Channel	BW (MHz)	Modulation	RB	Trans. Mode	Codec	Bitrate (kbps)	Conversational Gain (dB)	
									Mount Force 2 N	Mount Force 8 N
GSM	850 (Ant.A)	CH.190	N/A			Narrow band	HR V1	N/A	20.16	22.03
							FR V1	N/A	20.51	22.21
							FR V2	N/A	20.87	22.56
WCDMA	B2 (Ant.A)	CH.9400	N/A			Narrow band	AMR-NB	4.75	19.80	21.39
								5.15	19.89	21.40
								5.9	20.20	21.55
								6.7	20.27	21.68
								7.4	20.34	21.99
								7.95	20.53	21.99
								10.2	20.66	22.12
								12.2	20.72	22.13
						Wide band	AMR-WB	6.6	19.69	21.33
								8.85	19.97	21.54
								12.65	20.09	21.63
								14.25	20.13	21.66
								15.85	20.15	21.67
								18.25	20.17	21.74
								19.85	20.18	21.74
								23.05	20.22	21.77
								23.85	20.22	21.79
LTE FDD	B25 (Ant.A)	CH.26365	20	QPSK	1/0	Narrow band	AMR-NB	4.75	19.37	21.63
								5.15	19.41	21.81
								5.9	19.46	21.91
								6.7	19.57	22.05
								7.4	19.64	22.14
								7.95	19.72	22.15
								10.2	19.77	22.21
								12.2	19.83	22.37
							EVS-NB	5.9	19.61	21.83
								7.2	19.69	21.90
								8	19.69	21.91
								9.6	19.78	21.93
								13.2	19.81	22.17
								16.4	19.87	22.26
								24.4	20.00	22.39
						Wide band	AMR-WB	6.6	18.87	21.24
								8.85	19.06	21.39
								12.65	19.09	21.54
								14.25	19.12	21.64
								15.85	19.14	21.64
								18.25	19.17	21.66
								19.85	19.24	21.67
								23.05	19.28	21.70
								23.85	19.28	21.74

Air Inter.	Band	Ch.	BW (MHz)	Mod.	RB	Trans. Mode	Codec	Bitrate (kbps)	Conversational Gain (dB)	
									Mount Force 2 N	Mount Force 8 N
LTE FDD	B25 (Ant.A)	CH.26365	20	QPSK	1/0	Wide band	EVS-WB	5.9	18.62	21.17
								7.2	18.66	21.17
								8	18.76	21.23
								9.6	18.77	21.39
								13.2	18.83	21.39
								16.4	19.10	21.54
								24.4	19.14	21.58
LTE TDD	B41 (Ant.B)	CH.40620	20	QPSK	50/25	Narrow Band	AMR-NB	4.75	18.69	21.53
								5.15	19.22	21.75
								5.9	19.45	21.79
								6.7	19.57	21.92
								7.4	19.59	22.02
								7.95	19.65	22.08
								10.2	19.74	22.21
								12.2	19.86	22.25
							EVS-NB	5.9	19.12	21.80
								7.2	19.34	21.87
								8	19.49	21.88
								9.6	19.40	21.95
								13.2	19.49	22.16
								16.4	19.67	22.18
								24.4	19.74	22.24
						Wide band	AMR-WB	6.6	18.61	21.29
								8.85	18.86	21.52
								12.65	18.97	21.54
								14.25	18.95	21.60
								15.85	18.99	21.65
								18.25	18.97	21.67
								19.85	18.96	21.70
								23.05	19.02	21.72
								23.85	19.05	21.73
							EVS-WB	5.9	18.40	21.08
								7.2	18.42	21.15
								8	18.58	21.29
								9.6	18.67	21.31
								13.2	18.57	21.32
								16.4	18.80	21.50
								24.4	18.90	21.51
NR FDD	n25 (Ant.A)	CH.376500	40	DFT-s-OFDM QPSK	1/1	Narrow Band	AMR-NB	4.75	19.53	20.67
								5.15	19.57	20.68
								5.9	19.58	20.70
								6.7	19.60	20.79
								7.4	19.64	20.90
								7.95	19.78	21.01
								10.2	20.04	21.15
								12.2	20.17	21.28
							EVS-NB	5.9	19.70	20.65
								7.2	19.72	20.76
								8	19.79	20.85
								9.6	19.90	20.87
								13.2	19.91	20.94
								16.4	20.00	21.16
								24.4	20.09	21.20

Air Inter.	Band	Ch.	BW (MHz)	Mod.	RB	Trans. Mode	Codec	Bitrate (kbps)	Conversational Gain (dB)	
									Mount Force 2 N	Mount Force 8 N
NR FDD	n25 (Ant.A)	CH.376500	40	DFT-s-OFDM QPSK	1/1	Wide band	AMR-WB	6.6	19.65	21.34
								8.85	19.80	21.46
								12.65	19.89	21.55
								14.25	20.03	21.67
								15.85	20.07	21.77
								18.25	20.12	21.79
								19.85	20.13	21.80
								23.05	20.17	21.89
								23.85	20.19	21.99
							EVS-WB	5.9	19.41	21.32
								7.2	19.41	21.33
								8	19.43	21.38
								9.6	19.69	21.38
								13.2	19.73	21.54
								16.4	19.87	21.69
								24.4	20.16	21.72
NR TDD	n77 (Ant.F)	CH.656000	100	CP-OFDM QPSK	1/1	Narrow Band	AMR-NB	4.75	19.79	21.30
								5.15	19.89	21.39
								5.9	19.92	21.55
								6.7	20.08	21.75
								7.4	20.18	21.79
								7.95	20.21	21.79
								10.2	20.23	22.04
								12.2	20.38	22.29
							EVS-NB	5.9	19.95	21.48
								7.2	20.07	21.68
								8	20.25	21.77
								9.6	20.28	21.98
								13.2	20.51	22.10
								16.4	20.58	22.38
								24.4	20.59	22.50
						Wide band	AMR-WB	6.6	19.93	21.77
								8.85	20.22	21.90
								12.65	20.38	21.98
								14.25	20.55	22.01
								15.85	20.55	22.03
								18.25	20.59	22.14
								19.85	20.65	22.15
								23.05	20.70	22.26
								23.85	20.73	22.29
							EVS-WB	5.9	20.06	21.52
								7.2	20.13	21.61
								8	20.22	21.69
								9.6	20.27	21.85
								13.2	20.38	21.85
								16.4	20.46	21.91
								24.4	20.52	22.08
WIFI 2.4 GHz	802.11b	CH.6	20	DSSS	N/A	Narrow Band	AMR-NB	4.75	19.60	21.93
								5.15	19.64	21.94
								5.9	19.73	22.02
								6.7	19.86	22.04
								7.4	19.93	22.15
								7.95	19.99	22.39
								10.2	19.99	22.55
								12.2	20.09	22.69

Air Inter.	Band	Ch.	BW (MHz)	Mod.	RB	Trans. Mode	Codec	Bitrate (kbps)	Conversational Gain (dB)	
									Mount Force 2 N	Mount Force 8 N
WIFI 2.4 GHz	802.11b	CH.6	20	DSSS	N/A	Narrow Band	EVS-NB	5.9	19.84	21.98
								7.2	19.92	22.09
								8	19.92	22.18
								9.6	19.93	22.23
								13.2	20.11	22.24
								16.4	20.11	22.58
								24.4	20.17	22.67
						Wide band	AMR-WB	6.6	19.15	21.81
								8.85	19.29	21.97
								12.65	19.41	22.02
								14.25	19.51	22.09
								15.85	19.52	22.11
								18.25	19.63	22.11
								19.85	19.67	22.18
								23.05	19.67	22.20
								23.85	19.69	22.24
							EVS-WB	5.9	18.94	21.62
								7.2	18.95	21.72
								8	19.00	21.70
								9.6	19.08	21.71
								13.2	19.09	21.75
								16.4	19.28	21.87
								24.4	19.35	21.89
WIFI 5 GHz	802.11a	CH.40 (U-NII-1)	20	BPSK	N/A	Narrow Band	AMR-NB	4.75	19.81	20.93
								5.15	20.01	20.93
								5.9	20.09	21.10
								6.7	20.19	21.30
								7.4	20.32	21.38
								7.95	20.48	21.51
								10.2	20.49	21.66
								12.2	20.68	21.68
							EVS-NB	5.9	19.71	21.14
								7.2	20.01	21.17
								8	20.01	21.32
								9.6	20.07	21.32
								13.2	20.21	21.40
								16.4	20.40	21.64
								24.4	20.50	21.67
						Wide band	AMR-WB	6.6	20.30	21.63
								8.85	20.58	21.79
								12.65	20.62	21.88
								14.25	20.63	21.88
								15.85	20.69	21.92
								18.25	20.72	21.96
								19.85	20.73	21.98
								23.05	20.77	22.00
								23.85	20.77	22.01
							EVS-WB	5.9	20.26	21.37
								7.2	20.32	21.47
								8	20.39	21.47
								9.6	20.45	21.59
								13.2	20.53	21.70
								16.4	20.53	21.70
								24.4	20.63	21.80

2) Conversational Gain for all of operating bands

: For codecs with bit rate, tested only bit rate with worst conversational gain.

Mount Force	Trans. Mode	Air Inter.	Codec	Band	Channel	BW (MHz)	Modulation	RB	Limit (dB)	Conv. Gain (dB)
2 N	NB	GSM	HR V1	850 (Ant.A)	CH.190	N/A			6	20.16
					CH.128					20.58
					CH.251					20.22
				1900 (Ant.A)	CH.661					20.72
		WCDMA	AMR-NB 4.75 kbps	B2 (Ant.A)	CH.9400	N/A			6	19.80
					CH.9262					19.57
					CH.9538					19.99
				B4 (Ant.A)	CH.1412					19.72
				B5 (Ant.A)	CH.4183					19.94
		LTE FDD	AMR-NB 4.75 kbps	B25 (Ant.A)	CH.26365	20	QPSK	1/0	6	19.37
								50/49		19.47
								100/0		19.38
							256QAM	50/25		19.35
						10	16QAM	1/0		19.10
						1.4	16QAM	1/0		19.53
					CH.26235	20	QPSK	50/49		19.03
					CH.26275	20	QPSK	50/49		19.34
				B25 (Ant.F)	CH.26365	20	QPSK	100/0		19.63
				B7 (Ant.B)	CH.21100	10	64QAM	50/0		19.45
				B7 (Ant.F)	CH.20850	20	256QAM	100/0		19.21
				B12 (Ant.A)	CH.23095	5	QPSK	1/0		19.07
				B13 (Ant.A)	CH.23230	10	16QAM	1/0		18.89
				B14 (Ant.A)	CH.23330	10	QPSK	50/0		18.78
				B26 (Ant.A)	CH.26865	15	64QAM	1/49		18.95
				B30 (Ant.A)	CH.27710	10	16QAM	1/49		19.03
				B30 (Ant.F)	CH.27690	5	QPSK	1/0		19.37
				B66 (Ant.A)	CH.132322	20	16QAM	50/25		19.06
				B66 (Ant.F)	CH.132652	5	QPSK	1/0		19.06
				B71 (Ant.A)	CH.133297	20	16QAM	1/0		19.03
			EVS-NB 5.9 kbps	B25 (Ant.A)	CH.26365	20	QPSK	1/0	6	19.61
								50/49		19.52
								100/0		19.54
							256QAM	50/25		19.72
						10	16QAM	1/0		19.07
						1.4	16QAM	1/0		19.67
					CH.26235	20	QPSK	50/49		19.52
					CH.26275	20	QPSK	50/49		19.49
				B25 (Ant.F)	CH.26365	20	QPSK	100/0		20.06
				B7 (Ant.B)	CH.21100	10	64QAM	50/0		19.61
				B7 (Ant.F)	CH.20850	20	256QAM	100/0		19.23
				B12 (Ant.A)	CH.23095	5	QPSK	1/0		19.37
				B13 (Ant.A)	CH.23230	10	16QAM	1/0		19.25
				B14 (Ant.A)	CH.23330	10	QPSK	50/0		18.90
				B26 (Ant.A)	CH.26865	15	64QAM	1/49		19.19
				B30 (Ant.A)	CH.27710	10	16QAM	1/49		19.41
				B30 (Ant.F)	CH.27690	5	QPSK	1/0		19.47
				B66 (Ant.A)	CH.132322	20	16QAM	50/25		19.49
				B66 (Ant.F)	CH.132652	5	QPSK	1/0		19.18
				B71 (Ant.A)	CH.133297	20	16QAM	1/0		19.75

