

# **CERTIFICATION TEST REPORT**

**Report Number.** : S-4791615638-E2V3

**Applicant** : SAMSUNG ELECTRONICS CO., LTD.  
129 SAMSUNG-RO, YEONGTONG-GU, SUWON-SI,  
GYEONGGI-DO, 16677, KOREA

**Model** : SM-S937B/DS, SM-S937B

**FCC ID** : A3LSMS937B

**EUT Description** : GSM/WCDMA/LTE 5G NR Phone + BT/BLE,  
DTS/UNII a/b/g/n/ac/ax/be, NFC, WPT and UWB

**Test Standard(s)** : FCC 47 CFR PART 22 SUBPART H  
FCC 47 CFR PART 90 SUBPART S

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Revision History

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## 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** SAMSUNG ELECTRONICS CO., LTD.

**EUT DESCRIPTION:** GSM/WCDMA/LTE 5G NR Phone + BT/BLE,  
DTS/UNII a/b/g/n/ac/ax/be, NFC, WPT and UWB

**MODEL NUMBER:** SM-S937B/DS, SM-S937B

**SERIAL NUMBER:** R3CXC0C364R, R3CXC0C2Y7Z, R3CXC0C36WD (CONDUCTED);  
R3CY10EZFRP, R3CY10EZEAE (RADIATED);

**DATE TESTED:** 2025-01-09 – 2025-02-21;

| APPLICABLE STANDARDS |              |
|----------------------|--------------|
| STANDARD             | TEST RESULTS |
| FCC PART 22H, 90S    | Complies     |

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 For  
UL KOREA LTD. By:

Tested By:



Seokhwan Hong  
Suwon Lab Engineer  
UL KOREA LTD.

Yeonghwan Hong  
Suwon Lab Engineer  
UL KOREA LTD.

## 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with following methods.

1. FCC 47 CFR Part 2.
2. FCC 47 CFR Part 22.
3. FCC 47 CFR Part 90.
4. ANSI TIA-603-E, 2016
5. ANSI C63.26, 2015
6. KDB 971168 D01 Power Meas License Digital Systems v03r01
7. KDB 971168 D02 Misc Rev Approv License Devices v02r02
8. KDB 412172 D01 Determining ERP and EIRP v01r01
9. KDB 648474 D03 Wireless Chrgers Battery Cover v01r04

## 3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea. Line conducted emissions are measured only at the 218 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

| 218 Maeyeong-ro                     |                                     |
|-------------------------------------|-------------------------------------|
| <input checked="" type="checkbox"/> | Chamber 1(3m semi-anechoic chamber) |
| <input checked="" type="checkbox"/> | Chamber 2(3m semi-anechoic chamber) |
| <input type="checkbox"/>            | Chamber 3(3m semi-anechoic chamber) |
| <input type="checkbox"/>            | Chamber 4(3m Full-anechoic chamber) |
| <input type="checkbox"/>            | Chamber 5(3m Full-anechoic chamber) |

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 utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

### 4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\text{ERP} = \text{SG reading with EUT worst orientation (dBm)} - \text{cable loss (between the SG and substitution antenna)} + \text{Substitution Antenna Factor (dBd)}$$

### 4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

| PARAMETER                             | UNCERTAINTY |
|---------------------------------------|-------------|
| Conducted Disturbance, 0.15 to 30 MHz | 1.84 dB     |
| Radiated Disturbance, 9 kHz to 30 MHz | 2.41 dB     |
| Radiated Disturbance, 30 MHz to 1 GHz | 3.69 dB     |
| Radiated Disturbance, 1 GHz to 18 GHz | 5.18 dB     |
| Radiated Disturbance, Above 18 GHz    | 5.07 dB     |

Uncertainty figures are valid to a confidence level of 95%.

### 4.4. DECISION RULE

Decision rule for statement(s) of conformity is based on Clause 4.3.3 in IEC Guide 115:2023.

## 5. EQUIPMENT UNDER TEST

### 5.1. DESCRIPTION OF EUT

GSM/WCDMA/LTE 5G NR Phone + BT/BLE, DTS/UNII a/b/g/n/ac/ax/be, NFC, WPT and UWB. This test report addresses the WWAN operational mode.

The transmitter has a maximum average radiated ERP output powers as follows:

| Representative model | Difference | Derivative model                                                                                         |
|----------------------|------------|----------------------------------------------------------------------------------------------------------|
|                      |            | SM-S937B                                                                                                 |
| SM-S937B/DS          | Hardware   | Except for the SIM socket tray, all hardware parts are the same                                          |
|                      | Software   | All features are the same except for SIM recognition algorithms and subsequently User Interface changes. |

The model SM-S937B/DS was used for final testing and is representative of the test results in this report.

### 5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum average radiated ERP output powers as follows:

#### GSM

| FCC Part 22 |     |                 |            |           |          |           |          |
|-------------|-----|-----------------|------------|-----------|----------|-----------|----------|
| Band        | ANT | Frequency Range | Modulation | Conducted |          | Radiated  |          |
|             |     | [MHz]           |            | Avg [dBm] | Avg [mW] | Avg [dBm] | Avg [mW] |
| GSM 850     | A   | 824.20 ~ 848.80 | GPRS       | 32.88     | 1940.89  | 27.83     | 606.74   |
|             |     |                 | EGPRS      | 26.34     | 430.53   | 22.19     | 165.58   |
| FCC Part 22 |     |                 |            |           |          |           |          |
| Band        | ANT | Frequency Range | Modulation | Conducted |          | Radiated  |          |
|             |     | [MHz]           |            | Avg [dBm] | Avg [mW] | Avg [dBm] | Avg [mW] |
| GSM 850     | E   | 824.20 ~ 848.80 | GPRS       | 32.69     | 1857.80  | 30.71     | 1177.61  |
|             |     |                 | EGPRS      | 26.37     | 433.51   | 24.83     | 304.09   |

#### WCDMA

| FCC Part 22 |     |                 |            |           |          |           |          |
|-------------|-----|-----------------|------------|-----------|----------|-----------|----------|
| Band        | ANT | Frequency Range | Modulation | Conducted |          | Radiated  |          |
|             |     | [MHz]           |            | Avg [dBm] | Avg [mW] | Avg [dBm] | Avg [mW] |
| Band 5      | A   | 826.40 ~ 846.60 | Rel. 99    | 24.57     | 286.42   | 18.15     | 65.31    |
|             |     |                 | HSDPA      | 23.61     | 229.61   | 15.63     | 36.56    |
| FCC Part 22 |     |                 |            |           |          |           |          |
| Band        | ANT | Frequency Range | Modulation | Conducted |          | Radiated  |          |
|             |     | [MHz]           |            | Avg [dBm] | Avg [mW] | Avg [dBm] | Avg [mW] |
| Band 5      | E   | 826.40 ~ 846.60 | Rel. 99    | 24.30     | 269.15   | 19.42     | 87.50    |
|             |     |                 | HSDPA      | 23.34     | 215.77   | 18.29     | 67.45    |

**LTE Band 26 (Part 90)**

| FCC Part 90 |     |                 |           |            |           |          |           |          |
|-------------|-----|-----------------|-----------|------------|-----------|----------|-----------|----------|
| Band        | ANT | Frequency Range | BandWidth | Modulation | Conducted |          | Radiated  |          |
|             |     | [MHz]           | [MHz]     |            | Avg [dBm] | Avg [mW] | Avg [dBm] | Avg [mW] |
| Band 26     | A   | 821.50          | 15        | QPSK       | 23.84     | 242.10   | 16.37     | 43.35    |
|             |     |                 |           | 16QAM      | 23.18     | 207.97   | 15.56     | 35.97    |
|             |     |                 |           | 64QAM      | 22.17     | 164.82   |           |          |
|             |     |                 |           | 256QAM     | 19.10     | 81.28    |           |          |
|             |     | 819.00          | 10        | QPSK       | 24.00     | 251.19   | 16.44     | 44.06    |
|             |     |                 |           | 16QAM      | 23.00     | 199.53   | 15.29     | 33.81    |
|             |     |                 |           | 64QAM      | 22.23     | 167.11   |           |          |
|             |     |                 |           | 256QAM     | 19.10     | 81.28    |           |          |
|             |     | 816.50 ~ 821.50 | 5         | QPSK       | 23.94     | 247.74   | 16.40     | 43.65    |
|             |     |                 |           | 16QAM      | 23.14     | 206.06   | 15.52     | 35.65    |
|             |     |                 |           | 64QAM      | 22.19     | 165.58   |           |          |
|             |     |                 |           | 256QAM     | 19.14     | 82.04    |           |          |
|             |     | 815.50 ~ 822.50 | 3         | QPSK       | 23.94     | 247.74   | 16.55     | 45.19    |
|             |     |                 |           | 16QAM      | 23.06     | 202.30   | 15.50     | 35.48    |
|             |     |                 |           | 64QAM      | 22.35     | 171.79   |           |          |
|             |     |                 |           | 256QAM     | 19.25     | 84.14    |           |          |
|             |     | 814.70 ~ 823.30 | 1.4       | QPSK       | 23.87     | 243.78   | 16.54     | 45.08    |
|             |     |                 |           | 16QAM      | 23.11     | 204.64   | 15.55     | 35.89    |
|             |     |                 |           | 64QAM      | 22.23     | 167.11   |           |          |
|             |     |                 |           | 256QAM     | 19.18     | 82.79    |           |          |

| FCC Part 90 |     |                 |           |            |           |          |           |          |
|-------------|-----|-----------------|-----------|------------|-----------|----------|-----------|----------|
| Band        | ANT | Frequency Range | BandWidth | Modulation | Conducted |          | Radiated  |          |
|             |     | [MHz]           | [MHz]     |            | Avg [dBm] | Avg [mW] | Avg [dBm] | Avg [mW] |
| Band 26     | E   | 821.50          | 15        | QPSK       | 23.98     | 250.03   | 19.70     | 93.33    |
|             |     |                 |           | 16QAM      | 23.19     | 208.45   | 18.96     | 78.70    |
|             |     |                 |           | 64QAM      | 22.33     | 171.00   |           |          |
|             |     |                 |           | 256QAM     | 19.26     | 84.33    |           |          |
|             |     | 819.00          | 10        | QPSK       | 24.07     | 255.27   | 19.70     | 93.33    |
|             |     |                 |           | 16QAM      | 23.34     | 215.77   | 19.02     | 79.80    |
|             |     |                 |           | 64QAM      | 22.36     | 172.19   |           |          |
|             |     |                 |           | 256QAM     | 19.29     | 84.92    |           |          |
|             |     | 816.50 ~ 821.50 | 5         | QPSK       | 24.07     | 255.27   | 19.79     | 95.28    |
|             |     |                 |           | 16QAM      | 23.27     | 212.32   | 19.04     | 80.17    |
|             |     |                 |           | 64QAM      | 22.32     | 170.61   |           |          |
|             |     |                 |           | 256QAM     | 19.24     | 83.95    |           |          |
|             |     | 815.50 ~ 822.50 | 3         | QPSK       | 24.10     | 257.04   | 19.90     | 97.72    |
|             |     |                 |           | 16QAM      | 23.46     | 221.82   | 19.31     | 85.31    |
|             |     |                 |           | 64QAM      | 22.43     | 174.98   |           |          |
|             |     |                 |           | 256QAM     | 19.20     | 83.18    |           |          |
|             |     | 814.70 ~ 823.30 | 1.4       | QPSK       | 24.02     | 252.35   | 19.90     | 97.72    |
|             |     |                 |           | 16QAM      | 23.26     | 211.84   | 19.19     | 82.99    |
|             |     |                 |           | 64QAM      | 22.24     | 167.49   |           |          |
|             |     |                 |           | 256QAM     | 19.29     | 84.92    |           |          |

**LTE Band 26 (Straddle)**

| Straddle |     |                 |           |            |           |          |           |          |
|----------|-----|-----------------|-----------|------------|-----------|----------|-----------|----------|
| Band     | ANT | Frequency Range | BandWidth | Modulation | Conducted |          | Radiated  |          |
|          |     | [MHz]           | [MHz]     |            | Avg [dBm] | Avg [mW] | Avg [dBm] | Avg [mW] |
| Band 26  | A   | 824.00          | 15        | QPSK       | 23.92     | 246.60   | 16.01     | 39.90    |
|          |     |                 |           | 16QAM      | 23.18     | 207.97   | 15.18     | 32.96    |
|          |     |                 |           | 64QAM      | 22.00     | 158.49   |           |          |
|          |     |                 |           | 256QAM     | 19.11     | 81.47    |           |          |
|          |     |                 | 10        | QPSK       | 23.97     | 249.46   | 16.06     | 40.36    |
|          |     |                 |           | 16QAM      | 23.10     | 204.17   | 15.10     | 32.36    |
|          |     |                 |           | 64QAM      | 22.14     | 163.68   |           |          |
|          |     |                 |           | 256QAM     | 19.15     | 82.22    |           |          |
|          |     |                 | 5         | QPSK       | 23.91     | 246.04   | 16.00     | 39.81    |
|          |     |                 |           | 16QAM      | 23.33     | 215.28   | 15.33     | 34.12    |
|          |     |                 |           | 64QAM      | 22.10     | 162.18   |           |          |
|          |     |                 |           | 256QAM     | 19.09     | 81.10    |           |          |
|          |     |                 | 3         | QPSK       | 23.96     | 248.89   | 16.05     | 40.27    |
|          |     |                 |           | 16QAM      | 23.06     | 202.30   | 15.06     | 32.06    |
|          |     |                 |           | 64QAM      | 22.09     | 161.81   |           |          |
|          |     |                 |           | 256QAM     | 19.02     | 79.80    |           |          |
|          |     |                 | 1.4       | QPSK       | 23.89     | 244.91   | 15.98     | 39.63    |
|          |     |                 |           | 16QAM      | 23.17     | 207.49   | 15.17     | 32.89    |
|          |     |                 |           | 64QAM      | 22.19     | 165.58   |           |          |
|          |     |                 |           | 256QAM     | 19.06     | 80.54    |           |          |
| Straddle |     |                 |           |            |           |          |           |          |
| Band     | ANT | Frequency Range | BandWidth | Modulation | Conducted |          | Radiated  |          |
|          |     | [MHz]           | [MHz]     |            | Avg [dBm] | Avg [mW] | Avg [dBm] | Avg [mW] |
| Band 26  | E   | 824.00          | 15        | QPSK       | 24.06     | 254.68   | 19.73     | 93.97    |
|          |     |                 |           | 16QAM      | 23.22     | 209.89   | 18.78     | 75.51    |
|          |     |                 |           | 64QAM      | 22.21     | 166.34   |           |          |
|          |     |                 |           | 256QAM     | 19.48     | 88.72    |           |          |
|          |     |                 | 10        | QPSK       | 24.14     | 259.42   | 19.81     | 95.72    |
|          |     |                 |           | 16QAM      | 23.27     | 212.32   | 18.83     | 76.38    |
|          |     |                 |           | 64QAM      | 22.28     | 169.04   |           |          |
|          |     |                 |           | 256QAM     | 19.42     | 87.50    |           |          |
|          |     |                 | 5         | QPSK       | 24.11     | 257.63   | 19.78     | 95.06    |
|          |     |                 |           | 16QAM      | 23.33     | 215.28   | 18.89     | 77.45    |
|          |     |                 |           | 64QAM      | 22.28     | 169.04   |           |          |
|          |     |                 |           | 256QAM     | 19.11     | 81.47    |           |          |
|          |     |                 | 3         | QPSK       | 24.08     | 255.86   | 19.75     | 94.41    |
|          |     |                 |           | 16QAM      | 23.23     | 210.38   | 18.79     | 75.68    |
|          |     |                 |           | 64QAM      | 22.27     | 168.66   |           |          |
|          |     |                 |           | 256QAM     | 19.29     | 84.92    |           |          |
|          |     |                 | 1.4       | QPSK       | 23.99     | 250.61   | 19.66     | 92.47    |
|          |     |                 |           | 16QAM      | 23.38     | 217.77   | 18.94     | 78.34    |
|          |     |                 |           | 64QAM      | 22.32     | 170.61   |           |          |
|          |     |                 |           | 256QAM     | 19.31     | 85.31    |           |          |

**LTE Band 26 (Part 22)**

| FCC Part 22 |     |                 |           |            |           |          |           |          |
|-------------|-----|-----------------|-----------|------------|-----------|----------|-----------|----------|
| Band        | ANT | Frequency Range | BandWidth | Modulation | Conducted |          | Radiated  |          |
|             |     | [MHz]           | [MHz]     |            | Avg [dBm] | Avg [mW] | Avg [dBm] | Avg [mW] |
| Band 26     | A   | 831.50 ~ 841.50 | 15        | QPSK       | 23.89     | 244.91   | 17.20     | 52.48    |
|             |     |                 |           | 16QAM      | 23.04     | 201.37   | 16.39     | 43.55    |
|             |     |                 |           | 64QAM      | 22.18     | 165.20   |           |          |
|             |     |                 |           | 256QAM     | 19.26     | 84.33    |           |          |
|             |     | 829.00 ~ 844.00 | 10        | QPSK       | 23.97     | 249.46   | 16.91     | 49.09    |
|             |     |                 |           | 16QAM      | 23.11     | 204.64   | 16.34     | 43.05    |
|             |     |                 |           | 64QAM      | 22.20     | 165.96   |           |          |
|             |     |                 |           | 256QAM     | 19.09     | 81.10    |           |          |
|             |     | 826.50 ~ 846.50 | 5         | QPSK       | 23.96     | 248.89   | 16.54     | 45.08    |
|             |     |                 |           | 16QAM      | 23.17     | 207.49   | 16.03     | 40.09    |
|             |     |                 |           | 64QAM      | 22.16     | 164.44   |           |          |
|             |     |                 |           | 256QAM     | 19.16     | 82.41    |           |          |
|             |     | 825.50 ~ 847.50 | 3         | QPSK       | 23.96     | 248.89   | 16.51     | 44.77    |
|             |     |                 |           | 16QAM      | 23.33     | 215.28   | 15.85     | 38.46    |
|             |     |                 |           | 64QAM      | 22.26     | 168.27   |           |          |
|             |     |                 |           | 256QAM     | 19.28     | 84.72    |           |          |
|             |     | 824.70 ~ 848.30 | 1.4       | QPSK       | 23.87     | 243.78   | 16.45     | 44.16    |
|             |     |                 |           | 16QAM      | 23.19     | 208.45   | 16.14     | 41.11    |
|             |     |                 |           | 64QAM      | 22.15     | 164.06   |           |          |
|             |     |                 |           | 256QAM     | 19.16     | 82.41    |           |          |

| FCC Part 22 |     |                 |           |            |           |          |           |          |
|-------------|-----|-----------------|-----------|------------|-----------|----------|-----------|----------|
| Band        | ANT | Frequency Range | BandWidth | Modulation | Conducted |          | Radiated  |          |
|             |     | [MHz]           | [MHz]     |            | Avg [dBm] | Avg [mW] | Avg [dBm] | Avg [mW] |
| Band 26     | E   | 831.50 ~ 841.50 | 15        | QPSK       | 24.08     | 255.86   | 21.30     | 134.90   |
|             |     |                 |           | 16QAM      | 23.21     | 209.41   | 20.54     | 113.24   |
|             |     |                 |           | 64QAM      | 22.39     | 173.38   |           |          |
|             |     |                 |           | 256QAM     | 19.42     | 87.50    |           |          |
|             |     | 829.00 ~ 844.00 | 10        | QPSK       | 24.15     | 260.02   | 21.15     | 130.32   |
|             |     |                 |           | 16QAM      | 23.36     | 216.77   | 20.34     | 108.14   |
|             |     |                 |           | 64QAM      | 22.60     | 181.97   |           |          |
|             |     |                 |           | 256QAM     | 19.46     | 88.31    |           |          |
|             |     | 826.50 ~ 846.50 | 5         | QPSK       | 24.10     | 257.04   | 20.88     | 122.46   |
|             |     |                 |           | 16QAM      | 23.25     | 211.35   | 20.21     | 104.95   |
|             |     |                 |           | 64QAM      | 22.28     | 169.04   |           |          |
|             |     |                 |           | 256QAM     | 19.38     | 86.70    |           |          |
|             |     | 825.50 ~ 847.50 | 3         | QPSK       | 24.09     | 256.45   | 20.84     | 121.34   |
|             |     |                 |           | 16QAM      | 23.31     | 214.29   | 20.11     | 102.57   |
|             |     |                 |           | 64QAM      | 22.48     | 177.01   |           |          |
|             |     |                 |           | 256QAM     | 19.49     | 88.92    |           |          |
|             |     | 824.70 ~ 848.30 | 1.4       | QPSK       | 24.06     | 254.68   | 20.64     | 115.88   |
|             |     |                 |           | 16QAM      | 23.29     | 213.30   | 20.03     | 100.69   |
|             |     |                 |           | 64QAM      | 22.53     | 179.06   |           |          |
|             |     |                 |           | 256QAM     | 19.38     | 86.70    |           |          |

