



# **CERTIFICATION TEST REPORT**

**Report Number. :** 11783639-E1V3

**Applicant :** SONY MOBILE COMMUNICATIONS INC.  
4-12-3 HIGASHI-SHINAGAWA,  
SHINAGAWA -KU,TOKYO, 140-0002, JAPAN

**FCC ID :** PY7-88607S

**EUT Description :** GSM/WCDMA/LTE Phone with BT,DTS/UNII a/b/g/n/ac, GPS & NFC

**Test Standard(s) :** FCC CFR47 PART 22 SUBPART H  
FCC CFR47 PART 24 SUBPART E  
FCC CFR47 PART 27 SUBPART F, H, L, and M

**Date Of Issue:**

August 10, 2017

**Prepared by:**

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NVLAP LAB CODE 200065-0

### **Revision History**

| Rev. | Issue Date | Revisions                                              | Revised By |
|------|------------|--------------------------------------------------------|------------|
| V1   | 08/03/17   | Initial Issue                                          | D. Corona  |
| V2   | 08/08/17   | Updated Section 11.8 & added Section 6                 | D. Corona  |
| V3   | 08/10/17   | Updated Section 14.1, 16.1 and added Section 6.2 & 6.3 | D. Corona  |

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## 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** SONY MOBILE COMMUNICATIONS, INC.  
4-12-3 HIGASHI-SHINAGAWA,  
SHINAGAWA-KU, TOKYO, 140-0002, JAPAN

**EUT DESCRIPTION:** GSM/WCDMA/LTE PHONE with BT, DTS/UNII a/b/g/n/ac, GPS & NFC

**SERIAL NUMBER:** BH90004K83, BH9000KF83 (Condcuted)  
BH9000F983, BH9000G283(Radaited)

**DATE TESTED:** July 8 – 21, 2017

| APPLICABLE STANDARDS                  |              |
|---------------------------------------|--------------|
| STANDARD                              | TEST RESULTS |
| FCC PART 22H, 24E, 27H, 27F, 27L, 27M | PASS         |

UL Verification Services Inc. 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 Verification Services Inc. 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 Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. 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 NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

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## 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with TIA-603-D, FCC CFR 47 Part 2, FCC KDB 971168 D01 v02r02, Part 22, Part 24, and Part 27.

## 3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, Fremont, California, USA. Line conducted emissions are measured only at the 47173 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.

| 47173 Benicia Street                                       | 47266 Benicia Street                            |
|------------------------------------------------------------|-------------------------------------------------|
| <input type="checkbox"/> Chamber A(IC: 2324B-1)            | <input type="checkbox"/> Chamber D(IC: 22541-1) |
| <input type="checkbox"/> Chamber B(IC: 2324B-2)            | <input type="checkbox"/> Chamber E(IC: 22541-2) |
| <input checked="" type="checkbox"/> Chamber C(IC: 2324B-3) | <input type="checkbox"/> Chamber F(IC: 22541-3) |
|                                                            | <input type="checkbox"/> Chamber G(IC: 22541-4) |
|                                                            | <input type="checkbox"/> Chamber H(IC: 22541-5) |

The above test sites and facilities are covered under FCC Test Firm Registration # 208313.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0.

Chambers A through C are covered under Industry Canada company address code 2324B with site numbers 2324B -1 through 2324B-3, respectively. Chambers D through H are covered under Industry Canada company address code 22541 with site numbers 22541 -1 through 22541-5, respectively.

## 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:

$$\text{EIRP} = \text{PSA reading with EUT worst orientation (dBm)} + \text{Path loss (dB)} - \text{cable loss (between the SG and substitution antenna)} + \text{Substitution Antenna Factor (dBi)}$$

$$\text{ERP} = \text{PSA reading with EUT worst orientation (dBm)} + \text{Path loss (dB)} - \text{cable loss (between the SG and substitution antenna)}$$

(Path loss = Signal generator output – PSA reading with substitution antenna)

### 4.3. MEASUREMENT UNCERTAINTY

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

| PARAMETER                         | UNCERTAINTY     |
|-----------------------------------|-----------------|
| Occupied Channel Bandwidth        | $\pm 1.1$ %     |
| RF output power, conducted        | $\pm 0.35$ dB   |
| Power Spectral Density, conducted | $\pm 0.39$ dB   |
| Unwanted Emissions, conducted     | $\pm 2.9$ dB    |
| All emissions, radiated           | $\pm 5.36$ dB   |
| Temperature                       | $\pm 0.9$ °C    |
| Humidity                          | $\pm 2.26$ % RH |
| Supply Voltages                   | $\pm 0.45$ %    |
| Time                              | $\pm 0.2$ %     |

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

## **5. EQUIPMENT UNDER TEST**

### **5.1. DESCRIPTION OF EUT**

This EUT is a GSM/WCDMA/LTE PHONE with BT, DTS/UNII a/b/g/n/ac, GPS & NFC.

## 6. REUSE OF TEST DATA

### 6.1. EQUIPMENT UNDER TEST

According to manufacturer, FCC ID: PY7-65365K and FCC ID: PY7-88607S licensed radios (GSM850, LTE Band 12, and LTE Band 17) are electrically identical. They share the same chipset and same power. The FCC ID: PY7-65365K test data (all conducted test data) shall remain representative of FCC ID: PY7-88607S so, FCC ID: PY7-88607S leverages all conducted test data from FCC ID: PY7-65365K.

NOTE: GSM850, LTE Band 12 and LTE Band 17, Radiated Spurious Emissions was verified and presented in the test report (Section 19.1).

The applicant takes full responsibility that the test data as referenced in this section represent compliance for this FCC ID.