Mount Force	Trans. Mode	Air Inter.	Codec	Band	Channel	BW (MHz)	Modulation	RB	Limit (dB)	Conv. Gain (dB)
2 N	NB	LTE TDD	AMR-NB 4.75 kbps	B41 PC2 (Ant.B)	CH.40620	20	QPSK	50/25	6	18.69
								1/99		19.21
							16QAM	50/25		19.67
							64QAM	50/25		19.42
						5	QPSK	1/0		18.92
					CH.39750	20	QPSK	50/25		18.65
					CH.41490	20	QPSK	50/25		19.46
				B41 PC3 (Ant.B)	CH.40620	20	QPSK	50/25		19.10
				B41 PC2 (Ant.F)	CH.40620	20	QPSK	50/25		18.79
				B41 PC3 (Ant.F)	CH.40620	20	QPSK	50/25		19.14
				B48 (Ant.F)	CH.55990	20	QPSK	50/25		19.70
			EVS-NB 5.9 kbps	B41 (Ant.B)	CH.40620	20	QPSK	50/25	6	19.12
								1/99		19.67
							16QAM	50/25		19.64
							64QAM	50/25		19.50
						5	QPSK	1/0		19.10
					CH.39750	20	QPSK	50/25		19.19
					CH.41490	20	QPSK	50/25		19.82
				B41 PC3 (Ant.B)	CH.40620	20	QPSK	50/25		19.37
				B41 PC2 (Ant.F)	CH.40620	20	QPSK	50/25		19.17
				B41 PC3 (Ant.F)	CH.40620	20	QPSK	50/25		19.53
				B48 (Ant.F)	CH.55990	20	QPSK	50/25		19.55
		NR FDD	AMR-NB 4.75 kbps	n25 (Ant.A)	CH.376500	40	DFT-s-OFDM QPSK	1/1	6	19.53
								108/108		18.92
							DFT-s-OFDM 64QAM	108/54		18.78
							CP-OFDM QPSK	1/108		19.93
							CP-OFDM QPSK	215/1		18.98
							CP-OFDM 16QAM	108/54		19.01
						30	CP-OFDM 256QAM	1/1		18.92
						15	CP-OFDM 256QAM	1/1		18.90
					CH.378200	40	DFT-s-OFDM QPSK	216/0		18.96
					CH.378400	40	CP-OFDM 16QAM	108/54		19.01
				n25 (Ant.F)	CH.376500	40	DFT-s-OFDM QPSK	108/54		18.67
				n7 (Ant.B)	CH.507000	40	CP-OFDM 256QAM	1/1		18.64
				n7 (Ant.F)	CH.507000	20	DFT-s-OFDM QPSK	100/0		19.07
				n12 (Ant.A)	CH.141500	15	CP-OFDM 256QAM	1/1		19.54
				n26 (Ant.A)	CH.166300	20	CP-OFDM 16QAM	1/54		20.19
				n30 (Ant.A)	CH.462000	10	DFT-s-OFDM 64QAM	1/1		18.90
				n30 (Ant.F)	CH.462500	5	CP-OFDM QPSK	0/25		18.82
				n66 (Ant.A)	CH.349000	40	CP-OFDM 256QAM	1/1		18.91
				n66 (Ant.F)	CH.352400	10	DFT-s-OFDM 64QAM	1/1		18.88
				n70 (Ant.A)	CH.340500	15	CP-OFDM 64QAM	1/1		19.38
				n71 (Ant.A)	CH.136100	20	DFT-s-OFDM 16QAM	1/1		20.02
			EVS-NB 5.9 kbps	n25 (Ant.A)	CH.376500	40	DFT-s-OFDM QPSK	1/1	6	19.70
								108/108		18.90
							DFT-s-OFDM 64QAM	108/54		19.36
							CP-OFDM QPSK	1/108		20.15
							CP-OFDM QPSK	215/1		18.88
							CP-OFDM 16QAM	108/54		19.36
						30	CP-OFDM 256QAM	1/1		19.59
						15	CP-OFDM 256QAM	1/1		19.16
					CH.378200	40	DFT-s-OFDM QPSK	216/0		19.54
					CH.378400	40	CP-OFDM 16QAM	108/54		19.21
				n25 (Ant.F)	CH.376500	40	DFT-s-OFDM QPSK	108/54		19.47
				n7 (Ant.B)	CH.507000	40	CP-OFDM 256QAM	1/1		19.22
				n7 (Ant.F)	CH.507000	20	DFT-s-OFDM QPSK	100/0		19.08
				n12 (Ant.A)	CH.141500	15	CP-OFDM 256QAM	1/1		19.91

Mount Force	Trans. Mode	Air Inter.	Codec	Band	Channel	BW (MHz)	Modulation	RB	Limit (dB)	Conv. Gain (dB)
2 N	NB	NR FDD	EVS-NB 5.9 kbps	n26 (Ant.A)	CH.166300	20	CP-OFDM 16QAM	1/54	6	20.17
				n30 (Ant.A)	CH.462000	10	DFT-s-OFDM 64QAM	1/1		19.18
				n30 (Ant.F)	CH.462500	5	CP-OFDM QPSK	0/25		18.87
				n66 (Ant.A)	CH.349000	40	CP-OFDM 256QAM	1/1		19.53
				n66 (Ant.F)	CH.352400	10	DFT-s-OFDM 64QAM	1/1		19.40
				n70 (Ant.A)	CH.340500	15	CP-OFDM 64QAM	1/1		19.39
				n71 (Ant.A)	CH.136100	20	DFT-s-OFDM 16QAM	1/1		20.13
		NR TDD	AMR-NB 4.75 kbps	n77 (Ant.F)	CH.656000	100	CP-OFDM QPSK	137/0	6	19.79
								137/136		19.66
							CP-OFDM 64QAM	273/0		18.26
							DFT-s-OFDM QPSK	270/0		18.22
							DFT-s-OFDM QPSK	270/0		18.26
						60	DFT-s-OFDM 16QAM	162/0		19.28
						20	DFT-s-OFDM 256QAM	50/0		19.56
						10	DFT-s-OFDM 256QAM	24/0		19.10
				n77 DoD (Ant.F)	CH.633334	80	DFT-s-OFDM QPSK	216/0		19.81
				n41 (Ant.B)	CH.518598	80	DFT-s-OFDM 16QAM	216/0		19.74
				n38 (Ant.B)	CH.519000	40	DFT-s-OFDM QPSK	1/105		19.55
				n48 (Ant.F)	CH.641666	40	DFT-s-OFDM 256QAM	100/0		19.06
			EVS-NB 5.9 kbps	n77 (Ant.F)	CH.656000	100	CP-OFDM QPSK	137/0	6	19.95
								137/136		20.14
							CP-OFDM 64QAM	273/0		18.71
							DFT-s-OFDM QPSK	270/0		18.78
							DFT-s-OFDM QPSK	270/0		18.74
						60	DFT-s-OFDM 16QAM	162/0		19.51
						20	DFT-s-OFDM 256QAM	50/0		20.23
						10	DFT-s-OFDM 256QAM	24/0		19.48
				n77 DoD (Ant.F)	CH.633334	80	DFT-s-OFDM QPSK	216/0		19.94
				n41 (Ant.B)	CH.518598	80	DFT-s-OFDM 16QAM	216/0		20.10
				n38 (Ant.B)	CH.519000	40	DFT-s-OFDM QPSK	1/105		19.92
				n48 (Ant.F)	CH.641666	40	DFT-s-OFDM 256QAM	100/0		19.01
		WIFI 2.4 GHz	AMR-NB 4.75 kbps	802.11b	CH.6	20	DSSS	N/A	6	19.60
							CCK	N/A		18.58
					CH.1	20	DSSS	N/A		19.56
					CH.11	20	DSSS	N/A		19.54
				802.11g	CH.6	20	64QAM	N/A		19.17
				802.11n	CH.6	20	MCS 3	N/A		19.49
				802.11ac	CH.6	20	MCS 0	N/A		20.19
				802.11ax	CH.6	20	MCS 0	N/A		18.92
			EVS-NB 5.9 kbps	802.11b	CH.6	20	DSSS	N/A	6	19.84
							CCK	N/A		18.72
					CH.1	20	DSSS	N/A		19.47
					CH.11	20	DSSS	N/A		19.42
				802.11g	CH.6	20	64QAM	N/A		19.21
				802.11n	CH.6	20	MCS 3	N/A		19.20
				802.11ac	CH.6	20	MCS 0	N/A		20.29
				802.11ax	CH.6	20	MCS 0	N/A		18.86
		WIFI 5 GHz	AMR-NB 4.75 kbps	802.11a	CH.40 (U-NII-1)	20	BPSK	N/A	6	19.81
							64QAM	N/A		18.83
					CH.52 (U-NII-2A)	20	64QAM	N/A		19.34
				802.11n_HT20	CH.40 (U-NII-1)	20	MCS 3	N/A		18.98
					CH.64 (U-NII-2A)	20	MCS 7	N/A		19.53
				802.11n_HT40	CH.102 (U-NII-2C)	40	MCS 7	N/A		19.51
				802.11ac_VHT20	CH.40 (U-NII-1)	20	MCS 0	N/A		18.77
					CH.120 (U-NII-2C)	20	MCS 4	N/A		19.37
					CH.173 (U-NII-4)	20	MCS 4	N/A		20.12