**NR Band n5**

| FCC Part 22 |     |                 |           |            |          |           |          |           |          |  |
|-------------|-----|-----------------|-----------|------------|----------|-----------|----------|-----------|----------|--|
| Band        | ANT | Frequency Range | BandWidth | Modulation | Mode     | Conducted |          | Radiated  |          |  |
|             |     | [MHz]           | [MHz]     |            |          | Avg [dBm] | Avg [mW] | Avg [dBm] | Avg [mW] |  |
| n5          | A   | 834.00 - 839.00 | 20        | DFT-s OFDM | π/2 BPSK | 23.78     | 238.78   |           |          |  |
|             |     |                 |           |            | QPSK     | 23.78     | 238.78   | 17.94     | 62.23    |  |
|             |     |                 |           |            | 16QAM    | 22.86     | 193.20   | 17.11     | 51.40    |  |
|             |     |                 |           |            | 64QAM    | 21.36     | 136.77   |           |          |  |
|             |     |                 |           | CP-OFDM    | 256QAM   | 19.46     | 88.31    |           |          |  |
|             |     |                 |           |            | QPSK     | 22.57     | 180.72   |           |          |  |
|             |     |                 |           |            | 16QAM    | 22.28     | 169.04   |           |          |  |
|             |     |                 |           |            | 64QAM    | 20.44     | 110.66   |           |          |  |
|             |     |                 |           |            | 256QAM   | 17.49     | 56.10    |           |          |  |
|             |     | 831.50 - 841.50 | 15        | DFT-s OFDM | π/2 BPSK | 23.79     | 239.33   |           |          |  |
|             |     |                 |           |            | QPSK     | 23.79     | 239.33   | 17.94     | 62.23    |  |
|             |     |                 |           |            | 16QAM    | 22.89     | 194.54   | 16.98     | 49.89    |  |
|             |     |                 |           |            | 64QAM    | 20.63     | 115.61   |           |          |  |
|             |     |                 |           | CP-OFDM    | 256QAM   | 19.65     | 92.26    |           |          |  |
|             |     |                 |           |            | QPSK     | 22.42     | 174.58   |           |          |  |
|             |     |                 |           |            | π/2 BPSK | 23.80     | 239.88   |           |          |  |
|             |     |                 |           |            | QPSK     | 23.81     | 240.44   | 17.82     | 60.53    |  |
|             |     |                 |           |            | 16QAM    | 22.82     | 191.43   | 16.73     | 47.10    |  |
|             |     | 829.00 - 844.00 | 10        | DFT-s OFDM | 64QAM    | 20.57     | 114.02   |           |          |  |
|             |     |                 |           |            | 256QAM   | 19.45     | 88.10    |           |          |  |
|             |     |                 |           |            | CP-OFDM  | QPSK      | 22.38    | 172.98    |          |  |
|             |     |                 |           |            |          | π/2 BPSK  | 23.76    | 237.68    |          |  |
|             |     |                 |           | QPSK       |          | 23.72     | 235.50   | 17.70     | 58.88    |  |
|             |     |                 |           | DFT-s OFDM | 16QAM    | 22.86     | 193.20   | 16.54     | 45.08    |  |
|             |     |                 |           |            | 64QAM    | 20.68     | 116.95   |           |          |  |
|             |     |                 |           |            | 256QAM   | 19.47     | 88.51    |           |          |  |
|             |     |                 |           |            | CP-OFDM  | QPSK      | 22.45    | 175.79    |          |  |
| FCC Part 22 |     |                 |           |            |          |           |          |           |          |  |
| Band        | ANT | Frequency Range | BandWidth | Modulation | Mode     | Conducted |          | Radiated  |          |  |
|             |     | [MHz]           | [MHz]     |            |          | Avg [dBm] | Avg [mW] | Avg [dBm] | Avg [mW] |  |
| n5          | E   | 834.00 - 839.00 | 20        | DFT-s OFDM | π/2 BPSK | 23.98     | 250.03   |           |          |  |
|             |     |                 |           |            | QPSK     | 24.10     | 257.04   | 23.01     | 199.99   |  |
|             |     |                 |           |            | 16QAM    | 23.07     | 202.77   | 21.86     | 153.46   |  |
|             |     |                 |           |            | 64QAM    | 21.20     | 131.83   |           |          |  |
|             |     |                 |           | CP-OFDM    | 256QAM   | 19.65     | 92.26    |           |          |  |
|             |     |                 |           |            | QPSK     | 22.70     | 186.21   |           |          |  |
|             |     |                 |           |            | 16QAM    | 22.23     | 167.11   |           |          |  |
|             |     |                 |           |            | 64QAM    | 20.41     | 109.90   |           |          |  |
|             |     |                 |           |            | 256QAM   | 17.37     | 54.58    |           |          |  |
|             |     | 831.50 - 841.50 | 15        | DFT-s OFDM | π/2 BPSK | 24.11     | 257.63   |           |          |  |
|             |     |                 |           |            | QPSK     | 24.12     | 258.23   | 23.12     | 205.12   |  |
|             |     |                 |           |            | 16QAM    | 23.29     | 213.30   | 21.82     | 152.05   |  |
|             |     |                 |           |            | 64QAM    | 21.04     | 127.06   |           |          |  |
|             |     |                 |           | CP-OFDM    | 256QAM   | 19.56     | 90.36    |           |          |  |
|             |     |                 |           |            | QPSK     | 22.88     | 194.09   |           |          |  |
|             |     |                 |           |            | π/2 BPSK | 24.08     | 255.86   |           |          |  |
|             |     |                 |           |            | QPSK     | 24.06     | 254.68   | 23.18     | 207.97   |  |
|             |     | 829.00 - 844.00 | 10        | DFT-s OFDM | 16QAM    | 23.29     | 213.30   | 21.96     | 157.04   |  |
|             |     |                 |           |            | 64QAM    | 20.93     | 123.88   |           |          |  |
|             |     |                 |           |            | 256QAM   | 19.60     | 91.20    |           |          |  |
|             |     |                 |           |            | CP-OFDM  | QPSK      | 22.84    | 192.31    |          |  |
|             |     |                 |           | DFT-s OFDM | π/2 BPSK | 24.04     | 253.51   |           |          |  |
|             |     |                 |           |            | QPSK     | 24.03     | 252.93   | 23.14     | 206.06   |  |
|             |     |                 |           |            | 16QAM    | 23.18     | 207.97   | 21.85     | 153.11   |  |
|             |     |                 |           |            | 64QAM    | 21.05     | 127.35   |           |          |  |
|             |     |                 |           |            | 256QAM   | 19.54     | 89.95    |           |          |  |
|             |     | CP-OFDM         | QPSK      | 22.74      | 187.93   |           |          |           |          |  |

### 5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a internal antenna for the supported bands with a maximum peak gain as follow:

| Frequency (MHz)                                                      | ANT | Peak Gain (dBd) |
|----------------------------------------------------------------------|-----|-----------------|
| GSM850 / WCDMA Band 5 / LTE Band 5, 26 / NR Band n5<br>814 - 849 MHz | A   | -4.5            |
|                                                                      | E   | -3.2            |

### 5.4. WORST-CASE ORIENTATION

Following modes should be considered as worst-case scenario for all other measurements.

- GSM GPRS/EGPRS**  
 The worst-case scenario for all measurements is based on the average conducted output power measurement investigation results. Output power measurements were measured on GPRS and EGPRS modulations. It was found GPRS results were worst case.
- UMTS REL 99/HSDPA**  
 The worst-case scenario for all measurements is based on the average conducted output power measurement investigation results. Output power measurements were measured on REL 99 and HSDPA modulations. It was found REL 99 results were worst case.
- LTE Bands**  
 The worst-case scenario for all measurements is based on the average conducted output power measurement investigation results. Output power measurements were measured on QPSK, 16QAM, 64QAM and 256QAM modulations. It was found QPSK and 16QAM results were worst case.
- As for the Antenna Switching supported ASDIV (Antenna Switching Diversity) conditions. Only the Tx trigger is different and there is no difference in the results regarding the method. It has been verified. ASDIV can be implemented through the application provided by the manufacturer.

| Band   | Antenna Switching |
|--------|-------------------|
| LTE B5 | ASDIV             |

- It was tested for all rf ports and, 'Main ANT' conducted test power is the same or higher than 'Sub ANT', so we reported with 'Main ANT'. ('Main ANT : LTE B26')
- So the test case is as below.

| Band    | Main ANT | Tune up Limit (dBm) | Sub ANT | Tune up Limit (dBm) |
|---------|----------|---------------------|---------|---------------------|
| LTE B26 | E        | 25.0                | A       | 25.0                |

| Test Item                   | Test case antenna & port  |
|-----------------------------|---------------------------|
| Conducted output power      | All                       |
| RF port test                | All (Worst case reported) |
| ERP                         | All                       |
| Radiated Spurious Emissions | All                       |

- NR n5  
The worst-case scenario for all measurements is based on the average conducted output power measurement investigation results. Output power measurements were measured on  $\pi/2$  BPSK, QPSK, 16QAM, 64QAM and 256QAM modulations. It was found QPSK and 16QAM results were worst case.
- As for the Antenna Switching supported ASDIV (Antenna Switching Diversity) conditions. Only the Tx trigger is different and there is no difference in the results regarding the method. It has been verified. ASDIV can be implemented through the application provided by the manufacturer.

| Band  | Antenna Switching |
|-------|-------------------|
| NR n5 | ASDIV             |

This device supports NSA and SA Mode and Worst case reported.  
So the test case is as below.

| NR Band | NSA        | SA                 |
|---------|------------|--------------------|
| NR n5   | LTE B2, 66 | <u>Stand Alone</u> |

- It was tested for all rf ports and, 'Main ANT' conducted test power is the same or higher than 'Sub ANT', so we reported with 'Main ANT'.
- So the test case is as below.

| Band  | Main ANT | Tune up Limit (dBm) | Sub ANT | Tune up Limit (dBm) |
|-------|----------|---------------------|---------|---------------------|
| NR n5 | <u>E</u> | <u>25.0</u>         | A       | 25.0                |

| Test Item                   | Test case antenna & port  |
|-----------------------------|---------------------------|
| Conducted output power      | All                       |
| RF port test                | All (Worst case reported) |
| ERP                         | All                       |
| Radiated Spurious Emissions | All                       |

### LTE Band 5

LTE Band 5 (Frequency range: 824-849 MHz) is covered by LTE Band 26 (Frequency range: 814-849 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

● Conducted Spurious Emission

| Highest conducted output power setting for each bands |     |                 |                 |                    |         |           |
|-------------------------------------------------------|-----|-----------------|-----------------|--------------------|---------|-----------|
| LTE Band                                              | ANT | Frequency (MHz) | Bandwidth (MHz) | Modulation         | RB size | RB offset |
| 26                                                    | E   | 815.5           | 3               | QPSK               | 1       | 8         |
|                                                       |     | 822.5           |                 |                    | 1       | 8         |
|                                                       |     | 824.0           | 10              | QPSK               | 1       | 25        |
|                                                       |     | 829.0           | 10              | QPSK               | 1       | 0         |
|                                                       |     | 831.5           |                 |                    | 1       | 25        |
|                                                       |     | 844.0           |                 |                    | 1       | 49        |
| NR Band                                               | ANT | Frequency (MHz) | Bandwidth (MHz) | Modulation         | RB size | RB offset |
| 5                                                     | E   | 831.5           | 15              | DFT-s OFDM<br>QPSK | 1       | 39        |
|                                                       |     | 836.5           |                 |                    | 1       | 1         |
|                                                       |     | 841.5           |                 |                    | 1       | 76        |

● Radiated Spurious Emission

| Highest ERP setting for each bands |     |                 |                 |                    |         |           |
|------------------------------------|-----|-----------------|-----------------|--------------------|---------|-----------|
| LTE Band                           | ANT | Frequency (MHz) | Bandwidth (MHz) | Modulation         | RB size | RB offset |
| 26                                 | A   | 815.5           | 3               | QPSK               | 1       | 0         |
|                                    |     | 822.5           |                 |                    | 1       | 0         |
|                                    |     | 824.0           | 10              | QPSK               | 1       | 0         |
|                                    |     | 831.5           | 15              | QPSK               | 1       | 74        |
|                                    |     | 836.5           |                 |                    | 1       | 74        |
|                                    |     | 841.5           |                 |                    | 1       | 74        |
| 26                                 | E   | 815.5           | 3               | QPSK               | 1       | 12        |
|                                    |     | 822.5           |                 |                    | 1       | 12        |
|                                    |     | 824.0           | 10              | QPSK               | 1       | 25        |
|                                    |     | 831.5           | 15              | QPSK               | 1       | 0         |
|                                    |     | 836.5           |                 |                    | 1       | 74        |
|                                    |     | 841.5           |                 |                    | 1       | 74        |
| NR Band                            | ANT | Frequency (MHz) | Bandwidth (MHz) | Modulation         | RB size | RB offset |
| 5                                  | A   | 831.5           | 15              | DFT-s OFDM<br>QPSK | 1       | 53        |
|                                    |     | 836.5           |                 |                    | 1       | 53        |
|                                    |     | 841.5           |                 |                    | 1       | 53        |
| 5                                  | E   | 829.0           | 10              | DFT-s OFDM<br>QPSK | 1       | 1         |
|                                    |     | 836.5           |                 |                    | 1       | 1         |
|                                    |     | 844.0           |                 |                    | 1       | 1         |

The fundamental and radiated spurious emission were investigated in three orthogonal orientations X, Y and Z it was determined that below orientation was worst-case orientation for each band.

| Band     | ANT | ERP |   |   | RSE |   |   |
|----------|-----|-----|---|---|-----|---|---|
|          |     | X   | Y | Z | X   | Y | Z |
| GSM 850  | A   | -   | - | O | O   | - | - |
| GSM 850  | E   | -   | - | O | O   | - | - |
| WCDMA B5 | A   | -   | - | O | -   | - | O |
| WCDMA B5 | E   | -   | - | O | O   | - | - |
| LTE B26  | A   | -   | - | O | O   | - | - |
| LTE B26  | E   | -   | - | O | -   | - | O |
| NR n5    | A   | -   | - | O | -   | - | O |
| NR n5    | E   | -   | - | O | O   | - | - |

Note1 : For the radiated spurious testing, the EUT attached with travel adapter for the worst case condition. The EUT is continuously communicated with the call box during the tests.

## 5.5. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

| Support Equipment List |             |          |                |        |
|------------------------|-------------|----------|----------------|--------|
| Description            | Manufacture | Model    | Serial Number  | FCC ID |
| Charger                | SAMSUNG     | EP-T2510 | RF7X1YF85Z1DKA | N/A    |
| Data Cable             | SAMSUNG     | EP-DN980 | N/A            | N/A    |

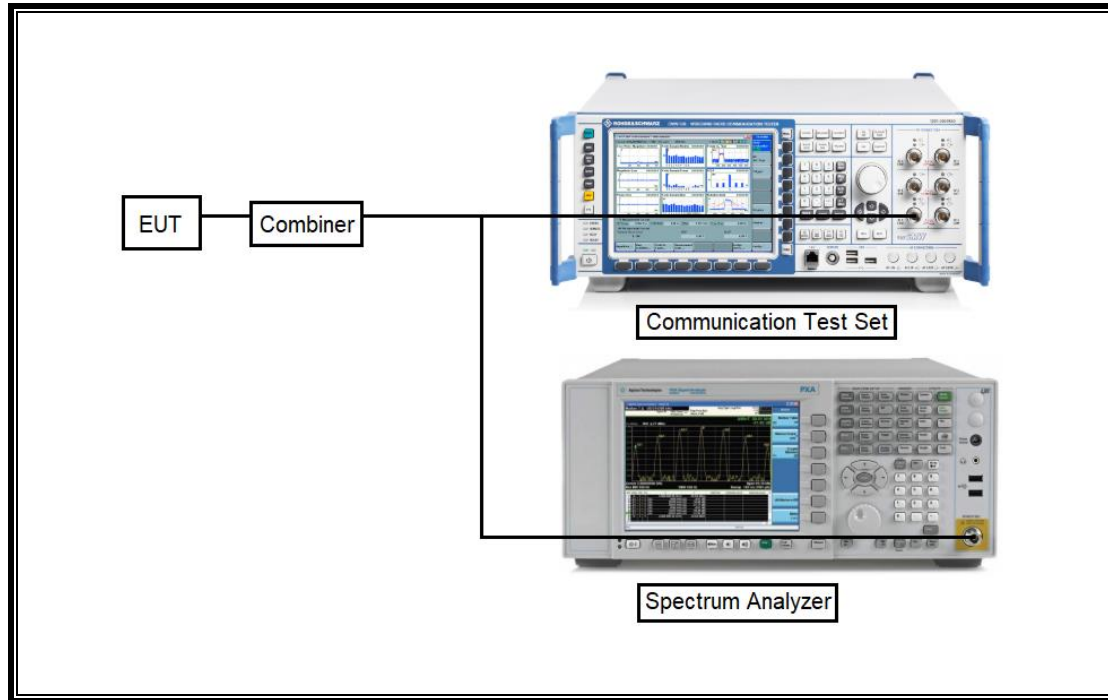
### I/O CABLE

| I/O Cable List |          |                      |                |            |                  |         |
|----------------|----------|----------------------|----------------|------------|------------------|---------|
| Cable No.      | Port     | # of identical ports | Connector Type | Cable Type | Cable Length (m) | Remarks |
| 1              | DC Power | 1                    | C Type         | Shielded   | 1.0 m            | N/A     |

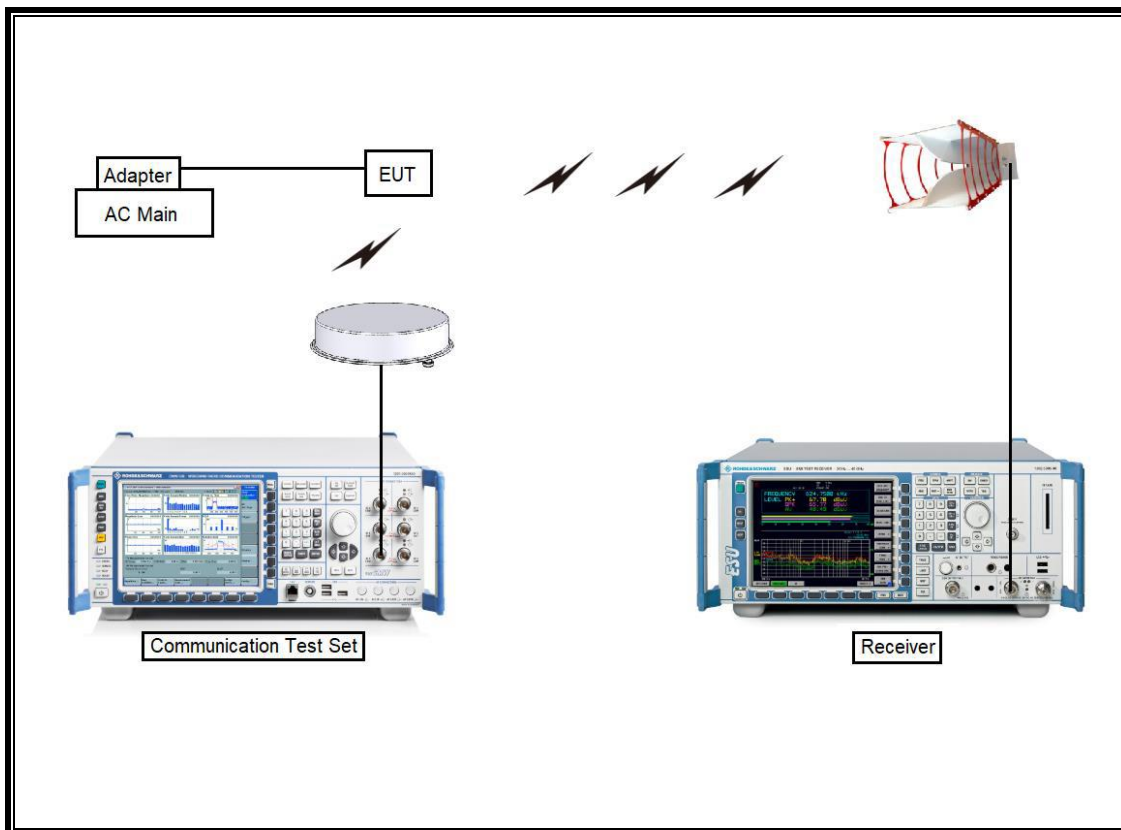
### TEST SETUP

The EUT is continuously communicated with the call box during the tests.

