

## HAC VOLUME CONTROL TEST REPORT

FCC 47 CFR § 20.19  
ANSI C63.19-2019  
ANSI/TIA-5050 2018

*For*

GSM/WCDMA/LTE 5G NR Phone + BT/BLE, DTS/UNII a/b/g/n/ac/ax, NFC and WPT

MODEL NUMBER : SM-F956U, SM-F956U1

FCC ID: A3LSMF956U

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**TL-637**

**Revision History**

| Rev. | Date      | Revisions                                                                                                                                         | Revised By |
|------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| V1   | 4/27/2024 | Initial Issue                                                                                                                                     | -          |
| V2   | 5/2/2024  | Added note in Sec.9.4 for conversational gain only test result<br>Updated worst case plots in Sec.9.5<br>Revised Appendix B – removed empty plots | Eunji Choi |
| V3   | 5/16/2024 | Added note about transmit power in Sec.8.1.                                                                                                       | Eunji Choi |
|      |           |                                                                                                                                                   |            |

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## 1. Attestation of Test Results

|                      |                                                              |
|----------------------|--------------------------------------------------------------|
| Applicant Name       | SAMSUNG ELECTRONICS CO.,LTD.                                 |
| FCC ID               | A3LSMF956U                                                   |
| Model Name           | SM-F956U, SM-F956U1                                          |
| Applicable Standards | FCC 47 CFR § 20.19<br>ANSI C63.19-2019<br>ANSI/TIA-5050 2018 |
| Conversational Gain  | 16.43 dB with hearing aid and 19.24 dB without hearing aid   |
| Date Tested          | 4/5/2024 to 4/23/2024                                        |
| Test Results         | Pass                                                         |

UL Korea, Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Korea, Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

**Note:** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Korea, Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Korea, Ltd. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by IAS, any agency of the Federal Government, or any agency of any government.

|                                                                                                                |                                                                                                     |
|----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| Approved & Released By:<br> | Prepared By:<br> |
| Justin Park<br>Operations Leader<br>UL Korea, Ltd. Suwon Laboratory                                            | Eunji Choi<br>Senior Laboratory Engineer<br>UL Korea, Ltd. Suwon Laboratory                         |

## 2. Test Methodology

The tests documented in this report were performed in accordance with FCC 47 CFR § 20.19, ANSI C63.19-2019 and ANSI/TIA-5050 2018 Communications Products – Receive Volume Control Requirements for Wireless (Mobile) Devices and FCC published KDB procedures.

KDB 285076 D01 HAC Guidance v06r04

KDB 285076 D03 HAC FAQ v01r06

KDB 285076 D04 Volume Control v02

KDB 285076 D05 CG Interim Waiver DA 23-914 v01

TCB workshop updates

## 3. Facilities and Accreditation

The test sites and measurement facilities used to collect data are located at

|                     |
|---------------------|
| Suwon               |
| Volume Control Room |

UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637.

The full scope of accreditation can be viewed at <https://www.iasonline.org/wp-content/uploads/2017/05/TL-637-cert-New.pdf>

## 4. Calibration and Uncertainty

### 4.1. 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 |
|-----------------------------------------------------------------------------|--------------|--------------|-------------|---------------|
| Head and Torso Simulator<br>incl Right Ear Simulator and Handset Positioner | Brüel&Kjaer  | -4128-D-001- | 3287425     | 07-06-2024    |
| Single Channel, Universal Microphone Conditioning Amplifier                 | Brüel&Kjaer  | -1708---     | 100426      | 06-15-2024    |
| Sound Calibrator, Class 1 and LS, 94 and 114 dB, 1 kHz.                     | Brüel&Kjaer  | -4231---     | 3026386     | 06-12-2024    |
| Production Test USB-DAQ 8/2-ch.                                             | Brüel&Kjaer  | -3670-A-082- | 3670-000120 | 06-13-2024    |
| Sound Level Meter                                                           | Brüel&Kjaer  | -2250-L-S-   | 3130250     | 03-31-2024    |
| Communications Tester                                                       | R & S        | CMW500       | 150314      | 07-26-2024    |
| Communications Tester                                                       | R & S        | CMW500       | 169801      | 01-03-2025    |
| Up/Down-Converter                                                           | R & S        | CMW-Z800A    | 100145      | N/A           |
| Wireless Test Platform                                                      | Keysight     | E7515B       | MY57510596  | 07-27-2024    |
| Audio Analyzer                                                              | Keysight     | U8903B       | MY61170007  | 07-27-2024    |

## 4.2. Measurement Uncertainty

### Measurement Uncertainty for Volume Control Measurement

| a                                                                                           | c        | d                           | e<br>f(d,k) | f  | k  | h =<br>c×f/e |
|---------------------------------------------------------------------------------------------|----------|-----------------------------|-------------|----|----|--------------|
| Uncertainty component                                                                       | Tol.(±%) | Prob.<br>Dist.              | Div.        | ci | vi | ui<br>(± %)  |
| Measurement System - Input channels of Audio Interface (Production Test USB DAQ Type 3670)  |          |                             |             |    |    |              |
| Overall Frequency Response (re. 1 kHz)                                                      | 0.02     | Rectangular                 | 1.732       | 1  | ∞  | 0.01         |
| Measurement System - Output channels of Audio Interface (Production Test USB DAQ Type 3670) |          |                             |             |    |    |              |
| Measurement System - Pre-Amplifier (Signal Conditioner Type 1708)                           |          |                             |             |    |    |              |
| Gain Tolerance 10 Hz 100 kHz                                                                | 0.01     | Rectangular                 | 1.732       | 1  | ∞  | 0.01         |
| Measurement System - Ear-Simulator (Right Ear Simulator Type 4158-C)                        |          |                             |             |    |    |              |
| Typical Sensitivity                                                                         | 0.19     | Rectangular                 | 1.732       | 1  | ∞  | 0.11         |
| Test Sample Related                                                                         |          |                             |             |    |    |              |
| Repeatability Test(Conversational Gain)                                                     | 5.76     | Normal                      | 1           | 1  | 40 | 5.76         |
| Repeatability Test(Acoustic Frequency Response)                                             | 1.54     | Normal                      | 1           | 1  | 40 | 1.54         |
| Repeatability Test(Distortion)                                                              | 11.85    | Normal                      | 1           | 1  | 40 | 11.85        |
| Combined Standard Uncertainty Uc(y) =                                                       |          | Expanded Uncertainty        |             |    |    |              |
| Conversational Gain                                                                         | 5.76     | Conversational Gain         |             |    |    | 11.53        |
| Acoustic Frequency Response                                                                 | 1.55     | Acoustic Frequency Response |             |    |    | 3.09         |
| Distortion                                                                                  | 11.85    | Distortion                  |             |    |    | 23.71        |
| Notes for table                                                                             |          |                             |             |    |    |              |
| 1. Ci - is te sensitivity coefficient                                                       |          |                             |             |    |    |              |
| 2. Expanded Std. Uncertainty on Pow er, Coverage Factor = 2, > 95% Confidence               |          |                             |             |    |    |              |

## 4.3. Decision Rule

Decision rule for statement(s) of conformity is based on Procedure 2, Clause 4.4.3 in IEC Guide 115:2021.

## 5. Test Procedures for all Technologies

### 5.1. General Procedures ANSI/TIA-5050 2018, Section 5

The following requirements shall be met for at least one volume control setting for the narrowband transmission mode (if supported) and the wideband transmission mode (if supported).

Quiet room is a room with background noise no greater than 40 dBA.

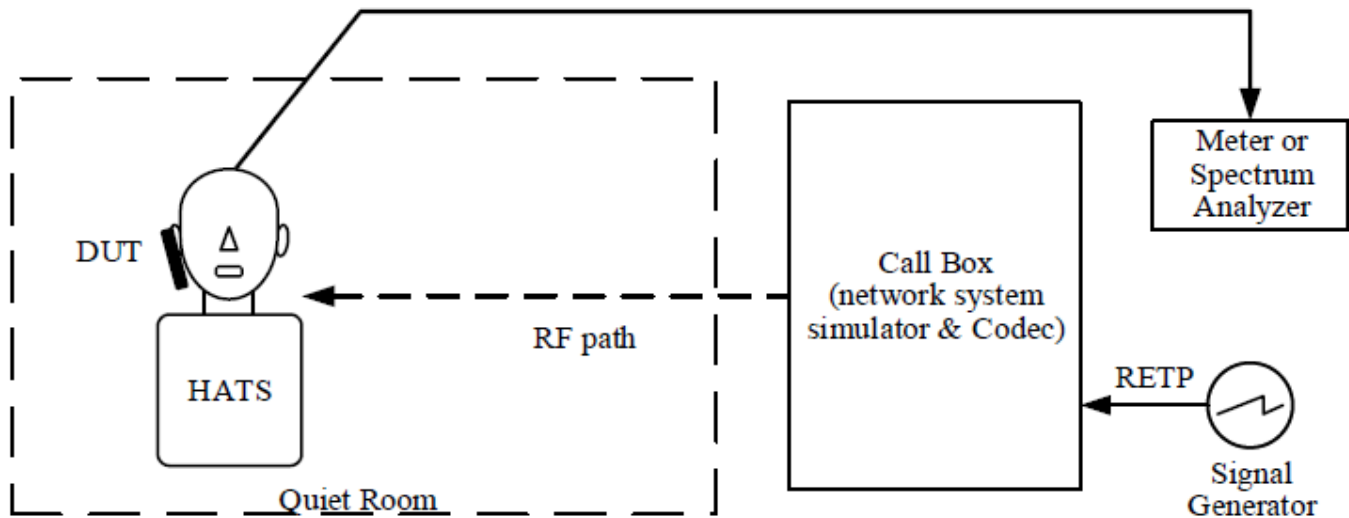


Figure 1. Test Arrangement

### 5.2. Receive Volume Control Performance

#### Method of Measurement

- 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 in section 5.3.1 shall be used.
- 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 in Annex B.
- 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 4000 Hz.
  - b. Wideband 100 Hz through 7720 Hz.
- 7) Calculate the Conversational Gain by subtracting 70 dB from the measured dBSPL.  
[Conversational Gain = (Measured dBSPL Level – 70 dBSPL) dB]
- 8) Measure the output distortion per clause 5.2. 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 2-8 with a mounting force of 2N.

### 5.3. Receive Distortion and Noise Performance (PN-SDNR)

Receive distortion is specified in terms of Signal-to-Distortion-and-Noise Ratio (SDNR) using a Pulsed Noise (PN) test signal. PN-SDNR is the ratio of the signal power to the total A-weighted distortion and noise power of the signal output expressed in dB. It is measured using a pulsed 1/3 octave pink noise input signal as described in TIA-5050 2018 Annex A.

#### Method of Measurement

- 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 determined in 5.1.1.
- 2) Receive distortion and noise is measured using the PN-SDNR procedure as described in Annex A.
- 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 in Table A.1 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 in Annex B.
- 5) Calculate the acoustic output unweighted total signal power of the stimulus measurement band as described in A.2.
- 6) Calculate the notched A-weighting distortion and noise components as described in A.3.
- 7) Calculate the ratio of the signal power to the total A-weighted distortion and noise power using Eq A-1.
- 8) Repeat for each of the remaining 1/3 octave center frequencies in Table A.1 based on the narrowband or wideband operating mode.

Repeat steps 2-8 with a mounting force of 2N.

### 5.4. Receive Acoustic Frequency Response Performance

For the volume control settings determined in 5.1.1 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 values at any 1/12 octave band center frequency falling between two consecutive points specified in the table may be calculated using the formula given in equation below:

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

#### Method of Measurement

- 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 determined in 5.1.1.
- 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 (see Annex B).
- 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.

## 6. Base Station Simulator – software/firmware

### 6.1. VoLTE

Refer to the below software/firmware License list for measurement VoLTE.

| Firmware          | License Keys | Software Name (CMW500) |
|-------------------|--------------|------------------------|
| V3.7.70 for LTE   | KS500        | LTE FDD R8 SIG BASIC   |
|                   | KS550        | LTE TDD R8 SIG BASIC   |
| V3.7.20 for Audio | KA100        | IP APPL ENABLING IPv4  |
|                   | KA150        | IP APPL ENABLING IPv4  |
|                   | KAA20        | IP APPL IMS BASIC      |
|                   | KM050        | DATA APPL MEAS         |
|                   | KS104        | EVS SPEECH CODEC       |

### 6.2. VoNR

Refer to the below software/firmware License list for measurement VoNR.

| License Option | Software Name (Keysight E7515B) |
|----------------|---------------------------------|
| C8700201A      | IMS-SIP Emulation               |
| C87350P1A      | 5G NR IP data                   |

### 6.3. VoWi-Fi

Refer to the below software/firmware License list for measurement VoWi-Fi.

| Firmware           | License Keys | Software Name (CMW500) |
|--------------------|--------------|------------------------|
| V3.7.50 for WLAN   | KS650        | WLAN A/B/G SIG BASIC   |
|                    | KS651        | WLAN N SIG BASIC       |
|                    | KS656        | WLAN IEEE 802.11ac     |
|                    | KS657        | WLAN IEEE 802.11ax     |
| V3.7.20 for Audio  | KA100        | IP APPL ENABLING IPv4  |
|                    | KA150        | IP APPL ENABLING IPv6  |
|                    | KAA20        | IP APPL IMS BASIC      |
|                    | KM050        | DATA APPL MEAS         |
|                    | KS104        | EVS SPEECH CODEC       |
| Firmware           | License Keys | Software Name (CMW500) |
| V4.0.190 for WLAN  | KS650        | WLAN A/B/G SIG BASIC   |
|                    | KS651        | WLAN N SIG BASIC       |
|                    | KS656        | WLAN IEEE 802.11ac     |
|                    | KS657        | WLAN IEEE 802.11ax     |
| V4.0.190 for Audio | KA100        | IP APPL ENABLING IPv4  |
|                    | KA150        | IP APPL ENABLING IPv6  |
|                    | KAA20        | IP APPL IMS BASIC      |
|                    | KM050        | DATA APPL MEAS         |
|                    | KS104        | EVS SPEECH CODEC       |

## 7. Receive Volume Control Requirements

### 7.1. Receive Volume Control

**1. With a mounting force of 8N**, the DUT shall have at least one volume control setting that will produce a conversational gain of  $\geq 18$  dB with the output distortion and the frequency response meeting the requirements in clause 5.2.1 & 5.3.1 respectively.

**2. With a mounting force of 2N**, the DUT shall have at least one volume control setting that will produce a conversational gain of  $\geq 6$  dB with the output distortion and the frequency response meeting the requirements in clause 5.2.1 & 5.3.1 respectively.

### 7.2. Receive Distortion and Noise

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  $\geq 20$  dB when tested over the range of 1/3 octave band center frequencies.

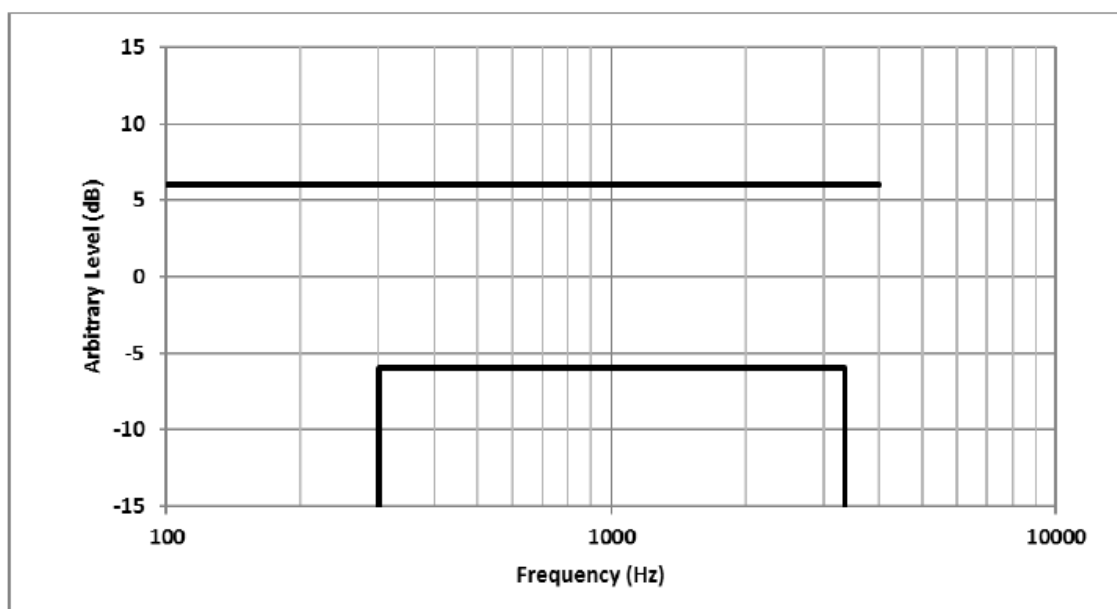
### 7.3. Receive Acoustic Frequency Response

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).

1. Narrowband: The 1/12 octave band frequency response after translation to the FF or DF shall fall between the upper and lower limits given in Table 1 and shown in Figure 2.

**Table 1 – Narrowband Receive Frequency Response Limits**

| Lower Limit Frequency (Hz) | Lower Limit (dB) | Upper Limit Frequency (Hz) | Upper Limit (dB) |
|----------------------------|------------------|----------------------------|------------------|
| 300                        | -6               | 100                        | +6               |
| 3400                       | -6               | 4000                       | +6               |

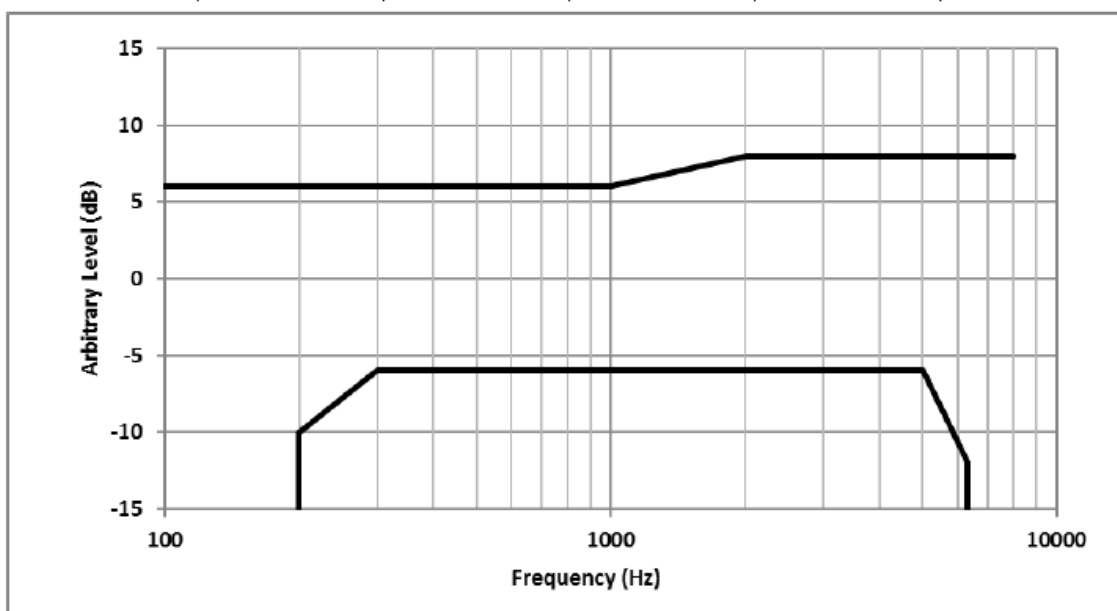


**Figure 2 – Narrowband Receive Frequency Response Limits**

2. Wideband: The 1/12 octave band frequency response after translation to the FF or DF shall fall between the upper and lower limits given in Table 2 and shown in Figure 3.

**Table 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               | 1000                       | +6               |
| 5000                       | -6               | 2000                       | +8               |
| 6300                       | -12              | 8000                       | +8               |



**Figure 3 – Wideband Receive Frequency Response Limits**

## 7.4. HAC Compliance under Waiver DA 23-914

The following technical testing requirements for the conversational gain, distortion, and frequency response tests that amends KDB 285076 D04 Volume Control under the conditions of the limited-term waiver DA 23-914.

- 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:
  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  $\geq 6$  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.
  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  $\geq 6$  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.
- b. For all other narrowband and wideband codecs not evaluated in **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  $\geq 6$  dB for all voice services, bands of operation and air interfaces over which they operate. The handset volume setting used to comply with **a.** shall be used for these other CMRS codec evaluations.
- c. Any other codec for voice services embedded in the handset, not identified in **a.** and **b.** above, is not required to comply or demonstrate in the test reports for conversational gain.

## 8. Device Under Test

|                         |                                 |                     |
|-------------------------|---------------------------------|---------------------|
| Normal operation        | Held to head                    |                     |
| Back Cover              | The Back Cover is not removable |                     |
| Test sample information | <b>S/N</b>                      | <b>Notes</b>        |
|                         | R3CX309QRMZ                     | Volume Control Test |
|                         | R3CX309QRZF                     | Volume Control Test |

## 8.1. Air Interfaces and Operating Mode

| Air Interface                               | Bands (MHz)     | Type | Volume Control Tested                                                                                                                                            | Simultaneous Transmitter                                                             | OTT Testing Required?<br>Name of Voice Service | Audio Codecs Evaluated          |
|---------------------------------------------|-----------------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|------------------------------------------------|---------------------------------|
| GSM                                         | 850             | VO   | Yes <sup>4</sup><br>FR V1, FR V2, HR V1                                                                                                                          | Wi-Fi and BT                                                                         | CMRS                                           | FR V1, FR V2, HR V1             |
|                                             | 1900            |      |                                                                                                                                                                  |                                                                                      |                                                |                                 |
|                                             | GPRS/EDGE       | VD   | No <sup>5</sup>                                                                                                                                                  | Wi-Fi and BT                                                                         | No <sup>5</sup><br>Google Meet                 | OPUS                            |
| W-CDMA<br>(UMTS)                            | 850 (V)         | VO   | Yes <sup>4</sup><br>AMR-NB, AMR-WB                                                                                                                               | Wi-Fi and BT                                                                         | CMRS                                           | AMR-NB & AMR-WB                 |
|                                             | 1750 (IV)       |      |                                                                                                                                                                  |                                                                                      |                                                |                                 |
|                                             | 1900 (II)       |      |                                                                                                                                                                  |                                                                                      |                                                |                                 |
|                                             | HSPA            | VD   | No <sup>5</sup>                                                                                                                                                  | Wi-Fi and BT                                                                         | No <sup>5</sup><br>Google Meet                 | OPUS                            |
| LTE - FDD                                   | 680 (B71)       | VD   | Yes <sup>3</sup><br>EVS-nb 24.4 kbps<br>EVS-w b 24.4 kbps<br><br>Yes <sup>4</sup><br>AMR-NB, AMR-WB,<br>EVS-nb, EVS-w b<br><br>No <sup>5</sup><br>EVS-sw b, OPUS | NR, Wi-Fi and BT                                                                     | VoLTE<br>No <sup>5</sup><br>Google Meet        | AMR-NB, AMR-WB,<br>EVS and OPUS |
|                                             | 700 (B12)       |      |                                                                                                                                                                  |                                                                                      |                                                |                                 |
|                                             | 780 (B13)       |      |                                                                                                                                                                  |                                                                                      |                                                |                                 |
|                                             | 790 (B14)       |      |                                                                                                                                                                  |                                                                                      |                                                |                                 |
|                                             | 850 (B5/26)     |      |                                                                                                                                                                  |                                                                                      |                                                |                                 |
|                                             | 1700 (B4/66)    |      |                                                                                                                                                                  |                                                                                      |                                                |                                 |
|                                             | 1900 (B2/25)    |      |                                                                                                                                                                  |                                                                                      |                                                |                                 |
|                                             | 2300 (B30)      |      |                                                                                                                                                                  |                                                                                      |                                                |                                 |
|                                             | 2600 (B7)       |      |                                                                                                                                                                  |                                                                                      |                                                |                                 |
| LTE - TDD                                   | 2300 (B40)      | VD   |                                                                                                                                                                  | NR, Wi-Fi and BT                                                                     | VoLTE<br>No <sup>5</sup><br>Google Meet        | AMR-NB, AMR-WB,<br>EVS and OPUS |
|                                             | 2600 (B38/41)   |      |                                                                                                                                                                  |                                                                                      |                                                |                                 |
|                                             | 3600 (B48)      |      |                                                                                                                                                                  |                                                                                      |                                                |                                 |
| NR - FDD                                    | 680 (n71)       | VD   | Yes <sup>3</sup><br>EVS-nb 24.4 kbps<br>EVS-w b 24.4 kbps<br><br>Yes <sup>4</sup><br>AMR-NB, AMR-WB,<br>EVS-nb, EVS-w b<br><br>No <sup>5</sup><br>EVS-sw b, OPUS | LTE, Wi-Fi and BT                                                                    | VoNR<br>No <sup>5</sup><br>Google Meet         | AMR-NB, AMR-WB,<br>EVS and OPUS |
|                                             | 700 (n12)       |      |                                                                                                                                                                  |                                                                                      |                                                |                                 |
|                                             | 850 (n5/26)     |      |                                                                                                                                                                  |                                                                                      |                                                |                                 |
|                                             | 1700 (n66)      |      |                                                                                                                                                                  |                                                                                      |                                                |                                 |
|                                             | 1700 (n70)      |      |                                                                                                                                                                  |                                                                                      |                                                |                                 |
|                                             | 1900 (n2/25)    |      |                                                                                                                                                                  |                                                                                      |                                                |                                 |
|                                             | 2300 (n30)      |      |                                                                                                                                                                  |                                                                                      |                                                |                                 |
|                                             | 2600 (n7)       |      |                                                                                                                                                                  |                                                                                      |                                                |                                 |
| NR - TDD                                    | 2600 (n38/n41)  | VD   |                                                                                                                                                                  | LTE, Wi-Fi and BT                                                                    | VoNR<br>No <sup>5</sup><br>Google Meet         | AMR-NB, AMR-WB,<br>EVS and OPUS |
|                                             | 3600 (n48)      |      |                                                                                                                                                                  |                                                                                      |                                                |                                 |
|                                             | 3500 (n77 DoD)  |      |                                                                                                                                                                  |                                                                                      |                                                |                                 |
|                                             | 3700 (n77)      |      |                                                                                                                                                                  |                                                                                      |                                                |                                 |
| Wi-Fi                                       | 2450            | VD   | Yes <sup>3</sup><br>EVS-nb 13.2 kbps<br>EVS-w b 13.2 kbps<br><br>Yes <sup>4</sup><br>AMR-NB, AMR-WB,<br>EVS-nb, EVS-w b<br><br>No <sup>5</sup><br>EVS-sw b, OPUS | WWAN, BT and U-NII                                                                   | VoWiFi<br>No <sup>5</sup><br>Google Meet       | AMR-NB, AMR-WB,<br>EVS and OPUS |
|                                             | 5200 (U-NII-1)  |      |                                                                                                                                                                  | WWAN, BT<br>and WiFi 2.4GHz                                                          |                                                |                                 |
|                                             | 5300 (U-NII-2A) |      |                                                                                                                                                                  |                                                                                      |                                                |                                 |
|                                             | 5500 (U-NII-2C) |      |                                                                                                                                                                  |                                                                                      |                                                |                                 |
|                                             | 5800 (U-NII-3)  |      |                                                                                                                                                                  |                                                                                      |                                                |                                 |
|                                             | 5900 (U-NII-4)  |      |                                                                                                                                                                  |                                                                                      |                                                |                                 |
|                                             | 6175 (U-NII-5)  | VD   | Yes <sup>1,2</sup>                                                                                                                                               | WWAN, BT<br>and WiFi 2.4GHz                                                          | VoWiFi<br>No <sup>1,5</sup><br>Google Meet     | AMR-NB, AMR-WB,<br>EVS and OPUS |
|                                             | 6475 (U-NII-6)  |      |                                                                                                                                                                  |                                                                                      |                                                |                                 |
|                                             | 6700 (U-NII-7)  |      |                                                                                                                                                                  |                                                                                      |                                                |                                 |
|                                             | 7000 (U-NII-8)  |      |                                                                                                                                                                  |                                                                                      |                                                |                                 |
| BT                                          | 2450            | DT   | N/A                                                                                                                                                              | WWAN and U-NII                                                                       | N/A                                            | N/A                             |
| Type                                        |                 |      |                                                                                                                                                                  | Note:                                                                                |                                                |                                 |
| VO: Legacy Cellular Voice Service           |                 |      |                                                                                                                                                                  | <sup>1</sup> ANSI C63.19 only requires HAC evaluations for Frequencies under 6GHz.   |                                                |                                 |
| DT: Digital Transport only (no voice)       |                 |      |                                                                                                                                                                  | <sup>2</sup> 5.925-6 GHz in U-NII-5 band is evaluated for VoWiFi.                    |                                                |                                 |
| VD: IP Voice Service over Digital Transport |                 |      |                                                                                                                                                                  | <sup>3</sup> Tested Conversational Gain, Frequency Response, PN-SDNR.                |                                                |                                 |
| CMRS: Commercial Mobile Radio Service       |                 |      |                                                                                                                                                                  | <sup>4</sup> Tested only Conversational Gain. (Waiver DA 23-914)                     |                                                |                                 |
| BT: Bluetooth                               |                 |      |                                                                                                                                                                  | <sup>5</sup> Not required to comply with Volume Control standard. (Waiver DA 23-914) |                                                |                                 |