Mount Force	Trans. Mode	Air Inter.	Codec	Band	Channel	BW (MHz)	Modulation	RB	Limit (dB)	Conv. Gain (dB)
2 N	NB	WIFI 5 GHz	AMR-NB 4.75 kbps	802.11ac_VHT40	CH.159 (U-NII-3)	40	MCS 9	N/A	6	18.76
				802.11ac_VHT80	CH.106 (U-NII-2C)	80	MCS 4	N/A		19.79
				802.11ac_VHT160	CH 114 (U-NII-2C)	160	MCS 9	N/A		20.20
				802.11ax_HE20	CH.140 (U-NII-2C)	20	MCS 0	N/A		19.64
					CH.173 (U-NII-4)	20	MCS 6	N/A		20.18
					CH.5 (U-NII-5)	20	MCS 0	N/A		18.80
				802.11ax_HE40	CH.38 (U-NII-1)	40	MCS 6	N/A		19.95
					CH.159 (U-NII-3)	40	MCS 11	N/A		20.04
				802.11ax_HE80	CH.58 (U-NII-2A)	80	MCS 6	N/A		19.67
				802.11ax_HE160	CH.114 (U-NII-2C)	160	MCS 11	N/A		20.12
			EVS-NB 5.9 kbps	802.11a	CH.40 (U-NII-1)	20	BPSK	N/A	6	19.71
							64QAM	N/A		19.08
					CH.52 (U-NII-2A)	20	64QAM	N/A		19.71
				802.11n_HT20	CH.40 (U-NII-1)	20	MCS 3	N/A		18.92
					CH.64 (U-NII-2A)	20	MCS 7	N/A		19.59
				802.11n_HT40	CH.102 (U-NII-2C)	40	MCS 7	N/A		19.97
				802.11ac_VHT20	CH.40 (U-NII-1)	20	MCS 0	N/A		19.04
					CH.120 (U-NII-2C)	20	MCS 4	N/A		19.70
					CH.173 (U-NII-4)	20	MCS 4	N/A		20.32
				802.11ac_VHT40	CH.159 (U-NII-3)	40	MCS 9	N/A		19.13
				802.11ac_VHT80	CH.106 (U-NII-2C)	80	MCS 4	N/A		20.18
				802.11ac_VHT160	CH 114 (U-NII-2C)	160	MCS 9	N/A		20.53
				802.11ax_HE20	CH.140 (U-NII-2C)	20	MCS 0	N/A		20.05
					CH.173 (U-NII-4)	20	MCS 6	N/A		20.65
					CH.5 (U-NII-5)	20	MCS 0	N/A		18.95
				802.11ax_HE40	CH.38 (U-NII-1)	40	MCS 6	N/A		20.13
					CH.159 (U-NII-3)	40	MCS 11	N/A		19.78
				802.11ax_HE80	CH.58 (U-NII-2A)	80	MCS 6	N/A		19.84
				802.11ax_HE160	CH.114 (U-NII-2C)	160	MCS 11	N/A		20.16
	WB	WCDMA	AMR-WB 6.6 kbps	B2 (Ant.A)	CH.9400	N/A			6	19.69
					CH.9262					19.83
					CH.9538					19.80
				B4 (Ant.A)	CH.1412					19.47
				B5 (Ant.A)	CH.4183					19.79
		LTE FDD	AMR-WB 6.6 kbps	B25 (Ant.A)	CH.26365	20	QPSK	1/0	6	18.87
								50/49		18.79
								100/0		18.95
							256QAM	50/25		18.97
						10	16QAM	1/0		18.52
						1.4	16QAM	1/0		18.94
					CH.26235	20	QPSK	50/49		18.87
					CH.26275	20	QPSK	50/49		18.96
				B25 (Ant.F)	CH.26365	20	QPSK	100/0		19.53
				B7 (Ant.B)	CH.21100	10	64QAM	50/0		19.52
				B7 (Ant.F)	CH.20850	20	256QAM	100/0		19.30
				B12 (Ant.A)	CH.23095	5	QPSK	1/0		18.51
				B13 (Ant.A)	CH.23230	10	16QAM	1/0		18.49
				B14 (Ant.A)	CH.23330	10	QPSK	50/0		19.29
				B26 (Ant.A)	CH.26865	15	64QAM	1/49		19.24
				B30 (Ant.A)	CH.27710	10	16QAM	1/49		19.51
				B30 (Ant.F)	CH.27690	5	QPSK	1/0		19.50
				B66 (Ant.A)	CH.132322	20	16QAM	50/25		19.50
				B66 (Ant.F)	CH.132652	5	QPSK	1/0		19.30
				B71 (Ant.A)	CH.133297	20	16QAM	1/0		19.71

Mount Force	Trans. Mode	Air Inter.	Codec	Band	Channel	BW (MHz)	Modulation	RB	Limit (dB)	Conv. Gain (dB)
2 N	WB	LTE FDD	EVS-WB 5.9 kbps	B25 (Ant.A)	CH.26365	20	QPSK	1/0	6	18.62
								50/49		18.62
								100/0		18.56
							256QAM	50/25		18.77
						10	16QAM	1/0		18.21
						1.4	16QAM	1/0		18.67
					CH.26235	20	QPSK	50/49		18.68
					CH.26275	20	QPSK	50/49		18.56
				B25 (Ant.F)	CH.26365	20	QPSK	100/0		19.42
				B7 (Ant.B)	CH.21100	10	64QAM	50/0		19.42
				B7 (Ant.F)	CH.20850	20	256QAM	100/0		19.15
				B12 (Ant.A)	CH.23095	5	QPSK	1/0		18.22
				B13 (Ant.A)	CH.23230	10	16QAM	1/0		18.11
				B14 (Ant.A)	CH.23330	10	QPSK	50/0		19.14
				B26 (Ant.A)	CH.26865	15	64QAM	1/49		19.12
				B30 (Ant.A)	CH.27710	10	16QAM	1/49		19.38
				B30 (Ant.F)	CH.27690	5	QPSK	1/0		19.49
				B66 (Ant.A)	CH.132322	20	16QAM	50/25		19.44
				B66 (Ant.F)	CH.132652	5	QPSK	1/0		19.02
				B71 (Ant.A)	CH.133297	20	16QAM	1/0		19.54
		LTE TDD	AMR-WB 6.6 kbps	B41 PC2 (Ant.B)	CH.40620	20	QPSK	50/25	6	18.61
								1/99		18.86
							16QAM	50/25		19.00
							64QAM	50/25		18.92
						5	QPSK	1/0		18.52
					CH.39750	20	QPSK	50/25		18.59
					CH.41490	20	QPSK	50/25		19.06
				B41 PC3 (Ant.B)	CH.40620	20	QPSK	50/25		18.93
				B41 PC2 (Ant.F)	CH.40620	20	QPSK	50/25		18.57
				B41 PC3 (Ant.F)	CH.40620	20	QPSK	50/25		18.87
				B48 (Ant.F)	CH.55340	20	QPSK	50/25		19.04
			EVS-WB 5.9 kbps	B41 PC2 (Ant.B)	CH.40620	20	QPSK	50/25	6	18.40
								1/99		18.68
							16QAM	50/25		18.75
							64QAM	50/25		18.65
						5	QPSK	1/0		18.38
					CH.39750	20	QPSK	50/25		18.44
					CH.41490	20	QPSK	50/25		18.92
				B41 PC3 (Ant.B)	CH.40620	20	QPSK	50/25		18.70
				B41 PC2 (Ant.F)	CH.40620	20	QPSK	50/25		18.28
				B41 PC3 (Ant.F)	CH.40620	20	QPSK	50/25		18.53
				B48 (Ant.F)	CH.55340	20	QPSK	50/25		18.83
		NR FDD	AMR-WB 6.6 kbps	n25 (Ant.A)	CH.376500	40	DFT-s-OFDM QPSK	1/1	6	19.65
								108/108		19.91
							DFT-s-OFDM 64QAM	108/54		19.69
							CP-OFDM QPSK	1/108		20.12
							CP-OFDM QPSK	215/1		19.78
							CP-OFDM 16QAM	108/54		19.68
						30	CP-OFDM 256QAM	1/1		19.95
						15	CP-OFDM 256QAM	1/1		19.38
					CH.378200	40	DFT-s-OFDM QPSK	216/0		19.81
					CH.378400	40	CP-OFDM 16QAM	108/54		19.77
				n25 (Ant.F)	CH.376500	40	DFT-s-OFDM QPSK	108/54		19.93
				n7 (Ant.B)	CH.507000	40	CP-OFDM 256QAM	1/1		19.77
				n7 (Ant.F)	CH.507000	20	DFT-s-OFDM QPSK	100/0		19.41
				n12 (Ant.A)	CH.141500	15	CP-OFDM 256QAM	1/1		20.19

Mount Force	Trans. Mode	Air Inter.	Codec	Band	Channel	BW (MHz)	Modulation	RB	Limit (dB)	Conv. Gain (dB)
2 N	WB	NR FDD	AMR-WB 6.6 kbps	n26 (Ant.A)	CH.166300	20	CP-OFDM 16QAM	1/54	6	19.99
				n30 (Ant.A)	CH.462000	10	DFT-s-OFDM 64QAM	1/1		19.73
				n30 (Ant.F)	CH.462500	5	CP-OFDM QPSK	0/25		19.57
				n66 (Ant.A)	CH.349000	40	CP-OFDM 256QAM	1/1		19.72
				n66 (Ant.F)	CH.352400	10	DFT-s-OFDM 64QAM	1/1		19.67
				n70 (Ant.A)	CH.340500	15	CP-OFDM 64QAM	1/1		20.01
				n71 (Ant.A)	CH.136100	20	DFT-s-OFDM 16QAM	1/1		20.06
			EVS-WB 5.9 kbps	n25 (Ant.A)	CH.376500	40	DFT-s-OFDM QPSK	1/1	6	19.41
								108/108		19.82
							DFT-s-OFDM 64QAM	108/54		19.71
							CP-OFDM QPSK	1/108		19.58
							CP-OFDM QPSK	215/1		19.68
							CP-OFDM 16QAM	108/54		19.83
						30	CP-OFDM 256QAM	1/1		19.79
						15	CP-OFDM 256QAM	1/1		19.25
					CH.378200	40	DFT-s-OFDM QPSK	216/0		19.71
					CH.378400	40	CP-OFDM 16QAM	108/54		19.44
				n25 (Ant.F)	CH.376500	40	DFT-s-OFDM QPSK	108/54		19.80
				n7 (Ant.B)	CH.507000	40	CP-OFDM 256QAM	1/1		19.61
				n7 (Ant.F)	CH.507000	20	DFT-s-OFDM QPSK	100/0		19.55
				n12 (Ant.A)	CH.141500	15	CP-OFDM 256QAM	1/1		20.39
				n26 (Ant.A)	CH.166300	20	CP-OFDM 16QAM	1/54		20.37
				n30 (Ant.A)	CH.462000	10	DFT-s-OFDM 64QAM	1/1		19.40
				n30 (Ant.F)	CH.462500	5	CP-OFDM QPSK	0/25		19.45
				n66 (Ant.A)	CH.349000	40	CP-OFDM 256QAM	1/1		19.61
				n66 (Ant.F)	CH.352400	10	DFT-s-OFDM 64QAM	1/1		19.55
				n70 (Ant.A)	CH.340500	15	CP-OFDM 64QAM	1/1		19.87
				n71 (Ant.A)	CH.136100	20	DFT-s-OFDM 16QAM	1/1		19.77
		NR TDD	AMR-WB 6.6 kbps	n77 (Ant.F)	CH.656000	100	CP-OFDM QPSK	137/0	6	19.93
								137/136		20.14
							CP-OFDM 64QAM	273/0		18.47
							DFT-s-OFDM QPSK	270/0		18.92
							DFT-s-OFDM QPSK	270/0		19.07
						60	DFT-s-OFDM 16QAM	162/0		19.20
						20	DFT-s-OFDM 256QAM	50/0		19.27
						10	DFT-s-OFDM 256QAM	24/0		19.27
				n77 DoD (Ant.F)	CH.633334	80	DFT-s-OFDM QPSK	216/0		19.91
				n41 (Ant.B)	CH.518598	80	DFT-s-OFDM 16QAM	216/0		20.04
				n38 (Ant.B)	CH.519000	40	DFT-s-OFDM QPSK	1/105		19.82
				n48 (Ant.F)	CH.641666	40	DFT-s-OFDM 256QAM	100/0		19.50
			EVS-WB 5.9 kbps	n77 (Ant.F)	CH.656000	100	CP-OFDM QPSK	137/0	6	20.06
								137/136		20.38
							CP-OFDM 64QAM	273/0		18.42
							DFT-s-OFDM QPSK	270/0		18.64
							DFT-s-OFDM QPSK	270/0		19.07
						60	DFT-s-OFDM 16QAM	162/0		19.16
						20	DFT-s-OFDM 256QAM	50/0		19.13
						10	DFT-s-OFDM 256QAM	24/0		19.14
				n77 DoD (Ant.F)	CH.633334	80	DFT-s-OFDM QPSK	216/0		19.80
				n41 (Ant.B)	CH.518598	80	DFT-s-OFDM 16QAM	216/0		20.00
				n38 (Ant.B)	CH.519000	40	DFT-s-OFDM QPSK	1/105		19.57
				n48 (Ant.F)	CH.641666	40	DFT-s-OFDM 256QAM	100/0		19.30