**SETUP DIAGRAM FOR TESTS (CONDUCTED TEST SETUP)**



**SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)**



## 6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

| Test Equipment List                |                       |                            |             |            |
|------------------------------------|-----------------------|----------------------------|-------------|------------|
| Description                        | Manufacturer          | Model                      | S/N         | Cal Due    |
| Antenna, Tuned Dipole 400~1000 MHz | ETS                   | 3121D DB-4                 | 00164753    | 2027-01-08 |
| Directional Antenna                | Cobham                | FPA3-0.8-6.0R/1329         | 110367-0003 | N/A        |
| Directional Antenna                | Cobham                | FPA3-0.8-6.0R/1329         | 80108-0004  | N/A        |
| Antenna, Horn, 40 GHz              | ETS                   | 3116C                      | 00166155    | 2026-07-23 |
| Antenna, Horn, 40 GHz              | ETS                   | 3116C                      | 00168645    | 2025-10-06 |
| Preamplifier                       | ETS                   | 3116C-PA                   | 00168841    | 2025-07-25 |
| Antenna, Bilog, 30MHz-1GHz         | SCHWARZBECK           | VULB 9163                  | 750         | 2026-07-30 |
| Antenna, Bilog, 30MHz-1GHz         | SCHWARZBECK           | VULB 9163                  | 845         | 2026-07-30 |
| Antenna, Bilog, 30MHz-1GHz         | SCHWARZBECK           | VULB 9163                  | 749         | 2026-08-12 |
| Antenna, Horn, 18 GHz              | ETS                   | 3115                       | 00167211    | 2026-07-17 |
| Antenna, Horn, 18 GHz              | ETS                   | 3115                       | 00161451    | 2026-07-17 |
| Antenna, Horn, 18 GHz              | ETS                   | 3117                       | 00168724    | 2026-07-17 |
| Antenna, Horn, 18 GHz              | ETS                   | 3117                       | 00168717    | 2026-07-17 |
| Communications Test Set            | R&S                   | CMW500                     | 169797      | 2025-07-23 |
| DC Power Supply                    | Agilent / HP          | E3640A                     | MY54226395  | 2025-07-24 |
| Preamplifier, 1000 MHz             | Sonoma                | 310N                       | 341282      | 2025-07-22 |
| Preamplifier, 1000 MHz             | Sonoma                | 310N                       | 370599      | 2025-07-22 |
| Preamplifier, 1000 MHz             | Sonoma                | 310N                       | 351741      | 2025-07-22 |
| Preamplifier, 18 GHz               | Miteq                 | AFS42-00101800-25-S-42     | 2029169     | 2025-07-23 |
| Preamplifier, 18 GHz               | B&Z Technologies, LLC | BZR-01001800-231040-182020 | 28451       | 2025-07-22 |
| Preamplifier, 18 GHz               | B&Z Technologies, LLC | BZR-01001800-231040-181515 | 23576       | 2025-07-25 |
| Spectrum Analyzer, 44 GHz          | Agilent / HP          | N9030A                     | MY54170614  | 2025-07-24 |
| Spectrum Analyzer, 44 GHz          | Agilent / HP          | N9030A                     | MY54490312  | 2026-01-02 |
| Spectrum Analyzer, 44 GHz          | KEYSIGHT              | N9030B                     | MY57143717  | 2025-07-23 |
| EMI Test Receive, 40 GHz           | R&S                   | ESU40                      | 100439      | 2025-07-23 |
| EMI Test Receive, 40 GHz           | R&S                   | ESU40                      | 100457      | 2025-07-22 |
| High Pass Filter 1.2GHz            | Micro-Tronics         | HPM50108-02                | G005        | 2025-07-23 |
| High Pass Filter 1.2GHz            | Micro-Tronics         | HPM50108-02                | G006        | 2025-07-23 |
| High Pass Filter 2.8GHz            | Micro-Tronics         | HPM50111-02                | 010         | 2025-07-23 |
| High Pass Filter 2.8GHz            | Micro-Tronics         | HPM50111-02                | 011         | 2025-07-23 |
| High Pass Filter 4GHz              | Micro-Tronics         | HPM50118-02                | G001        | 2025-07-23 |
| High Pass Filter 4GHz              | Micro-Tronics         | HPM50118-02                | G002        | 2025-07-23 |
| Attenuator                         | PASTERNAK             | PE7087-10                  | A009        | 2025-07-23 |
| Attenuator                         | PASTERNAK             | PE7087-10                  | A001        | 2025-07-23 |
| Attenuator                         | PASTERNAK             | PE7087-10                  | A008        | 2025-07-23 |
| Attenuator                         | PASTERNAK             | PE7004-10                  | 2           | 2025-07-23 |
| Attenuator                         | PASTERNAK             | PE7395-10                  | A011        | 2025-07-25 |
| Antenna, Loop, 9kHz-30MHz          | R&S                   | HFH2-Z2                    | 100418      | 2025-09-07 |
| Temperature Chamber                | ESPEC                 | SH-642                     | 93001109    | 2025-07-23 |
| Power Splitter                     | MINI-CIRCUITS         | WA1534                     | UL003       | 2026-01-03 |
| Power Splitter                     | MINI-CIRCUITS         | WA1534                     | UL004       | 2026-01-03 |
| UXM 5G Wireless Test Platform      | KEYSIGHT              | E7515B                     | MY57510655  | 2026-01-03 |
| UL Software                        |                       |                            |             |            |
| Description                        | Manufacturer          | Model                      | Version     |            |
| Antenna port test software         | UL                    | CLT                        | Ver 3.4     |            |
| Radiated software                  | UL                    | UL EMC                     | Ver 9.5     |            |

## 7. SUMMARY TABLE

| FCC Part Section                    | Test Description                                     | Test Limit    | Test Condition | Test Results |
|-------------------------------------|------------------------------------------------------|---------------|----------------|--------------|
| 2.1046                              | Conducted Output Power                               | N/A           | Conducted      | Pass         |
| 2.1049                              | Occupied Bandwidth (99%)                             | N/A           |                | Pass         |
| 22.917(a)                           | Conducted Band Edge /<br>Conducted Spurious Emission | -13 dBm       |                | Pass         |
| 90.543(e)                           |                                                      | -35 dBm       |                |              |
| 90.691                              | Emission Mask                                        | Section 8.4.1 |                | Pass         |
| 22.355<br>90.213                    | Frequency Stability                                  | 2.5 ppm       |                | Pass         |
| 22.913(a)(5)                        | Effective Radiated Power                             | 38.5 dBm      | Radiated       | Pass         |
| 90.542(a)(7)                        |                                                      | 34.77 dBm     |                |              |
| 90.635(b)                           |                                                      | 50 dBm        |                |              |
| 22.917(a)<br>90.543(e)<br>90.691(a) | Radiated Spurious Emission                           | -13 dBm       |                | Pass         |

## 8. CONDUCTED RESULTS

### 8.1. CONDUCTED OUTPUT POWER

#### Test Procedure

Per KDB 971168 D01 Power Meas License Digital Systems v03r01;

The transmitter output was connected to either CMW500 Test Set or E7515B Test set and configured to operate at maximum power.

#### NOTE

5G NR: All Waveforms (CP-OFDM vs DFT-s\_OFDM) and modulations ( $\pi/2$  BPSK, QPSK, 16QAM, 64QAM, 256QAM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

#### RESULTS

See the following pages.

### 8.1.1. CONDUCTED AVERAGE OUTPUT POWER

#### GSM (ANT A)

| Mode         | Coding Scheme | Time Slots | Maximum Average Power (dBm) |           |               |           |
|--------------|---------------|------------|-----------------------------|-----------|---------------|-----------|
|              |               |            | Measured                    |           | Tune-up Limit |           |
|              |               |            | Burst Pwr                   | Frame Pwr | Burst Pwr     | Frame Pwr |
| GSM (Voice)  | CS1           | 1          | 32.58                       | 23.39     | 33.5          | 24.3      |
|              |               |            | <b>32.88</b>                | 23.69     |               |           |
|              |               |            | 32.65                       | 23.46     |               |           |
| GPRS (GMSK)  | CS1           | 1          | 32.52                       | 23.33     | 33.5          | 24.3      |
|              |               |            | 32.76                       | 23.57     |               |           |
|              |               |            | 32.50                       | 23.31     |               |           |
|              |               | 2          | 29.94                       | 23.76     | 31.0          | 24.8      |
|              |               |            | 30.89                       | 24.71     |               |           |
|              |               |            | 30.72                       | 24.54     |               |           |
|              |               | 3          | 29.06                       | 24.64     | 29.5          | 25.1      |
|              |               |            | 29.06                       | 24.64     |               |           |
|              |               |            | 28.84                       | 24.42     |               |           |
|              |               | 4          | 27.05                       | 23.88     | 28.0          | 24.8      |
|              |               |            | 27.56                       | 24.39     |               |           |
|              |               |            | 27.05                       | 23.88     |               |           |
| EGPRS (8PSK) | MCS5          | 1          | 25.94                       | 16.75     | 28.0          | 18.8      |
|              |               |            | 26.34                       | 17.15     |               |           |
|              |               |            | 25.69                       | 16.50     |               |           |
|              |               | 2          | 24.73                       | 18.55     | 26.0          | 19.8      |
|              |               |            | 25.14                       | 18.96     |               |           |
|              |               |            | 24.50                       | 18.32     |               |           |
|              |               | 3          | 22.61                       | 18.19     | 24.0          | 19.6      |
|              |               |            | 22.71                       | 18.29     |               |           |
|              |               |            | 22.39                       | 17.97     |               |           |
|              |               | 4          | 21.82                       | 18.65     | 23.0          | 19.8      |
|              |               |            | 22.10                       | 18.93     |               |           |
|              |               |            | 21.60                       | 18.43     |               |           |

**GSM (ANT E)**

| Mode         | Coding Scheme | Time Slots | Maximum Average Power (dBm) |           |               |           |
|--------------|---------------|------------|-----------------------------|-----------|---------------|-----------|
|              |               |            | Measured                    |           | Tune-up Limit |           |
|              |               |            | Burst Pwr                   | Frame Pwr | Burst Pwr     | Frame Pwr |
| GSM (Voice)  | CS1           | 1          | 32.39                       | 23.20     | 33.5          | 24.3      |
|              |               |            | <b>32.69</b>                | 23.50     |               |           |
|              |               |            | 32.47                       | 23.28     |               |           |
| GPRS (GMSK)  | CS1           | 1          | 32.38                       | 23.19     | 33.5          | 24.3      |
|              |               |            | 32.59                       | 23.40     |               |           |
|              |               |            | 32.32                       | 23.13     |               |           |
|              |               | 2          | 30.94                       | 24.76     | 31.0          | 24.8      |
|              |               |            | 30.90                       | 24.72     |               |           |
|              |               |            | 30.13                       | 23.95     |               |           |
|              |               | 3          | 28.80                       | 24.38     | 29.5          | 25.1      |
|              |               |            | 29.23                       | 24.81     |               |           |
|              |               |            | 28.99                       | 24.57     |               |           |
|              |               | 4          | 26.69                       | 23.52     | 28.0          | 24.8      |
|              |               |            | 27.72                       | 24.55     |               |           |
|              |               |            | 27.20                       | 24.03     |               |           |
| EGPRS (8PSK) | MCS5          | 1          | 26.35                       | 17.16     | 28.0          | 18.8      |
|              |               |            | 26.37                       | 17.18     |               |           |
|              |               |            | 26.11                       | 16.92     |               |           |
|              |               | 2          | 25.15                       | 18.97     | 26.0          | 19.8      |
|              |               |            | 25.14                       | 18.96     |               |           |
|              |               |            | 24.86                       | 18.68     |               |           |
|              |               | 3          | 22.88                       | 18.46     | 24.0          | 19.6      |
|              |               |            | 22.84                       | 18.42     |               |           |
|              |               |            | 22.94                       | 18.52     |               |           |
|              |               | 4          | 22.05                       | 18.88     | 23.0          | 19.8      |
|              |               |            | 22.49                       | 19.32     |               |           |
|              |               |            | 21.95                       | 18.78     |               |           |

**WCDMA B5 (ANT A)**

| Mode       |                         | UL Ch No. | Freq. (MHz) | Maximum Average Power (dBm) |     |               |
|------------|-------------------------|-----------|-------------|-----------------------------|-----|---------------|
|            |                         |           |             | Measured Pwr                | MPR | Tune-up Limit |
| Release 99 | Rel 99 (RMC, 12.2 kbps) | 4132      | 826.4       | <b>24.57</b>                | N/A | 25.5          |
|            |                         | 4183      | 836.6       | 24.39                       |     |               |
|            |                         | 4233      | 846.6       | 24.24                       |     |               |
| HSDPA      | Subtest 1               | 4132      | 826.4       | 23.61                       | 0   | 24.5          |
|            |                         | 4183      | 836.6       | 23.43                       |     |               |
|            |                         | 4233      | 846.6       | 23.27                       |     |               |
|            | Subtest 2               | 4132      | 826.4       | 23.58                       | 0   | 24.5          |
|            |                         | 4183      | 836.6       | 23.44                       |     |               |
|            |                         | 4233      | 846.6       | 23.25                       |     |               |
|            | Subtest 3               | 4132      | 826.4       | 23.10                       | 0.5 | 24.0          |
|            |                         | 4183      | 836.6       | 22.87                       |     |               |
|            |                         | 4233      | 846.6       | 22.68                       |     |               |
|            | Subtest 4               | 4132      | 826.4       | 23.07                       | 0.5 | 24.0          |
|            |                         | 4183      | 836.6       | 22.92                       |     |               |
|            |                         | 4233      | 846.6       | 22.75                       |     |               |
| HSUPA      | Subtest 1               | 4132      | 826.4       | 23.64                       | 0   | 24.5          |
|            |                         | 4183      | 836.6       | 23.43                       |     |               |
|            |                         | 4233      | 846.6       | 23.22                       |     |               |
|            | Subtest 2               | 4132      | 826.4       | 21.64                       | 2   | 22.5          |
|            |                         | 4183      | 836.6       | 21.45                       |     |               |
|            |                         | 4233      | 846.6       | 21.33                       |     |               |
|            | Subtest 3               | 4132      | 826.4       | 22.58                       | 1   | 23.5          |
|            |                         | 4183      | 836.6       | 22.37                       |     |               |
|            |                         | 4233      | 846.6       | 22.26                       |     |               |
|            | Subtest 4               | 4132      | 826.4       | 21.32                       | 2   | 22.5          |
|            |                         | 4183      | 836.6       | 20.88                       |     |               |
|            |                         | 4233      | 846.6       | 21.54                       |     |               |
|            | Subtest 5               | 4132      | 826.4       | 23.29                       | 0   | 24.5          |
|            |                         | 4183      | 836.6       | 23.09                       |     |               |
|            |                         | 4233      | 846.6       | 23.05                       |     |               |
| DC-HSDPA   | Subtest 1               | 4132      | 826.4       | 23.55                       | 0   | 24.5          |
|            |                         | 4183      | 836.6       | 23.44                       |     |               |
|            |                         | 4233      | 846.6       | 23.29                       |     |               |
|            | Subtest 2               | 4132      | 826.4       | 23.59                       | 0   | 24.5          |
|            |                         | 4183      | 836.6       | 23.41                       |     |               |
|            |                         | 4233      | 846.6       | 23.27                       |     |               |
|            | Subtest 3               | 4132      | 826.4       | 23.08                       | 0.5 | 24.0          |
|            |                         | 4183      | 836.6       | 22.91                       |     |               |
|            |                         | 4233      | 846.6       | 22.77                       |     |               |
|            | Subtest 4               | 4132      | 826.4       | 23.08                       | 0.5 | 24.0          |
|            |                         | 4183      | 836.6       | 22.91                       |     |               |
|            |                         | 4233      | 846.6       | 22.70                       |     |               |

**WCDMA B5 (ANT E)**

| Mode       |                            | UL Ch No. | Freq.<br>(MHz) | Maximum Average Power (dBm) |     |               |
|------------|----------------------------|-----------|----------------|-----------------------------|-----|---------------|
|            |                            |           |                | Measured Pwr                | MPR | Tune-up Limit |
| Release 99 | Rel 99<br>(RMC, 12.2 kbps) | 4132      | 826.4          | <b>24.30</b>                | N/A | 25.5          |
|            |                            | 4183      | 836.6          | 24.19                       |     |               |
|            |                            | 4233      | 846.6          | 24.03                       |     |               |
| HSDPA      | Subtest 1                  | 4132      | 826.4          | 23.34                       | 0   | 24.5          |
|            |                            | 4183      | 836.6          | 23.22                       |     |               |
|            |                            | 4233      | 846.6          | 23.05                       |     |               |
|            | Subtest 2                  | 4132      | 826.4          | 23.33                       | 0   | 24.5          |
|            |                            | 4183      | 836.6          | 23.21                       |     |               |
|            |                            | 4233      | 846.6          | 23.05                       |     |               |
|            | Subtest 3                  | 4132      | 826.4          | 22.85                       | 0.5 | 24.0          |
|            |                            | 4183      | 836.6          | 22.68                       |     |               |
|            |                            | 4233      | 846.6          | 22.50                       |     |               |
|            | Subtest 4                  | 4132      | 826.4          | 22.82                       | 0.5 | 24.0          |
|            |                            | 4183      | 836.6          | 22.71                       |     |               |
|            |                            | 4233      | 846.6          | 22.51                       |     |               |
| HSUPA      | Subtest 1                  | 4132      | 826.4          | 23.29                       | 0   | 24.5          |
|            |                            | 4183      | 836.6          | 23.22                       |     |               |
|            |                            | 4233      | 846.6          | 23.34                       |     |               |
|            | Subtest 2                  | 4132      | 826.4          | 21.33                       | 2   | 22.5          |
|            |                            | 4183      | 836.6          | 21.14                       |     |               |
|            |                            | 4233      | 846.6          | 21.21                       |     |               |
|            | Subtest 3                  | 4132      | 826.4          | 22.38                       | 1   | 23.5          |
|            |                            | 4183      | 836.6          | 22.40                       |     |               |
|            |                            | 4233      | 846.6          | 22.28                       |     |               |
|            | Subtest 4                  | 4132      | 826.4          | 21.28                       | 2   | 22.5          |
|            |                            | 4183      | 836.6          | 21.38                       |     |               |
|            |                            | 4233      | 846.6          | 21.21                       |     |               |
|            | Subtest 5                  | 4132      | 826.4          | 22.45                       | 0   | 24.5          |
|            |                            | 4183      | 836.6          | 22.65                       |     |               |
|            |                            | 4233      | 846.6          | 22.34                       |     |               |
| DC-HSDPA   | Subtest 1                  | 4132      | 826.4          | 23.26                       | 0   | 24.5          |
|            |                            | 4183      | 836.6          | 23.11                       |     |               |
|            |                            | 4233      | 846.6          | 22.95                       |     |               |
|            | Subtest 2                  | 4132      | 826.4          | 23.30                       | 0   | 24.5          |
|            |                            | 4183      | 836.6          | 23.15                       |     |               |
|            |                            | 4233      | 846.6          | 22.97                       |     |               |
|            | Subtest 3                  | 4132      | 826.4          | 22.79                       | 0.5 | 24.0          |
|            |                            | 4183      | 836.6          | 22.64                       |     |               |
|            |                            | 4233      | 846.6          | 22.47                       |     |               |
|            | Subtest 4                  | 4132      | 826.4          | 22.75                       | 0.5 | 24.0          |
|            |                            | 4183      | 836.6          | 22.64                       |     |               |
|            |                            | 4233      | 846.6          | 22.47                       |     |               |