### Note(s):

All tests were performed with the transmit power set to the maximum power for held-to-head conditions (RCV active). For air interfaces with a Time Averaged SAR (TAS) algorithm Pmax is considered the maximum power.

## 9. HAC (Volume Control) Test Results

CMRS NB/WB Codecs and bitrate; EVS-nb 24.4 kbps and EVS-wb 24.4 kbps were chosen by applicant. All Volume Control measurements were performed with volume max-1 level.

### 9.1. CMRS Narrow-band/Wide-band Codec Investigation

An investigation was performed to determine the worst-case CMRS NB/WB Codec per technology. All subsequent measurements were determined by this investigation.

#### 2N Mounting Force

| Codec<br>(NB or WB) | Volume<br>Control Level | Mode / Band            | Antenna | Voice Codec /<br>Codec bitrate<br>(kbps) | Channel and<br>Frequency | Bandwidth | Waveform /<br>Modulation | RB<br>(Allocation/<br>Offset) | Volume Control Results      |                             |                                   |      |                        |
|---------------------|-------------------------|------------------------|---------|------------------------------------------|--------------------------|-----------|--------------------------|-------------------------------|-----------------------------|-----------------------------|-----------------------------------|------|------------------------|
|                     |                         |                        |         |                                          |                          |           |                          |                               | 2N                          |                             |                                   |      |                        |
|                     |                         |                        |         |                                          |                          |           |                          |                               | Noise<br>(LAF_MAX)<br>(dBA) | Conversational<br>Gain (dB) | Frequency Response<br>Margin (dB) |      | PN-SDNR<br>margin (dB) |
|                     |                         |                        |         |                                          |                          |           |                          |                               | FF                          | DF                          |                                   |      |                        |
| NB                  | Max - 1                 | LTE Band 66            | Ant.B   | EVS-NB<br>24.4 kbit/s                    | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 1/0                           | 23.9                        | 16.77                       | 2.11                              | 1.81 | 12.06                  |
| WB                  | Max - 1                 | LTE Band 66            | Ant.B   | EVS-WB<br>24.4 kbit/s                    | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 1/0                           | 23.9                        | 17.76                       | 2.11                              | 2.10 | 6.21                   |
| NB                  | Max - 1                 | LTE Band 41 PC2        | Ant.B   | EVS-NB<br>24.4 kbit/s                    | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/0                           | 24.4                        | 16.73                       | 2.18                              | 1.87 | 8.18                   |
| WB                  | Max - 1                 | LTE Band 41 PC2        | Ant.B   | EVS-WB<br>24.4 kbit/s                    | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/0                           | 24.4                        | 17.55                       | 2.16                              | 2.20 | 6.72                   |
| NB                  | Max - 1                 | NR Band n12            | Ant.D   | EVS-NB<br>24.4 kbit/s                    | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 17.46                       | 2.10                              | 1.88 | 8.81                   |
| WB                  | Max - 1                 | NR Band n12            | Ant.D   | EVS-WB<br>24.4 kbit/s                    | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 18.64                       | 2.21                              | 2.50 | 6.00                   |
| NB                  | Max - 1                 | NR Band n41 PC2        | Ant.E   | EVS-NB<br>24.4 kbit/s                    | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK       | 1/1                           | 25.3                        | 17.60                       | 2.11                              | 1.91 | 7.98                   |
| WB                  | Max - 1                 | NR Band n41 PC2        | Ant.E   | EVS-WB<br>24.4 kbit/s                    | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK       | 1/1                           | 25.3                        | 18.71                       | 2.19                              | 2.50 | 7.55                   |
| NB                  | Max - 1                 | WiFi 2.4GHz<br>802.11b | MIMO    | EVS-NB<br>24.4 kbit/s                    | CH.6<br>2437 MHz         | 20 MHz    | DSSS<br>1 Mbps           | N/A                           | 23.9                        | 16.80                       | 2.24                              | 1.91 | 6.81                   |
| WB                  | Max - 1                 | WiFi 2.4GHz<br>802.11b | MIMO    | EVS-WB<br>24.4 kbit/s                    | CH.6<br>2437 MHz         | 20 MHz    | DSSS<br>1 Mbps           | N/A                           | 23.9                        | 17.86                       | 2.22                              | 2.20 | 7.35                   |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11a   | MIMO    | EVS-NB<br>24.4 kbit/s                    | CH.40<br>5200 MHz        | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 25.7                        | 16.98                       | 2.26                              | 1.93 | 10.73                  |
| WB                  | Max - 1                 | WiFi 5GHz<br>802.11a   | MIMO    | EVS-WB<br>24.4 kbit/s                    | CH.40<br>5200 MHz        | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 25.7                        | 17.87                       | 2.15                              | 2.20 | 6.00                   |

#### 8N Mounting Force

| Codec<br>(NB or WB) | Volume<br>Control Level | Mode / Band            | Antenna | Voice Codec /<br>Codec bitrate<br>(kbps) | Channel and<br>Frequency | Bandwidth | Waveform /<br>Modulation | RB<br>(Allocation/<br>Offset) | Volume Control Results      |                             |                                   |      |                        |
|---------------------|-------------------------|------------------------|---------|------------------------------------------|--------------------------|-----------|--------------------------|-------------------------------|-----------------------------|-----------------------------|-----------------------------------|------|------------------------|
|                     |                         |                        |         |                                          |                          |           |                          |                               | 8N                          |                             |                                   |      |                        |
|                     |                         |                        |         |                                          |                          |           |                          |                               | Noise<br>(LAF_MAX)<br>(dBA) | Conversational<br>Gain (dB) | Frequency Response<br>Margin (dB) |      | PN-SDNR<br>margin (dB) |
|                     |                         |                        |         |                                          |                          |           |                          |                               | FF                          | DF                          |                                   |      |                        |
| NB                  | Max - 1                 | LTE Band 66            | Ant.B   | EVS-NB<br>24.4 kbit/s                    | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 1/0                           | 24.6                        | 19.99                       | 2.09                              | 1.88 | 10.70                  |
| WB                  | Max - 1                 | LTE Band 66            | Ant.B   | EVS-WB<br>24.4 kbit/s                    | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 1/0                           | 24.6                        | 20.83                       | 2.20                              | 2.00 | 8.00                   |
| NB                  | Max - 1                 | LTE Band 41 PC2        | Ant.B   | EVS-NB<br>24.4 kbit/s                    | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/0                           | 24.4                        | 19.95                       | 2.10                              | 1.95 | 12.40                  |
| WB                  | Max - 1                 | LTE Band 41 PC2        | Ant.B   | EVS-WB<br>24.4 kbit/s                    | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/0                           | 24.4                        | 20.74                       | 2.18                              | 2.20 | 6.60                   |
| NB                  | Max - 1                 | NR Band n12            | Ant.D   | EVS-NB<br>24.4 kbit/s                    | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 20.31                       | 1.92                              | 1.70 | 4.80                   |
| WB                  | Max - 1                 | NR Band n12            | Ant.D   | EVS-WB<br>24.4 kbit/s                    | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 21.45                       | 2.18                              | 2.50 | 5.00                   |
| NB                  | Max - 1                 | NR Band n41 PC2        | Ant.E   | EVS-NB<br>24.4 kbit/s                    | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 20.34                       | 2.06                              | 1.85 | 7.50                   |
| WB                  | Max - 1                 | NR Band n41 PC2        | Ant.E   | EVS-WB<br>24.4 kbit/s                    | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 21.44                       | 2.21                              | 2.60 | 6.10                   |
| NB                  | Max - 1                 | WiFi 2.4GHz<br>802.11b | MIMO    | EVS-NB<br>24.4 kbit/s                    | CH.6<br>2437 MHz         | 20 MHz    | DSSS<br>1 Mbps           | N/A                           | 26.1                        | 20.25                       | 2.12                              | 1.89 | 9.80                   |
| WB                  | Max - 1                 | WiFi 2.4GHz<br>802.11b | MIMO    | EVS-WB<br>24.4 kbit/s                    | CH.6<br>2437 MHz         | 20 MHz    | DSSS<br>1 Mbps           | N/A                           | 26.1                        | 21.17                       | 2.26                              | 2.30 | 6.90                   |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11a   | MIMO    | EVS-NB<br>24.4 kbit/s                    | CH.40<br>5200 MHz        | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 26.1                        | 20.17                       | 2.09                              | 1.95 | 12.40                  |
| WB                  | Max - 1                 | WiFi 5GHz<br>802.11a   | MIMO    | EVS-WB<br>24.4 kbit/s                    | CH.40<br>5200 MHz        | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 26.1                        | 21.03                       | 2.45                              | 2.40 | 7.00                   |

#### Note(s):

- For all technologies, it is observed that EVS-NB 24.4 kbps is the worst-case.

## 9.2. Antenna and Air Interface Investigation for VoLTE/VoNR/VoWiFi

Using the worst-case codec found in sec.9.1, a limited set of RBs/modulations/bandwidths/channels/bands/data rates were tested to confirm that there is no effect to compliance when changing the air interface.

### 2N Mounting Force – VoLTE FDD

| Codec<br>(NB or WB) | Volume<br>Control Level | Mode / Band | Antenna | Voice Codec /<br>Codec bitrate<br>(kbps) | Channel and<br>Frequency | Bandwidth | Waveform /<br>Modulation | RB<br>(Allocation/<br>Offset) | Volume Control Results      |                             |                                   |      |                        |
|---------------------|-------------------------|-------------|---------|------------------------------------------|--------------------------|-----------|--------------------------|-------------------------------|-----------------------------|-----------------------------|-----------------------------------|------|------------------------|
|                     |                         |             |         |                                          |                          |           |                          |                               | 2N                          |                             |                                   |      |                        |
|                     |                         |             |         |                                          |                          |           |                          |                               | Noise<br>(LAF_MAX)<br>(dBA) | Conversational<br>Gain (dB) | Frequency Response<br>Margin (dB) |      | PN-SDNR<br>margin (dB) |
|                     |                         |             |         |                                          |                          |           |                          |                               |                             |                             | FF                                | DF   |                        |
| NB                  | Max - 1                 | LTE Band 66 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 1/0                           | 23.9                        | 16.77                       | 2.11                              | 1.81 | 12.06                  |
| NB                  | Max - 1                 |             | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 1/0                           | 23.9                        | 16.80                       | 2.16                              | 1.87 | 11.47                  |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 1/49                          | 23.9                        | 16.95                       | 2.08                              | 1.78 | 12.49                  |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 1/99                          | 23.9                        | 16.96                       | 2.08                              | 1.78 | 9.19                   |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 50/0                          | 23.9                        | 16.90                       | 2.08                              | 1.77 | 10.62                  |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 50/24                         | 23.9                        | 16.88                       | 2.11                              | 1.80 | 10.51                  |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 50/50                         | 23.9                        | 16.86                       | 2.13                              | 1.82 | 9.86                   |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 100/0                         | 23.9                        | 16.88                       | 2.14                              | 1.85 | 11.44                  |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 132322<br>1745 MHz       | 20 MHz    | 16QAM                    | 1/0                           | 23.9                        | 16.86                       | 2.10                              | 1.79 | 7.06                   |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 132322<br>1745 MHz       | 20 MHz    | 64QAM                    | 1/0                           | 23.9                        | 16.85                       | 2.20                              | 1.90 | 11.10                  |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 132322<br>1745 MHz       | 20 MHz    | 256QAM                   | 1/0                           | 23.9                        | 16.85                       | 2.11                              | 1.79 | 12.31                  |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 132322<br>1745 MHz       | 15 MHz    | QPSK                     | 1/0                           | 23.9                        | 16.84                       | 2.18                              | 1.85 | 11.67                  |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 132322<br>1745 MHz       | 10 MHz    | QPSK                     | 1/0                           | 23.9                        | 16.97                       | 2.17                              | 1.89 | 11.79                  |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 132322<br>1745 MHz       | 5 MHz     | QPSK                     | 1/0                           | 23.9                        | 17.00                       | 2.12                              | 1.81 | 12.83                  |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 132322<br>1745 MHz       | 3 MHz     | QPSK                     | 1/0                           | 23.9                        | 16.91                       | 2.12                              | 1.81 | 10.29                  |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 132322<br>1745 MHz       | 1.4 MHz   | QPSK                     | 1/0                           | 23.9                        | 16.97                       | 2.15                              | 1.84 | 8.93                   |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 132072<br>1720 MHz       | 20 MHz    | QPSK                     | 1/0                           | 23.9                        | 16.94                       | 2.15                              | 1.83 | 11.31                  |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 132572<br>1770 MHz       | 20 MHz    | QPSK                     | 1/0                           | 23.9                        | 16.91                       | 2.12                              | 1.82 | 11.19                  |
| WB                  | Max - 1                 | LTE Band 7  | Ant.B   | EV-S-WB<br>24.4 kbit/s                   | 21100<br>2535 MHz        | 20 MHz    | QPSK                     | 1/0                           | 23.9                        | 17.70                       | 2.00                              | 2.00 | 8.68                   |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 21100<br>2535 MHz        | 20 MHz    | QPSK                     | 1/0                           | 23.9                        | 16.93                       | 2.06                              | 1.75 | 8.65                   |
| WB                  | Max - 1                 | LTE Band 12 | Ant.A   | EV-S-WB<br>24.4 kbit/s                   | 23095<br>707.5 MHz       | 10 MHz    | QPSK                     | 1/0                           | 23.9                        | 17.90                       | 2.27                              | 2.30 | 7.23                   |
| NB                  | Max - 1                 |             | Ant.A   | EV-S-NB<br>24.4 kbit/s                   | 23095<br>707.5 MHz       | 10 MHz    | QPSK                     | 1/0                           | 23.9                        | 16.78                       | 2.06                              | 1.76 | 11.54                  |
| WB                  | Max - 1                 | LTE Band 13 | Ant.A   | EV-S-WB<br>24.4 kbit/s                   | 23230<br>782 MHz         | 10 MHz    | QPSK                     | 1/0                           | 23.9                        | 17.82                       | 2.12                              | 2.10 | 5.88                   |
| NB                  | Max - 1                 |             | Ant.A   | EV-S-NB<br>24.4 kbit/s                   | 23230<br>782 MHz         | 10 MHz    | QPSK                     | 1/0                           | 23.9                        | 16.91                       | 2.19                              | 1.89 | 7.50                   |
| WB                  | Max - 1                 | LTE Band 14 | Ant.A   | EV-S-WB<br>24.4 kbit/s                   | 23330<br>793 MHz         | 10 MHz    | QPSK                     | 1/0                           | 23.9                        | 17.62                       | 2.07                              | 2.00 | 5.01                   |
| NB                  | Max - 1                 |             | Ant.A   | EV-S-NB<br>24.4 kbit/s                   | 23330<br>793 MHz         | 10 MHz    | QPSK                     | 1/0                           | 23.9                        | 16.86                       | 2.09                              | 1.79 | 11.53                  |
| WB                  | Max - 1                 | LTE Band 25 | Ant.B   | EV-S-WB<br>24.4 kbit/s                   | 26365<br>1882.5 MHz      | 20 MHz    | QPSK                     | 1/0                           | 23.9                        | 17.68                       | 2.07                              | 2.00 | 5.01                   |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 26365<br>1882.5 MHz      | 20 MHz    | QPSK                     | 1/0                           | 23.9                        | 16.82                       | 2.08                              | 1.77 | 11.39                  |
| WB                  | Max - 1                 | LTE Band 26 | Ant.A   | EV-S-WB<br>24.4 kbit/s                   | 26865<br>831.5 MHz       | 15 MHz    | QPSK                     | 1/0                           | 23.9                        | 17.64                       | 2.05                              | 2.10 | 6.09                   |
| NB                  | Max - 1                 |             | Ant.A   | EV-S-NB<br>24.4 kbit/s                   | 26865<br>831.5 MHz       | 15 MHz    | QPSK                     | 1/0                           | 23.9                        | 16.82                       | 2.10                              | 1.79 | 11.69                  |
| WB                  | Max - 1                 | LTE Band 30 | Ant.B   | EV-S-WB<br>24.4 kbit/s                   | 27710<br>2310 MHz        | 10 MHz    | QPSK                     | 1/0                           | 23.9                        | 17.54                       | 2.01                              | 2.10 | 5.34                   |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 27710<br>2310 MHz        | 10 MHz    | QPSK                     | 1/0                           | 23.9                        | 16.86                       | 2.02                              | 1.71 | 9.19                   |
| WB                  | Max - 1                 | LTE Band 71 | Ant.A   | EV-S-WB<br>24.4 kbit/s                   | 133297<br>680.5 MHz      | 20 MHz    | QPSK                     | 1/0                           | 23.9                        | 17.73                       | 2.06                              | 2.00 | 5.88                   |
| NB                  | Max - 1                 |             | Ant.A   | EV-S-NB<br>24.4 kbit/s                   | 133297<br>680.5 MHz      | 20 MHz    | QPSK                     | 1/0                           | 23.9                        | 16.99                       | 2.15                              | 1.82 | 8.17                   |

**2N Mounting Force – VoLTE TDD**

| Codec<br>(NB or WB) | Volume<br>Control Level | Mode / Band     | Antenna | Voice Codec /<br>Codec bitrate<br>(kbps) | Channel and<br>Frequency | Bandwidth | Waveform /<br>Modulation | RB<br>(Allocation/<br>Offset) | Volume Control Results      |                             |                                   |      |                        |
|---------------------|-------------------------|-----------------|---------|------------------------------------------|--------------------------|-----------|--------------------------|-------------------------------|-----------------------------|-----------------------------|-----------------------------------|------|------------------------|
|                     |                         |                 |         |                                          |                          |           |                          |                               | 2N                          |                             |                                   |      |                        |
|                     |                         |                 |         |                                          |                          |           |                          |                               | Noise<br>(LAF_MAX)<br>(dBA) | Conversational<br>Gain (dB) | Frequency Response<br>Margin (dB) |      | PN-SDNR<br>margin (dB) |
|                     |                         |                 |         |                                          |                          |           |                          |                               |                             |                             | FF                                | DF   |                        |
| NB                  | Max - 1                 | LTE Band 41 PC2 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/0                           | 24.4                        | 16.73                       | 2.18                              | 1.87 | 8.18                   |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/49                          | 24.4                        | 17.13                       | 2.11                              | 1.80 | 10.80                  |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/99                          | 24.4                        | 17.07                       | 2.16                              | 1.86 | 12.49                  |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 50/0                          | 24.4                        | 17.03                       | 2.08                              | 1.77 | 11.46                  |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 50/24                         | 24.4                        | 17.04                       | 2.17                              | 1.84 | 11.85                  |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 50/50                         | 24.4                        | 17.01                       | 2.11                              | 1.80 | 11.30                  |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 100/0                         | 24.4                        | 17.02                       | 2.10                              | 1.79 | 12.47                  |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 40620<br>2593 MHz        | 20 MHz    | 16QAM                    | 1/0                           | 24.4                        | 17.00                       | 2.09                              | 1.78 | 11.53                  |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 40620<br>2593 MHz        | 20 MHz    | 64QAM                    | 1/0                           | 24.4                        | 16.98                       | 2.07                              | 1.76 | 11.99                  |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 40620<br>2593 MHz        | 20 MHz    | 256QAM                   | 1/0                           | 24.4                        | 16.96                       | 2.09                              | 1.78 | 11.93                  |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 40620<br>2593 MHz        | 15 MHz    | QPSK                     | 1/0                           | 24.4                        | 16.94                       | 2.20                              | 1.90 | 11.50                  |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 40620<br>2593 MHz        | 10 MHz    | QPSK                     | 1/0                           | 24.4                        | 16.92                       | 2.11                              | 1.81 | 7.19                   |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 40620<br>2593 MHz        | 5 MHz     | QPSK                     | 1/0                           | 24.4                        | 16.90                       | 2.11                              | 1.81 | 12.68                  |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 39750<br>2506 MHz        | 20 MHz    | QPSK                     | 1/0                           | 24.4                        | 16.89                       | 2.14                              | 1.84 | 8.40                   |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 40185<br>2549.5 MHz      | 20 MHz    | QPSK                     | 1/0                           | 24.4                        | 16.88                       | 2.11                              | 1.79 | 7.88                   |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 41055<br>2636.5 MHz      | 20 MHz    | QPSK                     | 1/0                           | 24.4                        | 16.83                       | 2.20                              | 1.89 | 12.77                  |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 41490<br>2680 MHz        | 20 MHz    | QPSK                     | 1/0                           | 24.4                        | 16.81                       | 2.21                              | 1.90 | 11.48                  |
| WB                  | Max - 1                 | LTE Band 41 PC3 | Ant.B   | EV-S-WB<br>24.4 kbit/s                   | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/0                           | 24.4                        | 17.55                       | 2.06                              | 2.10 | 5.40                   |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/0                           | 24.4                        | 16.73                       | 2.11                              | 1.80 | 11.51                  |
| WB                  | Max - 1                 | LTE Band 48     | Ant.E   | EV-S-WB<br>24.4 kbit/s                   | 55773<br>3603.3 MHz      | 20 MHz    | QPSK                     | 1/0                           | 24.4                        | 17.52                       | 2.06                              | 2.10 | 7.14                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 55773<br>3603.3 MHz      | 20 MHz    | QPSK                     | 1/0                           | 24.4                        | 16.75                       | 2.20                              | 1.89 | 8.96                   |