Mount Force	Trans. Mode	Air Inter.	Codec	Band	Channel	BW (MHz)	Modulation	RB	Limit (dB)	Conv. Gain (dB)
2 N	WB	WIFI 2.4 GHz	AMR-WB 6.6 kbps	802.11b	CH.6	20	DSSS	N/A	6	19.15
							CCK	N/A		18.20
					CH.1	20	DSSS	N/A		18.92
					CH.11	20	DSSS	N/A		18.99
				802.11g	CH.6	20	64QAM	N/A		18.36
				802.11n	CH.6	20	MCS 3	N/A		18.98
				802.11ac	CH.6	20	MCS 0	N/A		20.02
				802.11ax	CH.6	20	MCS 0	N/A		18.86
			EVS-WB 5.9 kbps	802.11b	CH.6	20	DSSS	N/A	6	18.94
							CCK	N/A		18.09
					CH.1	20	DSSS	N/A		18.69
					CH.11	20	DSSS	N/A		18.59
				802.11g	CH.6	20	64QAM	N/A		18.60
				802.11n	CH.6	20	MCS 3	N/A		18.62
				802.11ac	CH.6	20	MCS 0	N/A		19.89
				802.11ax	CH.6	20	MCS 0	N/A		18.46
		WIFI 5 GHz	AMR-WB 6.6 kbps	802.11a	CH.40 (U-NII-1)	20	BPSK	N/A	6	20.30
							64QAM	N/A		19.42
					CH.52 (U-NII-2A)	20	64QAM	N/A		19.73
				802.11n_HT20	CH.40 (U-NII-1)	20	MCS 3	N/A		19.21
					CH.64 (U-NII-2A)	20	MCS 7	N/A		19.87
				802.11n_HT40	CH.102 (U-NII-2C)	40	MCS 7	N/A		19.53
				802.11ac_VHT20	CH.40 (U-NII-1)	20	MCS 0	N/A		19.33
					CH.120 (U-NII-2C)	20	MCS 4	N/A		19.91
					CH.173 (U-NII-4)	20	MCS 4	N/A		20.02
				802.11ac_VHT40	CH.159 (U-NII-3)	40	MCS 9	N/A		19.31
				802.11ac_VHT80	CH.106 (U-NII-2C)	80	MCS 4	N/A		19.46
				802.11ac_VHT160	CH 114 (U-NII-2C)	160	MCS 9	N/A		20.19
				802.11ax_HE20	CH.140 (U-NII-2C)	20	MCS 0	N/A		19.71
					CH.173 (U-NII-4)	20	MCS 6	N/A		20.17
					CH.5 (U-NII-5)	20	MCS 0	N/A		18.34
				802.11ax_HE40	CH.38 (U-NII-1)	40	MCS 6	N/A		19.70
					CH.159 (U-NII-3)	40	MCS 11	N/A		20.03
				802.11ax_HE80	CH.58 (U-NII-2A)	80	MCS 6	N/A		19.48
				802.11ax_HE160	CH.114 (U-NII-2C)	160	MCS 11	N/A		20.20
			EVS-WB 5.9 kbps	802.11a	CH.40 (U-NII-1)	20	BPSK	N/A	6	20.26
							64QAM	N/A		19.21
					CH.52 (U-NII-2A)	20	64QAM	N/A		19.63
				802.11n_HT20	CH.40 (U-NII-1)	20	MCS 3	N/A		19.09
					CH.64 (U-NII-2A)	20	MCS 7	N/A		19.37
				802.11n_HT40	CH.102 (U-NII-2C)	40	MCS 7	N/A		19.22
				802.11ac_VHT20	CH.40 (U-NII-1)	20	MCS 0	N/A		19.11
					CH.120 (U-NII-2C)	20	MCS 4	N/A		19.58
					CH.173 (U-NII-4)	20	MCS 4	N/A		19.95
				802.11ac_VHT40	CH.159 (U-NII-3)	40	MCS 9	N/A		19.07
				802.11ac_VHT80	CH.106 (U-NII-2C)	80	MCS 4	N/A		19.29
				802.11ac_VHT160	CH 114 (U-NII-2C)	160	MCS 9	N/A		19.94
				802.11ax_HE20	CH.140 (U-NII-2C)	20	MCS 0	N/A		19.44
					CH.173 (U-NII-4)	20	MCS 6	N/A		19.88
					CH.5 (U-NII-5)	20	MCS 0	N/A		18.10
				802.11ax_HE40	CH.38 (U-NII-1)	40	MCS 6	N/A		19.67
					CH.159 (U-NII-3)	40	MCS 11	N/A		20.02
				802.11ax_HE80	CH.58 (U-NII-2A)	80	MCS 6	N/A		19.52
				802.11ax_HE160	CH.114 (U-NII-2C)	160	MCS 11	N/A		20.11

Mount Force	Trans. Mode	Air Inter.	Codec	Band	Channel	BW (MHz)	Modulation	RB	Limit (dB)	Conv. Gain (dB)
8 N	NB	GSM	HR V1	850 (Ant.A)	CH.190	N/A			6	22.03
					CH.128					21.93
					CH.251					21.95
				1900 (Ant.A)	CH.661					21.91
		WCDMA	AMR-NB 4.75 kbps	B2 (Ant.A)	CH.9400	N/A			6	21.39
					CH.9262					21.27
					CH.9538					21.37
				B4 (Ant.A)	CH.1412					21.32
				B5 (Ant.A)	CH.4183					21.28
		LTE FDD	AMR-NB 4.75 kbps	B25 (Ant.A)	CH.26365	20	QPSK	1/0	6	21.63
								50/49		21.42
								100/0		21.39
							256QAM	50/25		21.58
						10	16QAM	1/0		21.65
						1.4	16QAM	1/0		21.58
					CH.26235	20	QPSK	50/49		21.48
					CH.26275	20	QPSK	50/49		21.48
				B25 (Ant.F)	CH.26365	20	QPSK	100/0		21.56
				B7 (Ant.B)	CH.21100	10	64QAM	50/0		20.14
				B7 (Ant.F)	CH.20850	20	256QAM	100/0		20.49
				B12 (Ant.A)	CH.23095	5	QPSK	1/0		21.11
				B13 (Ant.A)	CH.23230	10	16QAM	1/0		21.06
				B14 (Ant.A)	CH.23330	10	QPSK	50/0		20.77
				B26 (Ant.A)	CH.26865	15	64QAM	1/49		20.21
				B30 (Ant.A)	CH.27710	10	16QAM	1/49		20.15
				B30 (Ant.F)	CH.27690	5	QPSK	1/0		20.27
				B66 (Ant.A)	CH.132322	20	16QAM	50/25		20.32
				B66 (Ant.F)	CH.132652	5	QPSK	1/0		20.45
				B71 (Ant.A)	CH.133297	20	16QAM	1/0		20.45
			EVS-NB 5.9 kbps	B25 (Ant.A)	CH.26365	20	QPSK	1/0	6	21.83
								50/49		21.55
								100/0		21.53
							256QAM	50/25		21.73
						10	16QAM	1/0		21.75
						1.4	16QAM	1/0		21.53
					CH.26235	20	QPSK	50/49		21.66
					CH.26275	20	QPSK	50/49		21.68
				B25 (Ant.F)	CH.26365	20	QPSK	100/0		21.57
				B7 (Ant.B)	CH.21100	10	64QAM	50/0		20.67
				B7 (Ant.F)	CH.20850	20	256QAM	100/0		20.77
				B12 (Ant.A)	CH.23095	5	QPSK	1/0		21.49
				B13 (Ant.A)	CH.23230	10	16QAM	1/0		21.45
				B14 (Ant.A)	CH.23330	10	QPSK	50/0		21.00
				B26 (Ant.A)	CH.26865	15	64QAM	1/49		20.54
				B30 (Ant.A)	CH.27710	10	16QAM	1/49		20.47
				B30 (Ant.F)	CH.27690	5	QPSK	1/0		20.77
				B66 (Ant.A)	CH.132322	20	16QAM	50/25		20.77
				B66 (Ant.F)	CH.132652	5	QPSK	1/0		20.81
				B71 (Ant.A)	CH.133297	20	16QAM	1/0		20.88