**LTE Band 26 (ANT A)**

| BW<br>(MHz) | Mode   | RB Allocation | RB<br>offset | Maximum Average Power (dBm) |  |            |            |            |            | MPR           | Tune-up Limit |
|-------------|--------|---------------|--------------|-----------------------------|--|------------|------------|------------|------------|---------------|---------------|
|             |        |               |              | Measured Pwr (dBm)          |  |            |            |            |            |               |               |
|             |        |               |              | 26765                       |  | 26790      | 26865      | 26915      | 26965      |               |               |
|             |        |               |              | 821.50 MHz                  |  | 824.00 MHz | 831.50 MHz | 836.50 MHz | 841.50 MHz |               |               |
| 15 MHz      | QPSK   | 1             | 0            | 23.70                       |  | 23.85      | 23.81      | 23.70      | 23.86      | 0.0           | 25.0          |
|             |        | 1             | 37           | 23.84                       |  | 23.92      | 23.75      | 23.89      | 23.81      | 0.0           | 25.0          |
|             |        | 1             | 74           | 23.77                       |  | 23.85      | 23.64      | 23.59      | 23.67      | 0.0           | 25.0          |
|             |        | 36            | 0            | 22.80                       |  | 22.81      | 22.82      | 22.78      | 22.73      | 1.0           | 24.0          |
|             |        | 36            | 20           | 22.86                       |  | 22.90      | 22.79      | 22.78      | 22.76      | 1.0           | 24.0          |
|             |        | 36            | 39           | 22.76                       |  | 22.77      | 22.75      | 22.69      | 22.70      | 1.0           | 24.0          |
|             |        | 75            | 0            | 22.81                       |  | 22.81      | 22.74      | 22.82      | 22.74      | 1.0           | 24.0          |
|             | 16QAM  | 1             | 0            | 22.87                       |  | 22.77      | 23.01      | 22.92      | 22.76      | 1.0           | 24.0          |
|             |        | 1             | 37           | 23.12                       |  | 23.03      | 23.04      | 22.99      | 22.82      | 1.0           | 24.0          |
|             |        | 1             | 74           | 23.18                       |  | 23.18      | 22.92      | 22.78      | 22.83      | 1.0           | 24.0          |
|             |        | 36            | 0            | 21.87                       |  | 21.86      | 21.85      | 21.79      | 21.76      | 2.0           | 23.0          |
|             |        | 36            | 20           | 21.91                       |  | 21.91      | 21.86      | 21.86      | 21.76      | 2.0           | 23.0          |
|             |        | 36            | 39           | 21.82                       |  | 21.83      | 21.82      | 21.71      | 21.65      | 2.0           | 23.0          |
|             |        | 75            | 0            | 21.86                       |  | 21.90      | 21.80      | 21.81      | 21.72      | 2.0           | 23.0          |
|             | 64QAM  | 1             | 0            | 21.93                       |  | 21.84      | 22.02      | 22.15      | 21.91      | 2.0           | 23.0          |
|             |        | 1             | 37           | 22.14                       |  | 21.99      | 21.98      | 22.18      | 21.95      | 2.0           | 23.0          |
|             |        | 1             | 74           | 22.17                       |  | 22.00      | 21.94      | 21.88      | 21.72      | 2.0           | 23.0          |
|             |        | 36            | 0            | 20.83                       |  | 20.88      | 20.86      | 20.82      | 20.74      | 3.0           | 22.0          |
|             |        | 36            | 20           | 20.90                       |  | 20.88      | 20.83      | 20.90      | 20.79      | 3.0           | 22.0          |
|             |        | 36            | 39           | 20.76                       |  | 20.79      | 20.79      | 20.79      | 20.66      | 3.0           | 22.0          |
|             |        | 75            | 0            | 20.87                       |  | 20.89      | 20.77      | 20.86      | 20.77      | 3.0           | 22.0          |
|             | 256QAM | 1             | 0            | 18.94                       |  | 18.98      | 18.94      | 19.26      | 18.84      | 5.0           | 20.0          |
|             |        | 1             | 37           | 19.10                       |  | 19.11      | 18.85      | 18.98      | 19.01      | 5.0           | 20.0          |
|             |        | 1             | 74           | 19.05                       |  | 18.93      | 18.84      | 18.68      | 18.65      | 5.0           | 20.0          |
|             |        | 36            | 0            | 18.79                       |  | 18.81      | 18.83      | 18.79      | 18.70      | 5.0           | 20.0          |
|             |        | 36            | 20           | 18.84                       |  | 18.84      | 18.79      | 18.79      | 18.80      | 5.0           | 20.0          |
|             |        | 36            | 39           | 18.74                       |  | 18.82      | 18.77      | 18.72      | 18.63      | 5.0           | 20.0          |
|             |        | 75            | 0            | 18.82                       |  | 18.79      | 18.75      | 18.81      | 18.78      | 5.0           | 20.0          |
| BW<br>(MHz) | Mode   | RB Allocation | RB<br>offset | Measured Pwr (dBm)          |  |            |            |            | MPR        | Tune-up Limit |               |
|             |        |               |              | 26740                       |  | 26790      | 26840      | 26865      |            |               | 26990         |
|             |        |               |              | 819.00 MHz                  |  | 824.00 MHz | 829.00 MHz | 831.50 MHz |            |               | 844.00 MHz    |
| 10 MHz      | QPSK   | 1             | 0            | 23.74                       |  | 23.82      | 23.97      | 23.84      | 23.77      | 0.0           | 25.0          |
|             |        | 1             | 25           | 23.88                       |  | 23.95      | 23.87      | 23.90      | 23.86      | 0.0           | 25.0          |
|             |        | 1             | 49           | 24.00                       |  | 23.97      | 23.80      | 23.78      | 23.60      | 0.0           | 25.0          |
|             |        | 25            | 0            | 22.86                       |  | 22.84      | 22.89      | 22.88      | 22.72      | 1.0           | 24.0          |
|             |        | 25            | 12           | 22.93                       |  | 22.91      | 22.98      | 22.86      | 22.80      | 1.0           | 24.0          |
|             |        | 25            | 25           | 22.85                       |  | 22.91      | 22.91      | 22.89      | 22.77      | 1.0           | 24.0          |
|             |        | 50            | 0            | 22.95                       |  | 22.93      | 22.87      | 22.84      | 22.77      | 1.0           | 24.0          |
|             | 16QAM  | 1             | 0            | 23.00                       |  | 22.98      | 22.99      | 22.86      | 23.08      | 1.0           | 24.0          |
|             |        | 1             | 25           | 22.87                       |  | 22.98      | 22.98      | 23.11      | 22.96      | 1.0           | 24.0          |
|             |        | 1             | 49           | 22.96                       |  | 23.10      | 23.01      | 22.95      | 22.97      | 1.0           | 24.0          |
|             |        | 25            | 0            | 21.88                       |  | 21.88      | 21.96      | 21.87      | 21.79      | 2.0           | 23.0          |
|             |        | 25            | 12           | 21.88                       |  | 21.96      | 21.98      | 21.89      | 21.81      | 2.0           | 23.0          |
|             |        | 25            | 25           | 21.89                       |  | 21.89      | 21.88      | 21.91      | 21.74      | 2.0           | 23.0          |
|             |        | 50            | 0            | 21.95                       |  | 21.94      | 21.91      | 21.91      | 21.79      | 2.0           | 23.0          |
|             | 64QAM  | 1             | 0            | 22.03                       |  | 22.08      | 22.11      | 21.98      | 21.88      | 2.0           | 23.0          |
|             |        | 1             | 25           | 22.16                       |  | 22.14      | 22.12      | 22.20      | 21.88      | 2.0           | 23.0          |
|             |        | 1             | 49           | 22.23                       |  | 22.10      | 21.95      | 21.94      | 21.98      | 2.0           | 23.0          |
|             |        | 25            | 0            | 20.92                       |  | 20.90      | 20.83      | 20.89      | 20.70      | 3.0           | 22.0          |
|             |        | 25            | 12           | 20.96                       |  | 20.96      | 20.98      | 20.83      | 20.87      | 3.0           | 22.0          |
|             |        | 25            | 25           | 20.88                       |  | 20.94      | 20.96      | 20.93      | 20.73      | 3.0           | 22.0          |
|             |        | 50            | 0            | 20.91                       |  | 20.92      | 20.94      | 20.85      | 20.82      | 3.0           | 22.0          |
|             | 256QAM | 1             | 0            | 19.10                       |  | 19.02      | 18.95      | 18.90      | 18.93      | 5.0           | 20.0          |
|             |        | 1             | 25           | 19.10                       |  | 19.15      | 18.97      | 19.09      | 19.05      | 5.0           | 20.0          |
|             |        | 1             | 49           | 18.96                       |  | 19.08      | 18.88      | 18.93      | 18.61      | 5.0           | 20.0          |
|             |        | 25            | 0            | 18.84                       |  | 18.88      | 18.91      | 18.86      | 18.74      | 5.0           | 20.0          |
|             |        | 25            | 12           | 18.91                       |  | 18.96      | 18.95      | 18.80      | 18.77      | 5.0           | 20.0          |
|             |        | 25            | 25           | 18.91                       |  | 18.94      | 18.84      | 18.90      | 18.74      | 5.0           | 20.0          |
|             |        | 50            | 0            | 18.91                       |  | 18.88      | 18.94      | 18.86      | 18.76      | 5.0           | 20.0          |

| BW<br>(MHz) | Mode   | RB Allocation | RB offset | Measured Pwr (dBm) |            |            |            |            |            | MPR | Tune-up Limit |
|-------------|--------|---------------|-----------|--------------------|------------|------------|------------|------------|------------|-----|---------------|
|             |        |               |           | 26715              | 26765      | 26790      | 26815      | 26865      | 27015      |     |               |
|             |        |               |           | 816.50 MHz         | 821.50 MHz | 824.00 MHz | 826.50 MHz | 831.50 MHz | 846.50 MHz |     |               |
| 5 MHz       | QPSK   | 1             | 0         | 23.88              | 23.87      | 23.86      | 23.96      | 23.91      | 23.68      | 0.0 | 25.0          |
|             |        | 1             | 12        | 23.94              | 23.86      | 23.91      | 23.88      | 23.85      | 23.69      | 0.0 | 25.0          |
|             |        | 1             | 24        | 23.85              | 23.76      | 23.77      | 23.82      | 23.75      | 23.61      | 0.0 | 25.0          |
|             |        | 12            | 0         | 22.82              | 22.81      | 22.86      | 22.84      | 22.84      | 22.66      | 1.0 | 24.0          |
|             |        | 12            | 7         | 22.89              | 22.93      | 22.91      | 22.92      | 22.84      | 22.70      | 1.0 | 24.0          |
|             |        | 12            | 13        | 22.88              | 22.86      | 22.87      | 22.89      | 22.87      | 22.74      | 1.0 | 24.0          |
|             |        | 25            | 0         | 22.85              | 22.88      | 22.93      | 22.89      | 22.88      | 22.65      | 1.0 | 24.0          |
|             | 16QAM  | 1             | 0         | 23.00              | 22.92      | 23.14      | 22.87      | 23.17      | 22.82      | 1.0 | 24.0          |
|             |        | 1             | 12        | 22.83              | 23.02      | 23.33      | 23.02      | 23.02      | 22.98      | 1.0 | 24.0          |
|             |        | 1             | 24        | 22.77              | 23.14      | 22.80      | 22.91      | 23.01      | 22.86      | 1.0 | 24.0          |
|             |        | 12            | 0         | 21.85              | 21.84      | 21.90      | 21.82      | 21.89      | 21.66      | 2.0 | 23.0          |
|             |        | 12            | 7         | 21.99              | 21.94      | 21.98      | 21.93      | 21.90      | 21.73      | 2.0 | 23.0          |
|             |        | 12            | 13        | 21.96              | 21.91      | 21.87      | 21.85      | 21.91      | 21.69      | 2.0 | 23.0          |
|             |        | 25            | 0         | 21.88              | 21.93      | 21.95      | 21.92      | 21.84      | 21.69      | 2.0 | 23.0          |
|             | 64QAM  | 1             | 0         | 22.07              | 21.78      | 21.92      | 22.16      | 22.12      | 21.99      | 2.0 | 23.0          |
|             |        | 1             | 12        | 22.19              | 21.93      | 22.10      | 22.10      | 21.98      | 21.71      | 2.0 | 23.0          |
|             |        | 1             | 24        | 21.90              | 21.92      | 21.76      | 21.80      | 21.92      | 21.71      | 2.0 | 23.0          |
|             |        | 12            | 0         | 20.84              | 20.84      | 20.89      | 20.90      | 20.86      | 20.75      | 3.0 | 22.0          |
|             |        | 12            | 7         | 21.00              | 20.96      | 20.96      | 21.01      | 20.87      | 20.68      | 3.0 | 22.0          |
|             |        | 12            | 13        | 20.82              | 20.85      | 20.91      | 20.91      | 20.89      | 20.78      | 3.0 | 22.0          |
|             |        | 25            | 0         | 20.94              | 20.92      | 20.90      | 20.88      | 20.83      | 20.67      | 3.0 | 22.0          |
|             | 256QAM | 1             | 0         | 19.14              | 19.09      | 18.93      | 18.99      | 18.92      | 18.80      | 5.0 | 20.0          |
|             |        | 1             | 12        | 18.90              | 19.10      | 18.98      | 19.06      | 19.16      | 18.81      | 5.0 | 20.0          |
|             |        | 1             | 24        | 18.87              | 19.09      | 19.09      | 19.12      | 18.94      | 18.69      | 5.0 | 20.0          |
|             |        | 12            | 0         | 18.82              | 18.76      | 18.82      | 18.77      | 18.89      | 18.70      | 5.0 | 20.0          |
|             |        | 12            | 7         | 18.96              | 18.86      | 18.88      | 18.98      | 18.85      | 18.69      | 5.0 | 20.0          |
|             |        | 12            | 13        | 18.85              | 18.90      | 18.87      | 18.87      | 18.88      | 18.68      | 5.0 | 20.0          |
|             |        | 25            | 0         | 18.88              | 18.89      | 18.90      | 18.90      | 18.90      | 18.65      | 5.0 | 20.0          |
| BW<br>(MHz) | Mode   | RB Allocation | RB offset | Measured Pwr (dBm) |            |            |            |            |            | MPR | Tune-up Limit |
|             |        |               |           | 26705              | 26775      | 26790      | 26805      | 26865      | 27025      |     |               |
|             |        |               |           | 815.50 MHz         | 822.50 MHz | 824.00 MHz | 825.50 MHz | 831.50 MHz | 847.50 MHz |     |               |
| 3 MHz       | QPSK   | 1             | 0         | 23.82              | 23.94      | 23.80      | 23.74      | 23.84      | 23.68      | 0.0 | 25.0          |
|             |        | 1             | 8         | 23.92              | 23.82      | 23.96      | 23.96      | 23.88      | 23.66      | 0.0 | 25.0          |
|             |        | 1             | 14        | 23.81              | 23.83      | 23.84      | 23.78      | 23.79      | 23.60      | 0.0 | 25.0          |
|             |        | 8             | 0         | 22.89              | 22.88      | 22.80      | 22.84      | 22.87      | 22.68      | 1.0 | 24.0          |
|             |        | 8             | 4         | 22.91              | 22.88      | 22.90      | 22.89      | 22.83      | 22.72      | 1.0 | 24.0          |
|             |        | 8             | 7         | 22.87              | 22.89      | 22.83      | 22.87      | 22.86      | 22.69      | 1.0 | 24.0          |
|             |        | 15            | 0         | 22.91              | 22.85      | 22.85      | 22.93      | 22.84      | 22.67      | 1.0 | 24.0          |
|             | 16QAM  | 1             | 0         | 22.85              | 22.96      | 23.05      | 23.01      | 22.95      | 22.72      | 1.0 | 24.0          |
|             |        | 1             | 8         | 23.06              | 23.04      | 23.04      | 23.33      | 23.13      | 22.80      | 1.0 | 24.0          |
|             |        | 1             | 14        | 22.89              | 22.92      | 23.06      | 22.93      | 22.77      | 22.79      | 1.0 | 24.0          |
|             |        | 8             | 0         | 21.95              | 21.96      | 21.83      | 21.81      | 21.90      | 21.77      | 2.0 | 23.0          |
|             |        | 8             | 4         | 21.89              | 21.90      | 21.93      | 21.98      | 21.88      | 21.79      | 2.0 | 23.0          |
|             |        | 8             | 7         | 21.97              | 21.91      | 21.89      | 21.94      | 21.97      | 21.76      | 2.0 | 23.0          |
|             |        | 15            | 0         | 21.89              | 21.95      | 21.88      | 21.99      | 21.86      | 21.73      | 2.0 | 23.0          |
|             | 64QAM  | 1             | 0         | 21.94              | 21.95      | 22.00      | 22.11      | 22.05      | 21.87      | 2.0 | 23.0          |
|             |        | 1             | 8         | 22.17              | 22.35      | 22.09      | 22.25      | 22.16      | 22.06      | 2.0 | 23.0          |
|             |        | 1             | 14        | 21.86              | 22.09      | 22.00      | 22.01      | 21.87      | 21.90      | 2.0 | 23.0          |
|             |        | 8             | 0         | 20.95              | 20.87      | 20.86      | 20.88      | 20.85      | 20.74      | 3.0 | 22.0          |
|             |        | 8             | 4         | 20.93              | 20.94      | 20.94      | 20.85      | 20.94      | 20.74      | 3.0 | 22.0          |
|             |        | 8             | 7         | 20.92              | 20.94      | 20.93      | 20.96      | 21.01      | 20.74      | 3.0 | 22.0          |
|             |        | 15            | 0         | 20.91              | 20.99      | 20.97      | 20.99      | 20.93      | 20.75      | 3.0 | 22.0          |
|             | 256QAM | 1             | 0         | 18.91              | 18.87      | 18.95      | 19.04      | 18.91      | 18.81      | 5.0 | 20.0          |
|             |        | 1             | 8         | 19.25              | 19.09      | 19.00      | 19.28      | 19.16      | 18.93      | 5.0 | 20.0          |
|             |        | 1             | 14        | 18.97              | 18.85      | 18.71      | 19.00      | 19.14      | 18.62      | 5.0 | 20.0          |
|             |        | 8             | 0         | 18.87              | 18.92      | 18.88      | 18.79      | 18.89      | 18.71      | 5.0 | 20.0          |
|             |        | 8             | 4         | 18.88              | 18.98      | 19.02      | 18.90      | 18.81      | 18.70      | 5.0 | 20.0          |
|             |        | 8             | 7         | 18.84              | 18.85      | 18.88      | 18.92      | 18.93      | 18.67      | 5.0 | 20.0          |
|             |        | 15            | 0         | 18.85              | 18.87      | 18.85      | 18.83      | 18.83      | 18.67      | 5.0 | 20.0          |
| BW<br>(MHz) | Mode   | RB Allocation | RB offset | Measured Pwr (dBm) |            |            |            |            |            | MPR | Tune-up Limit |
|             |        |               |           | 26697              | 26783      | 26790      | 26797      | 26865      | 27033      |     |               |
|             |        |               |           | 814.70 MHz         | 823.30 MHz | 824.00 MHz | 824.70 MHz | 831.50 MHz | 848.30 MHz |     |               |
| 1.4 MHz     | QPSK   | 1             | 0         | 23.80              | 23.70      | 23.87      | 23.76      | 23.79      | 23.70      | 0.0 | 25.0          |
|             |        | 1             | 3         | 23.80              | 23.79      | 23.89      | 23.83      | 23.80      | 23.62      | 0.0 | 25.0          |
|             |        | 1             | 5         | 23.87              | 23.84      | 23.84      | 23.87      | 23.77      | 23.70      | 0.0 | 25.0          |
|             |        | 3             | 0         | 23.77              | 23.81      | 23.65      | 23.75      | 23.73      | 23.63      | 1.0 | 24.0          |
|             |        | 3             | 1         | 23.86              | 23.85      | 23.81      | 23.82      | 23.74      | 23.61      | 1.0 | 24.0          |
|             |        | 3             | 3         | 23.82              | 23.81      | 23.86      | 23.79      | 23.82      | 23.64      | 1.0 | 24.0          |
|             |        | 6             | 0         | 22.78              | 22.84      | 22.78      | 22.81      | 22.73      | 22.58      | 1.0 | 24.0          |
|             | 16QAM  | 1             | 0         | 23.02              | 22.66      | 22.96      | 22.93      | 22.76      | 23.08      | 1.0 | 24.0          |
|             |        | 1             | 3         | 22.81              | 22.95      | 23.17      | 23.00      | 22.89      | 23.19      | 1.0 | 24.0          |
|             |        | 1             | 5         | 22.91              | 22.68      | 22.85      | 23.01      | 22.64      | 22.75      | 1.0 | 24.0          |
|             |        | 3             | 0         | 23.11              | 22.99      | 22.93      | 23.04      | 22.86      | 22.76      | 2.0 | 23.0          |
|             |        | 3             | 1         | 23.00              | 23.01      | 22.88      | 22.90      | 22.85      | 22.81      | 2.0 | 23.0          |
|             |        | 3             | 3         | 22.98              | 23.01      | 22.93      | 22.96      | 23.04      | 22.75      | 2.0 | 23.0          |
|             |        | 6             | 0         | 21.85              | 21.87      | 21.84      | 21.92      | 21.88      | 21.71      | 2.0 | 23.0          |
|             | 64QAM  | 1             | 0         | 22.05              | 21.88      | 21.80      | 22.15      | 21.83      | 21.70      | 2.0 | 23.0          |
|             |        | 1             | 3         | 22.23              | 21.96      | 22.19      | 22.01      | 21.91      | 21.87      | 2.0 | 23.0          |
|             |        | 1             | 5         | 22.03              | 22.06      | 21.89      | 22.02      | 22.07      | 22.02      | 2.0 | 23.0          |
|             |        | 3             | 0         | 22.10              | 21.84      | 21.88      | 22.04      | 21.92      | 21.83      | 3.0 | 22.0          |
|             |        | 3             | 1         | 22.00              | 21.95      | 21.90      | 22.07      | 21.90      | 21.76      | 3.0 | 22.0          |
|             |        | 3             | 3         | 21.99              | 21.99      | 21.99      | 21.96      | 22.04      | 21.79      | 3.0 | 22.0          |
|             |        | 6             | 0         | 20.96              | 20.87      | 20.81      | 20.84      | 20.80      | 20.68      | 3.0 | 22.0          |
|             | 256QAM | 1             | 0         | 19.02              | 19.01      | 19.06      | 18.88      | 19.02      | 18.74      | 5.0 | 20.0          |
|             |        | 1             | 3         | 19.00              | 19.18      | 19.01      | 18.91      | 19.03      | 18.85      | 5.0 | 20.0          |
|             |        | 1             | 5         | 18.71              | 18.74      | 18.95      | 19.14      | 19.16      | 19.05      | 5.0 | 20.0          |
|             |        | 3             | 0         | 18.87              | 18.91      | 18.94      | 18.95      | 18.86      | 18.83      | 5.0 | 20.0          |
|             |        | 3             | 1         | 18.96              | 18.86      | 18.96      | 19.06      | 18.82      | 18.69      | 5.0 | 20.0          |
|             |        | 3             | 3         | 19.00              | 19.04      | 19.02      | 18.96      | 18.86      | 18.79      | 5.0 | 20.0          |
|             |        | 6             | 0         | 18.74              | 18.96      | 18.91      | 18.85      | 18.74      | 18.59      | 5.0 | 20.0          |