### 6.2. VERIFICATION RESULTS SUMMARY

Full verification for GSM850, LTE Band 12 and LTE Band 17 has been done on device PY7-88607S for RSE (Radiated Spurious Emissions). The data from the application has been verified through appropriate RSE testing to demonstrate compliance for this device as shown in Section 19.1.

### 6.3. REFERENCE DETAIL

| Equipment Class | Reference FCC ID | Report Title/Section          |
|-----------------|------------------|-------------------------------|
| WWAN (PCE)      | PY7-65365K       | 11785223-E1V2 FCC Report WWAN |

## 7. MAXIMUM OUTPUT POWER

### 7.1. MAXIMUM OUTPUT POWER (GSM/EGPRS)

The transmitter has a maximum peak conducted and ERP / EIRP output powers as follows:

| FCC Part 22/24 |                      |            |                     |         |                    |        |
|----------------|----------------------|------------|---------------------|---------|--------------------|--------|
| Band           | Frequency Range(MHz) | Modulation | Conducted (Average) |         | ERP/EIRP (Average) |        |
|                |                      |            | AVG(dBm)            | AVG(mW) | dBm                | mW     |
| 850            | 824~849              | GPRS       | 33.4                | 2208.00 | 23.60              | 229.09 |
|                | 824~849              | EGPRS      | 28.6                | 716.14  | 18.80              | 75.86  |
| 1900           | 1850~1910            | GPRS       | 26.6                | 460.26  | 25.13              | 325.84 |
|                | 1850~1910            | EGPRS      | 26.0                | 398.11  | 14.50              | 28.18  |

## 7.2. MAXIMUM OUTPUT POWER (WCDMA)

The transmitter has a maximum peak conducted and ERP / EIRP output powers as follows:

| FCC Part 24/27 |                      |            |                     |         |                    |       |
|----------------|----------------------|------------|---------------------|---------|--------------------|-------|
| Band           | Frequency Range(MHz) | Modulation | Conducted (Average) |         | ERP/EIRP (Average) |       |
|                |                      |            | AVG(dBm)            | AVG(mW) | dBm                | mW    |
| Band 2         | 1850~1910            | REL99      | 18.1                | 64.57   | 16.6               | 45.71 |
|                | 1850~1910            | HSDPA      | 17.2                | 52.48   | 15.7               | 37.15 |
|                | 1850~1910            | HSUPA      | 17.3                | 53.70   | 15.8               | 38.02 |
| Band 4         | 1710~1755            | REL99      | 19.6                | 91.20   | 17.3               | 53.70 |
|                | 1710~1755            | HSDPA      | 18.8                | 75.86   | 16.5               | 44.67 |
|                | 1710~1755            | HSUPA      | 18.9                | 77.62   | 16.6               | 45.71 |

### 7.3. MAXIMUM OUTPUT POWER (LTE)

The transmitter has a maximum peak conducted and ERP/EIRP output powers as follows:

#### LTE Band 2

| FCC Part 24 |                      |                 |            |                     |         |                |       |
|-------------|----------------------|-----------------|------------|---------------------|---------|----------------|-------|
| Band        | Frequency Range(MHz) | BandWidth (MHz) | Modulation | Conducted (Average) |         | ERIP (Average) |       |
|             |                      |                 |            | AVG(dBm)            | AVG(mW) | dBm            | mW    |
| LTE2        | 1850~1915            | 1.4MHz          | QPSK       | 18.1                | 64.57   | 16.6           | 45.71 |
|             |                      |                 | 16QAM      | 17.9                | 61.66   | 16.4           | 43.65 |
|             |                      | 3MHz            | QPSK       | 18.2                | 66.07   | 16.7           | 46.77 |
|             |                      |                 | 16QAM      | 18.1                | 64.57   | 16.6           | 45.71 |
|             |                      | 5MHz            | QPSK       | 18.3                | 67.61   | 16.8           | 47.86 |
|             |                      |                 | 16QAM      | 18.2                | 66.07   | 16.7           | 46.77 |
|             |                      | 10MHz           | QPSK       | 18.4                | 69.18   | 16.9           | 48.98 |
|             |                      |                 | 16QAM      | 18.3                | 67.61   | 16.8           | 47.86 |
|             |                      | 15MHz           | QPSK       | 18.4                | 69.18   | 16.9           | 48.98 |
|             |                      |                 | 16QAM      | 18.3                | 67.61   | 16.8           | 47.86 |
|             |                      | 20MHz           | QPSK       | 18.5                | 70.79   | 17.0           | 50.12 |
|             |                      |                 | 16QAM      | 18.4                | 69.18   | 16.9           | 48.98 |

**LTE Band 4**

| FCC Part 27 |                      |                 |            |                     |         |                |         |
|-------------|----------------------|-----------------|------------|---------------------|---------|----------------|---------|
| Band        | Frequency Range(MHz) | BandWidth (MHz) | Modulation | Conducted (Average) |         | ERIP (Average) |         |
|             |                      |                 |            | AVG(dBm)            | AVG(mW) | AVG(dBm)       | AVG(mW) |
| LTE4        | 1710~1755            | 1.4MHz          | QPSK       | 19.90               | 97.72   | 17.60          | 57.54   |
|             |                      |                 | 16QAM      | 19.70               | 93.33   | 17.40          | 54.95   |
|             |                      | 3MHz            | QPSK       | 20.10               | 102.33  | 17.80          | 60.26   |
|             |                      |                 | 16QAM      | 19.70               | 93.33   | 17.40          | 54.95   |
|             |                      | 5MHz            | QPSK       | 20.00               | 100.00  | 17.70          | 58.88   |
|             |                      |                 | 16QAM      | 20.00               | 100.00  | 17.70          | 58.88   |
|             |                      | 10MHz           | QPSK       | 20.00               | 100.00  | 17.70          | 58.88   |
|             |                      |                 | 16QAM      | 19.80               | 95.50   | 17.50          | 56.23   |
|             |                      | 15MHz           | QPSK       | 20.00               | 100.00  | 17.70          | 58.88   |
|             |                      |                 | 16QAM      | 20.00               | 100.00  | 17.70          | 58.88   |
|             |                      | 20MHz           | QPSK       | 20.00               | 100.00  | 17.70          | 58.88   |
|             |                      |                 | 16QAM      | 20.00               | 100.00  | 17.70          | 58.88   |