Mount Force	Trans. Mode	Air Inter.	Codec	Band	Channel	BW (MHz)	Modulation	RB	Limit (dB)	Conv. Gain (dB)
8 N	NB	LTE TDD	AMR-NB 4.75 kbps	B41 PC2 (Ant.B)	CH.40620	20	QPSK	50/25	6	21.53
								1/99		21.49
							16QAM	50/25		21.50
							64QAM	50/25		20.83
						5	QPSK	1/0		21.39
					CH.39750	20	QPSK	50/25		21.53
					CH.41490	20	QPSK	50/25		21.35
				B41 PC3 (Ant.B)	CH.40620	20	QPSK	50/25		21.50
				B41 PC2 (Ant.F)	CH.40620	20	QPSK	50/25		21.68
				B41 PC3 (Ant.F)	CH.40620	20	QPSK	50/25		21.48
				B48 (Ant.F)	CH.55340	20	QPSK	50/25		20.66
			EVS-NB 5.9 kbps	B41 PC2 (Ant.B)	CH.40620	20	QPSK	50/25	6	21.80
								1/99		21.85
							16QAM	50/25		21.66
							64QAM	50/25		20.99
						5	QPSK	1/0		21.86
					CH.39750	20	QPSK	50/25		21.77
					CH.41490	20	QPSK	50/25		21.71
				B41 PC3 (Ant.B)	CH.40620	20	QPSK	50/25		21.59
				B41 PC2 (Ant.F)	CH.40620	20	QPSK	50/25		21.91
				B41 PC3 (Ant.F)	CH.40620	20	QPSK	50/25		21.80
				B48 (Ant.F)	CH.55340	20	QPSK	50/25		21.05
		NR FDD	AMR-NB 4.75 kbps	n25 (Ant.A)	CH.376500	40	DFT-s-OFDM QPSK	1/1	6	20.67
								108/108		20.55
							DFT-s-OFDM 64QAM	108/54		20.15
							CP-OFDM QPSK	1/108		21.17
							CP-OFDM QPSK	215/1		20.14
							CP-OFDM 16QAM	108/54		20.48
						30	CP-OFDM 256QAM	1/1		20.03
						15	CP-OFDM 256QAM	1/1		20.11
					CH.378200	40	DFT-s-OFDM QPSK	216/0		20.10
					CH.378400	40	CP-OFDM 16QAM	108/54		19.97
				n25 (Ant.F)	CH.376500	40	DFT-s-OFDM QPSK	108/54		20.05
				n7 (Ant.B)	CH.507000	40	CP-OFDM 256QAM	1/1		20.13
				n7 (Ant.F)	CH.507000	20	DFT-s-OFDM QPSK	100/0		20.04
				n12 (Ant.A)	CH.141500	15	CP-OFDM 256QAM	1/1		20.84
				n26 (Ant.A)	CH.166300	20	CP-OFDM 16QAM	1/54		21.51
				n30 (Ant.A)	CH.462000	10	DFT-s-OFDM 64QAM	1/1		20.58
				n30 (Ant.F)	CH.462500	5	CP-OFDM QPSK	0/25		20.53
				n66 (Ant.A)	CH.349000	40	CP-OFDM 256QAM	1/1		20.67
				n66 (Ant.F)	CH.352400	10	DFT-s-OFDM 64QAM	1/1		20.70
				n70 (Ant.A)	CH.340500	15	CP-OFDM 64QAM	1/1		20.23
				n71 (Ant.A)	CH.136100	20	DFT-s-OFDM 16QAM	1/1		21.46
			EVS-NB 5.9 kbps	n25 (Ant.A)	CH.376500	40	DFT-s-OFDM QPSK	1/1	6	20.65
								108/108		20.86
							DFT-s-OFDM 64QAM	108/54		20.61
							CP-OFDM QPSK	1/108		21.69
							CP-OFDM QPSK	215/1		20.47
							CP-OFDM 16QAM	108/54		20.29
						30	CP-OFDM 256QAM	1/1		20.23
						15	CP-OFDM 256QAM	1/1		20.54
					CH.378200	40	DFT-s-OFDM QPSK	216/0		20.06
					CH.378400	40	CP-OFDM 16QAM	108/54		20.31
				n25 (Ant.F)	CH.376500	40	DFT-s-OFDM QPSK	108/54		20.52
				n7 (Ant.B)	CH.507000	40	CP-OFDM 256QAM	1/1		20.68
				n7 (Ant.F)	CH.507000	20	DFT-s-OFDM QPSK	100/0		20.77
				n12 (Ant.A)	CH.141500	15	CP-OFDM 256QAM	1/1		20.93

Mount Force	Trans. Mode	Air Inter.	Codec	Band	Channel	BW (MHz)	Modulation	RB	Limit (dB)	Conv. Gain (dB)
8 N	NB	NR FDD	EVS-NB 5.9 kbps	n26 (Ant.A)	CH.166300	20	CP-OFDM 16QAM	1/54	6	21.67
				n30 (Ant.A)	CH.462000	10	DFT-s-OFDM 64QAM	1/1		20.74
				n30 (Ant.F)	CH.462500	5	CP-OFDM QPSK	0/25		20.16
				n66 (Ant.A)	CH.349000	40	CP-OFDM 256QAM	1/1		20.82
				n66 (Ant.F)	CH.352400	10	DFT-s-OFDM 64QAM	1/1		20.87
				n70 (Ant.A)	CH.340500	15	CP-OFDM 64QAM	1/1		20.46
				n71 (Ant.A)	CH.136100	20	DFT-s-OFDM 16QAM	1/1		21.80
		NR TDD	AMR-NB 4.75 kbps	n77 (Ant.F)	CH.656000	100	CP-OFDM QPSK	137/0	6	21.30
								137/136		21.42
							CP-OFDM 64QAM	273/0		21.38
							DFT-s-OFDM QPSK	270/0		20.92
							DFT-s-OFDM QPSK	270/0		20.84
						60	DFT-s-OFDM 16QAM	162/0		21.77
						20	DFT-s-OFDM 256QAM	50/0		21.87
						10	DFT-s-OFDM 256QAM	24/0		21.69
				n77 DoD (Ant.F)	CH.633334	80	DFT-s-OFDM QPSK	216/0		21.78
				n41 (Ant.B)	CH.518598	80	DFT-s-OFDM 16QAM	216/0		22.14
				n38 (Ant.B)	CH.519000	40	DFT-s-OFDM QPSK	1/105		21.90
				n48 (Ant.F)	CH.641666	40	DFT-s-OFDM 256QAM	100/0		22.04
			EVS-NB 5.9 kbps	n77 (Ant.F)	CH.656000	100	CP-OFDM QPSK	137/0	6	21.48
								137/136		21.03
							CP-OFDM 64QAM	273/0		21.49
							DFT-s-OFDM QPSK	270/0		21.28
							DFT-s-OFDM QPSK	270/0		21.10
						60	DFT-s-OFDM 16QAM	162/0		21.55
						20	DFT-s-OFDM 256QAM	50/0		22.14
						10	DFT-s-OFDM 256QAM	24/0		22.14
				n77 DoD (Ant.F)	CH.633334	80	DFT-s-OFDM QPSK	216/0		22.36
				n41 (Ant.B)	CH.518598	80	DFT-s-OFDM 16QAM	216/0		22.43
				n38 (Ant.B)	CH.519000	40	DFT-s-OFDM QPSK	1/105		22.12
				n48 (Ant.F)	CH.641666	40	DFT-s-OFDM 256QAM	100/0		22.23
		WIFI 2.4 GHz	AMR-NB 4.75 kbps	802.11b	CH.6	20	DSSS	N/A	6	21.93
							CCK	N/A		21.48
					CH.1	20	DSSS	N/A		21.64
					CH.11	20	DSSS	N/A		21.46
				802.11g	CH.6	20	64QAM	N/A		21.72
				802.11n	CH.6	20	MCS 3	N/A		21.37
				802.11ac	CH.6	20	MCS 0	N/A		21.42
				802.11ax	CH.6	20	MCS 0	N/A		21.49
			EVS-NB 5.9 kbps	802.11b	CH.6	20	DSSS	N/A	6	21.98
							CCK	N/A		21.54
					CH.1	20	DSSS	N/A		21.61
					CH.11	20	DSSS	N/A		21.69
				802.11g	CH.6	20	64QAM	N/A		22.09
				802.11n	CH.6	20	MCS 3	N/A		21.66
				802.11ac	CH.6	20	MCS 0	N/A		21.86
				802.11ax	CH.6	20	MCS 0	N/A		21.74
		WIFI 5 GHz	AMR-NB 4.75 kbps	802.11a	CH.40 (U-NII-1)	20	BPSK	N/A	6	20.93
							64QAM	N/A		20.45
					CH.52 (U-NII-2A)	20	64QAM	N/A		20.51
				802.11n_HT20	CH.40 (U-NII-1)	20	MCS 3	N/A		20.48
					CH.64 (U-NII-2A)	20	MCS 7	N/A		20.38
				802.11n_HT40	CH.102 (U-NII-2C)	40	MCS 7	N/A		21.13
				802.11ac_VHT20	CH.40 (U-NII-1)	20	MCS 0	N/A		20.55
					CH.120 (U-NII-2C)	20	MCS 4	N/A		20.88
					CH.173 (U-NII-4)	20	MCS 4	N/A		21.39

Mount Force	Trans. Mode	Air Inter.	Codec	Band	Channel	BW (MHz)	Modulation	RB	Limit (dB)	Conv. Gain (dB)
8 N	NB	WIFI 5 GHz	AMR-NB 4.75 kbps	802.11ac_VHT40	CH.159 (U-NII-3)	40	MCS 9	N/A	6	20.84
				802.11ac_VHT80	CH.106 (U-NII-2C)	80	MCS 4	N/A		21.48
				802.11ac_VHT160	CH 114 (U-NII-2C)	160	MCS 9	N/A		21.49
				802.11ax_HE20	CH.140 (U-NII-2C)	20	MCS 0	N/A		21.47
					CH.173 (U-NII-4)	20	MCS 6	N/A		21.29
					CH.5 (U-NII-5)	20	MCS 0	N/A		21.17
				802.11ax_HE40	CH.38 (U-NII-1)	40	MCS 6	N/A		21.54
					CH.159 (U-NII-3)	40	MCS 11	N/A		21.38
				802.11ax_HE80	CH.58 (U-NII-2A)	80	MCS 6	N/A		21.27
				802.11ax_HE160	CH.114 (U-NII-2C)	160	MCS 11	N/A		21.06
			EVS-NB 5.9 kbps	802.11a	CH.40 (U-NII-1)	20	BPSK	N/A	6	21.14
							64QAM	N/A		20.81
					CH.52 (U-NII-2A)	20	64QAM	N/A		20.65
				802.11n_HT20	CH.40 (U-NII-1)	20	MCS 3	N/A		20.63
					CH.64 (U-NII-2A)	20	MCS 7	N/A		20.65
				802.11n_HT40	CH.102 (U-NII-2C)	40	MCS 7	N/A		21.36
				802.11ac_VHT20	CH.40 (U-NII-1)	20	MCS 0	N/A		20.88
					CH.120 (U-NII-2C)	20	MCS 4	N/A		20.89
					CH.173 (U-NII-4)	20	MCS 4	N/A		21.67
				802.11ac_VHT40	CH.159 (U-NII-3)	40	MCS 9	N/A		21.02
				802.11ac_VHT80	CH.106 (U-NII-2C)	80	MCS 4	N/A		21.74
				802.11ac_VHT160	CH 114 (U-NII-2C)	160	MCS 9	N/A		21.77
				802.11ax_HE20	CH.140 (U-NII-2C)	20	MCS 0	N/A		21.72
					CH.173 (U-NII-4)	20	MCS 6	N/A		21.55
					CH.5 (U-NII-5)	20	MCS 0	N/A		21.29
				802.11ax_HE40	CH.38 (U-NII-1)	40	MCS 6	N/A		21.75
					CH.159 (U-NII-3)	40	MCS 11	N/A		21.60
				802.11ax_HE80	CH.58 (U-NII-2A)	80	MCS 6	N/A		21.68
				802.11ax_HE160	CH.114 (U-NII-2C)	160	MCS 11	N/A		21.39
	WB	WCDMA	AMR-WB 6.6 kbps	B2 (Ant.A)	CH.9400	N/A			6	21.33
					CH.9262					21.23
					CH.9538					21.32
				B4 (Ant.A)	CH.1412					21.31
				B5 (Ant.A)	CH.4183					21.22
		LTE FDD	AMR-WB 6.6 kbps	B25 (Ant.A)	CH.26365	20	QPSK	1/0	6	21.24
								50/49		21.20
								100/0		21.06
							256QAM	50/25		21.11
						10	16QAM	1/0		21.32
						1.4	16QAM	1/0		21.22
					CH.26235	20	QPSK	50/49		21.08
					CH.26275	20	QPSK	50/49		21.06
				B25 (Ant.F)	CH.26365	20	QPSK	100/0		21.18
				B7 (Ant.B)	CH.21100	10	64QAM	50/0		20.93
				B7 (Ant.F)	CH.20850	20	256QAM	100/0		20.96
				B12 (Ant.A)	CH.23095	5	QPSK	1/0		20.73
				B13 (Ant.A)	CH.23230	10	16QAM	1/0		20.78
				B14 (Ant.A)	CH.23330	10	QPSK	50/0		21.59
				B26 (Ant.A)	CH.26865	15	64QAM	1/49		20.79
				B30 (Ant.A)	CH.27710	10	16QAM	1/49		20.81
				B30 (Ant.F)	CH.27690	5	QPSK	1/0		20.78
				B66 (Ant.A)	CH.132322	20	16QAM	50/25		20.94
				B66 (Ant.F)	CH.132652	5	QPSK	1/0		20.91
				B71 (Ant.A)	CH.133297	20	16QAM	1/0		20.87