**LTE Band 26 (ANT E)**

| BW<br>(MHz) | Mode   | RB Allocation | RB<br>offset | Maximum Average Power (dBm) |       |            |            |            |            | MPR           | Tune-up Limit |
|-------------|--------|---------------|--------------|-----------------------------|-------|------------|------------|------------|------------|---------------|---------------|
|             |        |               |              | Measured Pwr (dBm)          |       |            |            |            |            |               |               |
|             |        |               |              | 26765                       |       | 26790      | 26865      | 26915      | 26965      |               |               |
| 15 MHz      | QPSK   | 1             | 0            | 821.50 MHz                  |       | 824.00 MHz | 831.50 MHz | 836.50 MHz | 841.50 MHz |               |               |
|             |        | 1             | 37           | 23.91                       |       | 23.87      | 23.92      | 23.91      | 24.04      | 0.0           | 25.0          |
|             |        | 1             | 74           | 23.98                       |       | 24.02      | 24.05      | 24.08      | 23.98      | 0.0           | 25.0          |
|             |        | 36            | 0            | 23.91                       |       | 24.06      | 23.86      | 23.81      | 23.94      | 0.0           | 25.0          |
|             |        | 36            | 20           | 22.97                       |       | 22.97      | 23.04      | 23.01      | 22.93      | 1.0           | 24.0          |
|             |        | 36            | 39           | 23.01                       |       | 23.06      | 23.00      | 23.02      | 22.96      | 1.0           | 24.0          |
|             |        | 36            | 39           | 22.94                       |       | 22.99      | 22.97      | 22.93      | 22.91      | 1.0           | 24.0          |
|             | 16QAM  | 75            | 0            | 22.96                       |       | 22.97      | 22.96      | 23.01      | 22.99      | 1.0           | 24.0          |
|             |        | 1             | 0            | 23.06                       |       | 23.18      | 23.11      | 23.13      | 23.21      | 1.0           | 24.0          |
|             |        | 1             | 37           | 23.19                       |       | 23.22      | 23.15      | 23.19      | 23.01      | 1.0           | 24.0          |
|             |        | 1             | 74           | 23.01                       |       | 23.03      | 22.88      | 22.96      | 22.91      | 1.0           | 24.0          |
|             |        | 36            | 0            | 22.01                       |       | 22.05      | 22.07      | 22.05      | 21.98      | 2.0           | 23.0          |
|             |        | 36            | 20           | 22.06                       |       | 22.08      | 22.09      | 22.10      | 22.01      | 2.0           | 23.0          |
|             |        | 36            | 39           | 21.99                       |       | 22.03      | 22.03      | 21.97      | 21.94      | 2.0           | 23.0          |
|             | 64QAM  | 75            | 0            | 22.03                       |       | 22.07      | 22.06      | 22.04      | 22.02      | 2.0           | 23.0          |
|             |        | 1             | 0            | 22.01                       |       | 22.05      | 22.20      | 22.39      | 21.88      | 2.0           | 23.0          |
|             |        | 1             | 37           | 22.33                       |       | 22.21      | 22.34      | 22.31      | 22.06      | 2.0           | 23.0          |
|             |        | 1             | 74           | 22.08                       |       | 21.91      | 22.11      | 22.26      | 22.09      | 2.0           | 23.0          |
|             |        | 36            | 0            | 21.02                       |       | 21.03      | 21.07      | 21.00      | 20.99      | 3.0           | 22.0          |
|             |        | 36            | 20           | 21.05                       |       | 21.09      | 21.03      | 21.08      | 21.03      | 3.0           | 22.0          |
|             |        | 36            | 39           | 20.97                       |       | 21.02      | 21.02      | 20.97      | 20.91      | 3.0           | 22.0          |
|             | 256QAM | 75            | 0            | 21.04                       |       | 21.05      | 21.02      | 21.07      | 21.05      | 3.0           | 22.0          |
|             |        | 1             | 0            | 19.03                       |       | 18.94      | 19.04      | 19.02      | 19.14      | 5.0           | 20.0          |
|             |        | 1             | 37           | 19.26                       |       | 19.48      | 19.42      | 19.30      | 19.14      | 5.0           | 20.0          |
|             |        | 1             | 74           | 19.24                       |       | 18.99      | 18.93      | 19.33      | 18.90      | 5.0           | 20.0          |
|             |        | 36            | 0            | 18.97                       |       | 19.02      | 19.05      | 18.99      | 18.95      | 5.0           | 20.0          |
|             |        | 36            | 20           | 19.02                       |       | 19.08      | 19.04      | 19.04      | 19.00      | 5.0           | 20.0          |
|             |        | 36            | 39           | 19.02                       |       | 18.97      | 18.97      | 18.97      | 18.91      | 5.0           | 20.0          |
|             | 75     | 0             | 19.02        |                             | 19.03 | 18.96      | 19.03      | 18.96      | 5.0        | 20.0          |               |
| BW<br>(MHz) | Mode   | RB Allocation | RB<br>offset | Measured Pwr (dBm)          |       |            |            |            | MPR        | Tune-up Limit |               |
|             |        |               |              | 26740                       |       | 26790      | 26840      | 26865      |            |               | 26990         |
|             |        |               |              | 819.00 MHz                  |       | 824.00 MHz | 829.00 MHz | 831.50 MHz |            |               | 844.00 MHz    |
| 10 MHz      | QPSK   | 1             | 0            | 23.96                       |       | 24.03      | 24.15      | 24.06      | 24.03      | 0.0           | 25.0          |
|             |        | 1             | 25           | 24.03                       |       | 24.14      | 24.14      | 24.13      | 24.03      | 0.0           | 25.0          |
|             |        | 1             | 49           | 24.07                       |       | 23.99      | 24.06      | 24.01      | 24.05      | 0.0           | 25.0          |
|             |        | 25            | 0            | 23.01                       |       | 23.02      | 23.10      | 23.06      | 23.00      | 1.0           | 24.0          |
|             |        | 25            | 12           | 23.07                       |       | 23.14      | 23.18      | 23.07      | 23.06      | 1.0           | 24.0          |
|             |        | 25            | 25           | 23.08                       |       | 23.13      | 23.13      | 23.10      | 23.01      | 1.0           | 24.0          |
|             |        | 50            | 0            | 23.08                       |       | 23.13      | 23.08      | 23.07      | 23.07      | 1.0           | 24.0          |
|             | 16QAM  | 1             | 0            | 23.16                       |       | 23.05      | 23.30      | 23.27      | 23.09      | 1.0           | 24.0          |
|             |        | 1             | 25           | 23.04                       |       | 23.27      | 23.36      | 23.20      | 23.17      | 1.0           | 24.0          |
|             |        | 1             | 49           | 23.34                       |       | 23.26      | 23.21      | 23.02      | 23.01      | 1.0           | 24.0          |
|             |        | 25            | 0            | 22.04                       |       | 22.03      | 22.04      | 22.04      | 21.98      | 2.0           | 23.0          |
|             |        | 25            | 12           | 22.09                       |       | 22.09      | 22.16      | 22.06      | 22.02      | 2.0           | 23.0          |
|             |        | 25            | 25           | 22.06                       |       | 22.12      | 22.14      | 22.08      | 22.01      | 2.0           | 23.0          |
|             |        | 50            | 0            | 22.09                       |       | 22.12      | 22.13      | 22.08      | 22.03      | 2.0           | 23.0          |
|             | 64QAM  | 1             | 0            | 22.20                       |       | 22.22      | 22.36      | 22.29      | 22.13      | 2.0           | 23.0          |
|             |        | 1             | 25           | 22.36                       |       | 22.28      | 22.39      | 22.60      | 22.16      | 2.0           | 23.0          |
|             |        | 1             | 49           | 22.16                       |       | 22.12      | 22.10      | 22.27      | 22.11      | 2.0           | 23.0          |
|             |        | 25            | 0            | 21.02                       |       | 20.99      | 21.08      | 21.09      | 20.96      | 3.0           | 22.0          |
|             |        | 25            | 12           | 21.12                       |       | 21.10      | 21.14      | 21.12      | 21.09      | 3.0           | 22.0          |
|             |        | 25            | 25           | 21.05                       |       | 21.07      | 21.16      | 21.09      | 21.00      | 3.0           | 22.0          |
|             |        | 50            | 0            | 21.08                       |       | 21.10      | 21.16      | 21.06      | 21.02      | 3.0           | 22.0          |
|             | 256QAM | 1             | 0            | 19.09                       |       | 19.03      | 19.17      | 19.23      | 19.12      | 5.0           | 20.0          |
|             |        | 1             | 25           | 19.29                       |       | 19.42      | 19.43      | 19.46      | 19.13      | 5.0           | 20.0          |
|             |        | 1             | 49           | 18.96                       |       | 19.16      | 19.22      | 19.35      | 19.21      | 5.0           | 20.0          |
|             |        | 25            | 0            | 18.97                       |       | 19.01      | 19.04      | 19.08      | 19.00      | 5.0           | 20.0          |
|             |        | 25            | 12           | 19.12                       |       | 19.12      | 19.10      | 19.07      | 19.03      | 5.0           | 20.0          |
|             |        | 25            | 25           | 19.14                       |       | 19.06      | 19.15      | 19.13      | 18.98      | 5.0           | 20.0          |
|             |        | 50            | 0            | 19.09                       |       | 19.07      | 19.15      | 19.10      | 18.97      | 5.0           | 20.0          |

| BW<br>(MHz) | Mode   | RB Allocation | RB offset | Measured Pwr (dBm) |            |            |            |            |            | MPR | Tune-up Limit |
|-------------|--------|---------------|-----------|--------------------|------------|------------|------------|------------|------------|-----|---------------|
|             |        |               |           | 26715              | 26765      | 26790      | 26815      | 26865      | 27015      |     |               |
|             |        |               |           | 816.50 MHz         | 821.50 MHz | 824.00 MHz | 826.50 MHz | 831.50 MHz | 846.50 MHz |     |               |
| 5 MHz       | QPSK   | 1             | 0         | 24.00              | 24.00      | 24.04      | 24.07      | 23.99      | 23.86      | 0.0 | 25.0          |
|             |        | 1             | 12        | 24.04              | 24.07      | 24.11      | 24.10      | 24.09      | 23.99      | 0.0 | 25.0          |
|             |        | 1             | 24        | 24.05              | 23.98      | 23.90      | 24.02      | 24.07      | 23.93      | 0.0 | 25.0          |
|             |        | 12            | 0         | 22.97              | 23.02      | 23.04      | 23.05      | 23.05      | 22.93      | 1.0 | 24.0          |
|             |        | 12            | 7         | 23.09              | 23.08      | 23.14      | 23.13      | 23.08      | 22.90      | 1.0 | 24.0          |
|             |        | 12            | 13        | 23.04              | 23.05      | 23.07      | 23.10      | 23.14      | 22.94      | 1.0 | 24.0          |
|             | 16QAM  | 25            | 0         | 23.01              | 23.03      | 23.10      | 23.08      | 23.08      | 22.91      | 1.0 | 24.0          |
|             |        | 1             | 0         | 22.98              | 23.00      | 23.33      | 23.12      | 23.04      | 23.11      | 1.0 | 24.0          |
|             |        | 1             | 12        | 23.04              | 23.27      | 23.29      | 23.16      | 23.14      | 23.25      | 1.0 | 24.0          |
|             |        | 1             | 24        | 22.98              | 23.12      | 22.95      | 23.05      | 23.08      | 23.08      | 1.0 | 24.0          |
|             |        | 12            | 0         | 21.89              | 22.00      | 22.03      | 22.09      | 22.08      | 22.00      | 2.0 | 23.0          |
|             |        | 12            | 7         | 22.11              | 22.06      | 22.14      | 22.11      | 22.04      | 22.03      | 2.0 | 23.0          |
|             | 64QAM  | 12            | 13        | 21.99              | 22.02      | 22.09      | 22.09      | 22.08      | 22.04      | 2.0 | 23.0          |
|             |        | 25            | 0         | 22.05              | 22.08      | 22.15      | 22.11      | 22.04      | 21.89      | 2.0 | 23.0          |
|             |        | 1             | 0         | 22.20              | 22.20      | 22.27      | 22.27      | 22.20      | 22.04      | 2.0 | 23.0          |
|             |        | 1             | 12        | 22.32              | 22.03      | 22.28      | 22.11      | 22.28      | 22.19      | 2.0 | 23.0          |
|             |        | 1             | 24        | 22.16              | 22.18      | 22.16      | 22.20      | 22.12      | 22.10      | 2.0 | 23.0          |
|             |        | 12            | 0         | 21.07              | 21.06      | 21.11      | 21.10      | 21.08      | 20.97      | 3.0 | 22.0          |
| 3 MHz       | QPSK   | 12            | 7         | 21.14              | 21.08      | 21.19      | 21.19      | 21.15      | 20.98      | 3.0 | 22.0          |
|             |        | 12            | 13        | 21.12              | 21.04      | 21.10      | 21.15      | 21.10      | 20.99      | 3.0 | 22.0          |
|             |        | 25            | 0         | 21.08              | 21.14      | 21.17      | 21.15      | 21.00      | 20.94      | 3.0 | 22.0          |
|             | 16QAM  | 1             | 0         | 18.92              | 19.24      | 19.11      | 19.14      | 18.98      | 19.08      | 5.0 | 20.0          |
|             |        | 1             | 12        | 19.12              | 19.17      | 19.10      | 19.21      | 19.38      | 19.03      | 5.0 | 20.0          |
|             |        | 1             | 24        | 19.17              | 18.95      | 19.11      | 19.20      | 19.09      | 19.08      | 5.0 | 20.0          |
|             |        | 12            | 0         | 18.99              | 19.05      | 19.03      | 19.09      | 19.14      | 18.94      | 5.0 | 20.0          |
|             |        | 12            | 7         | 19.06              | 19.11      | 19.10      | 19.14      | 19.01      | 18.94      | 5.0 | 20.0          |
|             |        | 12            | 13        | 18.98              | 19.11      | 19.11      | 19.11      | 19.07      | 19.04      | 5.0 | 20.0          |
|             | 256QAM | 25            | 0         | 19.05              | 19.07      | 19.11      | 19.09      | 19.07      | 18.89      | 5.0 | 20.0          |
|             |        | 1             | 0         | 26705              | 26775      | 26790      | 26805      | 26865      | 27025      | MPR | Tune-up Limit |
|             |        | 1             | 0         | 815.50 MHz         | 822.50 MHz | 824.00 MHz | 825.50 MHz | 831.50 MHz | 847.50 MHz |     |               |
|             |        | 1             | 0         | 23.85              | 23.99      | 23.98      | 23.98      | 24.07      | 23.94      | 0.0 | 25.0          |
|             | 16QAM  | 1             | 8         | 23.98              | 24.10      | 24.08      | 24.05      | 24.09      | 24.01      | 0.0 | 25.0          |
|             |        | 1             | 14        | 23.89              | 24.05      | 24.02      | 23.99      | 23.99      | 23.90      | 0.0 | 25.0          |
|             |        | 8             | 0         | 23.05              | 23.07      | 23.00      | 23.01      | 23.03      | 22.92      | 1.0 | 24.0          |
|             |        | 8             | 4         | 23.02              | 23.08      | 23.06      | 23.08      | 22.98      | 22.90      | 1.0 | 24.0          |
|             |        | 8             | 7         | 23.01              | 23.07      | 23.06      | 23.03      | 23.04      | 22.94      | 1.0 | 24.0          |
|             |        | 15            | 0         | 23.01              | 23.07      | 23.08      | 23.10      | 23.01      | 22.96      | 1.0 | 24.0          |
|             | 64QAM  | 1             | 0         | 23.24              | 23.22      | 23.03      | 23.25      | 23.29      | 23.15      | 1.0 | 24.0          |
|             |        | 1             | 8         | 23.44              | 23.46      | 23.23      | 23.19      | 23.31      | 23.14      | 1.0 | 24.0          |
|             |        | 1             | 14        | 23.22              | 23.06      | 23.12      | 23.18      | 23.07      | 23.21      | 1.0 | 24.0          |
|             |        | 8             | 0         | 22.14              | 22.10      | 21.99      | 22.03      | 22.04      | 21.94      | 2.0 | 23.0          |
|             |        | 8             | 4         | 22.08              | 22.19      | 22.19      | 22.08      | 22.12      | 21.98      | 2.0 | 23.0          |
|             |        | 8             | 7         | 22.06              | 22.11      | 22.13      | 22.12      | 22.15      | 22.04      | 2.0 | 23.0          |
|             | 256QAM | 15            | 0         | 22.09              | 22.08      | 22.13      | 22.11      | 22.10      | 21.99      | 2.0 | 23.0          |
|             |        | 1             | 0         | 22.08              | 22.14      | 22.17      | 22.14      | 22.06      | 21.93      | 2.0 | 23.0          |
|             |        | 1             | 8         | 22.23              | 22.30      | 22.27      | 22.24      | 22.48      | 22.40      | 2.0 | 23.0          |
|             |        | 1             | 14        | 22.06              | 22.43      | 22.18      | 21.98      | 22.17      | 22.10      | 2.0 | 23.0          |
|             |        | 8             | 0         | 21.01              | 21.10      | 21.07      | 21.01      | 21.12      | 20.96      | 3.0 | 22.0          |
|             |        | 8             | 4         | 21.07              | 21.11      | 21.10      | 21.12      | 21.11      | 20.98      | 3.0 | 22.0          |
| 1.4 MHz     | QPSK   | 8             | 7         | 21.01              | 21.09      | 21.00      | 21.17      | 21.16      | 20.91      | 3.0 | 22.0          |
|             |        | 15            | 0         | 21.05              | 21.07      | 21.12      | 21.15      | 21.06      | 21.01      | 3.0 | 22.0          |
|             |        | 1             | 0         | 19.00              | 19.11      | 18.87      | 19.28      | 19.13      | 19.09      | 5.0 | 20.0          |
|             |        | 1             | 8         | 19.12              | 19.20      | 19.02      | 19.49      | 19.25      | 19.21      | 5.0 | 20.0          |
|             |        | 1             | 14        | 19.09              | 19.04      | 19.29      | 19.31      | 19.32      | 18.96      | 5.0 | 20.0          |
|             |        | 8             | 0         | 19.03              | 19.05      | 18.96      | 19.01      | 19.05      | 19.03      | 5.0 | 20.0          |
|             | 16QAM  | 8             | 4         | 19.09              | 19.11      | 19.09      | 19.06      | 19.00      | 18.86      | 5.0 | 20.0          |
|             |        | 8             | 7         | 19.08              | 19.04      | 19.01      | 19.04      | 19.11      | 19.04      | 5.0 | 20.0          |
|             |        | 15            | 0         | 19.00              | 19.04      | 19.07      | 19.07      | 19.06      | 18.97      | 5.0 | 20.0          |
|             |        | 1             | 0         | 26697              | 26783      | 26790      | 26797      | 26865      | 27033      | MPR | Tune-up Limit |
|             |        | 1             | 0         | 814.70 MHz         | 823.30 MHz | 824.00 MHz | 824.70 MHz | 831.50 MHz | 848.30 MHz |     |               |
|             |        | 1             | 0         | 23.94              | 23.85      | 23.88      | 23.89      | 23.89      | 23.73      | 0.0 | 25.0          |
|             | 64QAM  | 1             | 3         | 23.92              | 24.01      | 23.95      | 24.01      | 23.96      | 23.79      | 0.0 | 25.0          |
|             |        | 1             | 5         | 23.90              | 23.91      | 23.99      | 23.88      | 24.05      | 23.81      | 0.0 | 25.0          |
|             |        | 3             | 0         | 23.94              | 23.90      | 23.87      | 23.97      | 23.94      | 23.85      | 1.0 | 24.0          |
|             |        | 3             | 1         | 23.87              | 24.02      | 23.91      | 23.98      | 23.90      | 23.78      | 1.0 | 24.0          |
|             |        | 3             | 3         | 23.85              | 23.93      | 23.89      | 24.00      | 24.06      | 23.79      | 1.0 | 24.0          |
|             |        | 6             | 0         | 22.88              | 22.96      | 22.94      | 22.98      | 22.90      | 22.80      | 1.0 | 24.0          |
|             | 256QAM | 1             | 0         | 23.07              | 22.98      | 23.10      | 23.05      | 23.03      | 22.88      | 1.0 | 24.0          |
|             |        | 1             | 3         | 23.03              | 23.26      | 23.15      | 22.97      | 23.10      | 23.17      | 1.0 | 24.0          |
|             |        | 1             | 5         | 23.04              | 22.91      | 23.38      | 23.12      | 23.23      | 23.13      | 1.0 | 24.0          |
|             |        | 3             | 0         | 23.10              | 23.03      | 23.01      | 23.06      | 23.00      | 22.99      | 2.0 | 23.0          |
|             |        | 3             | 1         | 23.17              | 23.09      | 23.11      | 22.99      | 23.29      | 22.97      | 2.0 | 23.0          |
|             |        | 3             | 3         | 23.16              | 23.19      | 23.08      | 23.01      | 23.03      | 22.94      | 2.0 | 23.0          |
|             | QPSK   | 6             | 0         | 22.12              | 22.03      | 22.04      | 21.98      | 21.97      | 21.98      | 2.0 | 23.0          |
|             |        | 1             | 0         | 22.15              | 22.24      | 22.11      | 22.04      | 22.21      | 22.10      | 2.0 | 23.0          |
|             |        | 1             | 3         | 22.12              | 22.19      | 22.18      | 22.53      | 22.39      | 22.31      | 2.0 | 23.0          |
|             |        | 1             | 5         | 21.99              | 22.17      | 22.32      | 22.08      | 22.07      | 22.10      | 2.0 | 23.0          |
|             |        | 3             | 0         | 22.23              | 22.19      | 22.15      | 22.20      | 22.14      | 22.03      | 3.0 | 22.0          |
|             |        | 3             | 1         | 22.13              | 22.11      | 22.05      | 22.10      | 22.17      | 22.11      | 3.0 | 22.0          |
|             | 16QAM  | 3             | 3         | 22.10              | 22.08      | 22.20      | 22.10      | 22.19      | 21.99      | 3.0 | 22.0          |
|             |        | 6             | 0         | 20.89              | 21.02      | 21.03      | 21.00      | 20.92      | 21.08      | 3.0 | 22.0          |
|             | 256QAM | 1             | 0         | 19.17              | 19.01      | 19.11      | 19.16      | 19.09      | 19.11      | 5.0 | 20.0          |
|             |        | 1             | 3         | 19.19              | 19.29      | 18.98      | 19.20      | 19.00      | 18.82      | 5.0 | 20.0          |
|             |        | 1             | 5         | 19.01              | 19.04      | 19.31      | 19.23      | 19.38      | 18.89      | 5.0 | 20.0          |
|             |        | 3             | 0         | 19.26              | 19.10      | 19.02      | 19.13      | 19.17      | 19.08      | 5.0 | 20.0          |
|             |        | 3             | 1         | 19.19              | 19.16      | 19.18      | 19.04      | 19.03      | 19.03      | 5.0 | 20.0          |
|             |        | 3             | 3         | 19.03              | 19.07      | 19.08      | 19.04      | 19.12      | 18.87      | 5.0 | 20.0          |
|             | QPSK   | 6             | 0         | 18.98              | 19.09      | 18.94      | 19.03      | 19.04      | 18.88      | 5.0 | 20.0          |