**LTE Band 12**

| FCC Part 27 |                      |                 |            |                     |         |                |         |
|-------------|----------------------|-----------------|------------|---------------------|---------|----------------|---------|
| Band        | Frequency Range(MHz) | BandWidth (MHz) | Modulation | Conducted (Average) |         | ERIP (Average) |         |
|             |                      |                 |            | AVG(dBm)            | AVG(mW) | AVG(dBm)       | AVG(mW) |
| LTE12       | 699~716              | 1.4MHz          | QPSK       | 25.00               | 316.23  | 14.60          | 28.84   |
|             |                      |                 | 16QAM      | 24.00               | 251.19  | 13.60          | 22.91   |
|             |                      | 3MHz            | QPSK       | 24.30               | 269.15  | 13.90          | 24.55   |
|             |                      |                 | 16QAM      | 24.00               | 251.19  | 13.60          | 22.91   |
|             |                      | 5MHz            | QPSK       | 24.30               | 269.15  | 13.90          | 24.55   |
|             |                      |                 | 16QAM      | 24.00               | 251.19  | 13.60          | 22.91   |
|             |                      | 10MHz           | QPSK       | 24.30               | 269.15  | 13.90          | 24.55   |
|             |                      |                 | 16QAM      | 23.80               | 239.88  | 13.40          | 21.88   |

**LTE Band 41**

| FCC Part 27 |                      |                 |            |                     |         |                |          |
|-------------|----------------------|-----------------|------------|---------------------|---------|----------------|----------|
| Band        | Frequency Range(MHz) | BandWidth (MHz) | Modulation | Conducted (Average) |         | ERIP (Average) |          |
|             |                      |                 |            | AVG(dBm)            | AVG(mW) | PEAK(dBm)      | PEAK(mW) |
| LTE41       | 2496~2690            | 5MHz            | QPSK       | 23.90               | 245.47  | 20.10          | 102.33   |
|             |                      |                 | 16QAM      | 23.40               | 218.78  | 19.60          | 91.20    |
|             |                      | 10MHz           | QPSK       | 23.90               | 245.47  | 20.10          | 102.33   |
|             |                      |                 | 16QAM      | 23.40               | 218.78  | 19.60          | 91.20    |
|             |                      | 15MHz           | QPSK       | 23.90               | 245.47  | 20.10          | 102.33   |
|             |                      |                 | 16QAM      | 23.50               | 223.87  | 19.70          | 93.33    |
|             |                      | 20MHz           | QPSK       | 23.90               | 245.47  | 20.10          | 102.33   |
|             |                      |                 | 16QAM      | 23.50               | 223.87  | 19.70          | 93.33    |

## 8. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a PIFA antenna for the [List the bands supported] with a maximum peak gain as follow:

| Frequency (MHz)           | Peak Gain (dBi) |
|---------------------------|-----------------|
| GSM850, 824~849MHz        | -7.3            |
| GSM1900, 1850~1910MHz     | -1.5            |
| WCDMA Band 2, 1850~1910   | -1.5            |
| WCDMA Band 4, 1710~1755   | -2.3            |
| LTE Band 2, 1850~1910     | -1.5            |
| LTE Band 4, 1710~1755     | -2.3            |
| LTE Band 12, 699~716MHz   | -7.9            |
| LTE Band 17, 704~716MHz   | -7.9            |
| LTE Band 38, 2570~2620MHz | -3.8            |
| LTE Band 41, 2496~2690MHz | -3.8            |

## 9. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

| Support Equipment List |              |             |               |        |
|------------------------|--------------|-------------|---------------|--------|
| Description            | Manufacturer | Model       | Serial Number | FCC ID |
| AC Adapter             | SONY         | 1300-7137.1 | 4016W40310044 | NA     |
| Earphone               | SONY         | N/A         | N/A           | N/A    |

### I/O CABLES (CONDUCTED SETUP)

| I/O Cable List |              |                      |                        |             |                  |         |
|----------------|--------------|----------------------|------------------------|-------------|------------------|---------|
| Cable No       | Port         | # of Identical ports | Connector Type         | Serial Type | Cable Length (m) | Remarks |
| 1              | RF Out       | 1                    | Spectrum Analyzer      | Shielded    | None             | NA      |
| 2              | Antenna Port | 1                    | EUT                    | Shielded    | 0.1m             | NA      |
| 3              | RF In/Out    | 1                    | Communication Test Set | Shielded    | 1m               | NA      |