Mount Force	Trans. Mode	Air Inter.	Codec	Band	Channel	BW (MHz)	Modulation	RB	Limit (dB)	Conv. Gain (dB)
8 N	WB	LTE FDD	EVS-WB 5.9 kbps	B25 (Ant.A)	CH.26365	20	QPSK	1/0	6	21.17
								50/49		20.86
								100/0		20.98
							256QAM	50/25		21.00
						10	16QAM	1/0		21.19
						1.4	16QAM	1/0		21.06
					CH.26235	20	QPSK	50/49		20.97
					CH.26275	20	QPSK	50/49		20.94
				B25 (Ant.F)	CH.26365	20	QPSK	100/0		21.06
				B7 (Ant.B)	CH.21100	10	64QAM	50/0		20.64
				B7 (Ant.F)	CH.20850	20	256QAM	100/0		20.65
				B12 (Ant.A)	CH.23095	5	QPSK	1/0		20.64
				B13 (Ant.A)	CH.23230	10	16QAM	1/0		20.48
				B14 (Ant.A)	CH.23330	10	QPSK	50/0		21.36
				B26 (Ant.A)	CH.26865	15	64QAM	1/49		20.65
				B30 (Ant.A)	CH.27710	10	16QAM	1/49		20.66
				B30 (Ant.F)	CH.27690	5	QPSK	1/0		20.50
				B66 (Ant.A)	CH.132322	20	16QAM	50/25		20.64
				B66 (Ant.F)	CH.132652	5	QPSK	1/0		20.76
				B71 (Ant.A)	CH.133297	20	16QAM	1/0		20.76
		LTE TDD	AMR-WB 6.6 kbps	B41 PC2 (Ant.B)	CH.40620	20	QPSK	50/25	6	21.29
								1/99		21.24
							16QAM	50/25		21.28
							64QAM	50/25		20.25
						5	QPSK	1/0		21.21
					CH.39750	20	QPSK	50/25		21.35
					CH.41490	20	QPSK	50/25		21.19
				B41 PC3 (Ant.B)	CH.40620	20	QPSK	50/25		21.18
				B41 PC2 (Ant.F)	CH.40620	20	QPSK	50/25		21.27
				B41 PC3 (Ant.F)	CH.40620	20	QPSK	50/25		21.06
				B48 (Ant.F)	CH.55340	20	QPSK	50/25		20.63
			EVS-WB 5.9 kbps	B41 PC2 (Ant.B)	CH.40620	20	QPSK	50/25	6	21.08
								1/99		21.13
							16QAM	50/25		21.19
							64QAM	50/25		19.69
						5	QPSK	1/0		20.90
					CH.39750	20	QPSK	50/25		21.13
					CH.41490	20	QPSK	50/25		20.98
				B41 PC3 (Ant.B)	CH.40620	20	QPSK	50/25		20.87
				B41 PC2 (Ant.F)	CH.40620	20	QPSK	50/25		20.98
				B41 PC3 (Ant.F)	CH.40620	20	QPSK	50/25		20.75
				B48 (Ant.F)	CH.55340	20	QPSK	50/25		20.51
		NR FDD	AMR-WB 6.6 kbps	n25 (Ant.A)	CH.376500	40	DFT-s-OFDM QPSK	1/1	6	21.34
								108/108		21.35
							DFT-s-OFDM 64QAM	108/54		21.32
							CP-OFDM QPSK	1/108		21.36
							CP-OFDM QPSK	215/1		21.12
							CP-OFDM 16QAM	108/54		21.02
						30	CP-OFDM 256QAM	1/1		20.92
						15	CP-OFDM 256QAM	1/1		20.98
					CH.378200	40	DFT-s-OFDM QPSK	216/0		21.14
					CH.378400	40	CP-OFDM 16QAM	108/54		20.95
				n25 (Ant.F)	CH.376500	40	DFT-s-OFDM QPSK	108/54		21.00
				n7 (Ant.B)	CH.507000	40	CP-OFDM 256QAM	1/1		21.05
				n7 (Ant.F)	CH.507000	20	DFT-s-OFDM QPSK	100/0		21.11
				n12 (Ant.A)	CH.141500	15	CP-OFDM 256QAM	1/1		21.48

Mount Force	Trans. Mode	Air Inter.	Codec	Band	Channel	BW (MHz)	Modulation	RB	Limit (dB)	Conv. Gain (dB)
8 N	WB	NR FDD	AMR-WB 6.6 kbps	n26 (Ant.A)	CH.166300	20	CP-OFDM 16QAM	1/54	6	21.49
				n30 (Ant.A)	CH.462000	10	DFT-s-OFDM 64QAM	1/1		21.45
				n30 (Ant.F)	CH.462500	5	CP-OFDM QPSK	0/25		21.28
				n66 (Ant.A)	CH.349000	40	CP-OFDM 256QAM	1/1		21.04
				n66 (Ant.F)	CH.352400	10	DFT-s-OFDM 64QAM	1/1		21.10
				n70 (Ant.A)	CH.340500	15	CP-OFDM 64QAM	1/1		21.33
				n71 (Ant.A)	CH.136100	20	DFT-s-OFDM 16QAM	1/1		21.53
			EVS-WB 5.9 kbps	n25 (Ant.A)	CH.376500	40	DFT-s-OFDM QPSK	1/1	6	21.32
								108/108		21.00
							DFT-s-OFDM 64QAM	108/54		20.90
							CP-OFDM QPSK	1/108		21.27
							CP-OFDM QPSK	215/1		20.86
							CP-OFDM 16QAM	108/54		20.83
						30	CP-OFDM 256QAM	1/1		20.71
						15	CP-OFDM 256QAM	1/1		20.89
					CH.378200	40	DFT-s-OFDM QPSK	216/0		20.78
					CH.378400	40	CP-OFDM 16QAM	108/54		20.86
				n25 (Ant.F)	CH.376500	40	DFT-s-OFDM QPSK	108/54		21.01
				n7 (Ant.B)	CH.507000	40	CP-OFDM 256QAM	1/1		20.98
				n7 (Ant.F)	CH.507000	20	DFT-s-OFDM QPSK	100/0		21.19
				n12 (Ant.A)	CH.141500	15	CP-OFDM 256QAM	1/1		21.34
				n26 (Ant.A)	CH.166300	20	CP-OFDM 16QAM	1/54		21.36
				n30 (Ant.A)	CH.462000	10	DFT-s-OFDM 64QAM	1/1		21.16
				n30 (Ant.F)	CH.462500	5	CP-OFDM QPSK	0/25		21.19
				n66 (Ant.A)	CH.349000	40	CP-OFDM 256QAM	1/1		21.27
				n66 (Ant.F)	CH.352400	10	DFT-s-OFDM 64QAM	1/1		21.08
				n70 (Ant.A)	CH.340500	15	CP-OFDM 64QAM	1/1		21.40
				n71 (Ant.A)	CH.136100	20	DFT-s-OFDM 16QAM	1/1		21.57
		NR TDD	AMR-WB 6.6 kbps	n77 (Ant.F)	CH.656000	100	CP-OFDM QPSK	137/0	6	21.77
								137/136		21.81
							CP-OFDM 64QAM	273/0		21.81
							DFT-s-OFDM QPSK	270/0		21.85
							DFT-s-OFDM QPSK	270/0		21.50
						60	DFT-s-OFDM 16QAM	162/0		22.18
						20	DFT-s-OFDM 256QAM	50/0		22.23
						10	DFT-s-OFDM 256QAM	24/0		22.35
				n77 DoD (Ant.F)	CH.633334	80	DFT-s-OFDM QPSK	216/0		22.23
				n41 (Ant.B)	CH.518598	80	DFT-s-OFDM 16QAM	216/0		22.35
				n38 (Ant.B)	CH.519000	40	DFT-s-OFDM QPSK	1/105		22.17
				n48 (Ant.F)	CH.641666	40	DFT-s-OFDM 256QAM	100/0		22.38
			EVS-WB 5.9 kbps	n77 (Ant.F)	CH.656000	100	CP-OFDM QPSK	137/0	6	21.52
								137/136		21.44
							CP-OFDM 64QAM	273/0		21.12
							DFT-s-OFDM QPSK	270/0		21.75
							DFT-s-OFDM QPSK	270/0		21.54
						60	DFT-s-OFDM 16QAM	162/0		22.00
						20	DFT-s-OFDM 256QAM	50/0		21.74
						10	DFT-s-OFDM 256QAM	24/0		21.94
				n77 DoD (Ant.F)	CH.633334	80	DFT-s-OFDM QPSK	216/0		21.81
				n41 (Ant.B)	CH.518598	80	DFT-s-OFDM 16QAM	216/0		22.38
				n38 (Ant.B)	CH.519000	40	DFT-s-OFDM QPSK	1/105		21.84
				n48 (Ant.F)	CH.641666	40	DFT-s-OFDM 256QAM	100/0		22.02