**NR Band n5 (ANT A)**

| BW<br>(MHz) | Modulation | Mode         | RB Allocation | RB offset | Maximum Average Power (dBm) |            |            |     |               |
|-------------|------------|--------------|---------------|-----------|-----------------------------|------------|------------|-----|---------------|
|             |            |              |               |           | Measured Pwr (dBm)          |            |            | MPR | Tune-up Limit |
|             |            |              |               |           | 166800                      | 167300     | 167800     |     |               |
|             |            |              |               |           | 834.00 MHz                  | 836.50 MHz | 839.00 MHz |     |               |
| 20 MHz      | DFT-s-OFDM | $\pi/2$ BPSK | 1             | 0         | 23.13                       | 23.20      | 23.32      | 0.5 | 24.5          |
|             |            |              | 1             | 1         | 23.58                       | 23.62      | 23.69      | 0.0 | 25.0          |
|             |            |              | 1             | 52        | 23.74                       | 23.67      | 23.61      | 0.0 | 25.0          |
|             |            |              | 1             | 104       | 23.59                       | 23.58      | 23.50      | 0.0 | 25.0          |
|             |            |              | 1             | 105       | 23.04                       | 22.99      | 23.08      | 0.5 | 24.5          |
|             |            |              | 50            | 0         | 23.23                       | 23.10      | 23.08      | 0.5 | 24.5          |
|             |            |              | 50            | 28        | 23.67                       | 23.78      | 23.74      | 0.0 | 25.0          |
|             |            |              | 50            | 56        | 23.17                       | 23.15      | 23.10      | 0.5 | 24.5          |
|             |            |              | 100           | 0         | 23.12                       | 23.06      | 23.27      | 0.5 | 24.5          |
|             |            | QPSK         | 1             | 0         | 22.67                       | 22.63      | 22.70      | 1.0 | 24.0          |
|             |            |              | 1             | 1         | 23.66                       | 23.47      | 23.68      | 0.0 | 25.0          |
|             |            |              | 1             | 52        | 23.50                       | 23.61      | 23.58      | 0.0 | 25.0          |
|             |            |              | 1             | 104       | 23.59                       | 23.54      | 23.51      | 0.0 | 25.0          |
|             |            |              | 1             | 105       | 22.64                       | 22.48      | 22.55      | 1.0 | 24.0          |
|             |            |              | 50            | 0         | 22.77                       | 22.66      | 22.62      | 1.0 | 24.0          |
|             |            |              | 50            | 28        | 23.59                       | 23.78      | 23.72      | 0.0 | 25.0          |
|             |            |              | 50            | 56        | 22.72                       | 22.61      | 22.57      | 1.0 | 24.0          |
|             |            |              | 100           | 0         | 22.69                       | 22.62      | 22.74      | 1.0 | 24.0          |
|             |            | 16QAM        | 1             | 0         | 22.05                       | 21.72      | 21.76      | 2.0 | 23.0          |
|             |            |              | 1             | 1         | 22.82                       | 22.67      | 22.73      | 1.0 | 24.0          |
|             |            |              | 1             | 52        | 22.86                       | 22.75      | 22.65      | 1.0 | 24.0          |
|             |            |              | 1             | 104       | 22.71                       | 22.57      | 22.51      | 1.0 | 24.0          |
|             |            |              | 1             | 105       | 21.82                       | 21.63      | 21.58      | 2.0 | 23.0          |
|             |            |              | 50            | 0         | 21.73                       | 21.76      | 21.71      | 2.0 | 23.0          |
|             |            |              | 50            | 28        | 22.74                       | 22.71      | 22.71      | 1.0 | 24.0          |
|             |            |              | 50            | 56        | 21.65                       | 21.59      | 21.68      | 2.0 | 23.0          |
|             |            |              | 100           | 0         | 21.70                       | 21.71      | 21.75      | 2.0 | 23.0          |
|             |            | 64QAM        | 1             | 1         | 21.36                       | 21.24      | 20.65      | 2.5 | 22.5          |
|             |            | 256QAM       | 1             | 1         | 19.11                       | 19.46      | 19.45      | 4.5 | 20.5          |
|             | CP-OFDM    | QPSK         | 1             | 0         | 20.84                       | 20.83      | 20.76      | 3.0 | 22.0          |
|             |            |              | 1             | 1         | 22.57                       | 22.32      | 22.33      | 1.5 | 23.5          |
|             |            |              | 1             | 52        | 22.53                       | 22.42      | 22.36      | 1.5 | 23.5          |
|             |            |              | 1             | 104       | 22.36                       | 22.35      | 22.28      | 1.5 | 23.5          |
|             |            |              | 1             | 105       | 20.87                       | 20.84      | 20.86      | 3.0 | 22.0          |
|             |            |              | 50            | 0         | 20.67                       | 20.71      | 20.72      | 3.0 | 22.0          |
|             |            |              | 50            | 28        | 22.34                       | 22.31      | 22.31      | 1.5 | 23.5          |
|             |            |              | 50            | 56        | 20.67                       | 21.31      | 21.30      | 3.0 | 22.0          |
|             |            |              | 100           | 0         | 20.73                       | 20.77      | 20.67      | 3.0 | 22.0          |
|             |            | 16QAM        | 1             | 0         | 20.85                       | 20.75      | 21.17      | 3.0 | 22.0          |
|             |            |              | 1             | 1         | 21.85                       | 21.89      | 22.28      | 2.0 | 23.0          |
|             |            |              | 1             | 52        | 21.85                       | 21.89      | 22.18      | 2.0 | 23.0          |
|             |            |              | 1             | 104       | 21.78                       | 21.78      | 22.23      | 2.0 | 23.0          |
|             |            |              | 1             | 105       | 20.84                       | 20.79      | 20.82      | 3.0 | 22.0          |
|             |            |              | 50            | 0         | 20.80                       | 20.77      | 20.72      | 3.0 | 22.0          |
|             |            |              | 50            | 28        | 21.82                       | 21.91      | 21.83      | 2.0 | 23.0          |
|             |            |              | 50            | 56        | 21.90                       | 21.84      | 21.84      | 3.0 | 22.0          |
|             |            |              | 100           | 0         | 20.65                       | 20.77      | 20.71      | 3.0 | 22.0          |
|             |            | 64QAM        | 1             | 1         | 20.15                       | 20.33      | 20.44      | 3.5 | 21.5          |
|             |            | 256QAM       | 1             | 1         | 17.11                       | 17.28      | 17.49      | 6.5 | 18.5          |
| BW<br>(MHz) | Modulation | Mode         | RB Allocation | RB offset | Measured Pwr (dBm)          |            |            | MPR | Tune-up Limit |
|             |            |              |               |           | 166300                      | 167300     | 168300     |     |               |
|             |            |              |               |           | 831.50 MHz                  | 836.50 MHz | 841.50 MHz |     |               |
|             |            |              |               |           |                             |            |            |     |               |
| 15 MHz      | DFT-s-OFDM | $\pi/2$ BPSK | 1             | 0         | 23.15                       | 23.28      | 23.35      | 0.5 | 24.5          |
|             |            |              | 1             | 1         | 23.73                       | 23.74      | 23.70      | 0.0 | 25.0          |
|             |            |              | 1             | 39        | 23.64                       | 23.69      | 23.52      | 0.0 | 25.0          |
|             |            |              | 1             | 76        | 23.71                       | 23.62      | 23.69      | 0.0 | 25.0          |
|             |            |              | 1             | 77        | 23.18                       | 23.10      | 23.20      | 0.5 | 24.5          |
|             |            |              | 36            | 0         | 23.26                       | 23.11      | 23.18      | 0.5 | 24.5          |
|             |            |              | 36            | 21        | 23.78                       | 23.79      | 23.67      | 0.0 | 25.0          |
|             |            |              | 36            | 42        | 23.27                       | 23.12      | 23.08      | 0.5 | 24.5          |
|             |            |              | 75            | 0         | 23.19                       | 23.18      | 23.16      | 0.5 | 24.5          |
|             |            | QPSK         | 1             | 0         | 22.73                       | 22.67      | 22.77      | 1.0 | 24.0          |
|             |            |              | 1             | 1         | 23.59                       | 23.67      | 23.75      | 0.0 | 25.0          |
|             |            |              | 1             | 39        | 23.51                       | 23.55      | 23.44      | 0.0 | 25.0          |
|             |            |              | 1             | 76        | 23.52                       | 23.63      | 23.53      | 0.0 | 25.0          |
|             |            |              | 1             | 77        | 22.66                       | 22.53      | 22.62      | 1.0 | 24.0          |
|             |            |              | 36            | 0         | 22.71                       | 22.67      | 22.65      | 1.0 | 24.0          |
|             |            |              | 36            | 21        | 23.79                       | 23.71      | 23.67      | 0.0 | 25.0          |
|             |            |              | 36            | 42        | 22.64                       | 22.66      | 22.63      | 1.0 | 24.0          |
|             |            |              | 75            | 0         | 22.66                       | 22.73      | 22.61      | 1.0 | 24.0          |
|             |            | 16QAM        | 1             | 1         | 22.83                       | 22.63      | 22.84      | 1.0 | 24.0          |
|             |            |              | 1             | 39        | 22.78                       | 22.82      | 22.89      | 1.0 | 24.0          |
|             |            |              | 1             | 76        | 22.70                       | 22.67      | 22.65      | 1.0 | 24.0          |
|             |            | 64QAM        | 1             | 1         | 20.63                       | 20.53      | 20.62      | 2.5 | 22.5          |
|             |            | 256QAM       | 1             | 1         | 19.65                       | 19.40      | 19.29      | 4.5 | 20.5          |
|             | CP-OFDM    | QPSK         | 1             | 1         | 22.38                       | 22.42      | 22.38      | 1.5 | 23.5          |

| BW<br>(MHz) | Modulation | Mode         | RB Allocation | RB offset | Measured Pwr (dBm) |              |            | MPR | Tune-up Limit |
|-------------|------------|--------------|---------------|-----------|--------------------|--------------|------------|-----|---------------|
|             |            |              |               |           | 165800             | 167300       | 168800     |     |               |
|             |            |              |               |           | 829.00 MHz         | 836.50 MHz   | 844.00 MHz |     |               |
| 10 MHz      | DFT-s-OFDM | $\pi/2$ BPSK | 1             | 0         | 23.25              | 23.17        | 23.27      | 0.5 | 24.5          |
|             |            |              | 1             | 1         | 23.65              | 23.69        | 23.61      | 0.0 | 25.0          |
|             |            |              | 1             | 26        | 23.63              | 23.67        | 23.62      | 0.0 | 25.0          |
|             |            |              | 1             | 49        | 23.57              | 23.58        | 23.55      | 0.0 | 25.0          |
|             |            |              | 1             | 50        | 23.22              | 23.06        | 23.24      | 0.5 | 24.5          |
|             |            |              | 25            | 0         | 23.18              | 23.26        | 23.17      | 0.5 | 24.5          |
|             |            |              | 25            | 13        | 23.69              | 23.80        | 23.73      | 0.0 | 25.0          |
|             |            |              | 25            | 26        | 23.27              | 23.16        | 23.14      | 0.5 | 24.5          |
|             |            | QPSK         | 50            | 0         | 23.27              | 23.22        | 23.14      | 0.5 | 24.5          |
|             |            |              | 1             | 0         | 22.83              | 22.63        | 22.76      | 1.0 | 24.0          |
|             |            |              | 1             | 1         | 23.53              | <b>23.81</b> | 23.65      | 0.0 | 25.0          |
|             |            |              | 1             | 26        | 23.52              | 23.57        | 23.61      | 0.0 | 25.0          |
|             |            |              | 1             | 49        | 23.54              | 23.54        | 23.52      | 0.0 | 25.0          |
|             |            |              | 1             | 50        | 22.71              | 22.50        | 22.71      | 1.0 | 24.0          |
|             |            |              | 25            | 0         | 22.72              | 22.73        | 22.71      | 1.0 | 24.0          |
|             |            |              | 25            | 13        | 23.67              | 23.66        | 23.73      | 0.0 | 25.0          |
|             |            |              | 25            | 26        | 22.79              | 22.62        | 22.60      | 1.0 | 24.0          |
|             |            | 16QAM        | 50            | 0         | 22.73              | 22.71        | 22.63      | 1.0 | 24.0          |
|             |            |              | 1             | 1         | 22.72              | 22.82        | 22.80      | 1.0 | 24.0          |
|             |            |              | 1             | 26        | 22.72              | 22.62        | 22.52      | 1.0 | 24.0          |
|             |            |              | 1             | 49        | 22.77              | 22.69        | 22.68      | 1.0 | 24.0          |
|             |            | 64QAM        | 1             | 1         | 20.52              | 20.57        | 20.54      | 2.5 | 22.5          |
|             |            | 256QAM       | 1             | 1         | 19.24              | 19.45        | 19.33      | 4.5 | 20.5          |
|             | CP-OFDM    | QPSK         | 1             | 1         | 22.38              | 22.37        | 22.34      | 1.5 | 23.5          |
| BW<br>(MHz) | Modulation | Mode         | RB Allocation | RB offset | Measured Pwr (dBm) |              |            | MPR | Tune-up Limit |
|             |            |              |               |           | 165300             | 167300       | 169300     |     |               |
|             |            |              |               |           | 826.50 MHz         | 836.50 MHz   | 846.50 MHz |     |               |
| 5 MHz       | DFT-s-OFDM | $\pi/2$ BPSK | 1             | 0         | 23.20              | 23.08        | 23.17      | 0.5 | 24.5          |
|             |            |              | 1             | 1         | 23.68              | 23.65        | 23.54      | 0.0 | 25.0          |
|             |            |              | 1             | 13        | 23.63              | 23.66        | 23.54      | 0.0 | 25.0          |
|             |            |              | 1             | 23        | 23.69              | 23.65        | 23.51      | 0.0 | 25.0          |
|             |            |              | 1             | 24        | 23.16              | 23.05        | 23.20      | 0.5 | 24.5          |
|             |            |              | 12            | 0         | 23.28              | 23.18        | 23.08      | 0.5 | 24.5          |
|             |            |              | 12            | 6         | 23.76              | 23.67        | 23.61      | 0.0 | 25.0          |
|             |            |              | 12            | 13        | 23.18              | 23.13        | 23.07      | 0.5 | 24.5          |
|             |            | QPSK         | 25            | 0         | 23.21              | 23.21        | 23.10      | 0.5 | 24.5          |
|             |            |              | 1             | 0         | 22.95              | 22.58        | 22.82      | 1.0 | 24.0          |
|             |            |              | 1             | 1         | 23.54              | 23.57        | 23.49      | 0.0 | 25.0          |
|             |            |              | 1             | 13        | 23.49              | 23.54        | 23.44      | 0.0 | 25.0          |
|             |            |              | 1             | 23        | 23.72              | 23.69        | 23.57      | 0.0 | 25.0          |
|             |            |              | 1             | 24        | 22.64              | 22.48        | 22.60      | 1.0 | 24.0          |
|             |            |              | 12            | 0         | 22.75              | 22.74        | 22.53      | 1.0 | 24.0          |
|             |            |              | 12            | 6         | 23.67              | 23.68        | 23.61      | 0.0 | 25.0          |
|             |            |              | 12            | 13        | 22.73              | 22.66        | 22.54      | 1.0 | 24.0          |
|             |            | 16QAM        | 25            | 0         | 22.74              | 22.68        | 22.55      | 1.0 | 24.0          |
|             |            |              | 1             | 1         | 22.86              | 22.77        | 22.70      | 1.0 | 24.0          |
|             |            |              | 1             | 13        | 22.59              | 22.51        | 22.56      | 1.0 | 24.0          |
|             |            |              | 1             | 23        | 22.73              | 22.74        | 22.64      | 1.0 | 24.0          |
|             |            | 64QAM        | 1             | 1         | 20.68              | 20.64        | 20.49      | 2.5 | 22.5          |
|             |            | 256QAM       | 1             | 1         | 19.43              | 19.34        | 19.47      | 4.5 | 20.5          |
|             | CP-OFDM    | QPSK         | 1             | 1         | 22.45              | 22.41        | 22.24      | 1.5 | 23.5          |