## 2N Mounting Force – VoNR FDD

| Codec<br>(NB or WB) | Volume<br>Control Level | Mode / Band | Antenna | Voice Codec /<br>Codec bitrate<br>(kbps) | Channel and<br>Frequency | Bandwidth | Waveform /<br>Modulation | RB<br>(Allocation/<br>Offset) | Volume Control Results      |                             |                                   |      |                        |
|---------------------|-------------------------|-------------|---------|------------------------------------------|--------------------------|-----------|--------------------------|-------------------------------|-----------------------------|-----------------------------|-----------------------------------|------|------------------------|
|                     |                         |             |         |                                          |                          |           |                          |                               | 2N                          |                             |                                   |      | PN-SDNR<br>margin (dB) |
|                     |                         |             |         |                                          |                          |           |                          |                               | Noise<br>(LAF_MAX)<br>(dBA) | Conversational<br>Gain (dB) | Frequency Response<br>Margin (dB) |      |                        |
|                     |                         |             |         |                                          |                          |           |                          |                               |                             | FF                          | DF                                |      |                        |
| NB                  | Max - 1                 | NR Band n12 | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 17.46                       | 2.10                              | 1.88 | 8.81                   |
| NB                  | Max - 1                 |             | Ant.A+B | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 25.3                        | 17.67                       | 2.13                              | 1.87 | 7.25                   |
| NB                  | Max - 1                 |             | Ant.A   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 23.2                        | 17.70                       | 2.06                              | 1.85 | 9.69                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/39                          | 23.2                        | 17.63                       | 2.07                              | 1.85 | 7.75                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/77                          | 23.2                        | 17.70                       | 1.99                              | 1.97 | 7.45                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 36/0                          | 23.2                        | 17.65                       | 2.06                              | 1.85 | 6.97                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 36/21                         | 23.2                        | 17.58                       | 2.00                              | 1.82 | 8.08                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 36/43                         | 23.2                        | 17.57                       | 1.93                              | 1.76 | 9.47                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 75/0                          | 23.2                        | 17.60                       | 2.01                              | 1.88 | 7.99                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>pi/2 BPSK  | 1/1                           | 23.2                        | 17.67                       | 2.06                              | 1.86 | 6.24                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>16QAM      | 1/1                           | 23.2                        | 17.61                       | 2.12                              | 1.90 | 6.67                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>64QAM      | 1/1                           | 23.2                        | 17.57                       | 2.10                              | 1.77 | 5.33                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>256QAM     | 1/1                           | 23.2                        | 17.53                       | 2.05                              | 1.74 | 6.21                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | CP-OFDM<br>QPSK          | 1/1                           | 23.2                        | 17.55                       | 2.01                              | 1.81 | 5.61                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | CP-OFDM<br>QPSK          | 1/39                          | 23.2                        | 17.51                       | 2.01                              | 1.94 | 5.97                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | CP-OFDM<br>QPSK          | 1/77                          | 23.2                        | 17.49                       | 2.08                              | 1.94 | 6.37                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | CP-OFDM<br>QPSK          | 36/0                          | 23.2                        | 17.52                       | 1.96                              | 1.68 | 9.88                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | CP-OFDM<br>QPSK          | 36/21                         | 23.2                        | 17.54                       | 2.03                              | 1.81 | 7.25                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | CP-OFDM<br>QPSK          | 36/43                         | 23.2                        | 17.83                       | 2.07                              | 1.90 | 4.67                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | CP-OFDM<br>QPSK          | 75/0                          | 23.2                        | 17.73                       | 2.03                              | 1.86 | 6.71                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | CP-OFDM<br>16QAM         | 1/1                           | 23.2                        | 17.68                       | 2.01                              | 1.80 | 5.18                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | CP-OFDM<br>64QAM         | 1/1                           | 23.2                        | 17.60                       | 2.07                              | 1.93 | 6.34                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | CP-OFDM<br>256QAM        | 1/1                           | 23.2                        | 17.63                       | 1.98                              | 1.85 | 6.35                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 10 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 23.2                        | 17.66                       | 2.07                              | 1.80 | 6.21                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 5 MHz     | DFT-s-OFDM<br>QPSK       | 1/1                           | 23.2                        | 17.59                       | 2.03                              | 1.88 | 5.48                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141300<br>706.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 23.2                        | 17.59                       | 2.08                              | 1.92 | 4.31                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141700<br>708.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 23.2                        | 17.64                       | 1.98                              | 1.81 | 5.21                   |
| WB                  | Max - 1                 | NR Band n7  | Ant.E   | EV-S-WB<br>24.4 kbit/s                   | 507000<br>2535 MHz       | 40 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 23.2                        | 18.65                       | 2.12                              | 2.40 | 5.59                   |
| NB                  | Max - 1                 |             | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 507000<br>2535 MHz       | 40 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 23.2                        | 17.52                       | 2.00                              | 1.77 | 8.12                   |
| WB                  | Max - 1                 | NR Band n25 | Ant.E   | EV-S-WB<br>24.4 kbit/s                   | 376500<br>1882.5 MHz     | 40 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 23.2                        | 18.62                       | 2.12                              | 2.50 | 7.34                   |
| NB                  | Max - 1                 |             | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 376500<br>1882.5 MHz     | 40 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 23.2                        | 17.49                       | 1.95                              | 1.90 | 7.47                   |
| WB                  | Max - 1                 | NR Band n26 | Ant.D   | EV-S-WB<br>24.4 kbit/s                   | 166300<br>831.5 MHz      | 20 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 23.2                        | 18.68                       | 2.06                              | 2.40 | 6.71                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 166300<br>831.5 MHz      | 20 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 23.2                        | 17.50                       | 2.00                              | 1.90 | 8.10                   |
| WB                  | Max - 1                 | NR Band n30 | Ant.E   | EV-S-WB<br>24.4 kbit/s                   | 462000<br>2310 MHz       | 10 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 23.2                        | 18.55                       | 2.28                              | 2.50 | 6.99                   |
| NB                  | Max - 1                 |             | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 462000<br>2310 MHz       | 10 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 23.2                        | 17.38                       | 2.00                              | 1.73 | 5.68                   |
| WB                  | Max - 1                 | NR Band n66 | Ant.E   | EV-S-WB<br>24.4 kbit/s                   | 349000<br>1745 MHz       | 40 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 23.2                        | 18.55                       | 2.15                              | 2.60 | 8.49                   |
| NB                  | Max - 1                 |             | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 349000<br>1745 MHz       | 40 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 23.2                        | 17.41                       | 1.98                              | 1.84 | 6.38                   |
| WB                  | Max - 1                 | NR Band n70 | Ant.E   | EV-S-WB<br>24.4 kbit/s                   | 340500<br>1702.5 MHz     | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 23.2                        | 18.58                       | 2.14                              | 2.60 | 5.99                   |
| NB                  | Max - 1                 |             | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 340500<br>1702.5 MHz     | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 23.2                        | 17.42                       | 1.91                              | 1.69 | 5.87                   |
| WB                  | Max - 1                 | NR Band n71 | Ant.D   | EV-S-WB<br>24.4 kbit/s                   | 136100<br>680.5 MHz      | 20 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 23.2                        | 18.61                       | 2.23                              | 2.50 | 6.20                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 136100<br>680.5 MHz      | 20 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 23.2                        | 17.51                       | 2.07                              | 1.86 | 6.52                   |

## 2N Mounting Force – VoNR TDD

| Codec<br>(NB or WB) | Volume<br>Control Level | Mode / Band     | Antenna | Voice Codec /<br>Codec bitrate<br>(kbps) | Channel and<br>Frequency | Bandwidth | Waveform /<br>Modulation | RB<br>(Allocation/<br>Offset) | Volume Control Results      |                             |                                   |      |                        |
|---------------------|-------------------------|-----------------|---------|------------------------------------------|--------------------------|-----------|--------------------------|-------------------------------|-----------------------------|-----------------------------|-----------------------------------|------|------------------------|
|                     |                         |                 |         |                                          |                          |           |                          |                               | 2N                          |                             |                                   |      |                        |
|                     |                         |                 |         |                                          |                          |           |                          |                               | Noise<br>(LAF_MAX)<br>(dBA) | Conversational<br>Gain (dB) | Frequency Response<br>Margin (dB) |      | PN-SDNR<br>margin (dB) |
|                     |                         |                 |         |                                          |                          |           |                          |                               |                             |                             | FF                                | DF   |                        |
| NB                  | Max - 1                 | NR Band n41 PC2 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK       | 1/1                           | 25.3                        | 17.60                       | 2.11                              | 1.91 | 7.98                   |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK       | 1/1                           | 25.3                        | 17.62                       | 2.25                              | 2.03 | 8.09                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK       | 1/136                         | 24.1                        | 17.76                       | 2.22                              | 1.89 | 7.18                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK       | 1/271                         | 24.1                        | 17.71                       | 2.21                              | 1.98 | 9.17                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK       | 135/0                         | 24.1                        | 17.73                       | 2.19                              | 2.01 | 7.18                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK       | 135/69                        | 24.1                        | 17.70                       | 2.15                              | 1.86 | 8.58                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK       | 135/138                       | 24.1                        | 17.66                       | 2.16                              | 1.84 | 7.93                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK       | 270/0                         | 24.1                        | 17.69                       | 2.13                              | 1.88 | 8.50                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>pi/2 BPSK  | 1/1                           | 24.1                        | 17.68                       | 2.13                              | 1.97 | 6.49                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>16QAM      | 1/1                           | 24.1                        | 17.70                       | 2.12                              | 2.01 | 8.39                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>64QAM      | 1/1                           | 24.1                        | 17.63                       | 2.20                              | 1.93 | 7.30                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>256QAM     | 1/1                           | 24.1                        | 17.68                       | 2.05                              | 1.95 | 6.29                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | CP-OFDM<br>QPSK          | 1/1                           | 24.1                        | 17.70                       | 2.26                              | 1.97 | 7.05                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | CP-OFDM<br>QPSK          | 1/136                         | 24.1                        | 17.67                       | 2.14                              | 1.86 | 6.39                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | CP-OFDM<br>QPSK          | 1/271                         | 24.1                        | 17.65                       | 2.10                              | 1.91 | 7.24                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | CP-OFDM<br>QPSK          | 135/0                         | 24.1                        | 17.65                       | 2.14                              | 1.79 | 7.85                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | CP-OFDM<br>QPSK          | 135/69                        | 24.1                        | 17.67                       | 2.08                              | 1.82 | 5.51                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | CP-OFDM<br>QPSK          | 135/138                       | 24.1                        | 17.69                       | 2.11                              | 1.94 | 8.82                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | CP-OFDM<br>QPSK          | 270/0                         | 24.1                        | 17.64                       | 2.16                              | 2.02 | 5.19                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | CP-OFDM<br>16QAM         | 1/1                           | 24.1                        | 17.69                       | 2.19                              | 1.97 | 7.41                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | CP-OFDM<br>64QAM         | 1/1                           | 24.1                        | 17.69                       | 2.12                              | 1.91 | 8.98                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | CP-OFDM<br>256QAM        | 1/1                           | 24.1                        | 17.64                       | 2.13                              | 1.92 | 5.13                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 90 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 24.1                        | 17.69                       | 2.16                              | 1.92 | 8.50                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 80 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 24.1                        | 17.65                       | 2.25                              | 1.99 | 8.43                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 70 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 24.1                        | 17.62                       | 2.14                              | 1.88 | 5.33                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 60 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 24.1                        | 17.63                       | 2.14                              | 2.03 | 9.12                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 50 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 24.1                        | 17.66                       | 2.23                              | 2.06 | 7.07                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 40 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 24.1                        | 17.74                       | 2.20                              | 1.90 | 9.77                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 30 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 24.1                        | 17.66                       | 2.20                              | 1.87 | 6.56                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 25 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 24.1                        | 17.73                       | 2.10                              | 1.90 | 8.14                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 20 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 24.1                        | 17.64                       | 2.17                              | 1.86 | 8.50                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 24.1                        | 17.64                       | 2.24                              | 1.92 | 8.85                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 10 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 24.1                        | 17.65                       | 2.07                              | 1.89 | 7.73                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 509202<br>2546.01 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK       | 1/1                           | 24.1                        | 17.67                       | 2.11                              | 1.84 | 9.72                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 528000<br>2640 MHz       | 100 MHz   | DFT-s-OFDM<br>QPSK       | 1/1                           | 24.1                        | 17.62                       | 2.16                              | 1.91 | 8.36                   |
| WB                  | Max - 1                 | NR Band n48     | Ant.E   | EV-S-WB<br>24.4 kbit/s                   | 641666<br>3624.99 MHz    | 40 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 24.1                        | 18.76                       | 2.23                              | 2.70 | 5.85                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 641666<br>3624.99 MHz    | 40 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 24.1                        | 17.67                       | 2.02                              | 1.90 | 6.48                   |
| WB                  | Max - 1                 | NR Band n77     | Ant.E   | EV-S-WB<br>24.4 kbit/s                   | 650000<br>3750 MHz       | 100 MHz   | DFT-s-OFDM<br>QPSK       | 1/1                           | 24.1                        | 18.78                       | 2.31                              | 2.60 | 8.06                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 650000<br>3750 MHz       | 100 MHz   | DFT-s-OFDM<br>QPSK       | 1/1                           | 24.1                        | 17.60                       | 2.10                              | 1.82 | 6.85                   |

## 2N Mounting Force – VoWiFi

| Codec<br>(NB or WB) | Volume<br>Control Level | Mode / Band                          | Antenna    | Voice Codec /<br>Codec bitrate<br>(kbps) | Channel and<br>Frequency | Bandwidth | Waveform /<br>Modulation | RB<br>(Allocation/<br>Offset) | Volume Control Results      |                             |                                   |      |                        |
|---------------------|-------------------------|--------------------------------------|------------|------------------------------------------|--------------------------|-----------|--------------------------|-------------------------------|-----------------------------|-----------------------------|-----------------------------------|------|------------------------|
|                     |                         |                                      |            |                                          |                          |           |                          |                               | 2N                          |                             |                                   |      |                        |
|                     |                         |                                      |            |                                          |                          |           |                          |                               | Noise<br>(LAF_MAX)<br>(dBA) | Conversational<br>Gain (dB) | Frequency Response<br>Margin (dB) |      | PN-SDNR<br>margin (dB) |
|                     |                         |                                      |            |                                          |                          |           |                          |                               |                             |                             | FF                                | DF   |                        |
| NB                  | Max - 1                 | WiFi 2.4GHz<br>802.11b               | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.6<br>2437 MHz         | 20 MHz    | DSSS<br>1 Mbps           | N/A                           | 23.9                        | 16.80                       | 2.24                              | 1.91 | 6.81                   |
| NB                  | Max - 1                 |                                      | SISO Ant.1 | EV-S-NB<br>24.4 kbit/s                   | CH.6<br>2437 MHz         | 20 MHz    | DSSS<br>1 Mbps           | N/A                           | 23.9                        | 17.03                       | 2.17                              | 1.86 | 8.54                   |
| NB                  | Max - 1                 |                                      | SISO Ant.2 | EV-S-NB<br>24.4 kbit/s                   | CH.6<br>2437 MHz         | 20 MHz    | DSSS<br>1 Mbps           | N/A                           | 23.9                        | 17.00                       | 2.13                              | 1.82 | 9.96                   |
| NB                  | Max - 1                 |                                      | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.6<br>2437 MHz         | 20 MHz    | CCK<br>5.5 Mbps          | N/A                           | 23.9                        | 17.00                       | 2.19                              | 1.86 | 11.16                  |
| NB                  | Max - 1                 |                                      | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.6<br>2437 MHz         | 20 MHz    | CCK<br>11 Mbps           | N/A                           | 23.9                        | 17.01                       | 2.27                              | 1.93 | 8.28                   |
| NB                  | Max - 1                 |                                      | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.11<br>2412 MHz        | 20 MHz    | DSSS<br>1 Mbps           | N/A                           | 23.9                        | 16.99                       | 2.19                              | 1.86 | 6.34                   |
| NB                  | Max - 1                 |                                      | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.11<br>2462 MHz        | 20 MHz    | DSSS<br>1 Mbps           | N/A                           | 23.9                        | 16.98                       | 2.24                              | 1.93 | 8.96                   |
| WB                  | Max - 1                 | WiFi 2.4GHz<br>802.11g               | MIMO       | EV-S-WB<br>24.4 kbit/s                   | CH.6<br>2437 MHz         | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 23.9                        | 17.89                       | 2.18                              | 2.20 | 7.67                   |
| NB                  | Max - 1                 |                                      | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.6<br>2437 MHz         | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 23.9                        | 17.00                       | 2.17                              | 1.86 | 10.40                  |
| WB                  | Max - 1                 | WiFi 2.4GHz<br>802.11n HT20          | MIMO       | EV-S-WB<br>24.4 kbit/s                   | CH.6<br>2437 MHz         | 20 MHz    | MCS 7<br>65 Mbps         | N/A                           | 23.9                        | 17.85                       | 2.17                              | 2.30 | 5.19                   |
| NB                  | Max - 1                 |                                      | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.6<br>2437 MHz         | 20 MHz    | MCS 7<br>65 Mbps         | N/A                           | 23.9                        | 17.03                       | 2.21                              | 1.88 | 11.93                  |
| WB                  | Max - 1                 | WiFi 2.4GHz<br>802.11ac VHT20        | MIMO       | EV-S-WB<br>24.4 kbit/s                   | CH.6<br>2437 MHz         | 20 MHz    | MCS 8<br>78 Mbps         | N/A                           | 25.7                        | 18.05                       | 2.25                              | 2.30 | 5.66                   |
| NB                  | Max - 1                 |                                      | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.6<br>2437 MHz         | 20 MHz    | MCS 8<br>78 Mbps         | N/A                           | 25.7                        | 17.13                       | 2.30                              | 1.97 | 9.17                   |
| WB                  | Max - 1                 | WiFi 2.4GHz<br>802.11ax HE20         | MIMO       | EV-S-WB<br>24.4 kbit/s                   | CH.6<br>2437 MHz         | 20 MHz    | MCS 6<br>77 Mbps         | N/A                           | 25.7                        | 18.06                       | 2.17                              | 2.20 | 5.35                   |
| NB                  | Max - 1                 |                                      | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.6<br>2437 MHz         | 20 MHz    | MCS 6<br>77 Mbps         | N/A                           | 25.7                        | 17.18                       | 2.25                              | 1.95 | 9.55                   |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11a<br>U-NII-1      | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.40<br>5200 MHz        | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 25.7                        | 16.98                       | 2.26                              | 1.93 | 10.73                  |
| NB                  | Max - 1                 |                                      | SISO Ant.1 | EV-S-NB<br>24.4 kbit/s                   | CH.40<br>5200 MHz        | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 23.3                        | 17.13                       | 2.24                              | 1.92 | 12.52                  |
| NB                  | Max - 1                 |                                      | SISO Ant.2 | EV-S-NB<br>24.4 kbit/s                   | CH.40<br>5200 MHz        | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 23.3                        | 17.08                       | 2.23                              | 1.93 | 11.41                  |
| NB                  | Max - 1                 |                                      | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.40<br>5200 MHz        | 20 MHz    | QPSK<br>18 Mbps          | N/A                           | 23.3                        | 17.11                       | 2.22                              | 1.89 | 11.14                  |
| NB                  | Max - 1                 |                                      | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.40<br>5200 MHz        | 20 MHz    | 64QAM<br>54 Mbps         | N/A                           | 23.3                        | 17.09                       | 2.26                              | 1.93 | 10.10                  |
| NB                  | Max - 1                 |                                      | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.36<br>5180 MHz        | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 23.3                        | 17.10                       | 2.27                              | 1.94 | 9.96                   |
| NB                  | Max - 1                 |                                      | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.48<br>5240 MHz        | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 23.3                        | 17.11                       | 2.23                              | 1.92 | 8.15                   |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11n HT20<br>U-NII-1 | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.40<br>5200 MHz        | 20 MHz    | MCS 0<br>6.5 Mbps        | N/A                           | 23.3                        | 17.13                       | 2.21                              | 1.88 | 10.16                  |
| NB                  | Max - 1                 |                                      | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.40<br>5200 MHz        | 20 MHz    | MCS 3<br>26 Mbps         | N/A                           | 23.3                        | 17.07                       | 2.25                              | 1.94 | 10.59                  |
| NB                  | Max - 1                 |                                      | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.40<br>5200 MHz        | 20 MHz    | MCS 7<br>65 Mbps         | N/A                           | 23.3                        | 17.06                       | 2.30                              | 1.99 | 7.43                   |
| WB                  | Max - 1                 |                                      | MIMO       | EV-S-WB<br>24.4 kbit/s                   | CH.40<br>5200 MHz        | 20 MHz    | MCS 7<br>65 Mbps         | N/A                           | 23.3                        | 17.99                       | 2.24                              | 2.30 | 5.89                   |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11n HT40<br>U-NII-1 | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.38<br>5190 MHz        | 40 MHz    | MCS 0<br>13.5 Mbps       | N/A                           | 23.3                        | 17.07                       | 2.24                              | 1.93 | 10.74                  |
| NB                  | Max - 1                 |                                      | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.38<br>5190 MHz        | 40 MHz    | MCS 3<br>54 Mbps         | N/A                           | 23.3                        | 17.05                       | 2.24                              | 1.93 | 8.23                   |
| NB                  | Max - 1                 |                                      | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.38<br>5190 MHz        | 40 MHz    | MCS 7<br>135 Mbps        | N/A                           | 23.3                        | 17.04                       | 2.27                              | 1.95 | 9.04                   |
| WB                  | Max - 1                 |                                      | MIMO       | EV-S-WB<br>24.4 kbit/s                   | CH.38<br>5190 MHz        | 40 MHz    | MCS 7<br>135 Mbps        | N/A                           | 23.3                        | 17.92                       | 2.16                              | 2.20 | 6.96                   |