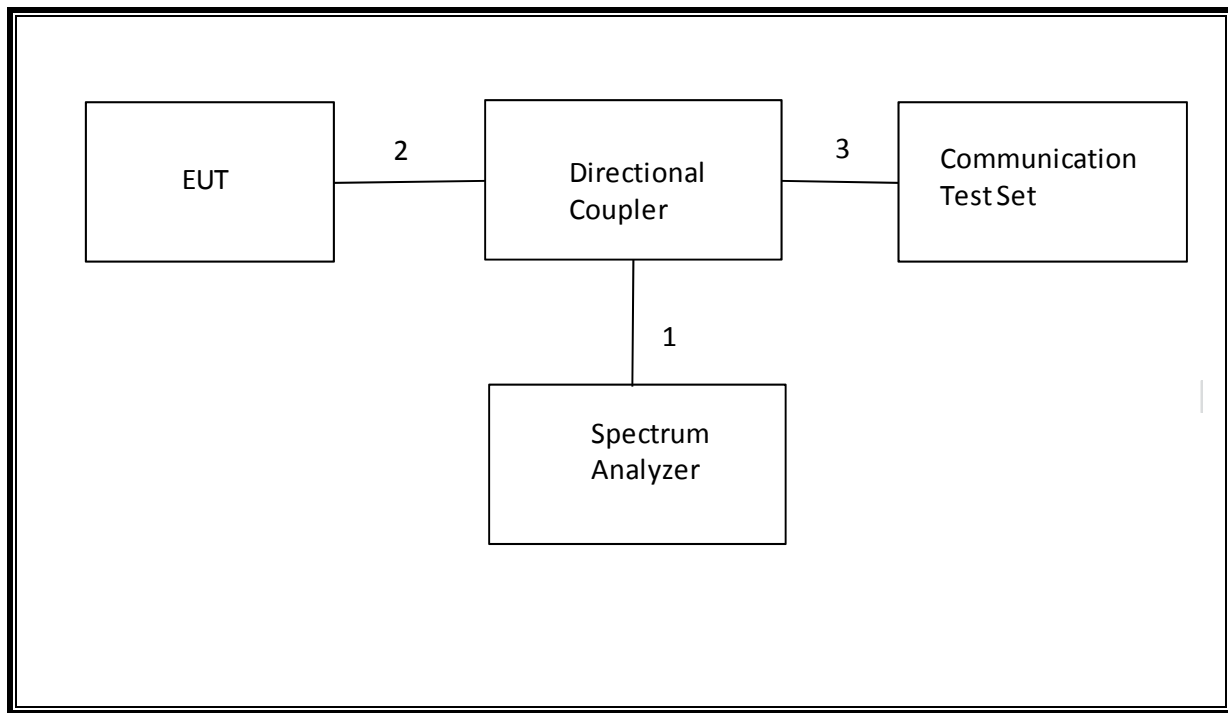
### I/O CABLES (RADIATED SETUP)

| I/O Cable List |           |                      |                        |             |                  |         |
|----------------|-----------|----------------------|------------------------|-------------|------------------|---------|
| Cable No       | Port      | # of Identical ports | Connector Type         | Serial Type | Cable Length (m) | Remarks |
| 1              | USB       | 1                    | AC Adapter             | Un-shielded | 1.2m             | No      |
| 2              | Jack      | 1                    | Headset                | Shielded    | 1m               | No      |
| 3              | RF In/out | 1                    | Communication Test Set | Un-shielded | 2m               | Yes     |