**NR Band n5 (ANT E)**

| BW<br>(MHz) | Modulation | Mode         | RB Allocation | RB offset | Maximum Average Power (dBm) |            |            |     |               |
|-------------|------------|--------------|---------------|-----------|-----------------------------|------------|------------|-----|---------------|
|             |            |              |               |           | Measured Pwr (dBm)          |            |            | MPR | Tune-up Limit |
|             |            |              |               |           | 166800                      | 167300     | 167800     |     |               |
|             |            |              |               |           | 834.00 MHz                  | 836.50 MHz | 839.00 MHz |     |               |
| 20 MHz      | DFT-s-OFDM | $\pi/2$ BPSK | 1             | 0         | 23.10                       | 23.15      | 23.12      | 0.5 | 24.5          |
|             |            |              | 1             | 1         | 23.95                       | 23.94      | 23.91      | 0.0 | 25.0          |
|             |            |              | 1             | 52        | 23.96                       | 23.90      | 23.73      | 0.0 | 25.0          |
|             |            |              | 1             | 104       | 23.98                       | 23.89      | 23.74      | 0.0 | 25.0          |
|             |            |              | 1             | 105       | 22.88                       | 22.97      | 23.05      | 0.5 | 24.5          |
|             |            |              | 50            | 0         | 23.41                       | 23.22      | 23.52      | 0.5 | 24.5          |
|             |            |              | 50            | 28        | 23.97                       | 23.65      | 23.78      | 0.0 | 25.0          |
|             |            |              | 50            | 56        | 23.42                       | 23.37      | 23.43      | 0.5 | 24.5          |
|             |            |              | 100           | 0         | 23.45                       | 23.43      | 23.38      | 0.5 | 24.5          |
|             |            | QPSK         | 1             | 0         | 22.70                       | 22.55      | 22.65      | 1.0 | 24.0          |
|             |            |              | 1             | 1         | 23.86                       | 23.87      | 23.82      | 0.0 | 25.0          |
|             |            |              | 1             | 52        | 23.96                       | 23.89      | 23.77      | 0.0 | 25.0          |
|             |            |              | 1             | 104       | 23.85                       | 23.78      | 23.86      | 0.0 | 25.0          |
|             |            |              | 1             | 105       | 22.49                       | 22.41      | 22.51      | 1.0 | 24.0          |
|             |            |              | 50            | 0         | 23.01                       | 23.02      | 22.96      | 1.0 | 24.0          |
|             |            |              | 50            | 28        | 24.10                       | 23.86      | 24.03      | 0.0 | 25.0          |
|             |            |              | 50            | 56        | 22.96                       | 22.85      | 22.88      | 1.0 | 24.0          |
|             |            |              | 100           | 0         | 22.99                       | 22.91      | 23.10      | 1.0 | 24.0          |
|             |            | 16QAM        | 1             | 0         | 21.89                       | 21.69      | 21.63      | 2.0 | 23.0          |
|             |            |              | 1             | 1         | 22.99                       | 22.92      | 22.99      | 1.0 | 24.0          |
|             |            |              | 1             | 52        | 23.07                       | 22.98      | 22.90      | 1.0 | 24.0          |
|             |            |              | 1             | 104       | 22.86                       | 22.91      | 22.98      | 1.0 | 24.0          |
|             |            |              | 1             | 105       | 21.77                       | 21.48      | 21.59      | 2.0 | 23.0          |
|             |            |              | 50            | 0         | 21.67                       | 21.63      | 21.71      | 2.0 | 23.0          |
|             |            |              | 50            | 28        | 22.61                       | 22.72      | 22.61      | 1.0 | 24.0          |
|             |            |              | 50            | 56        | 21.56                       | 21.58      | 21.50      | 2.0 | 23.0          |
|             |            |              | 100           | 0         | 21.61                       | 21.60      | 21.63      | 2.0 | 23.0          |
|             |            | 64QAM        | 1             | 1         | 20.86                       | 21.20      | 20.92      | 2.5 | 22.5          |
|             |            | 256QAM       | 1             | 1         | 19.65                       | 19.45      | 19.30      | 4.5 | 20.5          |
|             | CP-OFDM    | QPSK         | 1             | 0         | 20.68                       | 20.67      | 20.70      | 3.0 | 22.0          |
|             |            |              | 1             | 1         | 22.70                       | 22.64      | 22.65      | 1.5 | 23.5          |
|             |            |              | 1             | 52        | 22.48                       | 22.43      | 22.42      | 1.5 | 23.5          |
|             |            |              | 1             | 104       | 22.33                       | 22.28      | 22.24      | 1.5 | 23.5          |
|             |            |              | 1             | 105       | 20.88                       | 20.83      | 20.92      | 3.0 | 22.0          |
|             |            |              | 50            | 0         | 20.67                       | 20.62      | 20.67      | 3.0 | 22.0          |
|             |            |              | 50            | 28        | 22.26                       | 22.29      | 22.35      | 1.5 | 23.5          |
|             |            |              | 50            | 56        | 21.21                       | 21.23      | 21.27      | 3.0 | 22.0          |
|             |            |              | 100           | 0         | 20.68                       | 20.68      | 20.72      | 3.0 | 22.0          |
|             |            | 16QAM        | 1             | 0         | 20.75                       | 20.85      | 21.04      | 3.0 | 22.0          |
|             |            |              | 1             | 1         | 21.79                       | 21.79      | 22.15      | 2.0 | 23.0          |
|             |            |              | 1             | 52        | 21.84                       | 21.86      | 22.23      | 2.0 | 23.0          |
|             |            |              | 1             | 104       | 21.69                       | 21.79      | 22.12      | 2.0 | 23.0          |
|             |            |              | 1             | 105       | 20.68                       | 20.83      | 20.96      | 3.0 | 22.0          |
|             |            |              | 50            | 0         | 20.68                       | 20.77      | 20.67      | 3.0 | 22.0          |
|             |            |              | 50            | 28        | 21.86                       | 21.81      | 21.79      | 2.0 | 23.0          |
|             |            |              | 50            | 56        | 21.81                       | 21.80      | 21.76      | 3.0 | 22.0          |
|             |            |              | 100           | 0         | 20.71                       | 20.69      | 20.71      | 3.0 | 22.0          |
|             |            | 64QAM        | 1             | 1         | 20.02                       | 20.21      | 20.41      | 3.5 | 21.5          |
|             |            | 256QAM       | 1             | 1         | 17.02                       | 17.19      | 17.37      | 6.5 | 18.5          |
| BW<br>(MHz) | Modulation | Mode         | RB Allocation | RB offset | Measured Pwr (dBm)          |            |            | MPR | Tune-up Limit |
|             |            |              |               |           | 166300                      | 167300     | 168300     |     |               |
|             |            |              |               |           | 831.50 MHz                  | 836.50 MHz | 841.50 MHz |     |               |
|             |            |              |               |           |                             |            |            |     |               |
| 15 MHz      | DFT-s-OFDM | $\pi/2$ BPSK | 1             | 0         | 23.08                       | 23.20      | 23.24      | 0.5 | 24.5          |
|             |            |              | 1             | 1         | 24.03                       | 23.39      | 24.01      | 0.0 | 25.0          |
|             |            |              | 1             | 39        | 24.03                       | 23.90      | 23.95      | 0.0 | 25.0          |
|             |            |              | 1             | 76        | 23.91                       | 23.74      | 23.96      | 0.0 | 25.0          |
|             |            |              | 1             | 77        | 23.11                       | 23.01      | 23.13      | 0.5 | 24.5          |
|             |            |              | 36            | 0         | 23.55                       | 23.51      | 23.46      | 0.5 | 24.5          |
|             |            |              | 36            | 21        | 24.11                       | 24.00      | 23.98      | 0.0 | 25.0          |
|             |            |              | 36            | 42        | 23.49                       | 23.44      | 23.39      | 0.5 | 24.5          |
|             |            |              | 75            | 0         | 23.44                       | 23.43      | 23.40      | 0.5 | 24.5          |
|             |            | QPSK         | 1             | 0         | 22.75                       | 22.62      | 22.74      | 1.0 | 24.0          |
|             |            |              | 1             | 1         | 23.81                       | 23.89      | 23.86      | 0.0 | 25.0          |
|             |            |              | 1             | 39        | 24.12                       | 23.83      | 23.78      | 0.0 | 25.0          |
|             |            |              | 1             | 76        | 23.85                       | 23.71      | 23.92      | 0.0 | 25.0          |
|             |            |              | 1             | 77        | 22.64                       | 22.46      | 22.57      | 1.0 | 24.0          |
|             |            |              | 36            | 0         | 22.96                       | 23.04      | 22.99      | 1.0 | 24.0          |
|             |            |              | 36            | 21        | 24.10                       | 24.00      | 23.96      | 0.0 | 25.0          |
|             |            |              | 36            | 42        | 22.95                       | 22.88      | 22.83      | 1.0 | 24.0          |
|             |            |              | 75            | 0         | 23.00                       | 22.97      | 22.94      | 1.0 | 24.0          |
|             |            | 16QAM        | 1             | 1         | 23.07                       | 23.08      | 23.24      | 1.0 | 24.0          |
|             |            |              | 1             | 39        | 23.29                       | 22.98      | 23.11      | 1.0 | 24.0          |
|             |            |              | 1             | 76        | 23.15                       | 22.94      | 23.06      | 1.0 | 24.0          |
|             |            | 64QAM        | 1             | 1         | 20.96                       | 20.95      | 21.04      | 2.5 | 22.5          |
|             |            | 256QAM       | 1             | 1         | 19.45                       | 19.34      | 19.56      | 4.5 | 20.5          |
|             | CP-OFDM    | QPSK         | 1             | 1         | 22.59                       | 22.58      | 22.88      | 1.5 | 23.5          |

| BW<br>(MHz) | Modulation | Mode         | RB Allocation | RB offset | Measured Pwr (dBm) |            |            | MPR | Tune-up Limit |
|-------------|------------|--------------|---------------|-----------|--------------------|------------|------------|-----|---------------|
|             |            |              |               |           | 165800             | 167300     | 168800     |     |               |
|             |            |              |               |           | 829.00 MHz         | 836.50 MHz | 844.00 MHz |     |               |
| 10 MHz      | DFT-s-OFDM | $\pi/2$ BPSK | 1             | 0         | 23.14              | 23.15      | 23.17      | 0.5 | 24.5          |
|             |            |              | 1             | 1         | 24.05              | 23.93      | 23.97      | 0.0 | 25.0          |
|             |            |              | 1             | 26        | 24.03              | 23.93      | 23.90      | 0.0 | 25.0          |
|             |            |              | 1             | 49        | 24.06              | 23.91      | 23.74      | 0.0 | 25.0          |
|             |            |              | 1             | 50        | 23.13              | 22.99      | 23.16      | 0.5 | 24.5          |
|             |            |              | 25            | 0         | 23.51              | 23.54      | 23.49      | 0.5 | 24.5          |
|             |            |              | 25            | 13        | 23.98              | 24.08      | 24.02      | 0.0 | 25.0          |
|             |            |              | 25            | 26        | 23.61              | 23.40      | 23.41      | 0.5 | 24.5          |
|             |            | QPSK         | 50            | 0         | 23.49              | 23.50      | 23.49      | 0.5 | 24.5          |
|             |            |              | 1             | 0         | 22.68              | 22.55      | 22.63      | 1.0 | 24.0          |
|             |            |              | 1             | 1         | 23.94              | 23.98      | 23.89      | 0.0 | 25.0          |
|             |            |              | 1             | 26        | 23.88              | 23.92      | 23.90      | 0.0 | 25.0          |
|             |            |              | 1             | 49        | 23.96              | 23.92      | 23.67      | 0.0 | 25.0          |
|             |            |              | 1             | 50        | 22.66              | 22.47      | 22.70      | 1.0 | 24.0          |
|             |            |              | 25            | 0         | 23.06              | 23.05      | 22.93      | 1.0 | 24.0          |
|             |            |              | 25            | 13        | 23.99              | 24.06      | 24.00      | 0.0 | 25.0          |
|             |            |              | 25            | 26        | 23.07              | 22.95      | 22.95      | 1.0 | 24.0          |
|             |            | 16QAM        | 50            | 0         | 22.95              | 22.96      | 22.97      | 1.0 | 24.0          |
|             |            |              | 1             | 1         | 23.19              | 23.29      | 22.92      | 1.0 | 24.0          |
|             |            |              | 1             | 26        | 23.15              | 23.00      | 22.94      | 1.0 | 24.0          |
|             |            |              | 1             | 49        | 23.28              | 22.96      | 23.04      | 1.0 | 24.0          |
|             |            | 64QAM        | 1             | 1         | 20.88              | 20.93      | 20.93      | 2.5 | 22.5          |
|             |            | 256QAM       | 1             | 1         | 19.44              | 19.30      | 19.60      | 4.5 | 20.5          |
|             | CP-OFDM    | QPSK         | 1             | 1         | 22.73              | 22.84      | 22.51      | 1.5 | 23.5          |
| BW<br>(MHz) | Modulation | Mode         | RB Allocation | RB offset | Measured Pwr (dBm) |            |            | MPR | Tune-up Limit |
|             |            |              |               |           | 165300             | 167300     | 169300     |     |               |
|             |            |              |               |           | 826.50 MHz         | 836.50 MHz | 846.50 MHz |     |               |
| 5 MHz       | DFT-s-OFDM | $\pi/2$ BPSK | 1             | 0         | 23.04              | 23.11      | 23.02      | 0.5 | 24.5          |
|             |            |              | 1             | 1         | 23.98              | 23.88      | 23.85      | 0.0 | 25.0          |
|             |            |              | 1             | 13        | 23.84              | 23.85      | 23.76      | 0.0 | 25.0          |
|             |            |              | 1             | 23        | 24.04              | 23.93      | 23.82      | 0.0 | 25.0          |
|             |            |              | 1             | 24        | 23.10              | 23.04      | 23.03      | 0.5 | 24.5          |
|             |            |              | 12            | 0         | 23.50              | 23.50      | 23.41      | 0.5 | 24.5          |
|             |            |              | 12            | 6         | 23.96              | 24.02      | 23.95      | 0.0 | 25.0          |
|             |            |              | 12            | 13        | 23.51              | 23.48      | 23.30      | 0.5 | 24.5          |
|             |            | QPSK         | 25            | 0         | 23.47              | 23.45      | 23.39      | 0.5 | 24.5          |
|             |            |              | 1             | 0         | 22.81              | 22.58      | 22.62      | 1.0 | 24.0          |
|             |            |              | 1             | 1         | 23.95              | 23.86      | 23.77      | 0.0 | 25.0          |
|             |            |              | 1             | 13        | 23.87              | 23.86      | 23.85      | 0.0 | 25.0          |
|             |            |              | 1             | 23        | 23.84              | 23.84      | 23.70      | 0.0 | 25.0          |
|             |            |              | 1             | 24        | 22.69              | 22.55      | 22.48      | 1.0 | 24.0          |
|             |            |              | 12            | 0         | 23.04              | 22.97      | 22.88      | 1.0 | 24.0          |
|             |            |              | 12            | 6         | 24.03              | 24.02      | 23.87      | 0.0 | 25.0          |
|             |            |              | 12            | 13        | 22.98              | 22.96      | 22.87      | 1.0 | 24.0          |
|             |            | 16QAM        | 25            | 0         | 23.01              | 23.01      | 22.83      | 1.0 | 24.0          |
|             |            |              | 1             | 1         | 23.16              | 23.18      | 22.86      | 1.0 | 24.0          |
|             |            |              | 1             | 13        | 22.99              | 22.97      | 22.82      | 1.0 | 24.0          |
|             |            |              | 1             | 23        | 23.17              | 23.03      | 22.93      | 1.0 | 24.0          |
|             |            | 64QAM        | 1             | 1         | 21.05              | 20.98      | 20.83      | 2.5 | 22.5          |
|             |            | 256QAM       | 1             | 1         | 19.54              | 19.33      | 19.49      | 4.5 | 20.5          |
|             | CP-OFDM    | QPSK         | 1             | 1         | 22.68              | 22.74      | 22.60      | 1.5 | 23.5          |

## 8.2. PEAK TO AVERAGE RATIO

### Test Procedure

Per KDB 971168 D01 Power Meas License Digital Systems v03r01;

The transmitter output was connected to either CMW500 Test Set or E7515B Test set and configured to operate at maximum power. The PAR were measured on the Spectrum Analyzer.

### Test Spec

In addition, when the transmitter power is measured in terms of average value, the peak-to-average ratio of the power shall not exceed 13 dB.

### NOTE

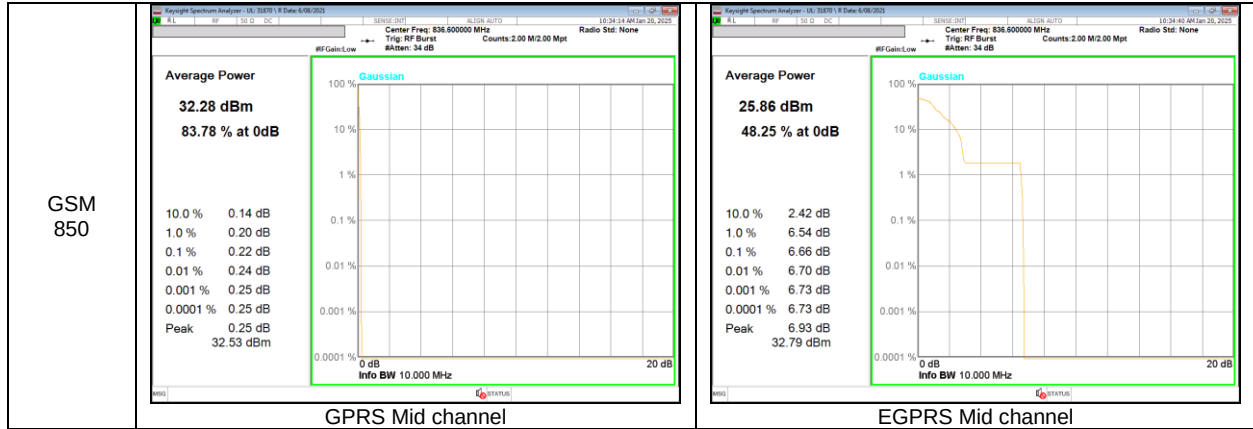
LTE: All modulations were investigated and the worst modulations (QPSK, 256QAM) are reported.  
5G NR: All Waveforms (CP-OFDM vs DFT-s\_OFDM) and modulations ( $\pi/2$  BPSK, QPSK, 16QAM, 64QAM, 256QAM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

### RESULTS

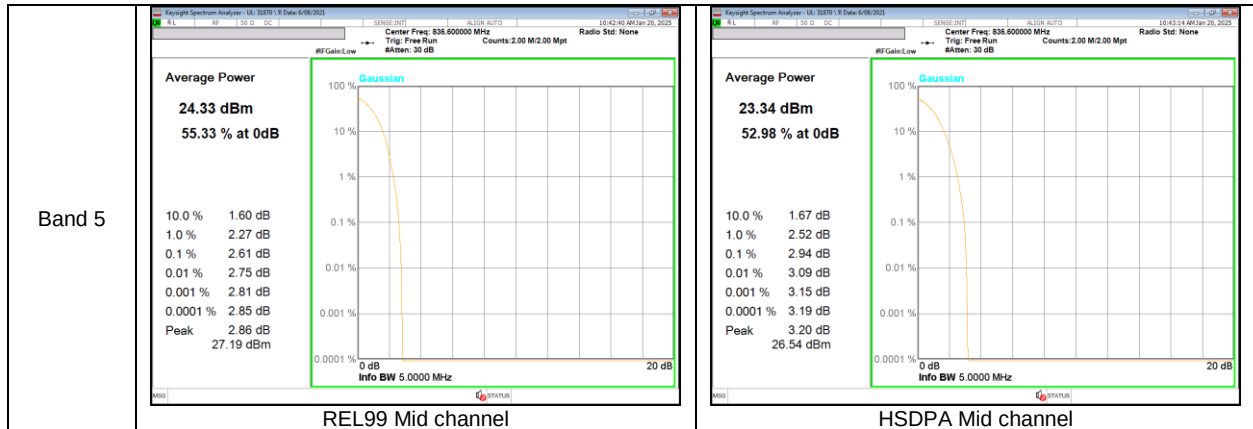
See the following pages.

## 8.2.1. CONDUCTED PEAK TO AVERAGE RESULT

### GSM (ANT A)

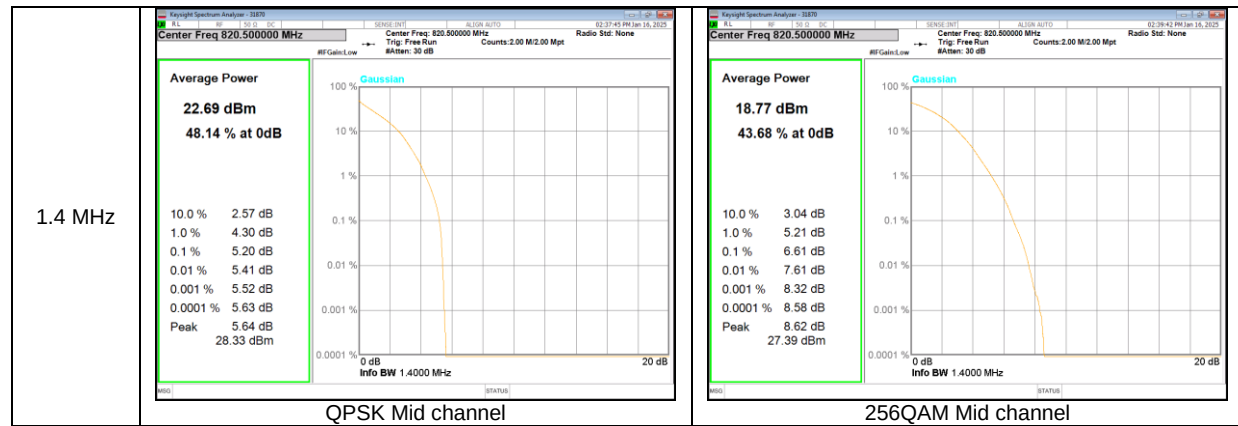


### WCDMA (ANT A)



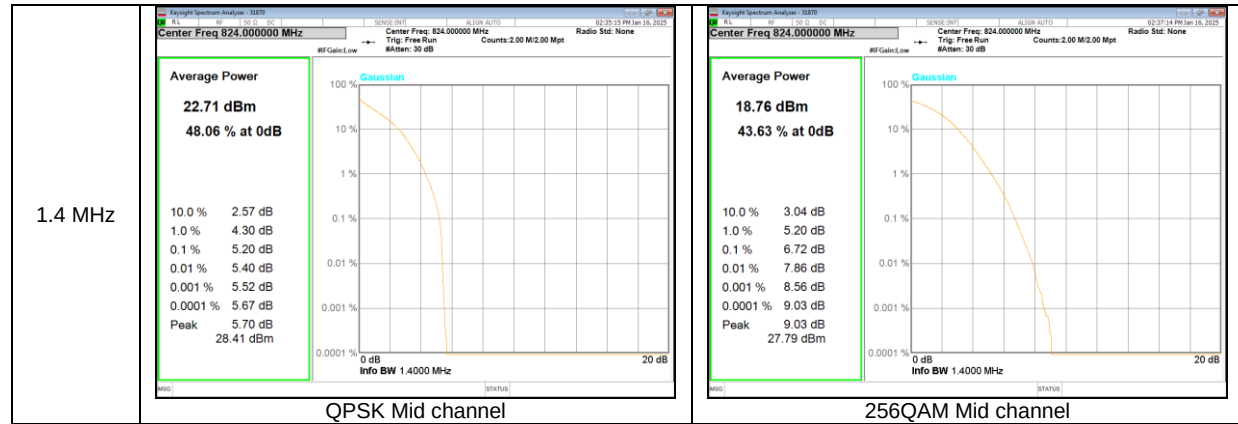
**LTE Band 26 (Part 90) (ANT E)**





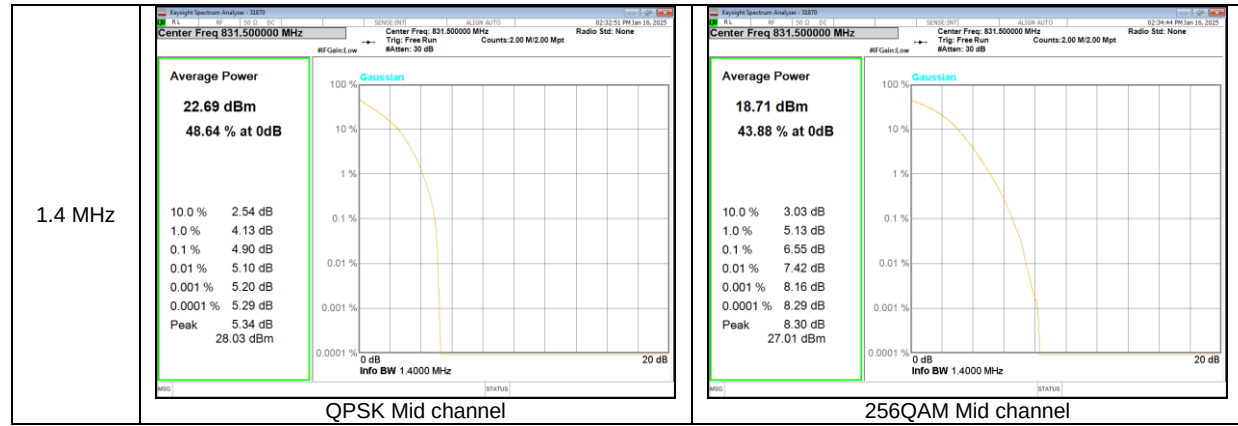
**LTE Band 26 (Straddle) (ANT E)**





**LTE Band 26 (Part 22) (ANT E)**





**NR Band n5 CP-OFDM (ANT E)**



### **8.3. OCCUPIED BANDWIDTH**

#### **RULE PART(S)**

FCC: §2.1049

#### **LIMITS**

For reporting purposes only

#### **TEST PROCEDURE**

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at middle channel in each band. The -26dB bandwidth was also measured and recorded.