**2N Mounting Force – VoWiFi (Continued)**

| Codec<br>(NB or WB) | Volume<br>Control Level | Mode / Band                                | Antenna | Voice Codec /<br>Codec bitrate<br>(kbps) | Channel and<br>Frequency | Bandwidth | Waveform /<br>Modulation | RB<br>(Allocation/<br>Offset) | Volume Control Results      |                             |                                   |      |                        |
|---------------------|-------------------------|--------------------------------------------|---------|------------------------------------------|--------------------------|-----------|--------------------------|-------------------------------|-----------------------------|-----------------------------|-----------------------------------|------|------------------------|
|                     |                         |                                            |         |                                          |                          |           |                          |                               | 2N                          |                             |                                   |      |                        |
|                     |                         |                                            |         |                                          |                          |           |                          |                               | Noise<br>(LAF_MAX)<br>(dBA) | Conversational<br>Gain (dB) | Frequency Response<br>Margin (dB) |      | PN-SDNR<br>margin (dB) |
|                     |                         |                                            |         |                                          |                          |           |                          |                               |                             |                             | FF                                | DF   |                        |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11ac VHT20<br>U-NII-1     | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.40<br>5200 MHz        | 20 MHz    | MCS 0<br>6.5 Mbps        | N/A                           | 23.3                        | 17.11                       | 2.23                              | 1.90 | 10.55                  |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.40<br>5200 MHz        | 20 MHz    | MCS 4<br>39 Mbps         | N/A                           | 23.3                        | 17.09                       | 2.27                              | 1.94 | 11.32                  |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.40<br>5200 MHz        | 20 MHz    | MCS 8<br>78 Mbps         | N/A                           | 23.3                        | 17.08                       | 2.24                              | 1.93 | 8.64                   |
| WB                  | Max - 1                 |                                            | MIMO    | EV-S-WB<br>24.4 kbit/s                   | CH.40<br>5200 MHz        | 20 MHz    | MCS 8<br>78 Mbps         | N/A                           | 23.3                        | 17.94                       | 2.17                              | 2.20 | 5.82                   |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11ac VHT40<br>U-NII-1     | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.38<br>5190 MHz        | 40 MHz    | MCS 0<br>13.5 Mbps       | N/A                           | 23.3                        | 17.04                       | 2.31                              | 1.99 | 10.15                  |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.38<br>5190 MHz        | 40 MHz    | MCS 4<br>108 Mbps        | N/A                           | 23.3                        | 17.05                       | 2.28                              | 1.95 | 9.45                   |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.38<br>5190 MHz        | 40 MHz    | MCS 9<br>180 Mbps        | N/A                           | 23.3                        | 17.05                       | 2.23                              | 1.89 | 6.73                   |
| WB                  | Max - 1                 |                                            | MIMO    | EV-S-WB<br>24.4 kbit/s                   | CH.38<br>5190 MHz        | 40 MHz    | MCS 0<br>13.5 Mbps       | N/A                           | 23.3                        | 17.95                       | 2.26                              | 2.30 | 5.12                   |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11ac VHT80<br>U-NII-1     | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.42<br>5210 MHz        | 80 MHz    | MCS 0<br>29.3 Mbps       | N/A                           | 23.3                        | 17.03                       | 2.25                              | 1.94 | 10.91                  |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.42<br>5210 MHz        | 80 MHz    | MCS 4<br>175.5 Mbps      | N/A                           | 23.3                        | 17.01                       | 2.27                              | 1.96 | 8.65                   |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.42<br>5210 MHz        | 80 MHz    | MCS 9<br>390 Mbps        | N/A                           | 25.7                        | 17.16                       | 2.22                              | 1.92 | 11.54                  |
| WB                  | Max - 1                 |                                            | MIMO    | EV-S-WB<br>24.4 kbit/s                   | CH.42<br>5210 MHz        | 80 MHz    | MCS 4<br>175.5 Mbps      | N/A                           | 25.7                        | 17.99                       | 2.28                              | 2.30 | 7.38                   |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11ac VHT160<br>U-NII-1&2A | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.50<br>5250 MHz        | 160 MHz   | MCS 0<br>58.5 Mbps       | N/A                           | 25.7                        | 17.14                       | 2.26                              | 1.93 | 9.29                   |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.50<br>5250 MHz        | 160 MHz   | MCS 4<br>351 Mbps        | N/A                           | 23.3                        | 17.47                       | 2.31                              | 1.98 | 8.51                   |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.50<br>5250 MHz        | 160 MHz   | MCS 9<br>780 Mbps        | N/A                           | 23.3                        | 17.50                       | 2.22                              | 1.91 | 9.34                   |
| WB                  | Max - 1                 |                                            | MIMO    | EV-S-WB<br>24.4 kbit/s                   | CH.50<br>5250 MHz        | 160 MHz   | MCS 0<br>58.5 Mbps       | N/A                           | 25.7                        | 18.05                       | 2.24                              | 2.30 | 7.88                   |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11ax HE20<br>U-NII-1      | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.40<br>5200 MHz        | 20 MHz    | MCS 0<br>8.6 Mbps        | N/A                           | 23.3                        | 17.48                       | 2.25                              | 1.94 | 9.71                   |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.40<br>5200 MHz        | 20 MHz    | MCS 6<br>77 Mbps         | N/A                           | 23.3                        | 17.47                       | 2.33                              | 2.00 | 12.04                  |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.40<br>5200 MHz        | 20 MHz    | MCS 11<br>143 Mbps       | N/A                           | 23.3                        | 17.52                       | 2.18                              | 1.88 | 11.76                  |
| WB                  | Max - 1                 |                                            | MIMO    | EV-S-WB<br>24.4 kbit/s                   | CH.40<br>5200 MHz        | 20 MHz    | MCS 6<br>77 Mbps         | N/A                           | 23.3                        | 18.37                       | 2.14                              | 2.20 | 8.99                   |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11ax HE40<br>U-NII-1      | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.38<br>5190 MHz        | 40 MHz    | MCS 0<br>17.2 Mbps       | N/A                           | 23.3                        | 17.52                       | 2.23                              | 1.92 | 8.85                   |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.38<br>5190 MHz        | 40 MHz    | MCS 6<br>155 Mbps        | N/A                           | 23.3                        | 17.50                       | 2.21                              | 1.88 | 10.18                  |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.38<br>5190 MHz        | 40 MHz    | MCS 11<br>287 Mbps       | N/A                           | 23.3                        | 17.56                       | 2.15                              | 1.85 | 6.88                   |
| WB                  | Max - 1                 |                                            | MIMO    | EV-S-WB<br>24.4 kbit/s                   | CH.38<br>5190 MHz        | 40 MHz    | MCS 6<br>155 Mbps        | N/A                           | 23.3                        | 18.39                       | 2.20                              | 2.20 | 7.41                   |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11ax HE80<br>U-NII-1      | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.42<br>5210 MHz        | 80 MHz    | MCS 0<br>36 Mbps         | N/A                           | 23.3                        | 17.55                       | 2.25                              | 1.95 | 10.02                  |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.42<br>5210 MHz        | 80 MHz    | MCS 6<br>324 Mbps        | N/A                           | 23.3                        | 17.57                       | 2.20                              | 1.89 | 10.34                  |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.42<br>5210 MHz        | 80 MHz    | MCS 11<br>600 Mbps       | N/A                           | 23.3                        | 17.58                       | 2.26                              | 1.95 | 10.61                  |
| WB                  | Max - 1                 |                                            | MIMO    | EV-S-WB<br>24.4 kbit/s                   | CH.42<br>5210 MHz        | 80 MHz    | MCS 0<br>36 Mbps         | N/A                           | 23.3                        | 18.38                       | 2.20                              | 2.20 | 7.26                   |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11ax HE160<br>U-NII-1&2A  | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.50<br>5250 MHz        | 160 MHz   | MCS 0<br>72.1 Mbps       | N/A                           | 23.3                        | 17.40                       | 2.11                              | 1.80 | 12.04                  |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.50<br>5250 MHz        | 160 MHz   | MCS 6<br>648.5 Mbps      | N/A                           | 23.3                        | 17.28                       | 2.08                              | 1.77 | 10.30                  |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.50<br>5250 MHz        | 160 MHz   | MCS 11<br>1201 Mbps      | N/A                           | 23.3                        | 17.69                       | 2.08                              | 1.77 | 11.86                  |
| WB                  | Max - 1                 |                                            | MIMO    | EV-S-WB<br>24.4 kbit/s                   | CH.50<br>5250 MHz        | 160 MHz   | MCS 6<br>648.5 Mbps      | N/A                           | 23.3                        | 18.48                       | 2.16                              | 2.20 | 5.76                   |
| WB                  | Max - 1                 | WiFi 5GHz<br>802.11a<br>U-NII-2A           | MIMO    | EV-S-WB<br>24.4 kbit/s                   | CH.56<br>5280 MHz        | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 25.7                        | 18.09                       | 2.22                              | 2.20 | 5.53                   |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.56<br>5280 MHz        | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 25.7                        | 17.27                       | 2.19                              | 1.86 | 10.97                  |
| WB                  | Max - 1                 | WiFi 5GHz<br>802.11a<br>U-NII-2C           | MIMO    | EV-S-WB<br>24.4 kbit/s                   | CH.120<br>5600 MHz       | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 25.7                        | 18.03                       | 2.22                              | 2.20 | 5.98                   |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.120<br>5600 MHz       | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 25.7                        | 17.23                       | 2.22                              | 1.92 | 6.65                   |
| WB                  | Max - 1                 | WiFi 5GHz<br>802.11a<br>U-NII-3            | MIMO    | EV-S-WB<br>24.4 kbit/s                   | CH.157<br>5785 MHz       | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 25.7                        | 18.04                       | 2.20                              | 2.30 | 5.66                   |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.157<br>5785 MHz       | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 25.7                        | 17.17                       | 2.28                              | 1.97 | 10.50                  |
| WB                  | Max - 1                 | WiFi 5GHz<br>802.11a<br>U-NII-4            | MIMO    | EV-S-WB<br>24.4 kbit/s                   | CH.173<br>5865 MHz       | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 25.7                        | 18.06                       | 2.10                              | 2.10 | 6.87                   |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.173<br>5865 MHz       | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 25.7                        | 17.21                       | 2.29                              | 1.98 | 10.73                  |
| WB                  | Max - 1                 | WiFi 5GHz<br>802.11ax<br>U-NII-5           | MIMO    | EV-S-WB<br>24.4 kbit/s                   | CH.5<br>5975 MHz         | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 26.2                        | 18.28                       | 2.03                              | 2.20 | 6.20                   |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.5<br>5975 MHz         | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 26.2                        | 17.34                       | 1.87                              | 1.56 | 8.20                   |

## 8N Mounting Force – VoLTE FDD

| Codec<br>(NB or WB) | Volume<br>Control Level | Mode / Band | Antenna | Voice Codec /<br>Codec bitrate<br>(kbps) | Channel and<br>Frequency | Bandwidth | Waveform /<br>Modulation | RB<br>(Allocation/<br>Offset) | Volume Control Results      |                             |                                   |      |                        |
|---------------------|-------------------------|-------------|---------|------------------------------------------|--------------------------|-----------|--------------------------|-------------------------------|-----------------------------|-----------------------------|-----------------------------------|------|------------------------|
|                     |                         |             |         |                                          |                          |           |                          |                               | 8N                          |                             |                                   |      |                        |
|                     |                         |             |         |                                          |                          |           |                          |                               | Noise<br>(LAF_MAX)<br>(dBA) | Conversational<br>Gain (dB) | Frequency Response<br>Margin (dB) |      | PN-SDNR<br>margin (dB) |
|                     |                         |             |         |                                          |                          |           |                          |                               |                             |                             | FF                                | DF   |                        |
| NB                  | Max - 1                 | LTE Band 66 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 1/0                           | 24.6                        | 19.99                       | 2.09                              | 1.88 | 10.70                  |
| NB                  | Max - 1                 |             | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 1/0                           | 24.6                        | 20.06                       | 2.06                              | 1.80 | 6.00                   |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 1/49                          | 24.6                        | 20.03                       | 2.06                              | 1.98 | 10.80                  |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 1/99                          | 24.6                        | 20.04                       | 2.24                              | 1.88 | 11.90                  |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 50/0                          | 24.6                        | 20.01                       | 2.17                              | 1.83 | 11.70                  |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 50/24                         | 24.6                        | 20.03                       | 2.19                              | 1.88 | 11.50                  |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 50/50                         | 24.6                        | 20.01                       | 2.19                              | 1.88 | 10.40                  |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 100/0                         | 24.6                        | 20.00                       | 2.12                              | 1.86 | 10.90                  |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 132322<br>1745 MHz       | 20 MHz    | 16QAM                    | 1/0                           | 24.6                        | 20.01                       | 2.11                              | 1.87 | 11.10                  |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 132322<br>1745 MHz       | 20 MHz    | 64QAM                    | 1/0                           | 24.6                        | 20.09                       | 2.04                              | 1.95 | 11.20                  |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 132322<br>1745 MHz       | 20 MHz    | 256QAM                   | 1/0                           | 24.6                        | 20.02                       | 2.04                              | 1.84 | 9.20                   |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 132322<br>1745 MHz       | 15 MHz    | QPSK                     | 1/0                           | 24.6                        | 20.15                       | 2.16                              | 1.90 | 12.00                  |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 132322<br>1745 MHz       | 10 MHz    | QPSK                     | 1/0                           | 24.6                        | 20.07                       | 2.03                              | 1.81 | 11.80                  |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 132322<br>1745 MHz       | 5 MHz     | QPSK                     | 1/0                           | 24.6                        | 20.08                       | 1.95                              | 1.76 | 11.30                  |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 132322<br>1745 MHz       | 3 MHz     | QPSK                     | 1/0                           | 24.6                        | 20.13                       | 2.07                              | 1.82 | 10.80                  |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 132322<br>1745 MHz       | 1.4 MHz   | QPSK                     | 1/0                           | 24.6                        | 20.15                       | 2.04                              | 1.84 | 10.20                  |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 132072<br>1720 MHz       | 20 MHz    | QPSK                     | 1/0                           | 24.6                        | 20.13                       | 2.05                              | 1.78 | 10.50                  |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 132572<br>1770 MHz       | 20 MHz    | QPSK                     | 1/0                           | 24.6                        | 20.06                       | 2.15                              | 1.85 | 11.90                  |
| WB                  | Max - 1                 | LTE Band 7  | Ant.B   | EV-S-WB<br>24.4 kbit/s                   | 21100<br>2535 MHz        | 20 MHz    | QPSK                     | 1/0                           | 24.6                        | 20.78                       | 2.17                              | 2.00 | 6.10                   |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 21100<br>2535 MHz        | 20 MHz    | QPSK                     | 1/0                           | 24.6                        | 20.03                       | 1.91                              | 1.75 | 8.90                   |
| WB                  | Max - 1                 | LTE Band 12 | Ant.A   | EV-S-WB<br>24.4 kbit/s                   | 23095<br>707.5 MHz       | 10 MHz    | QPSK                     | 1/0                           | 24.6                        | 21.07                       | 2.31                              | 2.20 | 6.30                   |
| NB                  | Max - 1                 |             | Ant.A   | EV-S-NB<br>24.4 kbit/s                   | 23095<br>707.5 MHz       | 10 MHz    | QPSK                     | 1/0                           | 24.6                        | 20.17                       | 2.06                              | 1.83 | 12.40                  |
| WB                  | Max - 1                 | LTE Band 13 | Ant.A   | EV-S-WB<br>24.4 kbit/s                   | 23230<br>782 MHz         | 10 MHz    | QPSK                     | 1/0                           | 24.6                        | 20.85                       | 2.24                              | 2.00 | 6.90                   |
| NB                  | Max - 1                 |             | Ant.A   | EV-S-NB<br>24.4 kbit/s                   | 23230<br>782 MHz         | 10 MHz    | QPSK                     | 1/0                           | 24.6                        | 20.07                       | 1.99                              | 1.78 | 11.20                  |
| WB                  | Max - 1                 | LTE Band 14 | Ant.A   | EV-S-WB<br>24.4 kbit/s                   | 23330<br>793 MHz         | 10 MHz    | QPSK                     | 1/0                           | 24.6                        | 20.76                       | 2.16                              | 2.00 | 7.50                   |
| NB                  | Max - 1                 |             | Ant.A   | EV-S-NB<br>24.4 kbit/s                   | 23330<br>793 MHz         | 10 MHz    | QPSK                     | 1/0                           | 24.6                        | 20.02                       | 2.02                              | 1.78 | 11.70                  |
| WB                  | Max - 1                 | LTE Band 25 | Ant.B   | EV-S-WB<br>24.4 kbit/s                   | 26365<br>1882.5 MHz      | 20 MHz    | QPSK                     | 1/0                           | 24.6                        | 20.77                       | 2.18                              | 2.00 | 5.20                   |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 26365<br>1882.5 MHz      | 20 MHz    | QPSK                     | 1/0                           | 24.6                        | 20.00                       | 2.00                              | 1.91 | 7.90                   |
| WB                  | Max - 1                 | LTE Band 26 | Ant.A   | EV-S-WB<br>24.4 kbit/s                   | 26865<br>831.5 MHz       | 15 MHz    | QPSK                     | 1/0                           | 24.6                        | 20.71                       | 2.13                              | 2.00 | 7.10                   |
| NB                  | Max - 1                 |             | Ant.A   | EV-S-NB<br>24.4 kbit/s                   | 26865<br>831.5 MHz       | 15 MHz    | QPSK                     | 1/0                           | 24.6                        | 20.03                       | 2.14                              | 1.83 | 10.50                  |
| WB                  | Max - 1                 | LTE Band 30 | Ant.B   | EV-S-WB<br>24.4 kbit/s                   | 27710<br>2310 MHz        | 10 MHz    | QPSK                     | 1/0                           | 24.6                        | 20.72                       | 2.20                              | 2.00 | 5.40                   |
| NB                  | Max - 1                 |             | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 27710<br>2310 MHz        | 10 MHz    | QPSK                     | 1/0                           | 24.6                        | 19.93                       | 2.12                              | 1.82 | 10.20                  |
| WB                  | Max - 1                 | LTE Band 71 | Ant.A   | EV-S-WB<br>24.4 kbit/s                   | 133297<br>680.5 MHz      | 20 MHz    | QPSK                     | 1/0                           | 24.6                        | 20.76                       | 2.16                              | 2.00 | 5.40                   |
| NB                  | Max - 1                 |             | Ant.A   | EV-S-NB<br>24.4 kbit/s                   | 133297<br>680.5 MHz      | 20 MHz    | QPSK                     | 1/0                           | 24.6                        | 20.03                       | 2.12                              | 1.79 | 8.10                   |

## 8N Mounting Force – VoLTE TDD

| Codec<br>(NB or WB) | Volume<br>Control Level | Mode / Band     | Antenna | Voice Codec /<br>Codec bitrate<br>(kbps) | Channel and<br>Frequency | Bandwidth | Waveform /<br>Modulation | RB<br>(Allocation/<br>Offset) | Volume Control Results      |                             |                                   |      |                        |
|---------------------|-------------------------|-----------------|---------|------------------------------------------|--------------------------|-----------|--------------------------|-------------------------------|-----------------------------|-----------------------------|-----------------------------------|------|------------------------|
|                     |                         |                 |         |                                          |                          |           |                          |                               | 8N                          |                             |                                   |      |                        |
|                     |                         |                 |         |                                          |                          |           |                          |                               | Noise<br>(LAF_MAX)<br>(dBA) | Conversational<br>Gain (dB) | Frequency Response<br>Margin (dB) |      | PN-SDNR<br>margin (dB) |
|                     |                         |                 |         |                                          |                          |           |                          |                               |                             |                             | FF                                | DF   |                        |
| NB                  | Max - 1                 | LTE Band 41 PC2 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/0                           | 24.4                        | 19.95                       | 2.10                              | 1.95 | 12.40                  |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/49                          | 24.4                        | 20.02                       | 2.01                              | 1.94 | 11.50                  |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/99                          | 24.4                        | 20.03                       | 2.12                              | 1.86 | 12.70                  |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 50/0                          | 24.4                        | 20.00                       | 1.99                              | 1.84 | 7.30                   |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 50/24                         | 24.4                        | 20.04                       | 2.00                              | 1.89 | 11.10                  |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 50/50                         | 24.4                        | 20.01                       | 1.97                              | 1.84 | 11.20                  |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 100/0                         | 24.4                        | 19.99                       | 1.92                              | 1.92 | 10.90                  |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 40620<br>2593 MHz        | 20 MHz    | 16QAM                    | 1/0                           | 24.4                        | 20.03                       | 2.22                              | 1.93 | 11.30                  |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 40620<br>2593 MHz        | 20 MHz    | 64QAM                    | 1/0                           | 24.4                        | 19.99                       | 2.10                              | 1.91 | 11.10                  |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 40620<br>2593 MHz        | 20 MHz    | 256QAM                   | 1/0                           | 24.4                        | 20.02                       | 1.98                              | 1.87 | 8.70                   |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 40620<br>2593 MHz        | 15 MHz    | QPSK                     | 1/0                           | 24.4                        | 20.00                       | 2.11                              | 1.93 | 11.60                  |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 40620<br>2593 MHz        | 10 MHz    | QPSK                     | 1/0                           | 24.4                        | 19.99                       | 1.90                              | 1.89 | 11.80                  |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 40620<br>2593 MHz        | 5 MHz     | QPSK                     | 1/0                           | 24.4                        | 19.96                       | 2.20                              | 2.00 | 11.30                  |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 39750<br>2506 MHz        | 20 MHz    | QPSK                     | 1/0                           | 24.4                        | 19.99                       | 2.01                              | 1.86 | 11.40                  |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 40185<br>2549.5 MHz      | 20 MHz    | QPSK                     | 1/0                           | 24.4                        | 20.04                       | 1.80                              | 1.87 | 10.20                  |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 41055<br>2636.5 MHz      | 20 MHz    | QPSK                     | 1/0                           | 24.4                        | 20.01                       | 1.87                              | 1.86 | 10.50                  |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 41490<br>2680 MHz        | 20 MHz    | QPSK                     | 1/0                           | 24.4                        | 19.98                       | 1.89                              | 1.94 | 10.90                  |
| WB                  | Max - 1                 | LTE Band 41 PC3 | Ant.B   | EV-S-WB<br>24.4 kbit/s                   | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/0                           | 24.6                        | 20.99                       | 2.25                              | 2.20 | 9.10                   |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/0                           | 24.6                        | 20.26                       | 2.09                              | 1.93 | 12.50                  |
| WB                  | Max - 1                 | LTE Band 48     | Ant.E   | EV-S-WB<br>24.4 kbit/s                   | 55773<br>3603.3 MHz      | 20 MHz    | QPSK                     | 1/0                           | 24.6                        | 20.93                       | 2.17                              | 2.20 | 7.90                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 55773<br>3603.3 MHz      | 20 MHz    | QPSK                     | 1/0                           | 24.6                        | 20.14                       | 2.27                              | 1.94 | 8.50                   |

## 8N Mounting Force – VoNR FDD

| Codec<br>(NB or WB) | Volume<br>Control Level | Mode / Band | Antenna | Voice Codec /<br>Codec bitrate<br>(kbps) | Channel and<br>Frequency | Bandwidth | Waveform /<br>Modulation | RB<br>(Allocation/<br>Offset) | Volume Control Results      |                             |                                   |      |                        |
|---------------------|-------------------------|-------------|---------|------------------------------------------|--------------------------|-----------|--------------------------|-------------------------------|-----------------------------|-----------------------------|-----------------------------------|------|------------------------|
|                     |                         |             |         |                                          |                          |           |                          |                               | 8N                          |                             |                                   |      |                        |
|                     |                         |             |         |                                          |                          |           |                          |                               | Noise<br>(LAF_MAX)<br>(dBA) | Conversational<br>Gain (dB) | Frequency Response<br>Margin (dB) |      | PN-SDNR<br>margin (dB) |
|                     |                         |             |         |                                          |                          |           |                          |                               |                             |                             | FF                                | DF   |                        |
| NB                  | Max - 1                 | NR Band n12 | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 20.31                       | 1.92                              | 1.70 | 4.80                   |
| NB                  | Max - 1                 |             | Ant.A+B | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 26.2                        | 20.39                       | 2.01                              | 1.80 | 9.60                   |
| NB                  | Max - 1                 |             | Ant.LA  | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 23.2                        | 20.68                       | 2.08                              | 1.69 | 8.50                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/39                          | 26.2                        | 20.41                       | 2.01                              | 1.78 | 5.30                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/77                          | 26.2                        | 20.42                       | 1.99                              | 1.64 | 7.80                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 36/0                          | 26.2                        | 20.44                       | 1.99                              | 1.75 | 8.50                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 36/21                         | 26.2                        | 20.37                       | 2.00                              | 1.78 | 4.70                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 36/43                         | 26.2                        | 20.40                       | 2.04                              | 1.82 | 9.10                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 75/0                          | 26.2                        | 20.34                       | 2.04                              | 1.74 | 9.20                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>pi/2 BPSK  | 1/1                           | 26.2                        | 20.63                       | 2.04                              | 1.80 | 5.90                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>16QAM      | 1/1                           | 26.2                        | 20.66                       | 2.05                              | 1.72 | 4.70                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>64QAM      | 1/1                           | 26.2                        | 20.59                       | 2.09                              | 1.75 | 6.80                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>256QAM     | 1/1                           | 26.2                        | 20.73                       | 2.06                              | 1.72 | 8.40                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | CP-OFDM<br>QPSK          | 1/1                           | 26.2                        | 20.64                       | 2.08                              | 1.73 | 9.60                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | CP-OFDM<br>QPSK          | 1/39                          | 26.2                        | 20.69                       | 2.03                              | 1.76 | 6.90                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | CP-OFDM<br>QPSK          | 1/77                          | 26.2                        | 20.59                       | 2.01                              | 1.64 | 6.80                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | CP-OFDM<br>QPSK          | 36/0                          | 26.2                        | 20.53                       | 2.04                              | 1.81 | 8.90                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | CP-OFDM<br>QPSK          | 36/21                         | 26.2                        | 20.56                       | 1.99                              | 1.71 | 5.80                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | CP-OFDM<br>QPSK          | 36/43                         | 26.2                        | 20.57                       | 2.10                              | 1.82 | 8.00                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | CP-OFDM<br>QPSK          | 75/0                          | 26.2                        | 20.48                       | 2.08                              | 1.78 | 8.20                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | CP-OFDM<br>16QAM         | 1/1                           | 26.2                        | 20.48                       | 2.03                              | 1.72 | 6.70                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | CP-OFDM<br>64QAM         | 1/1                           | 26.2                        | 20.50                       | 1.94                              | 1.73 | 9.20                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 15 MHz    | CP-OFDM<br>256QAM        | 1/1                           | 26.2                        | 20.56                       | 2.05                              | 1.83 | 9.20                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 10 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 26.2                        | 20.51                       | 2.01                              | 1.79 | 6.90                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141500<br>707.5 MHz      | 5 MHz     | DFT-s-OFDM<br>QPSK       | 1/1                           | 26.2                        | 20.49                       | 1.95                              | 1.73 | 5.80                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141300<br>706.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 26.2                        | 20.41                       | 1.98                              | 1.78 | 10.90                  |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 141700<br>708.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 26.2                        | 20.47                       | 2.11                              | 1.92 | 6.20                   |
| WB                  | Max - 1                 | NR Band n7  | Ant.E   | EV-S-WB<br>24.4 kbit/s                   | 507000<br>2535 MHz       | 40 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 26.2                        | 21.48                       | 2.24                              | 2.60 | 6.90                   |
| NB                  | Max - 1                 |             | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 507000<br>2535 MHz       | 40 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 26.2                        | 20.36                       | 2.02                              | 1.77 | 7.60                   |
| WB                  | Max - 1                 | NR Band n25 | Ant.E   | EV-S-WB<br>24.4 kbit/s                   | 376500<br>1882.5 MHz     | 40 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 26.2                        | 21.46                       | 2.21                              | 2.60 | 5.40                   |
| NB                  | Max - 1                 |             | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 376500<br>1882.5 MHz     | 40 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 26.2                        | 20.29                       | 1.99                              | 1.60 | 7.50                   |
| WB                  | Max - 1                 | NR Band n26 | Ant.D   | EV-S-WB<br>24.4 kbit/s                   | 166300<br>831.5 MHz      | 20 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 26.2                        | 21.46                       | 2.17                              | 2.50 | 6.00                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 166300<br>831.5 MHz      | 20 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 26.2                        | 20.33                       | 1.92                              | 1.69 | 8.50                   |
| WB                  | Max - 1                 | NR Band n30 | Ant.E   | EV-S-WB<br>24.4 kbit/s                   | 462000<br>2310 MHz       | 10 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 23.2                        | 21.76                       | 2.13                              | 2.50 | 6.10                   |
| NB                  | Max - 1                 |             | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 462000<br>2310 MHz       | 10 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 23.2                        | 20.52                       | 2.02                              | 1.79 | 8.20                   |
| WB                  | Max - 1                 | NR Band n66 | Ant.E   | EV-S-WB<br>24.4 kbit/s                   | 349000<br>1745 MHz       | 40 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 23.2                        | 21.47                       | 2.14                              | 2.40 | 6.10                   |
| NB                  | Max - 1                 |             | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 349000<br>1745 MHz       | 40 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 23.2                        | 20.37                       | 2.05                              | 1.75 | 8.40                   |
| WB                  | Max - 1                 | NR Band n70 | Ant.E   | EV-S-WB<br>24.4 kbit/s                   | 340500<br>1702.5 MHz     | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 23.2                        | 21.49                       | 2.25                              | 2.50 | 5.90                   |
| NB                  | Max - 1                 |             | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 340500<br>1702.5 MHz     | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 23.2                        | 20.45                       | 2.05                              | 1.76 | 5.90                   |
| WB                  | Max - 1                 | NR Band n71 | Ant.D   | EV-S-WB<br>24.4 kbit/s                   | 136100<br>680.5 MHz      | 20 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 23.2                        | 21.62                       | 2.24                              | 2.50 | 5.20                   |
| NB                  | Max - 1                 |             | Ant.D   | EV-S-NB<br>24.4 kbit/s                   | 136100<br>680.5 MHz      | 20 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 23.2                        | 20.50                       | 2.12                              | 1.76 | 5.70                   |