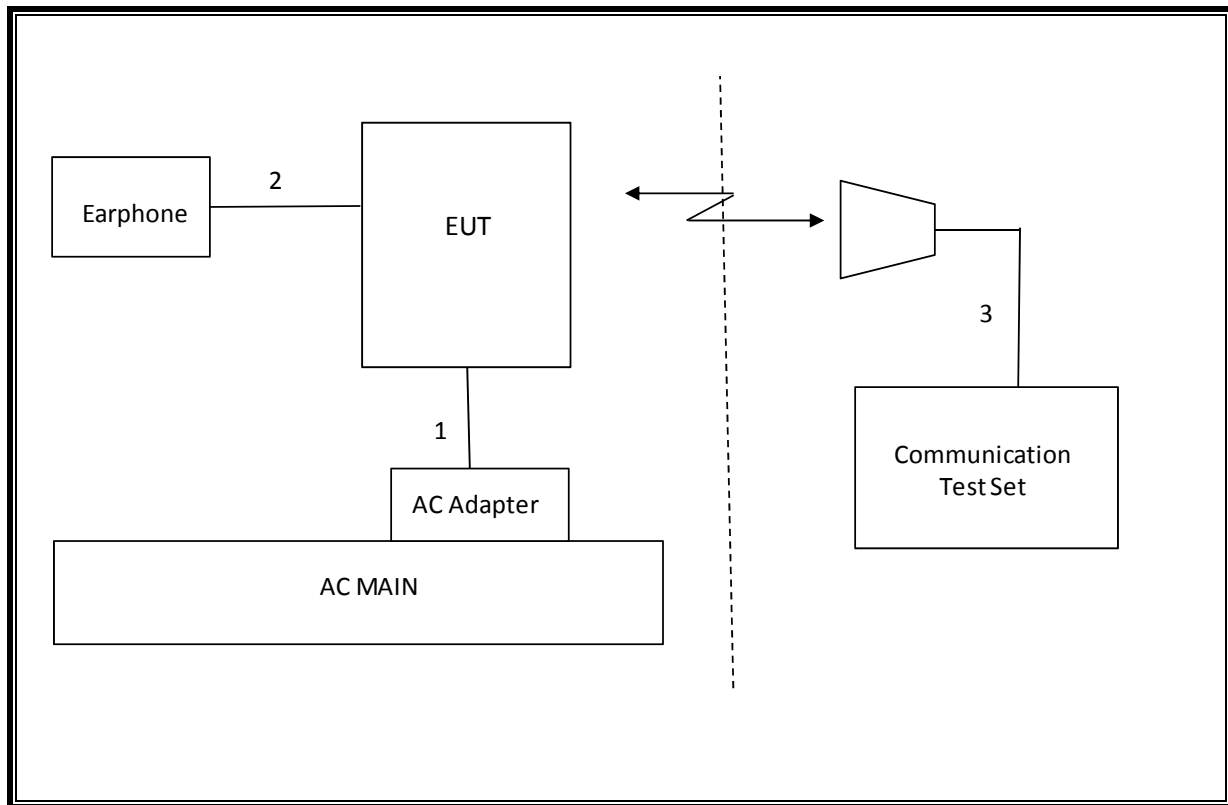
### TEST SETUP

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

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



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



## 10. 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                  | T Number | Cal Date | Cal Due  |
| Amplifier, 1 to 18 GHz                      | Miteq          | AFS43-00101800-25-S-42 | 493      | 02/15/17 | 02/15/18 |
| Amplifier, 1 to 8 GHz                       | Miteq          | AMF-4D-01000800-30-29P | 1156     | 02/15/17 | 02/15/18 |
| Amplifier, 10KHz to 1GHz, 32dB              | Keysight       | 8447D                  | 10       | 02/15/17 | 02/15/18 |
| Antenna, Broadband Hybrid, 30MHz to 2000MHz | Sunol Sciences | JB3                    | 408      | 11/10/16 | 11/10/17 |
| Spectrum Analyzer, PXA 3Hz to 44GHz         | Keysight       | N9030A                 | 907      | 01/23/17 | 01/23/18 |
| Highpass Filter, 2.7 GHz                    | Micro-Circuits | H2G518G6               | T772     | 07/05/16 | 07/05/18 |
| Highpass Filter, 1 GHz                      | Micro-Tronics  | HPM18129               | T889     | 02/21/17 | 02/21/18 |
| Highpass Filter, 4GHz                       | Micro-Tronics  | HPM13351               | T1241    | 06/17/17 | 06/17/18 |
| Amplifier, 1-18GHz                          | Miteq          | AFS42-00101800-25-S-42 | 931      | 08/26/16 | 08/26/17 |
| Amplifier, 10KHz to 1GHz, 32dB              | Keysight       | 8447D                  | 15       | 08/26/16 | 08/26/17 |
| Antenna, Broadband Hybrid 30MHz to 2000MHz  | Sunol Sciences | JB3                    | 408      | 11/10/16 | 11/10/17 |
| Antenna, Horn 1-18GHz                       | ETS Lindgren   | 3117                   | 712      | 01/30/17 | 01/30/18 |
| Spectrum Analyzer, PXA, 3Hz to 44GHz        | Keysight       | N9030A                 | 905      | 01/11/17 | 01/11/18 |
| DC power supply, 8 V @ 3 A or 15 V @ 2 A    | Agilent / HP   | E3610A                 | None     | CNR      | None     |
| Antenna, Tuned Dipole 400~1000 MHz          | ETS            | 3121C DB4              | T273     | 06/08/17 | 06/08/18 |
| Directional Coupler                         | Mini-Circuits  | ZUDC10-183+            | T1136    | 06/18/17 | 06/18/18 |

| Test Equipment List   |              |        |                        |
|-----------------------|--------------|--------|------------------------|
| Description           | Manufacturer | Model  | T Number               |
| Radiated Software     | UL           | UL EMC | Ver 9.5, June 24, 2015 |
| Conducted Software    | UL           | UL EMC | Ver 9.5, May 26, 2015  |
| CLT Software          | UL           | UL RF  | Ver 1.0, Feb 2, 2015   |
| Antenna Port Software | UL           | UL RF  | Ver 3.7, Nov 12, 2015  |

## 11. SUMMARY TABLE

| FCC Part Section                   | Test Description                        | Test Limit                             | Test Condition | Test Result |
|------------------------------------|-----------------------------------------|----------------------------------------|----------------|-------------|
| 2.1049                             | Occupied Bandwidth (99%)                | N/A                                    | Conducted      | Pass        |
| 22.917(a)<br>24.238(a)<br>27.53(g) | Band Edge / Conducted Spurious Emission | -13dBm                                 |                | Pass        |
| 27.53(m)                           |                                         | -25dBm                                 |                |             |
| 2.1046                             | Conducted output power                  | N/A                                    |                | Pass        |
| 27.53(m)                           | Emission Mask                           | Please refer to limit under section 14 |                | Pass        |
| 22.355                             | Frequency Stability                     | 2.5PPM                                 |                | Pass        |
| 24.235 27.54                       |                                         | Please refer to limit under section 16 |                | Pass        |
| 22.913(a)(2)                       | Effective Radiated Power                | 38dBm                                  | Radiated       | Pass        |
| 27.50©(10)                         |                                         | 34.77dBm                               |                | Pass        |
| 24.232(c )<br>27.50(h)(2)          | Equivalent Isotropic Radiated Power     | 36.98dBm                               |                | Pass        |
|                                    |                                         | 40.6dBm                                |                |             |
|                                    |                                         | 33dBm                                  |                | Pass        |
| 27.50(d)(4)                        |                                         | 30dBm                                  |                | Pass        |
| 22.917(a)<br>24.238(a)<br>27.53(g) | Radiated Spurious Emission              | -13dBm                                 |                | Pass        |
| 27.53(m)                           |                                         | -25dBm                                 |                | Pass        |

## 12. RF POWER OUTPUT VERIFICATION

### TEST PROCEDURE

ANSI C63.26:2015/ TIA / EIA 603-D Clause 2.2.17  
KDB 971168 Section 5.6

$$\text{ERP/EIRP} = \text{PMeas} + \text{GT} - \text{LC}$$

where: ERP/EIRP = effective or equivalent radiated power, respectively (expressed in the same units as PMeas, typically dBW or dBm);

PMeas = measured transmitter output power or PSD, in dBm or dBW;

GT = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);

LC = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

For devices utilizing multiple antennas, KDB 662911 provides guidance for determining the effective array transmit antenna gain term to be used in the above equation.