Mount Force	Trans. Mode	Air Inter.	Codec	Band	Channel	BW (MHz)	Modulation	RB	Limit (dB)	Conv. Gain (dB)
8 N	WB	WIFI 2.4 GHz	AMR-WB 6.6 kbps	802.11b	CH.6	20	DSSS	N/A	6	21.81
							CCK	N/A		21.12
					CH.1	20	DSSS	N/A		21.22
					CH.11	20	DSSS	N/A		21.18
				802.11g	CH.6	20	64QAM	N/A		21.86
				802.11n	CH.6	20	MCS 3	N/A		21.06
				802.11ac	CH.6	20	MCS 0	N/A		21.38
				802.11ax	CH.6	20	MCS 0	N/A		20.68
			EVS-WB 5.9 kbps	802.11b	CH.6	20	DSSS	N/A	6	21.62
							CCK	N/A		21.10
					CH.1	20	DSSS	N/A		20.97
					CH.11	20	DSSS	N/A		20.97
				802.11g	CH.6	20	64QAM	N/A		21.47
				802.11n	CH.6	20	MCS 3	N/A		20.32
				802.11ac	CH.6	20	MCS 0	N/A		21.37
				802.11ax	CH.6	20	MCS 0	N/A		21.15
		WIFI 5 GHz	AMR-WB 6.6 kbps	802.11a	CH.40 (U-NII-1)	20	BPSK	N/A	6	21.63
							64QAM	N/A		20.94
					CH.52 (U-NII-2A)	20	64QAM	N/A		21.00
				802.11n_HT20	CH.40 (U-NII-1)	20	MCS 3	N/A		20.99
					CH.64 (U-NII-2A)	20	MCS 7	N/A		21.05
				802.11n_HT40	CH.102 (U-NII-2C)	40	MCS 7	N/A		20.95
				802.11ac_VHT20	CH.40 (U-NII-1)	20	MCS 0	N/A		20.87
					CH.120 (U-NII-2C)	20	MCS 4	N/A		21.36
					CH.173 (U-NII-4)	20	MCS 4	N/A		21.36
				802.11ac_VHT40	CH.159 (U-NII-3)	40	MCS 9	N/A		21.34
				802.11ac_VHT80	CH.106 (U-NII-2C)	80	MCS 4	N/A		21.38
				802.11ac_VHT160	CH 114 (U-NII-2C)	160	MCS 9	N/A		21.39
				802.11ax_HE20	CH.140 (U-NII-2C)	20	MCS 0	N/A		21.37
					CH.173 (U-NII-4)	20	MCS 6	N/A		21.21
					CH.5 (U-NII-5)	20	MCS 0	N/A		20.86
				802.11ax_HE40	CH.38 (U-NII-1)	40	MCS 6	N/A		21.50
					CH.159 (U-NII-3)	40	MCS 11	N/A		21.44
				802.11ax_HE80	CH.58 (U-NII-2A)	80	MCS 6	N/A		20.97
				802.11ax_HE160	CH.114 (U-NII-2C)	160	MCS 11	N/A		21.06
			EVS-WB 5.9 kbps	802.11a	CH.40 (U-NII-1)	20	BPSK	N/A	6	21.37
							64QAM	N/A		20.65
					CH.52 (U-NII-2A)	20	64QAM	N/A		20.83
				802.11n_HT20	CH.40 (U-NII-1)	20	MCS 3	N/A		20.84
					CH.64 (U-NII-2A)	20	MCS 7	N/A		20.96
				802.11n_HT40	CH.102 (U-NII-2C)	40	MCS 7	N/A		20.85
				802.11ac_VHT20	CH.40 (U-NII-1)	20	MCS 0	N/A		20.74
					CH.120 (U-NII-2C)	20	MCS 4	N/A		21.16
					CH.173 (U-NII-4)	20	MCS 4	N/A		21.24
				802.11ac_VHT40	CH.159 (U-NII-3)	40	MCS 9	N/A		21.09
				802.11ac_VHT80	CH.106 (U-NII-2C)	80	MCS 4	N/A		21.09
				802.11ac_VHT160	CH 114 (U-NII-2C)	160	MCS 9	N/A		20.98
				802.11ax_HE20	CH.140 (U-NII-2C)	20	MCS 0	N/A		21.20
					CH.173 (U-NII-4)	20	MCS 6	N/A		21.04
					CH.5 (U-NII-5)	20	MCS 0	N/A		20.58
				802.11ax_HE40	CH.38 (U-NII-1)	40	MCS 6	N/A		21.27
					CH.159 (U-NII-3)	40	MCS 11	N/A		20.92
				802.11ax_HE80	CH.58 (U-NII-2A)	80	MCS 6	N/A		20.66
				802.11ax_HE160	CH.114 (U-NII-2C)	160	MCS 11	N/A		20.47

7.2 Receive Distortion and Noise Performance

7.2.1 Test Limit

With a mounting force of 8N and 2N, the ratio of the stimulus signal power to the 100 Hz to 8000 Hz total A-weighted distortion and noise power shall be ≥ 20 dB when tested over the range of 1/3 octave band center frequencies:

1) Narrowband transmission mode: Each 1/3 octave band center frequency from 400 Hz to 3150 Hz.
2) Wideband transmission mode: Each 1/3 octave band center frequency from 250 Hz to 5000 Hz.

* According to waiver DA23-914, distortion test is only performed for EVS-NB 24.4 kbps and EVS-WB 24.4 kbps.

7.2.2 Test Procedure

1) Configure the DUT with a mounting force of 8N and test equipment as shown in Figure 1 in an active call state with the applicable codec for the transmission mode under test with the volume control at the setting.
2) Receive distortion and noise is measured using the PN-SDNR procedure.
3) To ensure DUT activation, apply the real speech test signal at a level of -20 dBm0 followed immediately by the initial 1/3 octave center frequency PN test signal based on the narrowband or wideband operating mode. Measure the acoustic output at the DRP over the complete sequence of the PN test signal.
4) Translate the measurement made at the DRP to the FF using the translation data.
5) Calculate the acoustic output unweighted total signal power of the stimulus measurement band.
6) Calculate the notched A-weighting distortion and noise components.
7) Calculate the ratio of the signal power to the total A-weighted distortion and noise power.
8) Repeat for each of the remaining 1/3 octave center frequencies based on the narrowband or wideband operating mode.
9) Repeat steps 2-8 with a mounting force of 2N.

7.2.3 Test Result

Codec	Mount Force	Air Inter.	Band	Channel	Freq. (MHz)	BW (MHz)	Modulation	RB	Dst. Center Freq. (MHz)	Limit (dB)	PN-SDNR (dB)
EVS-NB 24.4 kbps	2 N	WIFI 5 GHz	802.11ax _HE40	CH.159 (U-NII-3)	5 795	40	MCS 11	N/A	400	20	27.24
									500		26.97
									630		27.41
									800		27.49
									1 000		25.20
									1 250		22.34
									1 600		30.90
									2 000		26.11
									2 500		33.71
									3 150		39.49
	8 N	WIFI 5 GHz	802.11ax _HE40	CH.38 (U-NII-1)	5 190	40	MCS 6	N/A	400	20	29.17
									500		27.54
									630		27.04
									800		28.91
									1 000		28.15
									1 250		23.38
									1 600		34.14
									2 000		28.48
									2 500		34.34
									3 150		35.44
EVS-WB 24.4 kbps	2 N	LTE FDD	B25 (Ant.A)	CH.26365	1 882.5	20	QPSK	100/0	250	20	25.85
									315		28.47
									400		27.88
									500		28.25
									630		32.03
									800		32.54
									1 000		35.03
									1 250		21.61
									1 600		26.36
									2 000		44.87
									2 500		34.00
									3 150		34.01
									4 000		41.55
									5 000		43.33
	8 N	WIFI 5 GHz	802.11ax _HE40	CH.159 (U-NII-3)	5 795	40	MCS 11	N/A	250	20	25.62
									315		27.79
									400		26.53
									500		27.35
									630		30.79
									800		28.37
									1 000		31.52
									1 250		22.24
									1 600		32.19
									2 000		32.09
									2 500		35.45
									3 150		33.83
									4 000		34.33
									5 000		34.46

All tests were performed with EUT volume set to MAX -1 level and HAC tone control mode turned on.

This report contains only the worst case of Section 6.1 test results.

7.3 Receive Acoustic Frequency Response Performance

7.3.1 Test Limit

For the volume control settings determined with a mounting force of 8N and 2N, the receive frequency response shall be measured at the DRP in 1/12 octave bands. After translation to the FF or DF, it shall fall between the applicable upper and lower limits.

The exact limit value at any 1/12 octave band center frequency falling between two consecutive points specified in the table may be caluated using the formula follow:

$$X_f = X_1 + (X_2 - X_1) * \left(\frac{\log_{10} f - \log_{10} f_1}{\log_{10} f_2 - \log_{10} f_1}\right)$$

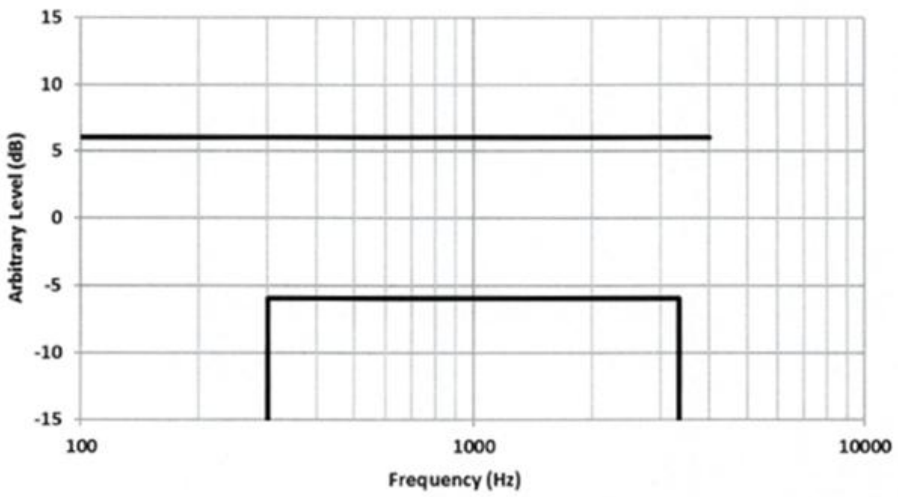
Where
X_f = limit value at frequency f
X_1 = limit value at frequency f_1 as given in table
X_2 = limit value at frequency f_2 as given in table

The results for each 1/12 octave band measurement are to be evaluated against the upper and lower limit values only at the center frequency point for that band (i.e., not the entire width of the band). For graphical purposes, the individual 1/12 octave band measurement results are plotted as points on a linear dB scale (y-axis) versus the band's center frequency on a logarithmic frequency scale (x-axis). The frequency response limits are floating or ˜best fit" (i.e., the maximum and minimum deviations from the upper and lower limits should be equidistant from those limits).

* According to waiver DA23-914, Frequency Response test is only performed for EVS-NB 24.4 kbps and EVS-WB 24.4 kbps.