## 8N Mounting Force – VoNR TDD

| Codec<br>(NB or WB) | Volume<br>Control Level | Mode / Band     | Antenna | Voice Codec /<br>Codec bitrate<br>(kbps) | Channel and<br>Frequency | Bandwidth | Waveform /<br>Modulation | RB<br>(Allocation/<br>Offset) | Volume Control Results      |                             |                                   |      |                        |
|---------------------|-------------------------|-----------------|---------|------------------------------------------|--------------------------|-----------|--------------------------|-------------------------------|-----------------------------|-----------------------------|-----------------------------------|------|------------------------|
|                     |                         |                 |         |                                          |                          |           |                          |                               | 8N                          |                             |                                   |      |                        |
|                     |                         |                 |         |                                          |                          |           |                          |                               | Noise<br>(LAF_MAX)<br>(dBA) | Conversational<br>Gain (dB) | Frequency Response<br>Margin (dB) |      | PN-SDNR<br>margin (dB) |
|                     |                         |                 |         |                                          |                          |           |                          |                               |                             |                             | FF                                | DF   |                        |
| NB                  | Max - 1                 | NR Band n41 PC2 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 20.34                       | 2.06                              | 1.85 | 7.50                   |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK       | 1/1                           | 24.1                        | 20.49                       | 2.06                              | 1.70 | 5.50                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK       | 1/136                         | 24.1                        | 20.48                       | 2.04                              | 1.83 | 6.90                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK       | 1/271                         | 24.1                        | 20.42                       | 2.04                              | 1.83 | 5.20                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK       | 135/0                         | 24.1                        | 20.47                       | 2.04                              | 1.86 | 7.90                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK       | 135/69                        | 24.1                        | 20.49                       | 1.93                              | 1.76 | 4.90                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK       | 135/138                       | 24.1                        | 20.53                       | 2.00                              | 1.74 | 8.20                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK       | 270/0                         | 24.1                        | 20.47                       | 2.04                              | 1.83 | 8.90                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>pi/2 BPSK  | 1/1                           | 22.4                        | 20.63                       | 2.00                              | 1.73 | 6.50                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>16QAM      | 1/1                           | 24.1                        | 20.46                       | 2.06                              | 1.75 | 8.30                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>64QAM      | 1/1                           | 22.4                        | 20.70                       | 2.09                              | 1.87 | 7.30                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>256QAM     | 1/1                           | 22.4                        | 20.64                       | 2.00                              | 1.83 | 7.10                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | CP-OFDM<br>QPSK          | 1/1                           | 22.4                        | 20.62                       | 1.98                              | 1.84 | 6.20                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | CP-OFDM<br>QPSK          | 1/136                         | 22.4                        | 20.47                       | 2.01                              | 1.82 | 7.80                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | CP-OFDM<br>QPSK          | 1/271                         | 22.4                        | 20.52                       | 2.02                              | 1.87 | 6.30                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | CP-OFDM<br>QPSK          | 135/0                         | 22.4                        | 20.49                       | 2.03                              | 1.77 | 9.60                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | CP-OFDM<br>QPSK          | 135/69                        | 22.4                        | 20.54                       | 2.06                              | 1.82 | 8.20                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | CP-OFDM<br>QPSK          | 135/138                       | 22.4                        | 20.52                       | 2.02                              | 1.85 | 6.70                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | CP-OFDM<br>QPSK          | 270/0                         | 22.4                        | 20.50                       | 1.94                              | 1.79 | 5.60                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | CP-OFDM<br>16QAM         | 1/1                           | 22.4                        | 20.57                       | 2.11                              | 1.84 | 7.00                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | CP-OFDM<br>64QAM         | 1/1                           | 22.4                        | 20.53                       | 1.94                              | 1.86 | 7.00                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 100 MHz   | CP-OFDM<br>256QAM        | 1/1                           | 22.4                        | 20.63                       | 2.09                              | 1.75 | 6.00                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 90 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 20.65                       | 1.99                              | 1.77 | 7.80                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 80 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 20.59                       | 2.02                              | 1.80 | 7.40                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 70 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 20.53                       | 2.10                              | 1.72 | 10.40                  |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 60 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 20.55                       | 1.94                              | 1.72 | 8.20                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 50 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 20.53                       | 1.87                              | 1.65 | 6.60                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 40 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 20.50                       | 1.96                              | 1.73 | 7.10                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 30 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 20.46                       | 1.95                              | 1.78 | 7.20                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 25 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 20.52                       | 2.07                              | 1.76 | 6.90                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 20 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 20.42                       | 2.00                              | 1.78 | 8.50                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 20.56                       | 1.97                              | 1.77 | 7.70                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 518598<br>2592.99 MHz    | 10 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 20.37                       | 2.03                              | 1.80 | 6.70                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 509202<br>2546.01 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 20.46                       | 2.05                              | 1.82 | 7.90                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 528000<br>2640 MHz       | 100 MHz   | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 20.41                       | 1.93                              | 1.77 | 7.20                   |
| WB                  | Max - 1                 | NR Band n48     | Ant.E   | EV-S-WB<br>24.4 kbit/s                   | 641666<br>3624.99 MHz    | 40 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 24.1                        | 21.64                       | 2.25                              | 2.50 | 8.40                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 641666<br>3624.99 MHz    | 40 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 24.1                        | 20.48                       | 2.07                              | 1.76 | 6.10                   |
| WB                  | Max - 1                 | NR Band n77     | Ant.E   | EV-S-WB<br>24.4 kbit/s                   | 650000<br>3750 MHz       | 100 MHz   | DFT-s-OFDM<br>QPSK       | 1/1                           | 24.1                        | 21.59                       | 2.24                              | 2.40 | 9.50                   |
| NB                  | Max - 1                 |                 | Ant.E   | EV-S-NB<br>24.4 kbit/s                   | 650000<br>3750 MHz       | 100 MHz   | DFT-s-OFDM<br>QPSK       | 1/1                           | 24.1                        | 20.43                       | 1.95                              | 1.85 | 7.20                   |

## 8N Mounting Force – VoWiFi

| Codec<br>(NB or WB) | Volume<br>Control Level | Mode / Band                          | Antenna    | Voice Codec /<br>Codec bitrate<br>(kbps) | Channel and<br>Frequency | Bandwidth | Waveform /<br>Modulation | RB<br>(Allocation/<br>Offset) | Volume Control Results      |                             |                                   |      |                        |
|---------------------|-------------------------|--------------------------------------|------------|------------------------------------------|--------------------------|-----------|--------------------------|-------------------------------|-----------------------------|-----------------------------|-----------------------------------|------|------------------------|
|                     |                         |                                      |            |                                          |                          |           |                          |                               | 8N                          |                             |                                   |      |                        |
|                     |                         |                                      |            |                                          |                          |           |                          |                               | Noise<br>(LAF_MAX)<br>(dBA) | Conversational<br>Gain (dB) | Frequency Response<br>Margin (dB) |      | PN-SDNR<br>margin (dB) |
|                     |                         |                                      |            |                                          |                          |           |                          |                               |                             |                             | FF                                | DF   |                        |
| NB                  | Max - 1                 | WiFi 2.4GHz<br>802.11b               | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.6<br>2437 MHz         | 20 MHz    | DSSS<br>1 Mbps           | N/A                           | 26.1                        | 20.25                       | 2.12                              | 1.89 | 9.80                   |
| NB                  | Max - 1                 |                                      | SISO Ant.1 | EV-S-NB<br>24.4 kbit/s                   | CH.6<br>2437 MHz         | 20 MHz    | DSSS<br>1 Mbps           | N/A                           | 26.1                        | 20.37                       | 1.99                              | 2.07 | 9.70                   |
| NB                  | Max - 1                 |                                      | SISO Ant.2 | EV-S-NB<br>24.4 kbit/s                   | CH.6<br>2437 MHz         | 20 MHz    | DSSS<br>1 Mbps           | N/A                           | 26.1                        | 20.30                       | 2.35                              | 2.02 | 11.40                  |
| NB                  | Max - 1                 |                                      | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.6<br>2437 MHz         | 20 MHz    | CCK<br>5.5 Mbps          | N/A                           | 26.1                        | 20.29                       | 2.10                              | 2.01 | 10.20                  |
| NB                  | Max - 1                 |                                      | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.6<br>2437 MHz         | 20 MHz    | CCK<br>11 Mbps           | N/A                           | 26.1                        | 20.30                       | 2.00                              | 2.00 | 9.60                   |
| NB                  | Max - 1                 |                                      | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.1<br>2412 MHz         | 20 MHz    | DSSS<br>1 Mbps           | N/A                           | 26.1                        | 20.29                       | 2.11                              | 2.02 | 8.70                   |
| NB                  | Max - 1                 |                                      | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.11<br>2462 MHz        | 20 MHz    | DSSS<br>1 Mbps           | N/A                           | 26.1                        | 20.32                       | 1.96                              | 2.00 | 10.40                  |
| WB                  | Max - 1                 | WiFi 2.4GHz<br>802.11g               | MIMO       | EV-S-WB<br>24.4 kbit/s                   | CH.6<br>2437 MHz         | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 26.1                        | 21.12                       | 2.36                              | 2.40 | 5.60                   |
| NB                  | Max - 1                 |                                      | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.6<br>2437 MHz         | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 26.1                        | 20.27                       | 2.15                              | 1.95 | 11.40                  |
| WB                  | Max - 1                 | WiFi 2.4GHz<br>802.11n HT20          | MIMO       | EV-S-WB<br>24.4 kbit/s                   | CH.6<br>2437 MHz         | 20 MHz    | MCS 0<br>6.5 Mbps        | N/A                           | 26.1                        | 21.15                       | 2.19                              | 2.30 | 5.90                   |
| NB                  | Max - 1                 |                                      | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.6<br>2437 MHz         | 20 MHz    | MCS 0<br>6.5 Mbps        | N/A                           | 26.1                        | 20.32                       | 2.31                              | 1.97 | 11.60                  |
| WB                  | Max - 1                 | WiFi 2.4GHz<br>802.11ac VHT20        | MIMO       | EV-S-WB<br>24.4 kbit/s                   | CH.6<br>2437 MHz         | 20 MHz    | MCS 0<br>6.5 Mbps        | N/A                           | 26.1                        | 21.13                       | 2.36                              | 2.40 | 5.80                   |
| NB                  | Max - 1                 |                                      | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.6<br>2437 MHz         | 20 MHz    | MCS 0<br>6.5 Mbps        | N/A                           | 26.1                        | 20.30                       | 2.13                              | 1.94 | 11.00                  |
| WB                  | Max - 1                 | WiFi 2.4GHz<br>802.11ax HE20         | MIMO       | EV-S-WB<br>24.4 kbit/s                   | CH.6<br>2437 MHz         | 20 MHz    | MCS 6<br>77 Mbps         | N/A                           | 26.1                        | 21.17                       | 2.28                              | 2.30 | 6.80                   |
| NB                  | Max - 1                 |                                      | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.6<br>2437 MHz         | 20 MHz    | MCS 6<br>77 Mbps         | N/A                           | 26.1                        | 20.28                       | 2.22                              | 2.04 | 8.90                   |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11a<br>U-NII-1      | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.40<br>5200 MHz        | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 26.1                        | 20.17                       | 2.09                              | 1.95 | 12.40                  |
| NB                  | Max - 1                 |                                      | SISO Ant.1 | EV-S-NB<br>24.4 kbit/s                   | CH.40<br>5200 MHz        | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 25.7                        | 20.37                       | 2.08                              | 1.95 | 10.70                  |
| NB                  | Max - 1                 |                                      | SISO Ant.2 | EV-S-NB<br>24.4 kbit/s                   | CH.40<br>5200 MHz        | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 25.7                        | 20.33                       | 2.01                              | 1.92 | 9.10                   |
| NB                  | Max - 1                 |                                      | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.40<br>5200 MHz        | 20 MHz    | QPSK<br>18 Mbps          | N/A                           | 25.7                        | 20.27                       | 2.00                              | 1.97 | 9.90                   |
| NB                  | Max - 1                 |                                      | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.40<br>5200 MHz        | 20 MHz    | 64QAM<br>54 Mbps         | N/A                           | 25.7                        | 20.31                       | 1.94                              | 1.93 | 12.30                  |
| NB                  | Max - 1                 |                                      | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.36<br>5180 MHz        | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 25.7                        | 20.32                       | 1.90                              | 1.92 | 10.80                  |
| NB                  | Max - 1                 |                                      | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.48<br>5240 MHz        | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 25.7                        | 20.28                       | 1.80                              | 2.00 | 11.10                  |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11n HT20<br>U-NII-1 | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.40<br>5200 MHz        | 20 MHz    | MCS 0<br>6.5 Mbps        | N/A                           | 25.7                        | 20.21                       | 2.04                              | 1.97 | 10.70                  |
| NB                  | Max - 1                 |                                      | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.40<br>5200 MHz        | 20 MHz    | MCS 3<br>26 Mbps         | N/A                           | 25.7                        | 20.25                       | 2.18                              | 1.96 | 9.90                   |
| NB                  | Max - 1                 |                                      | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.40<br>5200 MHz        | 20 MHz    | MCS 7<br>65 Mbps         | N/A                           | 25.7                        | 20.22                       | 1.89                              | 1.90 | 7.90                   |
| WB                  | Max - 1                 |                                      | MIMO       | EV-S-WB<br>24.4 kbit/s                   | CH.40<br>5200 MHz        | 20 MHz    | MCS 0<br>6.5 Mbps        | N/A                           | 25.7                        | 21.05                       | 2.26                              | 2.30 | 6.30                   |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11n HT40<br>U-NII-1 | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.38<br>5190 MHz        | 40 MHz    | MCS 0<br>6.5 Mbps        | N/A                           | 25.7                        | 20.29                       | 1.88                              | 1.93 | 9.30                   |
| NB                  | Max - 1                 |                                      | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.38<br>5190 MHz        | 40 MHz    | MCS 3<br>54 Mbps         | N/A                           | 25.7                        | 20.32                       | 2.02                              | 2.01 | 10.20                  |
| NB                  | Max - 1                 |                                      | MIMO       | EV-S-NB<br>24.4 kbit/s                   | CH.38<br>5190 MHz        | 40 MHz    | MCS 7<br>135 Mbps        | N/A                           | 25.7                        | 20.31                       | 1.85                              | 1.90 | 7.70                   |
| WB                  | Max - 1                 |                                      | MIMO       | EV-S-WB<br>24.4 kbit/s                   | CH.38<br>5190 MHz        | 40 MHz    | MCS 0<br>13.5 Mbps       | N/A                           | 25.7                        | 21.05                       | 2.22                              | 2.40 | 7.10                   |

## 8N Mounting Force – VoWiFi (Continued)

| Codec<br>(NB or WB) | Volume<br>Control Level | Mode / Band                                | Antenna | Voice Codec /<br>Codec bitrate<br>(kbps) | Channel and<br>Frequency | Bandwidth | Waveform /<br>Modulation | RB<br>(Allocation/<br>Offset) | Volume Control Results      |                             |                                   |      |                        |
|---------------------|-------------------------|--------------------------------------------|---------|------------------------------------------|--------------------------|-----------|--------------------------|-------------------------------|-----------------------------|-----------------------------|-----------------------------------|------|------------------------|
|                     |                         |                                            |         |                                          |                          |           |                          |                               | 8N                          |                             |                                   |      |                        |
|                     |                         |                                            |         |                                          |                          |           |                          |                               | Noise<br>(LAF_MAX)<br>(dBA) | Conversational<br>Gain (dB) | Frequency Response<br>Margin (dB) |      | PN-SDNR<br>margin (dB) |
|                     |                         |                                            |         |                                          |                          |           |                          |                               |                             |                             | FF                                | DF   |                        |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11ac VHT20<br>U-NII-1     | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.40<br>5200 MHz        | 20 MHz    | MCS 0<br>6.5 Mbps        | N/A                           | 25.7                        | 20.25                       | 2.09                              | 2.02 | 11.80                  |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.40<br>5200 MHz        | 20 MHz    | MCS 4<br>39 Mbps         | N/A                           | 25.7                        | 20.27                       | 2.17                              | 2.07 | 9.20                   |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.40<br>5200 MHz        | 20 MHz    | MCS 8<br>78 Mbps         | N/A                           | 25.7                        | 20.26                       | 2.33                              | 2.02 | 11.80                  |
| WB                  | Max - 1                 |                                            | MIMO    | EV-S-WB<br>24.4 kbit/s                   | CH.40<br>5200 MHz        | 20 MHz    | MCS 0<br>6.5 Mbps        | N/A                           | 25.7                        | 21.10                       | 2.28                              | 2.40 | 5.30                   |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11ac VHT40<br>U-NII-1     | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.38<br>5190 MHz        | 40 MHz    | MCS 0<br>13.5 Mbps       | N/A                           | 25.7                        | 20.22                       | 2.04                              | 1.92 | 10.10                  |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.38<br>5190 MHz        | 40 MHz    | MCS 4<br>108 Mbps        | N/A                           | 25.7                        | 20.24                       | 1.93                              | 1.96 | 9.50                   |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.38<br>5190 MHz        | 40 MHz    | MCS 9<br>180 Mbps        | N/A                           | 25.7                        | 20.28                       | 1.90                              | 2.00 | 9.00                   |
| WB                  | Max - 1                 |                                            | MIMO    | EV-S-WB<br>24.4 kbit/s                   | CH.38<br>5190 MHz        | 40 MHz    | MCS 0<br>13.5 Mbps       | N/A                           | 25.7                        | 21.08                       | 2.39                              | 2.40 | 5.50                   |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11ac VHT80<br>U-NII-1     | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.42<br>5210 MHz        | 80 MHz    | MCS 0<br>29.3 Mbps       | N/A                           | 25.7                        | 20.29                       | 1.92                              | 1.99 | 10.30                  |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.42<br>5210 MHz        | 80 MHz    | MCS 4<br>175.5 Mbps      | N/A                           | 25.7                        | 20.31                       | 2.13                              | 2.01 | 10.10                  |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.42<br>5210 MHz        | 80 MHz    | MCS 9<br>390 Mbps        | N/A                           | 25.7                        | 20.28                       | 2.04                              | 1.96 | 11.80                  |
| WB                  | Max - 1                 |                                            | MIMO    | EV-S-WB<br>24.4 kbit/s                   | CH.42<br>5210 MHz        | 80 MHz    | MCS 9<br>390 Mbps        | N/A                           | 25.7                        | 21.11                       | 2.32                              | 2.40 | 6.00                   |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11ac VHT160<br>U-NII-1&2A | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.50<br>5250 MHz        | 160 MHz   | MCS 0<br>58.5 Mbps       | N/A                           | 25.7                        | 20.30                       | 1.99                              | 1.94 | 10.70                  |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.50<br>5250 MHz        | 160 MHz   | MCS 4<br>351 Mbps        | N/A                           | 25.7                        | 20.29                       | 2.33                              | 1.99 | 12.00                  |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.50<br>5250 MHz        | 160 MHz   | MCS 9<br>780 Mbps        | N/A                           | 25.7                        | 20.28                       | 2.18                              | 1.94 | 10.90                  |
| WB                  | Max - 1                 |                                            | MIMO    | EV-S-WB<br>24.4 kbit/s                   | CH.50<br>5250 MHz        | 160 MHz   | MCS 9<br>780 Mbps        | N/A                           | 25.7                        | 21.17                       | 2.30                              | 2.50 | 6.10                   |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11ax HE20<br>U-NII-1      | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.40<br>5200 MHz        | 20 MHz    | MCS 0<br>8.6 Mbps        | N/A                           | 26.1                        | 20.37                       | 1.93                              | 2.00 | 8.50                   |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.40<br>5200 MHz        | 20 MHz    | MCS 6<br>77 Mbps         | N/A                           | 26.1                        | 20.33                       | 1.99                              | 1.96 | 9.10                   |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.40<br>5200 MHz        | 20 MHz    | MCS 11<br>143 Mbps       | N/A                           | 26.1                        | 20.39                       | 2.38                              | 2.06 | 10.30                  |
| WB                  | Max - 1                 |                                            | MIMO    | EV-S-WB<br>24.4 kbit/s                   | CH.40<br>5200 MHz        | 20 MHz    | MCS 6<br>77 Mbps         | N/A                           | 26.1                        | 21.19                       | 2.38                              | 2.30 | 7.20                   |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11ax HE40<br>U-NII-1      | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.38<br>5190 MHz        | 40 MHz    | MCS 0<br>17.2 Mbps       | N/A                           | 25.7                        | 20.22                       | 2.26                              | 1.95 | 9.60                   |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.38<br>5190 MHz        | 40 MHz    | MCS 6<br>155 Mbps        | N/A                           | 25.7                        | 20.25                       | 2.07                              | 1.93 | 9.20                   |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.38<br>5190 MHz        | 40 MHz    | MCS 11<br>287 Mbps       | N/A                           | 25.7                        | 20.23                       | 2.03                              | 1.91 | 12.50                  |
| WB                  | Max - 1                 |                                            | MIMO    | EV-S-WB<br>24.4 kbit/s                   | CH.38<br>5190 MHz        | 40 MHz    | MCS 0<br>17.2 Mbps       | N/A                           | 25.7                        | 21.03                       | 2.39                              | 2.40 | 5.70                   |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11ax HE80<br>U-NII-1      | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.42<br>5210 MHz        | 80 MHz    | MCS 0<br>36 Mbps         | N/A                           | 25.7                        | 20.25                       | 1.95                              | 1.99 | 10.10                  |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.42<br>5210 MHz        | 80 MHz    | MCS 6<br>324 Mbps        | N/A                           | 25.7                        | 20.30                       | 1.93                              | 1.97 | 11.20                  |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.42<br>5210 MHz        | 80 MHz    | MCS 11<br>600 Mbps       | N/A                           | 25.7                        | 20.29                       | 2.06                              | 1.98 | 9.80                   |
| WB                  | Max - 1                 |                                            | MIMO    | EV-S-WB<br>24.4 kbit/s                   | CH.42<br>5210 MHz        | 80 MHz    | MCS 0<br>36 Mbps         | N/A                           | 25.7                        | 21.12                       | 2.38                              | 2.40 | 6.90                   |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11ax HE160<br>U-NII-1&2A  | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.50<br>5250 MHz        | 160 MHz   | MCS 0<br>72.1 Mbps       | N/A                           | 25.7                        | 20.23                       | 2.03                              | 1.96 | 12.50                  |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.50<br>5250 MHz        | 160 MHz   | MCS 6<br>648.5 Mbps      | N/A                           | 25.7                        | 20.29                       | 2.31                              | 2.00 | 10.40                  |
| NB                  | Max - 1                 |                                            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.50<br>5250 MHz        | 160 MHz   | MCS 11<br>1201 Mbps      | N/A                           | 25.7                        | 20.22                       | 1.96                              | 1.91 | 9.20                   |
| WB                  | Max - 1                 |                                            | MIMO    | EV-S-WB<br>24.4 kbit/s                   | CH.50<br>5250 MHz        | 160 MHz   | MCS 0<br>72.1 Mbps       | N/A                           | 25.7                        | 21.10                       | 2.41                              | 2.20 | 5.70                   |
| WB                  | Max - 1                 | WiFi 5GHz<br>802.11a<br>U-NII-2A           | MIMO    | EV-S-WB<br>24.4 kbit/s                   | CH.56<br>5280 MHz        | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 26.1                        | 21.19                       | 2.21                              | 2.20 | 5.40                   |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11a<br>U-NII-2C           | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.56<br>5280 MHz        | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 26.1                        | 20.43                       | 1.89                              | 1.95 | 9.80                   |
| WB                  | Max - 1                 |                                            | MIMO    | EV-S-WB<br>24.4 kbit/s                   | CH.120<br>5600 MHz       | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 26.1                        | 21.18                       | 2.37                              | 2.30 | 5.20                   |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11a<br>U-NII-3            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.120<br>5600 MHz       | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 26.1                        | 20.37                       | 1.99                              | 2.00 | 8.90                   |
| WB                  | Max - 1                 |                                            | MIMO    | EV-S-WB<br>24.4 kbit/s                   | CH.157<br>5785 MHz       | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 26.1                        | 21.16                       | 2.36                              | 2.40 | 4.40                   |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11a<br>U-NII-4            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.157<br>5785 MHz       | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 26.1                        | 20.33                       | 2.08                              | 1.95 | 9.90                   |
| WB                  | Max - 1                 |                                            | MIMO    | EV-S-WB<br>24.4 kbit/s                   | CH.173<br>5865 MHz       | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 26.1                        | 21.17                       | 2.34                              | 2.50 | 5.40                   |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11a<br>U-NII-5            | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.173<br>5865 MHz       | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 26.1                        | 20.33                       | 2.03                              | 1.87 | 6.50                   |
| WB                  | Max - 1                 |                                            | MIMO    | EV-S-WB<br>24.4 kbit/s                   | CH.5<br>5975 MHz         | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 26.2                        | 21.26                       | 1.88                              | 2.00 | 6.20                   |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11ax<br>U-NII-5           | MIMO    | EV-S-NB<br>24.4 kbit/s                   | CH.5<br>5975 MHz         | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 26.2                        | 20.34                       | 1.82                              | 1.50 | 11.60                  |
| WB                  | Max - 1                 |                                            | MIMO    | EV-S-WB<br>24.4 kbit/s                   | CH.5<br>5975 MHz         | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 26.2                        | 20.34                       | 1.82                              | 1.50 | 11.60                  |

### 9.3. Other Voice Codecs Investigation for GSM/WCDMA/VoLTE/VoNR/VoWiFi

An investigation between the various other voice codecs configurations (Low/Mid/High bit rates for Narrowband and Wideband) and conversational gain is documented to evaluate conversational gain for each voice service type. The table below compares the varying codec configurations.

A codec investigation was performed of each GSM, W-CDMA, LTE FDD/TDD, NR FDD/TDD and VoWiFi.