### MODES TESTED

- GSM 850
- GSM 1900
- WCDMA Band 2
- WCDMA Band 4
- LTE Band 2
- LTE Band 4
- LTE Band 12
- LTE Band 17
- LTE Band 38
- LTE Band 41

## 12.1. GSM/GPRS/EDGE

### Using CMW500 Communication Test Set

Function: Menu select > GSM Mobile Station > GSM 850/900/1800/1900

Press Connection control to choose the different menus

Press RESET > choose all to reset all settings

|            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Connection | Press Signal Off to turn off the signal and change settings<br>Network Support > GSM+GPRS or GSM+EGPRS<br>Main Service > Packet Data<br>Service selection > Test Mode A – Auto Slot Config. off                                                                                                                                                                                                                                                                                                                              |
| MS Signal  | Press Slot Config bottom on the right twice to select and change the number of time slots and power setting<br>> Slot configuration > Uplink/Gamma<br>> 33 dBm for GPRS 850/900<br>> 27 dBm for EGPRS 850/900<br>> 30 dBm for GPRS1800/1900<br>> 26 dBm for EGPRS1800/1900                                                                                                                                                                                                                                                   |
| BS Signal  | Enter the same channel number for TCH channel (test channel) and BCCH channel<br><br>Frequency Offset > + 0 Hz<br>Mode > BCCH and TCH<br>BCCH Level > -85 dBm (May need to adjust if link is not stable)<br>BCCH Channel > choose desire test channel [Enter the same channel number for TCH channel (test channel) and BCCH channel]<br><br>Channel Type > Off<br>P0> 4 dB<br>Slot Config > Unchanged (if already set under MS Signal)<br>TCH > choose desired test channel<br>Hopping > Off<br>Main Timeslot > 3 (Default) |
| Network    | Coding Scheme > CS 4 (GPRS) and MCS5-9 (EGPRS)<br>Bit Stream > 2E9-1PSR Bit Pattern                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| AF/RF      | Enter appropriate offsets for Ext. Att. Output and Ext. Att. Input                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Connection | Press Signal On to turn on the signal and change settings                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

## 12.2. GSM OUTPUT POWER RESULT

|           |                 |
|-----------|-----------------|
| Tested By | Coltyce Sanders |
| Date      | 7/24/2017       |

### GSM 850

| Antenna gain (dBi) |     | -7.30   |             |                         |                   |                 |             |
|--------------------|-----|---------|-------------|-------------------------|-------------------|-----------------|-------------|
| Mode               | Ch. | f (MHz) | Modulation  | Conducted Average (dBm) | ERP Average (dBm) | ERP Limit (dBm) | Margin (dB) |
| GPRS               | 128 | 824.2   | 1 Time slot | 33.4                    | 23.6              | 38.5            | -14.9       |
|                    | 190 | 836.6   |             | 33.4                    | 23.6              | 38.5            | -14.9       |
|                    | 251 | 848.8   |             | 33.4                    | 23.6              | 38.5            | -14.9       |
|                    | 128 | 824.2   | 2 Time slot | 33.4                    | 23.6              | 38.5            | -14.9       |
|                    | 190 | 836.6   |             | 33.4                    | 23.6              | 38.5            | -14.9       |
|                    | 251 | 848.8   |             | 33.4                    | 23.6              | 38.5            | -14.9       |
|                    | 128 | 824.2   | 3 Time slot | 31.7                    | 21.9              | 38.5            | -16.6       |
|                    | 190 | 836.6   |             | 31.7                    | 21.9              | 38.5            | -16.6       |
|                    | 251 | 848.8   |             | 31.7                    | 21.9              | 38.5            | -16.7       |
|                    | 128 | 824.2   | 4 Time slot | 29.7                    | 19.9              | 38.5            | -18.6       |
|                    | 190 | 836.6   |             | 29.7                    | 19.9              | 38.5            | -18.6       |
|                    | 251 | 848.8   |             | 29.6                    | 19.8              | 38.5            | -18.7       |
| EGPRS              | 128 | 824.2   | 1 Time slot | 28.5                    | 18.7              | 38.5            | -19.8       |
|                    | 190 | 836.6   |             | 28.6                    | 18.8              | 38.5            | -19.8       |
|                    | 251 | 848.8   |             | 28.5                    | 18.7              | 38.5            | -19.8       |
|                    | 128 | 824.2   | 2 Time slot | 27.3                    | 17.5              | 38.5            | -21.0       |
|                    | 190 | 836.6   |             | 27.3                    | 17.5              | 38.5            | -21.0       |
|                    | 251 | 848.8   |             | 27.2                    | 17.4              | 38.5            | -21.1       |
|                    | 128 | 824.2   | 3 Time slot | 25.0                    | 15.2              | 38.5            | -23.3       |
|                    | 190 | 836.6   |             | 25.2                    | 15.4              | 38.5            | -23.2       |
|                    | 251 | 848.8   |             | 25.1                    | 15.3              | 38.5            | -23.2       |
|                    | 128 | 824.2   | 4 Time slot | 23.2                    | 13.4              | 38.5            | -25.1       |
|                    | 190 | 836.6   |             | 23.1                    | 13.3              | 38.5            | -25.2       |
|                    | 251 | 848.8   |             | 23.0                    | 13.2              | 38.5            | -25.3       |