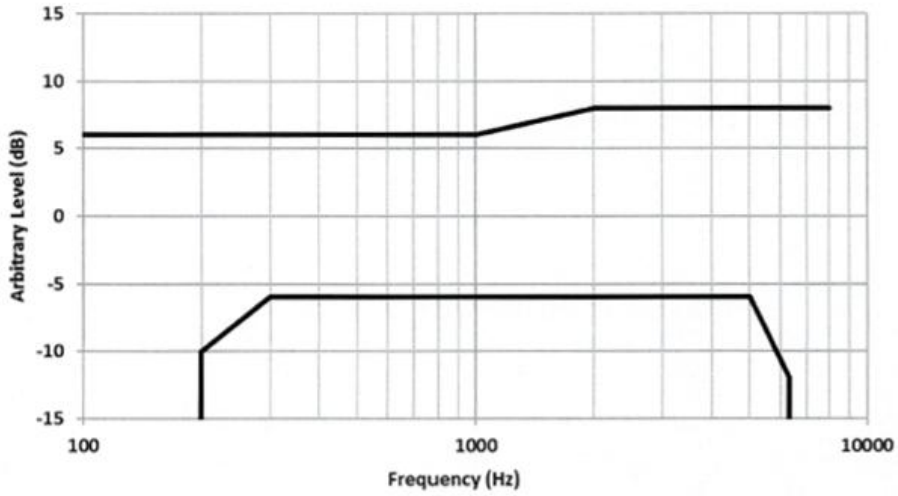
1) Narrowband Receive Frequency Response Limits

Lower Limit Frequency (Hz)	Lower Limit (dB)	Upper Limit Frequency (Hz)	Upper Limit (dB)
300	-6	100	+6
3 400	-6	4 000	+6



2) Wideband Receive Frequency Response Limits

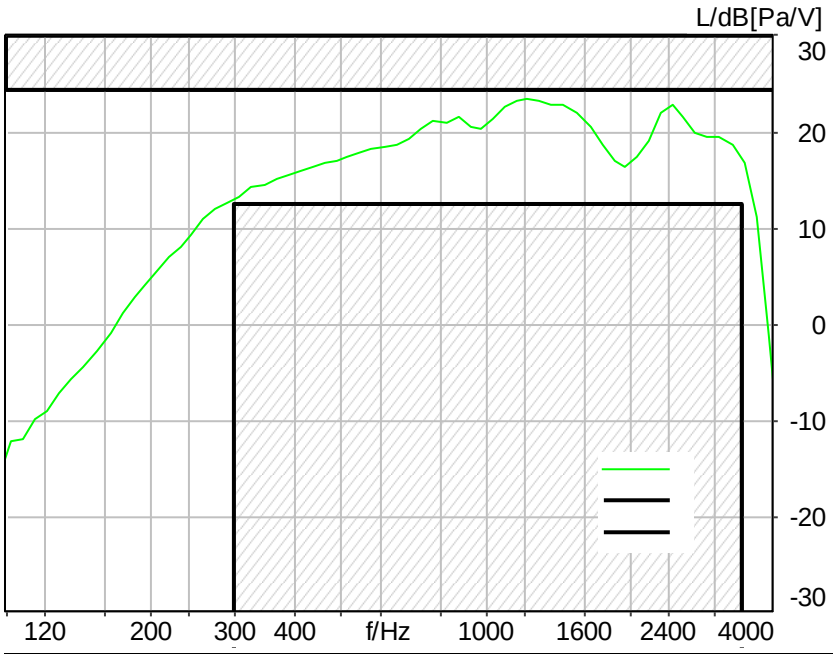
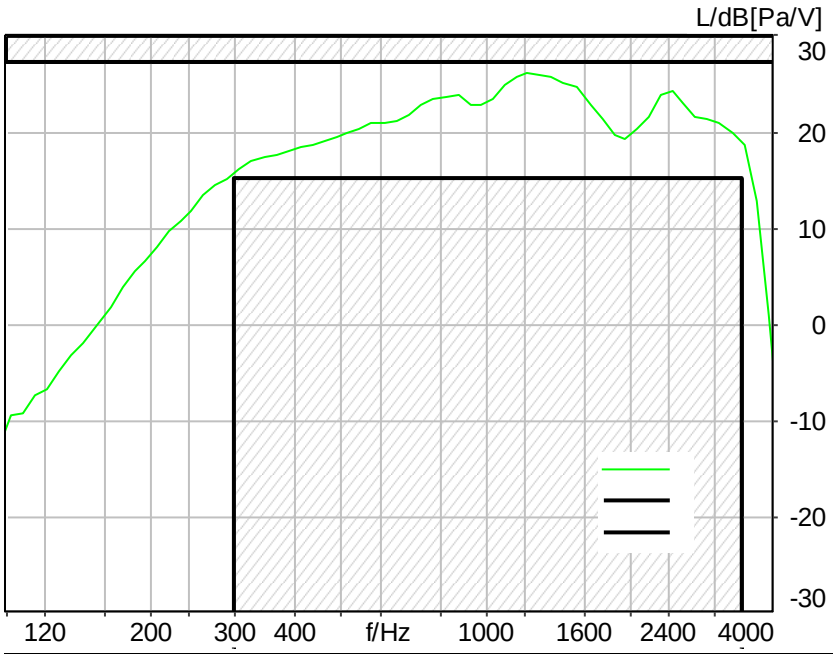
Lower Limit Frequency (Hz)	Lower Limit (dB)	Upper Limit Frequency (Hz)	Upper Limit (dB)
200	-10	100	+6
300	-6	1 000	+6
5 000	-6	2 000	+8
6 300	-12	8 000	+8

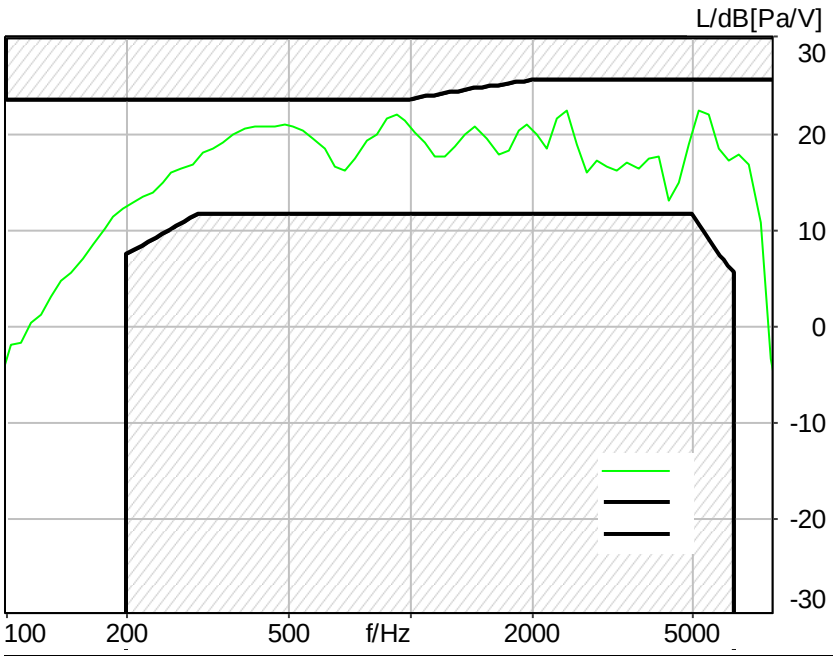
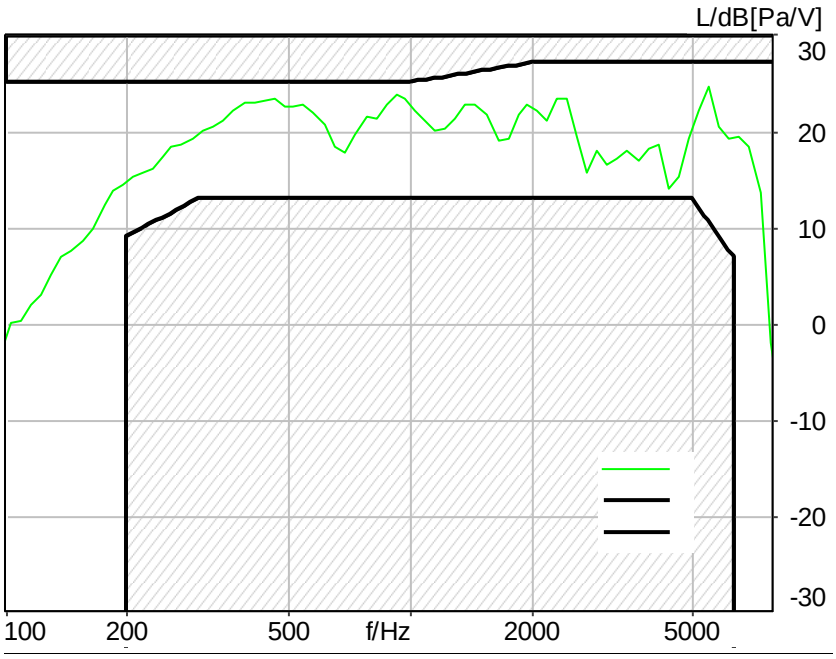


7.3.2 Test Procedure

1) Configure the DUT with mounting force of 8N and test equipment as shown in Figure 1 in an active call state with the applicable codec for the transmission mode under test with the volume control setting.
2) If the DUT has an adjustable tone control feature the initial measurement is to be performed with the default tone control setting.
3) Apply the real speech test signal with a level of -20 dBm0 at the RETP.
4) Capture the frequency spectrum at the DRP of the HATS using real-time analysis with 1/12 octave bands over the frequency range from 100 Hz to 4000 Hz for narrowband measurements, or over the frequency range from 100 Hz to 8000 Hz for wideband measurements, averaged over the entire duration of the test signal.
5) Transform the DRP frequency spectrum measurement to the FF or DF.
6) Divide the 1/12 octave measurement data by the 1/12 octave frequency spectrum of the test signal at the RETP and present the measurement in terms of dB (Pa/V).
7) Apply the applicable frequency response limits to determine compliance.
8) If the default tone control setting does not meet the requirement, repeat the above steps for other tone control settings to determine a tone control setting that meets the requirements.
9) Repeat with a Mounting force of 2N

7.3.3 Test Result

Codec	Mount Force	Air Int.	Tech	LRP	Margin (dB)	Frequency Response
EVS-NB 24.4 kbps	2 N	WIFI 5 GHz	802.11ax _HE20 CH.5 (U-NII-5) 5 975 MHz BW 20 MHz MCS 0	DF	1.00	
	8 N	WIFI 5 GHz	802.11ax _HE20 CH.5 (U-NII-5) 5 975 MHz BW 20 MHz MCS 0	DF	1.00	

Codec	Mount Force	Air Int.	Tech	LRP	Margin (dB)	Frequency Response
EVS-WB 24.4 kbps	2 N	NR FDD	n25 (Ant.F) CH.376500 1 882.5 MHz BW 40 MHz DFT-s-OFDM QPSK RB 108/54	DF	1.44	
	8N	NR TDD	n77 (Ant.F) CH.656000 3 840 MHz BW 60 MHz DFT-s-OFDM 64QAM RB 162/0	DF	1.12	

All tests were performed with EUT volume set to MAX -1 level and HAC tone control mode turned on.

This report contains only the worst case of Section 6.1 test results.

End of Report