#### 2N Mounting Force

| Codec<br>(NB or WB) | Volume<br>Control Level | Mode / Band     | Antenna | Voice Codec /<br>Codec bitrate<br>(kbps) | Channel and<br>Frequency | Bandwidth | Waveform /<br>Modulation | RB<br>(Allocation/<br>Offset) | Volume Control Results      |                             |                                   |     |                        |
|---------------------|-------------------------|-----------------|---------|------------------------------------------|--------------------------|-----------|--------------------------|-------------------------------|-----------------------------|-----------------------------|-----------------------------------|-----|------------------------|
|                     |                         |                 |         |                                          |                          |           |                          |                               | 2N                          |                             |                                   |     | PN-SDNR<br>margin (dB) |
|                     |                         |                 |         |                                          |                          |           |                          |                               | Noise<br>(LAF_MAX)<br>(dBA) | Conversational<br>Gain (dB) | Frequency Response<br>Margin (dB) |     |                        |
|                     |                         |                 |         |                                          |                          |           |                          |                               |                             | FF                          | DF                                |     |                        |
| NB                  | Max - 1                 | GSM 850         | Ant.D   | FR V1                                    | 190<br>836.6 MHz         | N/A       | N/A                      | N/A                           | 23.9                        | 17.24                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                 | Ant.D   | FR V2                                    | 190<br>836.6 MHz         | N/A       | N/A                      | N/A                           | 23.9                        | 17.50                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                 | Ant.D   | HR V1                                    | 190<br>836.6 MHz         | N/A       | N/A                      | N/A                           | 23.9                        | 17.51                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                 | Ant.A+B | FR V1                                    | 190<br>836.6 MHz         | N/A       | N/A                      | N/A                           | 23.9                        | 17.29                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                 | Ant.A   | FR V1                                    | 190<br>836.6 MHz         | N/A       | N/A                      | N/A                           | 26.2                        | 17.63                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 | GSM 1900        | Ant.B   | FR V1                                    | 661<br>1880 MHz          | N/A       | N/A                      | N/A                           | 23.9                        | 17.30                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 | WCDMA Band V    | Ant.D   | AMR-NB<br>4.75 kbps                      | 4183<br>836.6 MHz        | N/A       | N/A                      | N/A                           | 23.9                        | 16.44                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                 | Ant.D   | AMR-NB<br>7.4 kbps                       | 4183<br>836.6 MHz        | N/A       | N/A                      | N/A                           | 23.9                        | 16.90                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                 | Ant.D   | AMR-NB<br>12.2 kbps                      | 4183<br>836.6 MHz        | N/A       | N/A                      | N/A                           | 23.9                        | 17.19                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                 | Ant.D   | AMR-WB<br>6.6 kbps                       | 4183<br>836.6 MHz        | N/A       | N/A                      | N/A                           | 23.9                        | 17.44                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                 | Ant.D   | AMR-WB<br>12.65 kbps                     | 4183<br>836.6 MHz        | N/A       | N/A                      | N/A                           | 23.9                        | 17.95                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                 | Ant.D   | AMR-WB<br>23.85 kbps                     | 4183<br>836.6 MHz        | N/A       | N/A                      | N/A                           | 23.9                        | 18.12                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                 | Ant.A+B | AMR-NB<br>4.75 kbps                      | 4183<br>836.6 MHz        | N/A       | N/A                      | N/A                           | 23.9                        | 16.52                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                 | Ant.A   | AMR-NB<br>4.75 kbps                      | 4183<br>836.6 MHz        | N/A       | N/A                      | N/A                           | 26.2                        | 16.92                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 | WCDMA Band II   | Ant.B   | AMR-NB<br>4.75 kbps                      | 9400<br>1880.0 MHz       | N/A       | N/A                      | N/A                           | 23.9                        | 16.59                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 | WCDMA Band IV   | Ant.B   | AMR-NB<br>4.75 kbps                      | 1413<br>1732.6 MHz       | N/A       | N/A                      | N/A                           | 23.9                        | 16.54                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 | LTE Band 66     | Ant.B   | AMR-NB<br>4.75 kbps                      | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 16.50                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                 | Ant.B   | AMR-NB<br>7.4 kbps                       | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 16.90                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                 | Ant.B   | AMR-NB<br>12.2 kbps                      | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 17.20                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                 | Ant.B   | AMR-WB<br>6.6 kbps                       | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 17.38                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                 | Ant.B   | AMR-WB<br>12.65 kbps                     | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 17.74                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                 | Ant.B   | AMR-WB<br>23.85 kbps                     | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 17.92                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                 | Ant.B   | EVS-NB<br>5.9 kbps                       | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 16.61                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                 | Ant.B   | EVS-NB<br>13.2 kbps                      | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 16.74                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                 | Ant.B   | EVS-WB<br>5.9 kbps                       | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 17.23                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                 | Ant.B   | EVS-WB<br>64 kbps                        | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 17.90                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                 | Ant.B   | EVS-WB<br>128 kbps                       | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 18.26                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                 | Ant.B   | AMR-NB<br>4.75 kbps                      | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 16.56                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                 | Ant.B   | AMR-NB<br>7.4 kbps                       | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 17.07                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                 | Ant.B   | AMR-NB<br>12.2 kbps                      | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 17.31                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                 | Ant.B   | AMR-WB<br>6.6 kbps                       | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 17.32                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                 | Ant.B   | AMR-WB<br>12.65 kbps                     | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 17.77                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 | LTE Band 41 PC2 | Ant.B   | AMR-WB<br>23.85 kbps                     | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 17.88                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                 | Ant.B   | EVS-NB<br>5.9 kbps                       | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 16.64                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                 | Ant.B   | EVS-NB<br>13.2 kbps                      | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 16.93                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                 | Ant.B   | EVS-WB<br>5.9 kbps                       | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 17.28                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                 | Ant.B   | EVS-WB<br>64 kbps                        | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 17.95                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                 | Ant.B   | EVS-WB<br>128 kbps                       | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 18.30                       | N/A                               | N/A | N/A                    |

## 2N Mounting Force (Continued)

| Codec<br>(NB or WB) | Volume<br>Control Level | Mode / Band            | Antenna              | Voice Codec /<br>Codec bitrate<br>(kbps) | Channel and<br>Frequency | Bandwidth             | Waveform /<br>Modulation | RB<br>(Allocation/<br>Offset) | Volume Control Results      |                             |                                   |     |                        |
|---------------------|-------------------------|------------------------|----------------------|------------------------------------------|--------------------------|-----------------------|--------------------------|-------------------------------|-----------------------------|-----------------------------|-----------------------------------|-----|------------------------|
|                     |                         |                        |                      |                                          |                          |                       |                          |                               | 2N                          |                             |                                   |     | PN-SDNR<br>margin (dB) |
|                     |                         |                        |                      |                                          |                          |                       |                          |                               | Noise<br>(LAF_MAX)<br>(dBA) | Conversational<br>Gain (dB) | Frequency Response<br>Margin (dB) |     |                        |
|                     |                         |                        |                      |                                          |                          |                       |                          |                               |                             | FF                          | DF                                |     |                        |
| NB                  | Max - 1                 | NR Band n12            | Ant.D                | AMR-NB<br>4.75 kbps                      | 141500<br>707.5 MHz      | 15 MHz                | DFT-s-OFDM<br>QPSK       | 1/1                           | 26.2                        | 16.79                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                        | Ant.D                | AMR-NB<br>7.4 kbps                       | 141500<br>707.5 MHz      | 15 MHz                | DFT-s-OFDM<br>QPSK       | 1/1                           | 26.2                        | 17.50                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                        | Ant.D                | AMR-NB<br>12.2 kbps                      | 141500<br>707.5 MHz      | 15 MHz                | DFT-s-OFDM<br>QPSK       | 1/1                           | 26.2                        | 17.70                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                        | Ant.D                | AMR-WB<br>6.6 kbps                       | 141500<br>707.5 MHz      | 15 MHz                | DFT-s-OFDM<br>QPSK       | 1/1                           | 26.2                        | 18.38                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                        | Ant.D                | AMR-WB<br>12.65 kbps                     | 141500<br>707.5 MHz      | 15 MHz                | DFT-s-OFDM<br>QPSK       | 1/1                           | 26.2                        | 18.81                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                        | Ant.D                | AMR-WB<br>23.85 kbps                     | 141500<br>707.5 MHz      | 15 MHz                | DFT-s-OFDM<br>QPSK       | 1/1                           | 26.2                        | 18.95                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                        | Ant.D                | EV-S-NB<br>5.9 kbps                      | 141500<br>707.5 MHz      | 15 MHz                | DFT-s-OFDM<br>QPSK       | 1/1                           | 26.2                        | 17.13                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                        | Ant.D                | EV-S-NB<br>13.2 kbps                     | 141500<br>707.5 MHz      | 15 MHz                | DFT-s-OFDM<br>QPSK       | 1/1                           | 26.2                        | 17.43                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                        | Ant.D                | EV-S-WB<br>5.9 kbps                      | 141500<br>707.5 MHz      | 15 MHz                | DFT-s-OFDM<br>QPSK       | 1/1                           | 26.2                        | 18.27                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                        | Ant.D                | EV-S-WB<br>64 kbps                       | 141500<br>707.5 MHz      | 15 MHz                | DFT-s-OFDM<br>QPSK       | 1/1                           | 26.2                        | 18.90                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                        | Ant.D                | EV-S-WB<br>128 kbps                      | 141500<br>707.5 MHz      | 15 MHz                | DFT-s-OFDM<br>QPSK       | 1/1                           | 26.2                        | 19.27                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                        | NR Band n41 PC2      | Ant.E                                    | AMR-NB<br>4.75 kbps      | 518598<br>2592.99 MHz | 100 MHz                  | DFT-s-OFDM<br>QPSK            | 1/1                         | 22.4                        | 16.73                             | N/A | N/A                    |
| NB                  | Max - 1                 | Ant.E                  |                      | AMR-NB<br>7.4 kbps                       | 518598<br>2592.99 MHz    | 100 MHz               | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 17.33                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 | Ant.E                  |                      | AMR-NB<br>12.2 kbps                      | 518598<br>2592.99 MHz    | 100 MHz               | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 17.64                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 | Ant.E                  |                      | AMR-WB<br>6.6 kbps                       | 518598<br>2592.99 MHz    | 100 MHz               | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 18.21                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 | Ant.E                  |                      | AMR-WB<br>12.65 kbps                     | 518598<br>2592.99 MHz    | 100 MHz               | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 18.84                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 | Ant.E                  |                      | AMR-WB<br>23.85 kbps                     | 518598<br>2592.99 MHz    | 100 MHz               | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 18.85                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 | Ant.E                  |                      | EV-S-NB<br>5.9 kbps                      | 518598<br>2592.99 MHz    | 100 MHz               | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 16.92                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 | Ant.E                  |                      | EV-S-NB<br>13.2 kbps                     | 518598<br>2592.99 MHz    | 100 MHz               | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 17.39                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 | Ant.E                  |                      | EV-S-WB<br>5.9 kbps                      | 518598<br>2592.99 MHz    | 100 MHz               | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 18.13                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 | Ant.E                  |                      | EV-S-WB<br>64 kbps                       | 518598<br>2592.99 MHz    | 100 MHz               | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 18.85                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 | Ant.E                  |                      | EV-S-WB<br>128 kbps                      | 518598<br>2592.99 MHz    | 100 MHz               | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 19.15                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 | WiFi 2.4GHz<br>802.11b |                      | MIMO                                     | AMR-NB<br>4.75 kbps      | CH.6<br>2437 MHz      | 20 MHz                   | DSSS<br>1 Mbps                | N/A                         | 23.9                        | 16.43                             | N/A | N/A                    |
| NB                  | Max - 1                 |                        | MIMO                 | AMR-NB<br>7.4 kbps                       | CH.6<br>2437 MHz         | 20 MHz                | DSSS<br>1 Mbps           | N/A                           | 23.9                        | 17.08                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                        | MIMO                 | AMR-NB<br>12.2 kbps                      | CH.6<br>2437 MHz         | 20 MHz                | DSSS<br>1 Mbps           | N/A                           | 23.9                        | 17.29                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                        | MIMO                 | AMR-WB<br>6.6 kbps                       | CH.6<br>2437 MHz         | 20 MHz                | DSSS<br>1 Mbps           | N/A                           | 23.9                        | 17.68                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                        | MIMO                 | AMR-WB<br>12.65 kbps                     | CH.6<br>2437 MHz         | 20 MHz                | DSSS<br>1 Mbps           | N/A                           | 23.9                        | 18.09                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                        | MIMO                 | AMR-WB<br>23.85 kbps                     | CH.6<br>2437 MHz         | 20 MHz                | DSSS<br>1 Mbps           | N/A                           | 23.9                        | 18.22                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                        | MIMO                 | EV-S-NB<br>5.9 kbps                      | CH.6<br>2437 MHz         | 20 MHz                | DSSS<br>1 Mbps           | N/A                           | 23.9                        | 16.64                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                        | MIMO                 | EV-S-NB<br>13.2 kbps                     | CH.6<br>2437 MHz         | 20 MHz                | DSSS<br>1 Mbps           | N/A                           | 23.9                        | 16.96                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                        | MIMO                 | EV-S-WB<br>5.9 kbps                      | CH.6<br>2437 MHz         | 20 MHz                | DSSS<br>1 Mbps           | N/A                           | 23.9                        | 17.52                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                        | MIMO                 | EV-S-WB<br>64 kbps                       | CH.6<br>2437 MHz         | 20 MHz                | DSSS<br>1 Mbps           | N/A                           | 23.9                        | 18.22                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                        | MIMO                 | EV-S-WB<br>128 kbps                      | CH.6<br>2437 MHz         | 20 MHz                | DSSS<br>1 Mbps           | N/A                           | 23.9                        | 18.55                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                        | WiFi 5GHz<br>802.11a | MIMO                                     | AMR-NB<br>4.75 kbps      | CH.40<br>5200 MHz     | 20 MHz                   | BPSK<br>6 Mbps                | N/A                         | 23.9                        | 16.58                             | N/A | N/A                    |
| NB                  | Max - 1                 | MIMO                   |                      | AMR-NB<br>7.4 kbps                       | CH.40<br>5200 MHz        | 20 MHz                | BPSK<br>6 Mbps           | N/A                           | 23.9                        | 17.16                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 | MIMO                   |                      | AMR-NB<br>12.2 kbps                      | CH.40<br>5200 MHz        | 20 MHz                | BPSK<br>6 Mbps           | N/A                           | 23.9                        | 17.36                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 | MIMO                   |                      | AMR-WB<br>6.6 kbps                       | CH.40<br>5200 MHz        | 20 MHz                | BPSK<br>6 Mbps           | N/A                           | 23.9                        | 17.66                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 | MIMO                   |                      | AMR-WB<br>12.65 kbps                     | CH.40<br>5200 MHz        | 20 MHz                | BPSK<br>6 Mbps           | N/A                           | 23.9                        | 18.23                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 | MIMO                   |                      | AMR-WB<br>23.85 kbps                     | CH.40<br>5200 MHz        | 20 MHz                | BPSK<br>6 Mbps           | N/A                           | 23.9                        | 18.38                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 | MIMO                   |                      | EV-S-NB<br>5.9 kbps                      | CH.40<br>5200 MHz        | 20 MHz                | BPSK<br>6 Mbps           | N/A                           | 23.9                        | 16.68                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 | MIMO                   |                      | EV-S-NB<br>13.2 kbps                     | CH.40<br>5200 MHz        | 20 MHz                | BPSK<br>6 Mbps           | N/A                           | 23.9                        | 16.99                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 | MIMO                   |                      | EV-S-WB<br>5.9 kbps                      | CH.40<br>5200 MHz        | 20 MHz                | BPSK<br>6 Mbps           | N/A                           | 23.9                        | 17.55                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 | MIMO                   |                      | EV-S-WB<br>64 kbps                       | CH.40<br>5200 MHz        | 20 MHz                | BPSK<br>6 Mbps           | N/A                           | 23.9                        | 18.33                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 | MIMO                   |                      | EV-S-WB<br>128 kbps                      | CH.40<br>5200 MHz        | 20 MHz                | BPSK<br>6 Mbps           | N/A                           | 23.9                        | 18.86                       | N/A                               | N/A | N/A                    |

## 8N Mounting Force

| Codec<br>(NB or WB) | Volume<br>Control Level | Mode / Band     | Antenna | Voice Codec /<br>Codec bitrate<br>(kbps) | Channel and<br>Frequency | Bandwidth | Waveform /<br>Modulation | RB<br>(Allocation/<br>Offset) | Volume Control Results      |                             |                                   |     |                        |
|---------------------|-------------------------|-----------------|---------|------------------------------------------|--------------------------|-----------|--------------------------|-------------------------------|-----------------------------|-----------------------------|-----------------------------------|-----|------------------------|
|                     |                         |                 |         |                                          |                          |           |                          |                               | 8N                          |                             |                                   |     |                        |
|                     |                         |                 |         |                                          |                          |           |                          |                               | Noise<br>(LAF_MAX)<br>(dBA) | Conversational<br>Gain (dB) | Frequency Response<br>Margin (dB) |     | PN-SDNR<br>margin (dB) |
|                     |                         |                 |         |                                          |                          |           |                          |                               |                             |                             | FF                                | DF  |                        |
| NB                  | Max - 1                 | GSM 850         | Ant.D   | FR V1                                    | 190<br>836.6 MHz         | N/A       | N/A                      | N/A                           | 23.5                        | 19.96                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                 | Ant.D   | FR V2                                    | 190<br>836.6 MHz         | N/A       | N/A                      | N/A                           | 23.5                        | 20.21                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                 | Ant.D   | HR V1                                    | 190<br>836.6 MHz         | N/A       | N/A                      | N/A                           | 23.5                        | 20.38                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                 | Ant.A+B | FR V1                                    | 190<br>836.6 MHz         | N/A       | N/A                      | N/A                           | 23.5                        | 20.01                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                 | Ant.LA  | FR V1                                    | 190<br>836.6 MHz         | N/A       | N/A                      | N/A                           | 26.2                        | 20.72                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 | GSM 1900        | Ant.B   | FR V1                                    | 661<br>1880 MHz          | N/A       | N/A                      | N/A                           | 23.5                        | 20.03                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 | WCDMA Band V    | Ant.D   | AMR-NB<br>4.75 kbps                      | 4183<br>836.6 MHz        | N/A       | N/A                      | N/A                           | 23.5                        | 19.39                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                 | Ant.D   | AMR-NB<br>7.4 kbps                       | 4183<br>836.6 MHz        | N/A       | N/A                      | N/A                           | 23.5                        | 19.84                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                 | Ant.D   | AMR-NB<br>12.2 kbps                      | 4183<br>836.6 MHz        | N/A       | N/A                      | N/A                           | 23.5                        | 20.05                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                 | Ant.D   | AMR-WB<br>6.6 kbps                       | 4183<br>836.6 MHz        | N/A       | N/A                      | N/A                           | 23.5                        | 20.38                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                 | Ant.D   | AMR-WB<br>12.65 kbps                     | 4183<br>836.6 MHz        | N/A       | N/A                      | N/A                           | 23.5                        | 20.80                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                 | Ant.D   | AMR-WB<br>23.85 kbps                     | 4183<br>836.6 MHz        | N/A       | N/A                      | N/A                           | 23.5                        | 20.97                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                 | Ant.A+B | AMR-NB<br>4.75 kbps                      | 4183<br>836.6 MHz        | N/A       | N/A                      | N/A                           | 23.5                        | 19.49                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                 | Ant.LA  | AMR-NB<br>4.75 kbps                      | 4183<br>836.6 MHz        | N/A       | N/A                      | N/A                           | 26.2                        | 19.98                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 | WCDMA Band II   | Ant.B   | AMR-NB<br>4.75 kbps                      | 9400<br>1880.0 MHz       | N/A       | N/A                      | N/A                           | 23.5                        | 19.36                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 | WCDMA Band IV   | Ant.B   | AMR-NB<br>4.75 kbps                      | 1413<br>1732.6 MHz       | N/A       | N/A                      | N/A                           | 23.5                        | 19.28                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 | LTE Band 66     | Ant.B   | AMR-NB<br>4.75 kbps                      | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 19.24                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                 | Ant.B   | AMR-NB<br>7.4 kbps                       | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 19.71                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                 | Ant.B   | AMR-NB<br>12.2 kbps                      | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 19.97                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                 | Ant.B   | AMR-WB<br>6.6 kbps                       | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 20.30                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                 | Ant.B   | AMR-WB<br>12.65 kbps                     | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 20.75                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                 | Ant.B   | AMR-WB<br>23.85 kbps                     | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 20.89                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>5.9 kbps                      | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 19.30                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>13.2 kbps                     | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 19.59                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                 | Ant.B   | EV-S-WB<br>5.9 kbps                      | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 20.22                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                 | Ant.B   | EV-S-WB<br>64 kbps                       | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 20.81                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                 | Ant.B   | EV-S-WB<br>128 kbps                      | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 21.13                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 | LTE Band 41 PC2 | Ant.B   | AMR-NB<br>4.75 kbps                      | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 19.34                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                 | Ant.B   | AMR-NB<br>7.4 kbps                       | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 19.85                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                 | Ant.B   | AMR-NB<br>12.2 kbps                      | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 20.11                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                 | Ant.B   | AMR-WB<br>6.6 kbps                       | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 20.38                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                 | Ant.B   | AMR-WB<br>12.65 kbps                     | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 20.80                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                 | Ant.B   | AMR-WB<br>23.85 kbps                     | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 20.86                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>5.9 kbps                      | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 19.42                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                 | Ant.B   | EV-S-NB<br>13.2 kbps                     | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 19.63                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                 | Ant.B   | EV-S-WB<br>5.9 kbps                      | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 20.21                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                 | Ant.B   | EV-S-WB<br>64 kbps                       | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 20.88                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                 | Ant.B   | EV-S-WB<br>128 kbps                      | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/0                           | 23.5                        | 21.22                       | N/A                               | N/A | N/A                    |

## 8N Mounting Force (Continued)

| Codec<br>(NB or WB) | Volume<br>Control Level | Mode / Band            | Antenna | Voice Codec /<br>Codec bitrate<br>(kbps) | Channel and<br>Frequency | Bandwidth | Waveform /<br>Modulation | RB<br>(Allocation/<br>Offset) | Volume Control Results      |                             |                                   |     |                        |
|---------------------|-------------------------|------------------------|---------|------------------------------------------|--------------------------|-----------|--------------------------|-------------------------------|-----------------------------|-----------------------------|-----------------------------------|-----|------------------------|
|                     |                         |                        |         |                                          |                          |           |                          |                               | 8N                          |                             |                                   |     | PN-SDNR<br>margin (dB) |
|                     |                         |                        |         |                                          |                          |           |                          |                               | Noise<br>(LAF_MAX)<br>(dBA) | Conversational<br>Gain (dB) | Frequency Response<br>Margin (dB) |     |                        |
|                     |                         |                        |         |                                          |                          |           |                          |                               |                             | FF                          | DF                                |     |                        |
| NB                  | Max - 1                 | NR Band n12            | Ant.D   | AMR-NB<br>4.75 kbps                      | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 26.2                        | 19.94                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                        | Ant.D   | AMR-NB<br>7.4 kbps                       | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 26.2                        | 20.45                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                        | Ant.D   | AMR-NB<br>12.2 kbps                      | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 26.2                        | 20.75                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                        | Ant.D   | AMR-WB<br>6.6 kbps                       | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 26.2                        | 21.32                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                        | Ant.D   | AMR-WB<br>12.65 kbps                     | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 26.2                        | 21.69                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                        | Ant.D   | AMR-WB<br>23.85 kbps                     | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 26.2                        | 21.82                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                        | Ant.D   | EVS-NB<br>5.9 kbps                       | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 26.2                        | 20.08                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                        | Ant.D   | EVS-NB<br>13.2 kbps                      | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 26.2                        | 20.39                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                        | Ant.D   | EVS-WB<br>5.9 kbps                       | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 26.2                        | 21.79                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                        | Ant.D   | EVS-WB<br>64 kbps                        | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 26.2                        | 21.81                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                        | Ant.D   | EVS-WB<br>128 kbps                       | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                           | 26.2                        | 21.79                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 | NR Band n41 PC2        | Ant.E   | AMR-NB<br>4.75 kbps                      | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 19.85                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                        | Ant.E   | AMR-NB<br>7.4 kbps                       | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 20.32                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                        | Ant.E   | AMR-NB<br>12.2 kbps                      | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 20.57                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                        | Ant.E   | AMR-WB<br>6.6 kbps                       | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 21.23                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                        | Ant.E   | AMR-WB<br>12.65 kbps                     | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 21.66                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                        | Ant.E   | AMR-WB<br>23.85 kbps                     | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 21.97                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                        | Ant.E   | EVS-NB<br>5.9 kbps                       | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 20.01                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                        | Ant.E   | EVS-NB<br>13.2 kbps                      | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 20.31                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                        | Ant.E   | EVS-WB<br>5.9 kbps                       | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 21.21                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                        | Ant.E   | EVS-WB<br>64 kbps                        | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 22.01                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                        | Ant.E   | EVS-WB<br>128 kbps                       | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK       | 1/1                           | 22.4                        | 22.20                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 | WiFi 2.4GHz<br>802.11b | MIMO    | AMR-NB<br>4.75 kbps                      | CH.6<br>2437 MHz         | 20 MHz    | DSSS<br>1 Mbps           | N/A                           | 23.9                        | 19.67                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                        | MIMO    | AMR-NB<br>7.4 kbps                       | CH.6<br>2437 MHz         | 20 MHz    | DSSS<br>1 Mbps           | N/A                           | 23.9                        | 20.05                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                        | MIMO    | AMR-NB<br>12.2 kbps                      | CH.6<br>2437 MHz         | 20 MHz    | DSSS<br>1 Mbps           | N/A                           | 23.9                        | 20.34                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                        | MIMO    | AMR-WB<br>6.6 kbps                       | CH.6<br>2437 MHz         | 20 MHz    | DSSS<br>1 Mbps           | N/A                           | 23.9                        | 20.67                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                        | MIMO    | AMR-WB<br>12.65 kbps                     | CH.6<br>2437 MHz         | 20 MHz    | DSSS<br>1 Mbps           | N/A                           | 23.9                        | 21.14                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                        | MIMO    | AMR-WB<br>23.85 kbps                     | CH.6<br>2437 MHz         | 20 MHz    | DSSS<br>1 Mbps           | N/A                           | 23.9                        | 21.24                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                        | MIMO    | EVS-NB<br>5.9 kbps                       | CH.6<br>2437 MHz         | 20 MHz    | DSSS<br>1 Mbps           | N/A                           | 23.9                        | 19.90                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                        | MIMO    | EVS-NB<br>13.2 kbps                      | CH.6<br>2437 MHz         | 20 MHz    | DSSS<br>1 Mbps           | N/A                           | 23.9                        | 19.75                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                        | MIMO    | EVS-WB<br>5.9 kbps                       | CH.6<br>2437 MHz         | 20 MHz    | DSSS<br>1 Mbps           | N/A                           | 23.9                        | 20.52                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                        | MIMO    | EVS-WB<br>64 kbps                        | CH.6<br>2437 MHz         | 20 MHz    | DSSS<br>1 Mbps           | N/A                           | 23.9                        | 21.23                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                        | MIMO    | EVS-WB<br>128 kbps                       | CH.6<br>2437 MHz         | 20 MHz    | DSSS<br>1 Mbps           | N/A                           | 23.9                        | 21.59                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11a   | MIMO    | AMR-NB<br>4.75 kbps                      | CH.40<br>5200 MHz        | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 23.9                        | 19.72                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                        | MIMO    | AMR-NB<br>7.4 kbps                       | CH.40<br>5200 MHz        | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 23.9                        | 20.16                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                        | MIMO    | AMR-NB<br>12.2 kbps                      | CH.40<br>5200 MHz        | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 23.9                        | 20.41                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                        | MIMO    | AMR-WB<br>6.6 kbps                       | CH.40<br>5200 MHz        | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 23.9                        | 20.80                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                        | MIMO    | AMR-WB<br>12.65 kbps                     | CH.40<br>5200 MHz        | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 23.9                        | 21.20                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                        | MIMO    | AMR-WB<br>23.85 kbps                     | CH.40<br>5200 MHz        | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 23.9                        | 21.34                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                        | MIMO    | EVS-NB<br>5.9 kbps                       | CH.40<br>5200 MHz        | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 23.9                        | 19.79                       | N/A                               | N/A | N/A                    |
| NB                  | Max - 1                 |                        | MIMO    | EVS-NB<br>13.2 kbps                      | CH.40<br>5200 MHz        | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 23.9                        | 20.06                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                        | MIMO    | EVS-WB<br>5.9 kbps                       | CH.40<br>5200 MHz        | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 23.9                        | 20.66                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                        | MIMO    | EVS-WB<br>64 kbps                        | CH.40<br>5200 MHz        | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 23.9                        | 21.32                       | N/A                               | N/A | N/A                    |
| WB                  | Max - 1                 |                        | MIMO    | EVS-WB<br>128 kbps                       | CH.40<br>5200 MHz        | 20 MHz    | BPSK<br>6 Mbps           | N/A                           | 23.9                        | 21.67                       | N/A                               | N/A | N/A                    |