**GSM 1900**

| Antenna gain (dBi) |     | -1.50   |             |                         |                    |                  |             |
|--------------------|-----|---------|-------------|-------------------------|--------------------|------------------|-------------|
| Mode               | Ch. | f (MHz) | Modulation  | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| GPRS               | 512 | 1850.2  | 1 Time slot | 26.4                    | 24.9               | 33.0             | -8.1        |
|                    | 661 | 1880    |             | 26.6                    | 25.1               | 33.0             | -7.9        |
|                    | 810 | 1909.8  |             | 26.6                    | 25.1               | 33.0             | -8.0        |
|                    | 512 | 1850.2  | 2 Time slot | 26.4                    | 24.9               | 33.0             | -8.1        |
|                    | 661 | 1880    |             | 26.6                    | 25.1               | 33.0             | -7.9        |
|                    | 810 | 1909.8  |             | 26.6                    | 25.1               | 33.0             | -7.9        |
|                    | 512 | 1850.2  | 3 Time slot | 24.0                    | 22.5               | 33.0             | -10.5       |
|                    | 661 | 1880    |             | 24.2                    | 22.7               | 33.0             | -10.3       |
|                    | 810 | 1909.8  |             | 24.6                    | 23.1               | 33.0             | -9.9        |
|                    | 512 | 1850.2  | 4 Time slot | 23.0                    | 21.5               | 33.0             | -11.5       |
|                    | 661 | 1880    |             | 23.2                    | 21.7               | 33.0             | -11.3       |
|                    | 810 | 1909.8  |             | 23.3                    | 21.8               | 33.0             | -11.3       |
| EGPRS              | 512 | 1850.2  | 1 Time slot | 21.4                    | 19.9               | 33.0             | -13.1       |
|                    | 661 | 1880    |             | 21.4                    | 19.9               | 33.0             | -13.1       |
|                    | 810 | 1909.8  |             | 21.6                    | 20.1               | 33.0             | -12.9       |
|                    | 512 | 1850.2  | 2 Time slot | 26.0                    | 24.5               | 33.0             | -8.6        |
|                    | 661 | 1880    |             | 26.0                    | 24.5               | 33.0             | -8.6        |
|                    | 810 | 1909.8  |             | 25.9                    | 24.4               | 33.0             | -8.6        |
|                    | 512 | 1850.2  | 3 Time slot | 23.7                    | 22.2               | 33.0             | -10.8       |
|                    | 661 | 1880    |             | 23.8                    | 22.3               | 33.0             | -10.7       |
|                    | 810 | 1909.8  |             | 23.9                    | 22.4               | 33.0             | -10.6       |
|                    | 512 | 1850.2  | 4 Time slot | 22.2                    | 20.7               | 33.0             | -12.3       |
|                    | 661 | 1880    |             | 22.3                    | 20.8               | 33.0             | -12.2       |
|                    | 810 | 1909.8  |             | 22.3                    | 20.8               | 33.0             | -12.2       |

## 12.3. UMTS REL 99

### TEST PROCEDURE

The following summary of these settings are illustrated below:

| Mode                   | Subtest                 | Rel99        |
|------------------------|-------------------------|--------------|
| WCDMA General Settings | Loopback Mode           | Test Mode 2  |
|                        | Rel99 RMC               | 12.2kbps RMC |
|                        | Power Control Algorithm | Algorithm2   |
|                        | $\beta_c/\beta_d$       | 8/15         |

### RESULTS

|           |             |
|-----------|-------------|
| Tested By | AJ Newcomer |
| Date      | 7/6/2017    |

## 12.4. UMTS REL 99 OUTPUT POWER RESULT

|                           |       |
|---------------------------|-------|
| Antenna gain Band 2 (dBi) | -1.50 |
| Antenna gain Band 4 (dBi) | -2.30 |

### Part 24 / RSS 133 1900MHz Band

| Band                    | UL Channel | DL Channel | Frequency (MHz) | Peak Power (dBm) | ERIP Average (dBm) | ERIP Limit (dBm) | Margin (dB) |
|-------------------------|------------|------------|-----------------|------------------|--------------------|------------------|-------------|
| UMTS Rel. 99<br>1900MHz | 9262       | 9662       | 1852.4          | 18.1             | 16.6               | 33.0             | -16.4       |
|                         | 9400       | 9800       | 1880.0          | 18.0             | 16.5               | 33.0             | -16.5       |
|                         | 9538       | 9938       | 1907.6          | 18.0             | 16.5               | 33.0             | -16.5       |

### Part 27 / RSS 139 1700MHz Band

| Band                    | UL Channel | DL Channel | Frequency (MHz) | Peak Power (dBm) | ERIP Average (dBm) | ERIP Limit (dBm) | Margin (dB) |
|-------------------------|------------|------------|-----------------|------------------|--------------------|------------------|-------------|
| UMTS Rel. 99<br>1700MHz | 1312       | 1537       | 1712.4          | 19.5             | 17.2               | 30.0             | -12.8       |
|                         | 1413       | 1638       | 1732.6          | 19.5             | 17.2               | 30.0             | -12.8       |
|                         | 1513       | 1738       | 1752.6          | 19.6             | 17.3               | 30.0             | -12.7       |

## 12.5. UMTS HSDPA

The following 4 Sub-tests were completed according to Release 5 procedures in section 5.2 of 3GPP TS34.121.

Summary of settings are illustrated below:

|                               | Mode                                 | HSDPA        | HSDPA | HSDPA | HSDPA |
|-------------------------------|--------------------------------------|--------------|-------|-------|-------|
|                               | Subtest                              | 1            | 2     | 3     | 4     |
| W-CDMA<br>General<br>Settings | Loopback Mode                        | Test Mode 1  |       |       |       |
|                               | Rel99 RMC                            | 12.2kbps RMC |       |       |       |
|                               | HSDPA FRC                            | H-Set 1      |       |       |       |
|                               | Power Control Algorithm              | Algorithm 2  |       |       |       |
|                               | $\beta_c$                            | 2/15         | 11/15 | 15/15 | 15/15 |
|                               | $\beta_d$                            | 15/15        | 15/15 | 8/15  | 4/15  |
|                               | Bd (SF)                              | 64           |       |       |       |
|                               | $\beta_c/\beta_d$                    | 2/15         | 11/15 | 15/8  | 15/4  |
|                               | $\beta_{hs}$                         | 4/15         | 24/15 | 30/15 | 30/15 |
| HSDPA<br>Specific<br>Settings | MPR (dB)                             | 0            | 0     | 0.5   | 0.5   |
|                               | $D_{ACK}$                            | 8            |       |       |       |
|                               | $D_{NAK}$                            | 8            |       |       |       |
|                               | DCQI                                 | 8            |       |       |       |
|                               | Ack-Nack repetition factor           | 3            |       |       |       |
|                               | CQI Feedback (Table 5.2B.4)          | 4ms          |       |       |       |
|                               | CQI Repetition Factor (Table 5.2B.4) | 2            |       |       |       |
|                               | $A_{hs}=\beta_{hs}/\beta_c$          | 30/15        |       |       |       |