(KDB 971168 D01 Power Meas License Digital Systems v03r01)

#### **RESULTS**

See the following pages.

**- GSM (ANT A)**

| Band | Modulation | f [MHz] | 99% BW (kHz) | -26dB BW (kHz) |
|------|------------|---------|--------------|----------------|
| 850  | GPRS       | 836.6   | 241.340      | 308.600        |
|      | EGPRS      |         | 247.020      | 293.900        |

**- WCDMA (ANT A)**

| Band | Modulation | f [MHz] | 99% BW (MHz) | -26dB BW (MHz) |
|------|------------|---------|--------------|----------------|
| B5   | Rel.99     | 836.6   | 4.137        | 4.709          |
|      | HSDPA      |         | 4.130        | 4.683          |

**- LTE Band 26 (Part 90) (ANT E)**

| Band    | BW   | Modulation | f [MHz] | 99% BW (MHz) | -26dB BW (MHz) |
|---------|------|------------|---------|--------------|----------------|
| LTE B26 | 15M  | QPSK       | 821.5   | 13.436       | 14.480         |
|         |      | 16QAM      |         | 13.438       | 14.720         |
|         | 10M  | QPSK       | 819.0   | 8.977        | 9.919          |
|         |      | 16QAM      |         | 8.950        | 9.901          |
|         | 5M   | QPSK       | 819.0   | 4.496        | 5.007          |
|         |      | 16QAM      |         | 4.485        | 5.032          |
|         | 3M   | QPSK       | 819.0   | 2.700        | 3.032          |
|         |      | 16QAM      |         | 2.684        | 3.011          |
|         | 1.4M | QPSK       | 819.0   | 1.082        | 1.333          |
|         |      | 16QAM      |         | 1.089        | 1.329          |

**- LTE Band 26 (Straddle) (ANT E)**

| Band    | BW   | Modulation | f [MHz] | 99% BW (MHz) | -26dB BW (MHz) |
|---------|------|------------|---------|--------------|----------------|
| LTE B26 | 15M  | QPSK       | 824.0   | 13.441       | 14.510         |
|         |      | 16QAM      |         | 13.410       | 14.640         |
|         | 10M  | QPSK       |         | 8.980        | 9.915          |
|         |      | 16QAM      |         | 8.971        | 9.798          |
|         | 5M   | QPSK       |         | 4.489        | 5.034          |
|         |      | 16QAM      |         | 4.488        | 5.113          |
|         | 3M   | QPSK       |         | 2.695        | 2.986          |
|         |      | 16QAM      |         | 2.699        | 3.033          |
|         | 1.4M | QPSK       |         | 1.088        | 1.301          |
|         |      | 16QAM      |         | 1.092        | 1.308          |

**- LTE Band 26 (Part 22) (ANT E)**

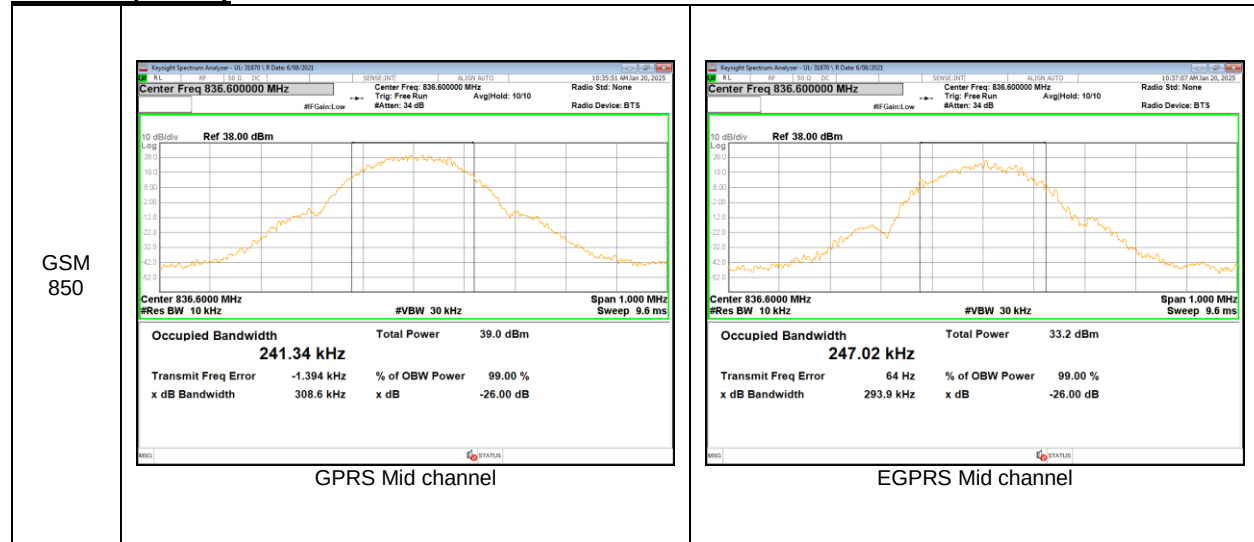
| Band    | BW   | Modulation | f [MHz] | 99% BW (MHz) | -26dB BW (MHz) |
|---------|------|------------|---------|--------------|----------------|
| LTE B26 | 15M  | QPSK       | 836.5   | 13.420       | 14.730         |
|         |      | 16QAM      |         | 13.438       | 14.590         |
|         | 10M  | QPSK       | 831.5   | 8.962        | 9.747          |
|         |      | 16QAM      |         | 8.952        | 9.884          |
|         | 5M   | QPSK       | 831.5   | 5.000        | 5.051          |
|         |      | 16QAM      |         | 4.956        | 5.045          |
|         | 3M   | QPSK       | 831.5   | 2.696        | 3.024          |
|         |      | 16QAM      |         | 2.701        | 3.041          |
|         | 1.4M | QPSK       | 831.5   | 1.087        | 1.355          |
|         |      | 16QAM      |         | 1.087        | 1.305          |

**- NR Band n5 CP-OFDM (ANT E)**

| Band  | BW  | Modulation | f [MHz] | 99% BW (MHz) | -26dB BW (MHz) |
|-------|-----|------------|---------|--------------|----------------|
| NR n5 | 20M | QPSK       | 836.5   | 18.939       | 19.960         |
|       |     | 16QAM      |         | 18.965       | 19.890         |
|       | 15M | QPSK       |         | 14.143       | 15.050         |
|       |     | 16QAM      |         | 14.139       | 14.860         |
|       | 10M | QPSK       |         | 9.317        | 10.210         |
|       |     | 16QAM      |         | 9.327        | 10.160         |
|       | 5M  | QPSK       |         | 4.474        | 5.129          |
|       |     | 16QAM      |         | 4.476        | 5.037          |

### 8.3.1. OCCUPIED BANDWIDTH RESULT

#### GSM 850 (ANT A)

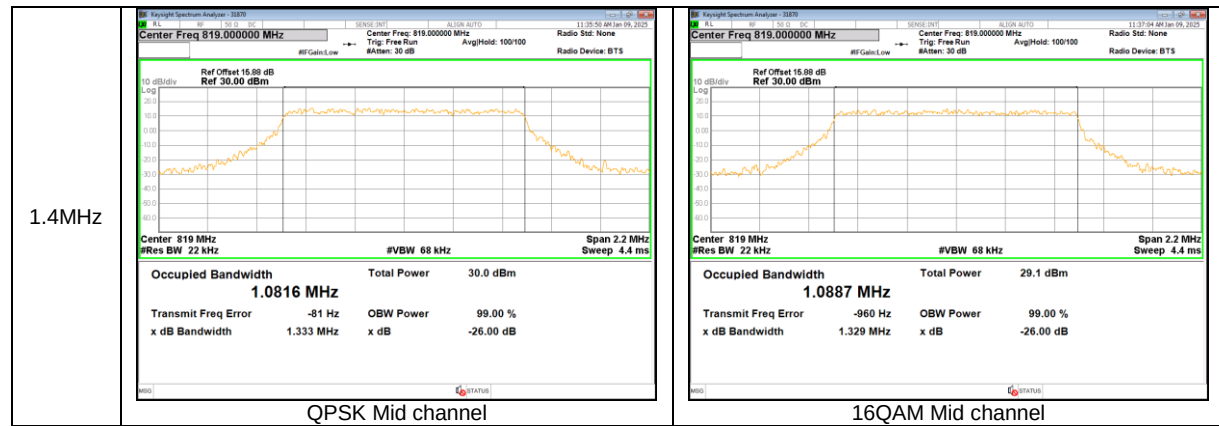


#### WCDMA Band 5 (ANT A)



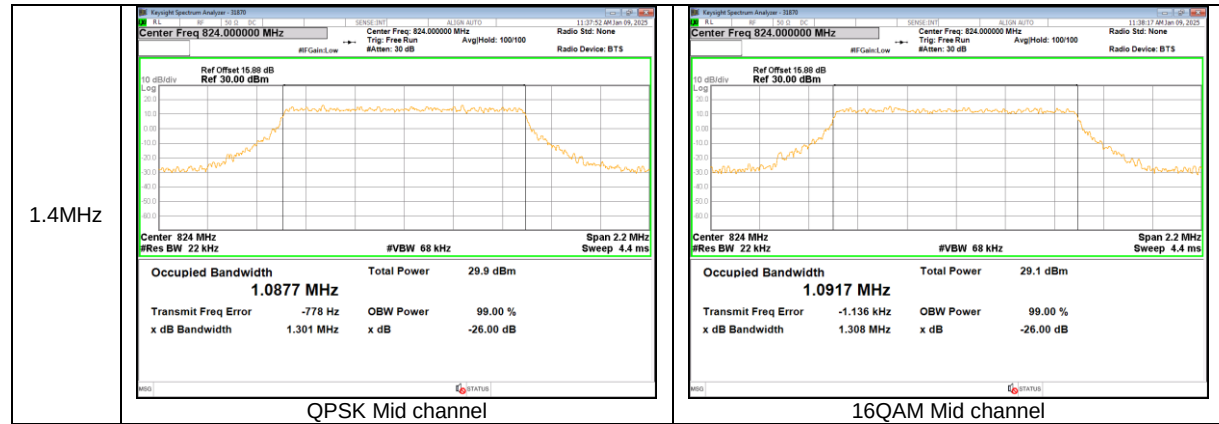
**LTE Band 26 (Part 90) (ANT E)**





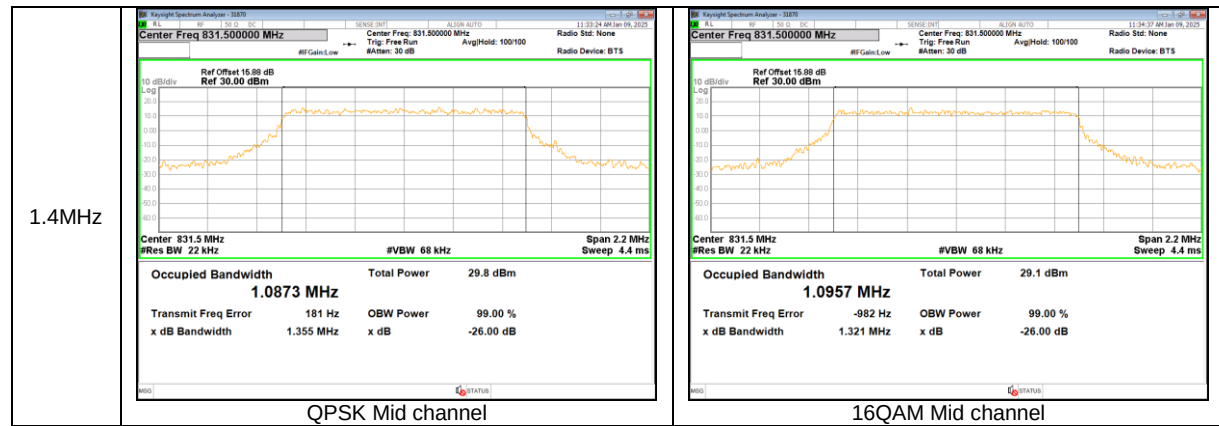
# LTE Band 26 (Straddle) (ANT E)





**LTE Band 26 (Part 22) (ANT E)**





NR Band n5 CP-OFDM (ANT E)



## 8.4. BAND EDGE EMISSIONS

### RULE PART(S)

FCC: §22.359, §22.917, §90.543 and §90.691

### LIMITS

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log (P)$  dB.

Part 90.543:

(e) For operations in the 758-768 MHz and the 788-798 MHz bands, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

- (1) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than  $76 + 10 \log (P)$  dB in a 6.25 kHz band segment, for base and fixed stations.
- (2) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than  $65 + 10 \log (P)$  dB in a 6.25 kHz band segment, for mobile and portable stations.
- (3) On any frequency between 775-788 MHz, above 805 MHz, and below 758 MHz, by at least  $43 + 10 \log (P)$  dB.
- (4) Compliance with the provisions of paragraphs (e)(1) and (2) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

Part 90.691:

(a) Out-of-band emission requirement shall apply only to the "outer" channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

- (1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least  $116 \log_{10}(f/6.1)$  decibels or  $50 + 10 \log_{10}(P)$  decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.
- (2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least  $43 + 10 \log_{10}(P)$  decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

## **TEST PROCEDURE**

Per KDB 971168 D01 Power Meas License Digital Systems v03r01

The transmitter output was connected to either CMW500 Test Set or E7515B Test set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

### **GSM**

- a) Set the RBW = 1 - 5% of OBW(GSM850 – 8.2kHz)  
/ within 100 kHz from the edge of the authorized frequency block/band.
- b) Set the RBW = 100 kHz / above 100 kHz from the edge of the authorized frequency block/band
- c) Set VBW  $\geq 3 \times$  RBW;
- d) Set span  $\geq 2 \times$  OBW;
- e) Sweep time = Auto;
- f) Detector = RMS;
- g) Ensure that the number of measurement points  $\geq 2 \times$  Span/RBW;
- h) Trace mode = Average(100);
- i) Add duty cycle correction factor (9dB);

### **WCDMA/LTE/5G NR**

- a) Set the RBW = 1 - 1.5 % of OBW (Typically limited to a minimum RBW of 1% of the OBW)  
/ within 100 kHz from the edge of the authorized frequency block/band.
- b) Set the RBW = 100 kHz / above 100 kHz from the edge of the authorized frequency block/band
- c) Set VBW  $\geq 3 \times$  RBW;
- d) Set span  $\geq 2 \times$  OBW;
- e) Sweep time = Auto;
- f) Detector = RMS;
- g) Ensure that the number of measurement points  $\geq 2 \times$  Span/RBW;
- h) Trace mode = Average (100);

**NOTE1**

Note that the spurious emissions outside of the channel include narrowband signals. These signals are all below the -13dBm limits. Although the measurement bandwidth is less than the reference bandwidth of 1MHz no addental correction is applied as ANSI C63.26 section 4.2.3 only requires the correction to be applied when the OBW of the emission being measured is wider than the measurement bandwidth (Where the OBW of the signal under measurement is less than the RBW of the measuring instrument, no bandwidth correction or integration will be required.) Plots for low and high channels show the level of the emission measured with the reduced bandwidth and the level of the same emission measured using the integration method over the 1MHz reference bandwidth are very close, indicating the emissions are narrowband.

**NOTE2**

5G NR: All Waveforms (CP-OFDM vs DFT-s\_OFDM) and modulations ( $\pi/2$  BPSK, QPSK, 16QAM, 64QAM, 256QAM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

**NOTE3**

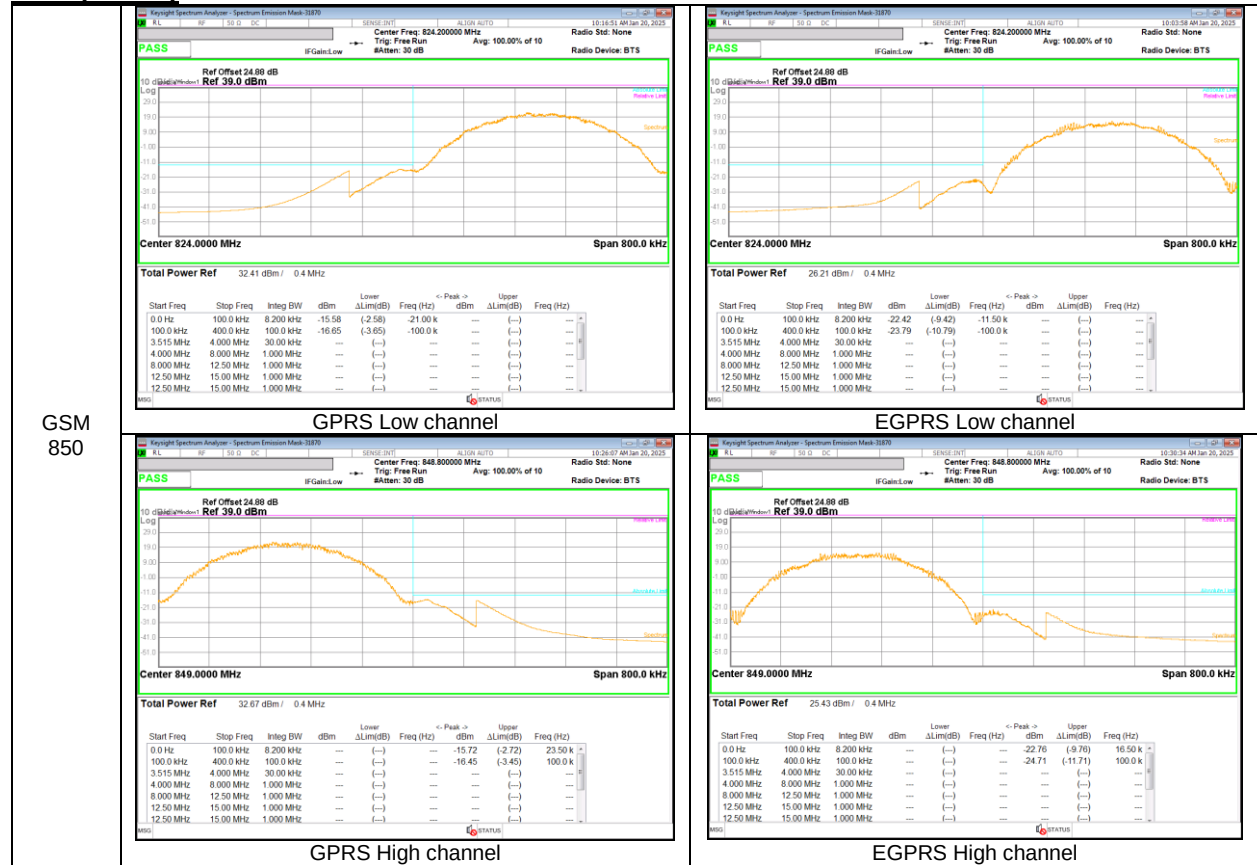
Emission Mask: All 1RB Positions (Edge RB, Outer RB, Inner RB) and modulations (QPSK, 16QAM, 64QAM, 256QAM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

**RESULTS**

See the following pages.

## 8.4.1. BAND EDGE RESULT

### GSM (ANT A)



WCDMA (ANT A)