## 9.4. HAC (Volume Control) Test Results

### 2N Mounting Force – Summary

| Codec<br>(NB or WB) | Volume<br>Control Level | Mode / Band                      | Antenna | Voice Codec /<br>Codec bitrate<br>(kbps) | Channel and<br>Frequency | Bandwidth | Waveform /<br>Modulation | RB<br>(Allocation /<br>Offset) | Volume Control Results      |                             |                                   |      |                        | Plot No. |
|---------------------|-------------------------|----------------------------------|---------|------------------------------------------|--------------------------|-----------|--------------------------|--------------------------------|-----------------------------|-----------------------------|-----------------------------------|------|------------------------|----------|
|                     |                         |                                  |         |                                          |                          |           |                          |                                | 2N                          |                             |                                   |      |                        |          |
|                     |                         |                                  |         |                                          |                          |           |                          |                                | Noise<br>(LAF_MAX)<br>(dBA) | Conversational<br>Gain (dB) | Frequency Response<br>Margin (dB) |      | PN-SDNR<br>margin (dB) |          |
|                     |                         |                                  |         |                                          |                          |           |                          |                                |                             | FF                          | DF                                |      |                        |          |
| NB                  | Max - 1                 | GSM 850                          | Ant.D   | FR V1                                    | 190<br>836.6 MHz         | N/A       | N/A                      | N/A                            | 23.9                        | 17.24                       | N/A                               | N/A  | N/A                    |          |
| NB                  | Max - 1                 | GSM 1900                         | Ant.B   | FR V1                                    | 661<br>1880 MHz          | N/A       | N/A                      | N/A                            | 23.9                        | 17.30                       | N/A                               | N/A  | N/A                    |          |
| NB                  | Max - 1                 | WCDMA Band V                     | Ant.D   | AMR-NB<br>4.75 kbps                      | 4183<br>836.6 MHz        | N/A       | N/A                      | N/A                            | 23.9                        | 16.44                       | N/A                               | N/A  | N/A                    |          |
| NB                  | Max - 1                 | WCDMA Band II                    | Ant.B   | AMR-NB<br>4.75 kbps                      | 9400<br>1880.0 MHz       | N/A       | N/A                      | N/A                            | 23.9                        | 16.59                       | N/A                               | N/A  | N/A                    |          |
| NB                  | Max - 1                 | WCDMA Band IV                    | Ant.B   | AMR-NB<br>4.75 kbps                      | 1413<br>1732.6 MHz       | N/A       | N/A                      | N/A                            | 23.9                        | 16.54                       | N/A                               | N/A  | N/A                    |          |
| NB                  | Max - 1                 | LTE Band 7                       | Ant.B   | EVS-NB<br>24.4 kbit/s                    | 21100<br>2535 MHz        | 20 MHz    | QPSK                     | 1/0                            | 23.9                        | 16.93                       | 2.06                              | 1.75 | 8.65                   | 1        |
| NB                  | Max - 1                 | LTE Band 12                      | Ant.A   | EVS-NB<br>24.4 kbit/s                    | 23095<br>707.5 MHz       | 10 MHz    | QPSK                     | 1/0                            | 23.9                        | 16.78                       | 2.06                              | 1.76 | 11.54                  | 2        |
| NB                  | Max - 1                 | LTE Band 13                      | Ant.A   | EVS-NB<br>24.4 kbit/s                    | 23230<br>782 MHz         | 10 MHz    | QPSK                     | 1/0                            | 23.9                        | 16.91                       | 2.19                              | 1.89 | 7.50                   | 3        |
| NB                  | Max - 1                 | LTE Band 14                      | Ant.A   | EVS-NB<br>24.4 kbit/s                    | 23330<br>793 MHz         | 10 MHz    | QPSK                     | 1/0                            | 23.9                        | 16.86                       | 2.09                              | 1.79 | 11.53                  | 4        |
| NB                  | Max - 1                 | LTE Band 25                      | Ant.B   | EVS-NB<br>24.4 kbit/s                    | 26365<br>1882.5 MHz      | 20 MHz    | QPSK                     | 1/0                            | 23.9                        | 16.82                       | 2.08                              | 1.77 | 11.39                  | 5        |
| NB                  | Max - 1                 | LTE Band 26                      | Ant.A   | EVS-NB<br>24.4 kbit/s                    | 26865<br>831.5 MHz       | 15 MHz    | QPSK                     | 1/0                            | 23.9                        | 16.82                       | 2.10                              | 1.79 | 11.69                  | 6        |
| NB                  | Max - 1                 | LTE Band 30                      | Ant.B   | EVS-NB<br>24.4 kbit/s                    | 27710<br>2310 MHz        | 10 MHz    | QPSK                     | 1/0                            | 23.9                        | 16.86                       | 2.02                              | 1.71 | 9.19                   | 7        |
| NB                  | Max - 1                 | LTE Band 66                      | Ant.B   | AMR-NB<br>4.75 kbps                      | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 1/0                            | 23.5                        | 16.50                       | N/A                               | N/A  | N/A                    |          |
| NB                  | Max - 1                 | LTE Band 66                      | Ant.B   | EVS-NB<br>24.4 kbit/s                    | 132322<br>1745 MHz       | 20 MHz    | QPSK                     | 1/0                            | 23.9                        | 16.77                       | 2.11                              | 1.81 | 12.06                  | 8        |
| NB                  | Max - 1                 | LTE Band 71                      | Ant.A   | EVS-NB<br>24.4 kbit/s                    | 133297<br>680.5 MHz      | 20 MHz    | QPSK                     | 1/0                            | 23.9                        | 16.99                       | 2.15                              | 1.82 | 8.17                   | 9        |
| NB                  | Max - 1                 | LTE Band 41 PC2                  | Ant.B   | AMR-NB<br>4.75 kbps                      | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/0                            | 23.5                        | 16.56                       | N/A                               | N/A  | N/A                    |          |
| NB                  | Max - 1                 | LTE Band 41 PC2                  | Ant.B   | EVS-NB<br>24.4 kbit/s                    | 41490<br>2680 MHz        | 20 MHz    | QPSK                     | 1/0                            | 24.4                        | 16.81                       | 2.21                              | 1.90 | 11.48                  | 10       |
| NB                  | Max - 1                 | LTE Band 41 PC3                  | Ant.B   | EVS-NB<br>24.4 kbit/s                    | 40620<br>2593 MHz        | 20 MHz    | QPSK                     | 1/0                            | 24.4                        | 16.73                       | 2.11                              | 1.80 | 11.51                  | 11       |
| NB                  | Max - 1                 | LTE Band 48                      | Ant.E   | EVS-NB<br>24.4 kbit/s                    | 55773<br>3603.3 MHz      | 20 MHz    | QPSK                     | 1/0                            | 24.4                        | 16.75                       | 2.20                              | 1.89 | 8.96                   | 12       |
| NB                  | Max - 1                 | NR Band n7                       | Ant.E   | EVS-NB<br>24.4 kbit/s                    | 507000<br>2535 MHz       | 40 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                            | 23.2                        | 17.52                       | 2.00                              | 1.77 | 8.12                   | 13       |
| NB                  | Max - 1                 | NR Band n12                      | Ant.D   | AMR-NB<br>4.75 kbps                      | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                            | 26.2                        | 16.79                       | N/A                               | N/A  | N/A                    |          |
| NB                  | Max - 1                 | NR Band n12                      | Ant.D   | EVS-NB<br>24.4 kbit/s                    | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                            | 22.4                        | 17.46                       | 2.10                              | 1.88 | 8.81                   | 14       |
| NB                  | Max - 1                 | NR Band n25                      | Ant.E   | EVS-NB<br>24.4 kbit/s                    | 376500<br>1882.5 MHz     | 40 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                            | 23.2                        | 17.49                       | 1.95                              | 1.90 | 7.47                   | 15       |
| NB                  | Max - 1                 | NR Band n26                      | Ant.D   | EVS-NB<br>24.4 kbit/s                    | 166300<br>831.5 MHz      | 20 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                            | 23.2                        | 17.50                       | 2.00                              | 1.90 | 8.10                   | 16       |
| NB                  | Max - 1                 | NR Band n30                      | Ant.E   | EVS-NB<br>24.4 kbit/s                    | 462000<br>2310 MHz       | 10 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                            | 23.2                        | 17.38                       | 2.00                              | 1.73 | 5.68                   | 17       |
| NB                  | Max - 1                 | NR Band n66                      | Ant.E   | EVS-NB<br>24.4 kbit/s                    | 349000<br>1745 MHz       | 40 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                            | 23.2                        | 17.41                       | 1.98                              | 1.84 | 6.38                   | 18       |
| NB                  | Max - 1                 | NR Band n70                      | Ant.E   | EVS-NB<br>24.4 kbit/s                    | 340500<br>1702.5 MHz     | 15 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                            | 23.2                        | 17.42                       | 1.91                              | 1.69 | 5.87                   | 19       |
| NB                  | Max - 1                 | NR Band n71                      | Ant.D   | EVS-NB<br>24.4 kbit/s                    | 136100<br>680.5 MHz      | 20 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                            | 23.2                        | 17.51                       | 2.07                              | 1.86 | 6.52                   | 20       |
| NB                  | Max - 1                 | NR Band n41 PC2                  | Ant.E   | EVS-NB<br>24.4 kbit/s                    | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK       | 1/1                            | 25.3                        | 17.60                       | 2.11                              | 1.91 | 7.98                   | 21       |
| NB                  | Max - 1                 | NR Band n48                      | Ant.E   | EVS-NB<br>24.4 kbit/s                    | 641666<br>3624.99 MHz    | 40 MHz    | DFT-s-OFDM<br>QPSK       | 1/1                            | 24.1                        | 17.67                       | 2.02                              | 1.90 | 6.48                   | 22       |
| NB                  | Max - 1                 | NR Band n77                      | Ant.E   | EVS-NB<br>24.4 kbit/s                    | 650000<br>3750 MHz       | 100 MHz   | DFT-s-OFDM<br>QPSK       | 1/1                            | 24.1                        | 17.60                       | 2.10                              | 1.82 | 6.85                   | 23       |
| NB                  | Max - 1                 | WiFi 2.4GHz<br>802.11b           | MIMO    | AMR-NB<br>4.75 kbps                      | CH.6<br>2437 MHz         | 20 MHz    | DSSS<br>1 Mbps           | N/A                            | 23.9                        | 16.43                       | N/A                               | N/A  | N/A                    |          |
| NB                  | Max - 1                 | WiFi 2.4GHz<br>802.11b           | MIMO    | EVS-NB<br>24.4 kbit/s                    | CH.6<br>2437 MHz         | 20 MHz    | DSSS<br>1 Mbps           | N/A                            | 23.9                        | 16.80                       | 2.24                              | 1.91 | 6.81                   | 24       |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11a             | MIMO    | AMR-NB<br>4.75 kbps                      | CH.40<br>5200 MHz        | 20 MHz    | BPSK<br>6 Mbps           | N/A                            | 23.9                        | 16.58                       | N/A                               | N/A  | N/A                    |          |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11a<br>U-NII-1  | MIMO    | EVS-NB<br>24.4 kbit/s                    | CH.40<br>5200 MHz        | 20 MHz    | BPSK<br>6 Mbps           | N/A                            | 25.7                        | 16.98                       | 2.26                              | 1.93 | 10.73                  | 25       |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11a<br>U-NII-2A | MIMO    | EVS-NB<br>24.4 kbit/s                    | CH.56<br>5280 MHz        | 20 MHz    | BPSK<br>6 Mbps           | N/A                            | 25.7                        | 17.27                       | 2.19                              | 1.86 | 10.97                  | 26       |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11a<br>U-NII-2C | MIMO    | EVS-NB<br>24.4 kbit/s                    | CH.120<br>5600 MHz       | 20 MHz    | BPSK<br>6 Mbps           | N/A                            | 25.7                        | 17.23                       | 2.22                              | 1.92 | 6.65                   | 27       |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11a<br>U-NII-3  | MIMO    | EVS-NB<br>24.4 kbit/s                    | CH.157<br>5785 MHz       | 20 MHz    | BPSK<br>6 Mbps           | N/A                            | 25.7                        | 17.17                       | 2.28                              | 1.97 | 10.50                  | 28       |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11a<br>U-NII-4  | MIMO    | EVS-NB<br>24.4 kbit/s                    | CH.173<br>5865 MHz       | 20 MHz    | BPSK<br>6 Mbps           | N/A                            | 25.7                        | 17.21                       | 2.29                              | 1.98 | 10.73                  | 29       |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11ax<br>U-NII-5 | MIMO    | EVS-NB<br>24.4 kbit/s                    | CH.5<br>5975 MHz         | 20 MHz    | BPSK<br>6 Mbps           | N/A                            | 26.2                        | 17.34                       | 1.87                              | 1.56 | 8.20                   | 30       |

#### Note:

- Under the waiver, at least one of the device's narrowband and one of the device's wideband codecs need to be chosen for the distortion and frequency response testing. Testing of the chosen narrowband and wideband codecs for the distortion/noise and frequency response is limited to one bit rate and only those air interfaces associated with the chosen codecs-EVS NB 24.4 kbps & EVS WB 24.4 kbps. The other narrowband and wideband codecs used for the 2N and 8N force level conversational gain tests are not required to undergo distortion/noise and frequency response testing. This codec is therefore not subjected to the distortion and frequency response testing.
- Worst conversational gain for 2N mounting force is 16.43 dB.

## 8N Mounting Force – Summary

| Codec<br>(NB or WB) | Volume<br>Control Level | Mode / Band                      | Antenna | Voice Codec /<br>Codec bitrate<br>(kbps) | Channel and<br>Frequency | Bandwidth | Waveform/<br>Modulation | RB<br>(Allocation/<br>Offset) | Volume Control Results      |                             |                                   |      |                        | Plot No. |
|---------------------|-------------------------|----------------------------------|---------|------------------------------------------|--------------------------|-----------|-------------------------|-------------------------------|-----------------------------|-----------------------------|-----------------------------------|------|------------------------|----------|
|                     |                         |                                  |         |                                          |                          |           |                         |                               | 8N                          |                             |                                   |      |                        |          |
|                     |                         |                                  |         |                                          |                          |           |                         |                               | Noise<br>(LAF_MAX)<br>(dBA) | Conversational<br>Gain (dB) | Frequency Response<br>Margin (dB) |      | PN-SDNR<br>margin (dB) |          |
| FF                  | DF                      |                                  |         |                                          |                          |           |                         |                               |                             |                             |                                   |      |                        |          |
| NB                  | Max - 1                 | GSM 850                          | Ant.D   | FR V1                                    | 190<br>836.6 MHz         | N/A       | N/A                     | N/A                           | 23.5                        | 19.96                       | N/A                               | N/A  | N/A                    |          |
| NB                  | Max - 1                 | GSM 1900                         | Ant.B   | FR V1                                    | 661<br>1880 MHz          | N/A       | N/A                     | N/A                           | 23.5                        | 20.03                       | N/A                               | N/A  | N/A                    |          |
| NB                  | Max - 1                 | WCDMA Band V                     | Ant.D   | AMR-NB<br>4.75 kbps                      | 4183<br>836.6 MHz        | N/A       | N/A                     | N/A                           | 23.5                        | 19.39                       | N/A                               | N/A  | N/A                    |          |
| NB                  | Max - 1                 | WCDMA Band II                    | Ant.B   | AMR-NB<br>4.75 kbps                      | 9400<br>1880.0 MHz       | N/A       | N/A                     | N/A                           | 23.5                        | 19.36                       | N/A                               | N/A  | N/A                    |          |
| NB                  | Max - 1                 | WCDMA Band IV                    | Ant.B   | AMR-NB<br>4.75 kbps                      | 1413<br>1732.6 MHz       | N/A       | N/A                     | N/A                           | 23.5                        | 19.28                       | N/A                               | N/A  | N/A                    |          |
| NB                  | Max - 1                 | LTE Band 7                       | Ant.B   | EVS-NB<br>24.4 kbit/s                    | 21100<br>2535 MHz        | 20 MHz    | QPSK                    | 1/0                           | 24.6                        | 20.03                       | 1.91                              | 1.75 | 8.90                   | 31       |
| NB                  | Max - 1                 | LTE Band 12                      | Ant.A   | EVS-NB<br>24.4 kbit/s                    | 23095<br>707.5 MHz       | 10 MHz    | QPSK                    | 1/0                           | 24.6                        | 20.17                       | 2.06                              | 1.83 | 12.40                  | 32       |
| NB                  | Max - 1                 | LTE Band 13                      | Ant.A   | EVS-NB<br>24.4 kbit/s                    | 23230<br>782 MHz         | 10 MHz    | QPSK                    | 1/0                           | 24.6                        | 20.07                       | 1.99                              | 1.78 | 11.20                  | 33       |
| NB                  | Max - 1                 | LTE Band 14                      | Ant.A   | EVS-NB<br>24.4 kbit/s                    | 23330<br>793 MHz         | 10 MHz    | QPSK                    | 1/0                           | 24.6                        | 20.02                       | 2.02                              | 1.78 | 11.70                  | 34       |
| NB                  | Max - 1                 | LTE Band 25                      | Ant.B   | EVS-NB<br>24.4 kbit/s                    | 26365<br>1882.5 MHz      | 20 MHz    | QPSK                    | 1/0                           | 24.6                        | 20.00                       | 2.00                              | 1.91 | 7.90                   | 35       |
| NB                  | Max - 1                 | LTE Band 26                      | Ant.A   | EVS-NB<br>24.4 kbit/s                    | 26865<br>831.5 MHz       | 15 MHz    | QPSK                    | 1/0                           | 24.6                        | 20.03                       | 2.14                              | 1.83 | 10.50                  | 36       |
| NB                  | Max - 1                 | LTE Band 30                      | Ant.B   | EVS-NB<br>24.4 kbit/s                    | 27710<br>2310 MHz        | 10 MHz    | QPSK                    | 1/0                           | 24.6                        | 19.93                       | 2.12                              | 1.82 | 10.20                  | 37       |
| NB                  | Max - 1                 | LTE Band 66                      | Ant.B   | AMR-NB<br>4.75 kbps                      | 132322<br>1745 MHz       | 20 MHz    | QPSK                    | 1/0                           | 23.5                        | 19.24                       | N/A                               | N/A  | N/A                    |          |
| NB                  | Max - 1                 | LTE Band 66                      | Ant.B   | EVS-NB<br>24.4 kbit/s                    | 132322<br>1745 MHz       | 20 MHz    | QPSK                    | 1/0                           | 24.6                        | 19.99                       | 2.09                              | 1.88 | 10.70                  | 38       |
| NB                  | Max - 1                 | LTE Band 71                      | Ant.A   | EVS-NB<br>24.4 kbit/s                    | 133297<br>680.5 MHz      | 20 MHz    | QPSK                    | 1/0                           | 24.6                        | 20.03                       | 2.12                              | 1.79 | 8.10                   | 39       |
| NB                  | Max - 1                 | LTE Band 41 PC2                  | Ant.B   | AMR-NB<br>4.75 kbps                      | 40620<br>2593 MHz        | 20 MHz    | QPSK                    | 1/0                           | 23.5                        | 19.34                       | N/A                               | N/A  | N/A                    |          |
| NB                  | Max - 1                 | LTE Band 41 PC2                  | Ant.B   | EVS-NB<br>24.4 kbit/s                    | 40620<br>2593 MHz        | 20 MHz    | QPSK                    | 1/0                           | 24.4                        | 19.95                       | 2.10                              | 1.95 | 12.40                  | 40       |
| NB                  | Max - 1                 | LTE Band 41 PC3                  | Ant.B   | EVS-NB<br>24.4 kbit/s                    | 40620<br>2593 MHz        | 20 MHz    | QPSK                    | 1/0                           | 24.6                        | 20.26                       | 2.09                              | 1.93 | 12.50                  | 41       |
| NB                  | Max - 1                 | LTE Band 48                      | Ant.E   | EVS-NB<br>24.4 kbit/s                    | 55773<br>3603.3 MHz      | 20 MHz    | QPSK                    | 1/0                           | 24.6                        | 20.14                       | 2.27                              | 1.94 | 8.50                   | 42       |
| NB                  | Max - 1                 | NR Band n7                       | Ant.E   | EVS-NB<br>24.4 kbit/s                    | 507000<br>2535 MHz       | 40 MHz    | DFT-s-OFDM<br>QPSK      | 1/1                           | 26.2                        | 20.36                       | 2.02                              | 1.77 | 7.60                   | 43       |
| NB                  | Max - 1                 | NR Band n12                      | Ant.D   | AMR-NB<br>4.75 kbps                      | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK      | 1/1                           | 26.2                        | 19.94                       | N/A                               | N/A  | N/A                    |          |
| NB                  | Max - 1                 | NR Band n12                      | Ant.D   | EVS-NB<br>24.4 kbit/s                    | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK      | 1/1                           | 22.4                        | 20.31                       | 1.92                              | 1.70 | 4.80                   | 44       |
| NB                  | Max - 1                 | NR Band n25                      | Ant.E   | EVS-NB<br>24.4 kbit/s                    | 376500<br>1882.5 MHz     | 40 MHz    | DFT-s-OFDM<br>QPSK      | 1/1                           | 26.2                        | 20.29                       | 1.99                              | 1.60 | 7.50                   | 45       |
| NB                  | Max - 1                 | NR Band n26                      | Ant.D   | EVS-NB<br>24.4 kbit/s                    | 166300<br>831.5 MHz      | 20 MHz    | DFT-s-OFDM<br>QPSK      | 1/1                           | 26.2                        | 20.33                       | 1.92                              | 1.69 | 8.50                   | 46       |
| NB                  | Max - 1                 | NR Band n30                      | Ant.E   | EVS-NB<br>24.4 kbit/s                    | 462000<br>2310 MHz       | 10 MHz    | DFT-s-OFDM<br>QPSK      | 1/1                           | 23.2                        | 20.52                       | 2.02                              | 1.79 | 8.20                   | 47       |
| NB                  | Max - 1                 | NR Band n66                      | Ant.E   | EVS-NB<br>24.4 kbit/s                    | 349000<br>1745 MHz       | 40 MHz    | DFT-s-OFDM<br>QPSK      | 1/1                           | 23.2                        | 20.37                       | 2.05                              | 1.75 | 8.40                   | 48       |
| NB                  | Max - 1                 | NR Band n70                      | Ant.E   | EVS-NB<br>24.4 kbit/s                    | 340500<br>1702.5 MHz     | 15 MHz    | DFT-s-OFDM<br>QPSK      | 1/1                           | 23.2                        | 20.45                       | 2.05                              | 1.76 | 5.90                   | 49       |
| NB                  | Max - 1                 | NR Band n71                      | Ant.D   | EVS-NB<br>24.4 kbit/s                    | 136100<br>680.5 MHz      | 20 MHz    | DFT-s-OFDM<br>QPSK      | 1/1                           | 23.2                        | 20.50                       | 2.12                              | 1.76 | 5.70                   | 50       |
| NB                  | Max - 1                 | NR Band n41 PC2                  | Ant.E   | AMR-NB<br>4.75 kbps                      | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK      | 1/1                           | 22.4                        | 19.85                       | N/A                               | N/A  | N/A                    |          |
| NB                  | Max - 1                 | NR Band n41 PC2                  | Ant.E   | EVS-NB<br>24.4 kbit/s                    | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK      | 1/1                           | 22.4                        | 20.34                       | 2.06                              | 1.85 | 7.50                   | 51       |
| NB                  | Max - 1                 | NR Band n48                      | Ant.E   | EVS-NB<br>24.4 kbit/s                    | 641666<br>3624.99 MHz    | 40 MHz    | DFT-s-OFDM<br>QPSK      | 1/1                           | 24.1                        | 20.48                       | 2.07                              | 1.76 | 6.10                   | 52       |
| NB                  | Max - 1                 | NR Band n77                      | Ant.E   | EVS-NB<br>24.4 kbit/s                    | 650000<br>3750 MHz       | 100 MHz   | DFT-s-OFDM<br>QPSK      | 1/1                           | 24.1                        | 20.43                       | 1.95                              | 1.85 | 7.20                   | 53       |
| NB                  | Max - 1                 | WiFi 2.4GHz<br>802.11b           | MIMO    | AMR-NB<br>4.75 kbps                      | CH.6<br>2437 MHz         | 20 MHz    | DSSS<br>1 Mbps          | N/A                           | 23.9                        | 19.67                       | N/A                               | N/A  | N/A                    |          |
| NB                  | Max - 1                 | WiFi 2.4GHz<br>802.11b           | MIMO    | EVS-NB<br>24.4 kbit/s                    | CH.6<br>2437 MHz         | 20 MHz    | DSSS<br>1 Mbps          | N/A                           | 26.1                        | 20.25                       | 2.12                              | 1.89 | 9.80                   | 54       |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11a             | MIMO    | AMR-NB<br>4.75 kbps                      | CH.40<br>5200 MHz        | 20 MHz    | BPSK<br>6 Mbps          | N/A                           | 23.9                        | 19.72                       | N/A                               | N/A  | N/A                    |          |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11a<br>U-NII-1  | MIMO    | EVS-NB<br>24.4 kbit/s                    | CH.40<br>5200 MHz        | 20 MHz    | BPSK<br>6 Mbps          | N/A                           | 26.1                        | 20.17                       | 2.09                              | 1.95 | 12.40                  | 55       |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11a<br>U-NII-2A | MIMO    | EVS-NB<br>24.4 kbit/s                    | CH.56<br>5280 MHz        | 20 MHz    | BPSK<br>6 Mbps          | N/A                           | 26.1                        | 20.43                       | 1.89                              | 1.95 | 9.80                   | 56       |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11a<br>U-NII-2C | MIMO    | EVS-NB<br>24.4 kbit/s                    | CH.120<br>5600 MHz       | 20 MHz    | BPSK<br>6 Mbps          | N/A                           | 26.1                        | 20.37                       | 1.99                              | 2.00 | 8.90                   | 57       |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11a<br>U-NII-3  | MIMO    | EVS-NB<br>24.4 kbit/s                    | CH.157<br>5785 MHz       | 20 MHz    | BPSK<br>6 Mbps          | N/A                           | 26.1                        | 20.33                       | 2.08                              | 1.95 | 9.90                   | 58       |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11a<br>U-NII-4  | MIMO    | EVS-NB<br>24.4 kbit/s                    | CH.173<br>5865 MHz       | 20 MHz    | BPSK<br>6 Mbps          | N/A                           | 26.1                        | 20.33                       | 2.03                              | 1.87 | 6.50                   | 59       |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11ax<br>U-NII-5 | MIMO    | EVS-NB<br>24.4 kbit/s                    | CH.5<br>5975 MHz         | 20 MHz    | BPSK<br>6 Mbps          | N/A                           | 26.2                        | 20.34                       | 1.82                              | 1.50 | 11.60                  | 60       |

**Note:**

- Under the waiver, at least one of the device's narrowband and one of the device's wideband codecs need to be chosen for the distortion and frequency response testing. Testing of the chosen narrowband and wideband codecs for the distortion/noise and frequency response is limited to one bit rate and only those air interfaces associated with the chosen codecs-EVS NB 24.4 kbps & EVS WB 24.4 kbps. The other narrowband and wideband codecs used for the 2N and 8N force level conversational gain tests are not required to undergo distortion/noise and frequency response testing. This codec is therefore not subjected to the distortion and frequency response testing.
- Worst conversational gain for 8N mounting force is 19.24 dB.

## 2N Mounting Force – Folder Opened Configuration

| Codec<br>(NB or WB) | Volume<br>Control Level | Mode / Band            | Antenna | Voice Codec /<br>Codec bitrate<br>(kbps) | Channel and<br>Frequency | Bandwidth | Waveform/<br>Modulation | RB<br>(Allocation/<br>Offset) | Volume Control Results      |                             |                                   |      |                        | Plot No. |
|---------------------|-------------------------|------------------------|---------|------------------------------------------|--------------------------|-----------|-------------------------|-------------------------------|-----------------------------|-----------------------------|-----------------------------------|------|------------------------|----------|
|                     |                         |                        |         |                                          |                          |           |                         |                               | 2N                          |                             |                                   |      |                        |          |
|                     |                         |                        |         |                                          |                          |           |                         |                               | Noise<br>(LAF_MAX)<br>(dBA) | Conversational<br>Gain (dB) | Frequency Response<br>Margin (dB) |      | PN-SDNR<br>margin (dB) |          |
| FF                  | DF                      |                        |         |                                          |                          |           |                         |                               |                             |                             |                                   |      |                        |          |
| NB                  | Max - 1                 | LTE Band 66            | Ant.B   | EVS-NB<br>24.4 kbit/s                    | 132322<br>1745 MHz       | 20 MHz    | QPSK                    | 1/0                           | 23.9                        | 18.66                       | 1.99                              | 1.96 | 7.17                   | 61       |
| WB                  | Max - 1                 | LTE Band 66            | Ant.B   | EVS-WB<br>24.4 kbit/s                    | 132322<br>1745 MHz       | 20 MHz    | QPSK                    | 1/0                           | 23.9                        | 19.39                       | 1.74                              | 2.00 | 7.34                   | 62       |
| NB                  | Max - 1                 | LTE Band 41 PC2        | Ant.B   | EVS-NB<br>24.4 kbit/s                    | 40620<br>2593 MHz        | 20 MHz    | QPSK                    | 1/0                           | 23.9                        | 18.70                       | 1.88                              | 1.72 | 6.59                   | 63       |
| WB                  | Max - 1                 | LTE Band 41 PC2        | Ant.B   | EVS-WB<br>24.4 kbit/s                    | 40620<br>2593 MHz        | 20 MHz    | QPSK                    | 1/0                           | 23.9                        | 19.58                       | 1.77                              | 2.00 | 8.12                   | 64       |
| NB                  | Max - 1                 | NR Band n12            | Ant.D   | EVS-NB<br>24.4 kbit/s                    | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK      | 1/1                           | 25.3                        | 18.79                       | 1.96                              | 1.90 | 7.65                   | 65       |
| WB                  | Max - 1                 | NR Band n12            | Ant.D   | EVS-WB<br>24.4 kbit/s                    | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK      | 1/1                           | 25.3                        | 19.97                       | 2.14                              | 2.40 | 7.56                   | 66       |
| NB                  | Max - 1                 | NR Band n41 PC2        | Ant.E   | EVS-NB<br>24.4 kbit/s                    | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK      | 1/1                           | 25.3                        | 18.70                       | 2.17                              | 2.05 | 8.84                   | 67       |
| WB                  | Max - 1                 | NR Band n41 PC2        | Ant.E   | EVS-WB<br>24.4 kbit/s                    | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK      | 1/1                           | 25.3                        | 19.82                       | 1.93                              | 2.10 | 4.83                   | 68       |
| NB                  | Max - 1                 | WiFi 2.4GHz<br>802.11b | MIMO    | EVS-NB<br>24.4 kbit/s                    | CH6<br>2437 MHz          | 20 MHz    | DSSS<br>1 Mbps          | N/A                           | 23.9                        | 18.71                       | 1.90                              | 1.94 | 7.35                   | 69       |
| WB                  | Max - 1                 | WiFi 2.4GHz<br>802.11b | MIMO    | EVS-WB<br>24.4 kbit/s                    | CH6<br>2437 MHz          | 20 MHz    | DSSS<br>1 Mbps          | N/A                           | 23.9                        | 19.60                       | 1.84                              | 2.10 | 7.16                   | 70       |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11a   | MIMO    | EVS-NB<br>24.4 kbit/s                    | CH40<br>5200 MHz         | 20 MHz    | BPSK<br>6 Mbps          | N/A                           | 23.9                        | 18.74                       | 1.83                              | 1.99 | 8.57                   | 71       |
| WB                  | Max - 1                 | WiFi 5GHz<br>802.11a   | MIMO    | EVS-WB<br>24.4 kbit/s                    | CH40<br>5200 MHz         | 20 MHz    | BPSK<br>6 Mbps          | N/A                           | 23.9                        | 19.67                       | 1.90                              | 2.00 | 5.35                   | 72       |
| NB                  | Max - 1                 | WiFi 2.4GHz<br>802.11b | MIMO    | AMR-NB<br>4.75 kbps                      | CH6<br>2437 MHz          | 20 MHz    | DSSS<br>1 Mbps          | N/A                           | 23.9                        | 18.28                       | N/A                               | N/A  | N/A                    |          |

## 8N Mounting Force – Folder Opened Configuration

| Codec<br>(NB or WB) | Volume<br>Control Level | Mode / Band            | Antenna | Voice Codec /<br>Codec bitrate<br>(kbps) | Channel and<br>Frequency | Bandwidth | Waveform/<br>Modulation | RB<br>(Allocation/<br>Offset) | Volume Control Results      |                             |                                   |      |                        | Plot No. |
|---------------------|-------------------------|------------------------|---------|------------------------------------------|--------------------------|-----------|-------------------------|-------------------------------|-----------------------------|-----------------------------|-----------------------------------|------|------------------------|----------|
|                     |                         |                        |         |                                          |                          |           |                         |                               | 8N                          |                             |                                   |      |                        |          |
|                     |                         |                        |         |                                          |                          |           |                         |                               | Noise<br>(LAF_MAX)<br>(dBA) | Conversational<br>Gain (dB) | Frequency Response<br>Margin (dB) |      | PN-SDNR<br>margin (dB) |          |
| FF                  | DF                      |                        |         |                                          |                          |           |                         |                               |                             |                             |                                   |      |                        |          |
| NB                  | Max - 1                 | LTE Band 66            | Ant.B   | EVS-NB<br>24.4 kbit/s                    | 132322<br>1745 MHz       | 20 MHz    | QPSK                    | 1/0                           | 23.9                        | 19.66                       | 1.95                              | 1.85 | 8.00                   | 73       |
| WB                  | Max - 1                 | LTE Band 66            | Ant.B   | EVS-WB<br>24.4 kbit/s                    | 132322<br>1745 MHz       | 20 MHz    | QPSK                    | 1/0                           | 23.9                        | 20.49                       | 1.36                              | 1.60 | 5.20                   | 74       |
| NB                  | Max - 1                 | LTE Band 41 PC2        | Ant.B   | EVS-NB<br>24.4 kbit/s                    | 40620<br>2593 MHz        | 20 MHz    | QPSK                    | 1/0                           | 23.9                        | 19.72                       | 1.98                              | 1.87 | 10.50                  | 75       |
| WB                  | Max - 1                 | LTE Band 41 PC2        | Ant.B   | EVS-WB<br>24.4 kbit/s                    | 40620<br>2593 MHz        | 20 MHz    | QPSK                    | 1/0                           | 23.9                        | 20.53                       | 1.56                              | 1.80 | 10.60                  | 76       |
| NB                  | Max - 1                 | NR Band n12            | Ant.D   | EVS-NB<br>24.4 kbit/s                    | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK      | 1/1                           | 25.3                        | 20.12                       | 2.06                              | 1.90 | 8.70                   | 77       |
| WB                  | Max - 1                 | NR Band n12            | Ant.D   | EVS-WB<br>24.4 kbit/s                    | 141500<br>707.5 MHz      | 15 MHz    | DFT-s-OFDM<br>QPSK      | 1/1                           | 25.3                        | 21.26                       | 2.09                              | 2.30 | 8.50                   | 78       |
| NB                  | Max - 1                 | NR Band n41 PC2        | Ant.E   | EVS-NB<br>24.4 kbit/s                    | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK      | 1/1                           | 25.3                        | 20.10                       | 1.99                              | 1.83 | 7.80                   | 79       |
| WB                  | Max - 1                 | NR Band n41 PC2        | Ant.E   | EVS-WB<br>24.4 kbit/s                    | 518598<br>2592.99 MHz    | 100 MHz   | DFT-s-OFDM<br>QPSK      | 1/1                           | 25.3                        | 21.29                       | 1.75                              | 1.80 | 5.40                   | 80       |
| NB                  | Max - 1                 | WiFi 2.4GHz<br>802.11b | MIMO    | EVS-NB<br>24.4 kbit/s                    | CH.6<br>2437 MHz         | 20 MHz    | DSSS<br>1 Mbps          | N/A                           | 23.9                        | 19.89                       | 1.97                              | 1.78 | 12.80                  | 81       |
| WB                  | Max - 1                 | WiFi 2.4GHz<br>802.11b | MIMO    | EVS-WB<br>24.4 kbit/s                    | CH.6<br>2437 MHz         | 20 MHz    | DSSS<br>1 Mbps          | N/A                           | 23.9                        | 20.80                       | 1.37                              | 1.50 | 7.50                   | 82       |
| NB                  | Max - 1                 | WiFi 5GHz<br>802.11a   | MIMO    | EVS-NB<br>24.4 kbit/s                    | CH.40<br>5200 MHz        | 20 MHz    | BPSK<br>6 Mbps          | N/A                           | 23.9                        | 19.87                       | 1.84                              | 1.77 | 8.20                   | 83       |
| WB                  | Max - 1                 | WiFi 5GHz<br>802.11a   | MIMO    | EVS-WB<br>24.4 kbit/s                    | CH.40<br>5200 MHz        | 20 MHz    | BPSK<br>6 Mbps          | N/A                           | 23.9                        | 20.76                       | 1.49                              | 1.60 | 7.00                   | 84       |
| NB                  | Max - 1                 | LTE Band 66            | Ant.B   | AMR-NB<br>4.75 kbps                      | 132322<br>1745 MHz       | 20 MHz    | QPSK                    | 1/0                           | 23.9                        | 19.33                       | N/A                               | N/A  | N/A                    |          |

### Note:

- Under the waiver, at least one of the device's narrowband and one of the device's wideband codecs need to be chosen for the distortion and frequency response testing. Testing of the chosen narrowband and wideband codecs for the distortion/noise and frequency response is limited to one bit rate and only those air interfaces associated with the chosen codecs-EVS NB 24.4 kbps & EVS WB 24.4 kbps. The other narrowband and wideband codecs used for the 2N and 8N force level conversational gain tests are not required to undergo distortion/noise and frequency response testing. This codec is therefore not subjected to the distortion and frequency response testing.
- Additional tests were performed with folder opened condition using worst case in folder closed for each technology.

## 9.5. Worst Case Volume Control Test Plot

2N Mounting Force – VoWiFi 2.4GHz 802.11b\_MIMO\_AMR-NB 4.75 kbps\_ch.6

Conversational Gain 16.43 dB (tested conversational gain only)

2N Mounting Force – VoLTE Band B41 PC3\_Ant.B\_EVS-NB 24.4 kbps\_ch.40620

Conversational Gain 16.73 dB



### TIA-5050 Receive Volume Control Measurements - 2N

|                    |                       |
|--------------------|-----------------------|
| Device Under Test: | L41_PC3_EVS-NB24.4_2N |
| Bandwidth          | Narrowband            |
| Test Date:         | 2024-04-05            |

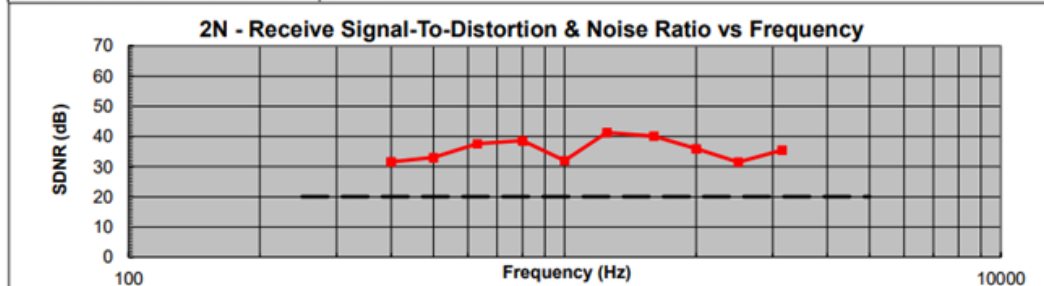
#### Receive Volume Control Performance

| TIA-5050   | Test                        | Measured | Limits    | Result | Reference |
|------------|-----------------------------|----------|-----------|--------|-----------|
| Clause 5.1 | Recv output level dB SPL 2N | 86.73 dB | info only |        |           |
|            | Recv conversational gain 2N | 16.73 dB | 6.00      | PASS   |           |

#### Receive Distortion and Noise Performance

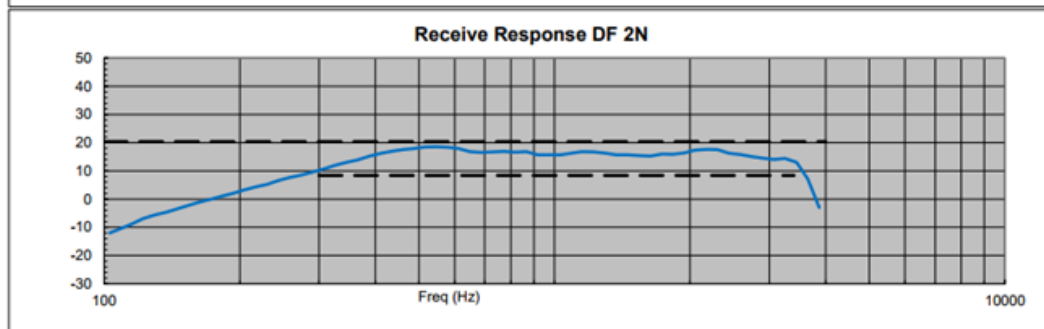
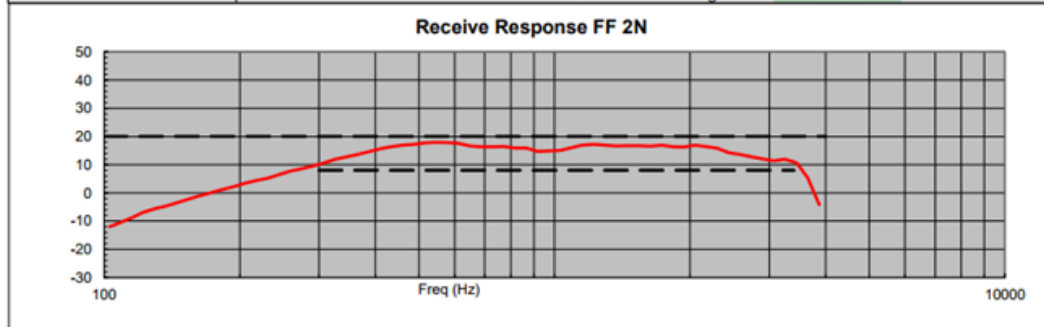
| TIA-5050   | Test            | Margin   | Limits          | Result | Reference |
|------------|-----------------|----------|-----------------|--------|-----------|
| Clause 5.2 | Recv PN-SDNR 2N | 11.51 dB | Absolute Limits | PASS   |           |

Note: SDNR includes noise and distortion products.



#### Receive Acoustic Frequency Response Performance

| TIA-5050   | Test            | Margin  | Limits          | Result | Reference |
|------------|-----------------|---------|-----------------|--------|-----------|
| Clause 5.3 | Recv resp FF 2N | 2.11 dB | Floating Limits | PASS   |           |
|            | Recv resp DF 2N | 1.8 dB  | Floating Limits | PASS   |           |



8N Mounting Force – VoLTE FDD Band 66\_Ant.B\_AMR-NB 4.75 kbps\_ch.132322

Conversational Gain 19.24 dB (tested conversational gain only)

8N Mounting Force – VoLTE FDD Band 30\_Ant.B\_EVS-NB 24.4 kbps\_ch.27710

Conversational Gain 19.93 dB



### TIA-5050 Receive Volume Control Measurements - 8N

|                    |                   |
|--------------------|-------------------|
| Device Under Test: | L30_EVS-NB24.4_8N |
| Bandwidth          | Narrowband        |
| Test Date:         | 2024-04-08        |

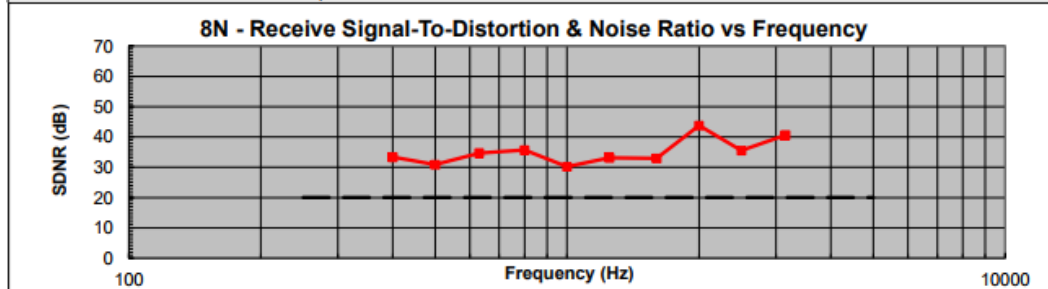
#### Receive Volume Control Performance

| TIA-5050   | Test                        | Measured | Limits    | Result | Reference |
|------------|-----------------------------|----------|-----------|--------|-----------|
| Clause 5.1 | Recv output level dBSPL 8N  | 89.93 dB | info only |        |           |
|            | Recv conversational gain 8N | 19.93 dB | 18.00     | PASS   |           |

#### Receive Distortion and Noise Performance

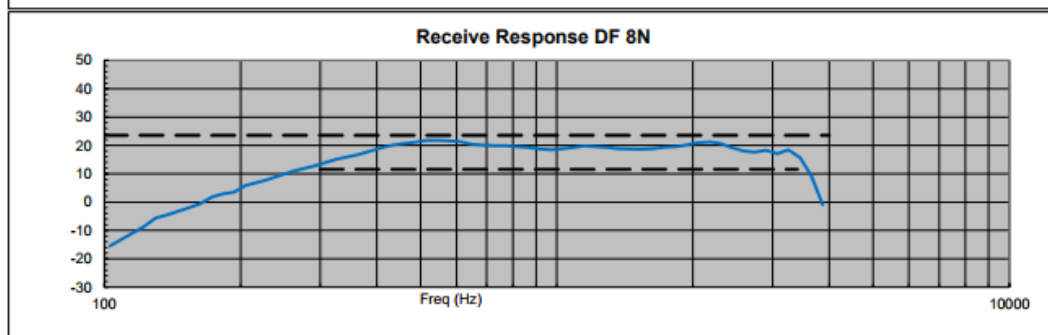
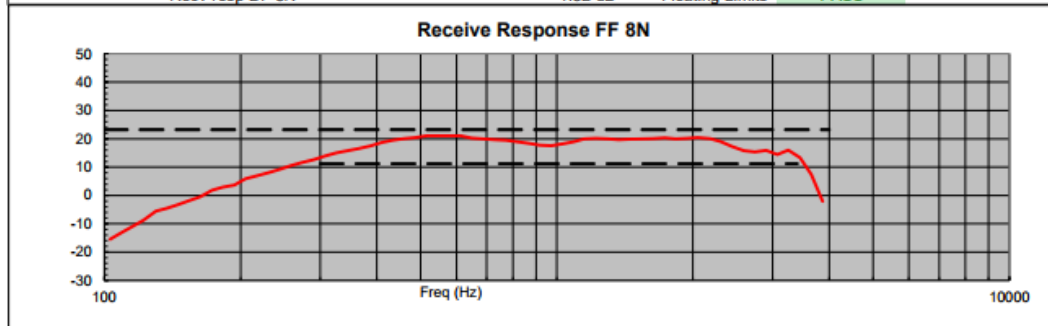
| TIA-5050   | Test            | Margin  | Limits          | Result | Reference |
|------------|-----------------|---------|-----------------|--------|-----------|
| Clause 5.2 | Recv PN-SDNR 8N | 10.2 dB | Absolute Limits | PASS   |           |

Note: SDNR includes noise and distortion products.



#### Receive Acoustic Frequency Response Performance

| TIA-5050   | Test            | Margin  | Limits          | Result | Reference |
|------------|-----------------|---------|-----------------|--------|-----------|
| Clause 5.3 | Recv resp FF 8N | 2.12 dB | Floating Limits | PASS   |           |
|            | Recv resp DF 8N | 1.82 dB | Floating Limits | PASS   |           |



## **Appendix**

**Refer to separated files for the following appendixes**

**4790976523-S7 Appendix A\_Setup Photo**

**4790976523-S7 Appendix B\_Test Plots**

**END OF REPORT**