## RESULTS

|           |                  |
|-----------|------------------|
| Tested By | Vanessa Moestopo |
| Date      | 7/8/2017         |

## 12.6. UMTS HSDPA OUTPUT POWER RESULT

|                           |       |
|---------------------------|-------|
| Antenna gain Band 2 (dBi) | -1.50 |
| Antenna gain Band 4 (dBi) | -2.30 |

### Part 24 / RSS 133 1900MHz Band

| Band               | Subtest | UL Channel | DL Channel | Frequency (MHz) | Conducted Average (dBm) | ERP Average (dBm) | ERP Limit (dBm) | Margin (dB) |
|--------------------|---------|------------|------------|-----------------|-------------------------|-------------------|-----------------|-------------|
| UMTS HSDPA 1900MHz | 1       | 9262       | 9662       | 1852.4          | 17.2                    | 15.7              | 33.0            | -15.8       |
|                    |         | 9400       | 9800       | 1880.0          | 17.2                    | 15.7              | 33.0            | -15.8       |
|                    |         | 9538       | 9938       | 1907.6          | 17.0                    | 15.5              | 33.0            | -16.0       |
|                    | 2       | 9262       | 9662       | 1852.4          | 17.2                    | 15.7              | 33.0            | -15.8       |
|                    |         | 9400       | 9800       | 1880.0          | 17.1                    | 15.6              | 33.0            | -15.9       |
|                    |         | 9538       | 9938       | 1907.6          | 17.1                    | 15.6              | 33.0            | -15.9       |
|                    | 3       | 9262       | 9662       | 1852.4          | 16.9                    | 15.4              | 33.0            | -16.1       |
|                    |         | 9400       | 9800       | 1880.0          | 16.5                    | 15.0              | 33.0            | -16.5       |
|                    |         | 9538       | 9938       | 1907.6          | 16.6                    | 15.1              | 33.0            | -16.4       |
|                    | 4       | 9262       | 9662       | 1852.4          | 16.9                    | 15.4              | 33.0            | -16.1       |
|                    |         | 9400       | 9800       | 1880.0          | 16.5                    | 15.0              | 33.0            | -16.5       |
|                    |         | 9538       | 9938       | 1907.6          | 16.6                    | 15.1              | 33.0            | -16.4       |

### Part 27 / RSS 139 1700MHz Band

| Band               | Subtest | UL Channel | DL Channel | Frequency (MHz) | Conducted Average (dBm) | ERP Average (dBm) | ERP Limit (dBm) | Margin (dB) |
|--------------------|---------|------------|------------|-----------------|-------------------------|-------------------|-----------------|-------------|
| UMTS HSDPA 1700MHz | 1       | 1312       | 1537       | 1712.4          | 18.5                    | 16.2              | 30.0            | -11.5       |
|                    |         | 1413       | 1638       | 1732.6          | 18.7                    | 16.4              | 30.0            | -11.3       |
|                    |         | 1513       | 1738       | 1752.6          | 18.8                    | 16.5              | 30.0            | -11.2       |
|                    | 2       | 1312       | 1537       | 1712.4          | 18.3                    | 16.0              | 30.0            | -11.7       |
|                    |         | 1413       | 1638       | 1732.6          | 18.5                    | 16.2              | 30.0            | -11.5       |
|                    |         | 1513       | 1738       | 1752.6          | 18.4                    | 16.1              | 30.0            | -11.6       |
|                    | 3       | 1312       | 1537       | 1712.4          | 17.8                    | 15.5              | 30.0            | -12.2       |
|                    |         | 1413       | 1638       | 1732.6          | 18.1                    | 15.8              | 30.0            | -11.9       |
|                    |         | 1513       | 1738       | 1752.6          | 18.1                    | 15.8              | 30.0            | -11.9       |
|                    | 4       | 1312       | 1537       | 1712.4          | 17.8                    | 15.5              | 30.0            | -12.2       |
|                    |         | 1413       | 1638       | 1732.6          | 18.1                    | 15.8              | 30.0            | -11.9       |
|                    |         | 1513       | 1738       | 1752.6          | 18.1                    | 15.8              | 30.0            | -11.9       |

## 12.7. UMTS HSUPA

The following 5 Sub-tests were completed according to Release 6 procedures in section 5.2 of 3GPP TS34.121.

Summary of settings are illustrated below:

|                         | Mode                                 | HSPA          |       |       |       |             |
|-------------------------|--------------------------------------|---------------|-------|-------|-------|-------------|
|                         | Subtest                              | 1             | 2     | 3     | 4     | 5           |
| WCDMA General Settings  | Loopback Mode                        | Test Mode 1   |       |       |       |             |
|                         | Rel99 RMC                            | 12.2 kbps RMC |       |       |       |             |
|                         | HSDPA FRC                            | H-Set 1       |       |       |       |             |
|                         | HSUPA Test                           | HSPA          |       |       |       |             |
|                         | Power Control Algorithm              | Algorithm 2   |       |       |       | Algorithm 1 |
|                         | $\beta_c$                            | 11/15         | 6/15  | 15/15 | 2/15  | 15/15       |
|                         | $\beta_d$                            | 15/15         | 15/15 | 9/15  | 15/15 | 0           |
|                         | $\beta_{ec}$                         | 209/225       | 12/15 | 30/15 | 2/15  | 5/15        |
|                         | $\beta_c/\beta_d$                    | 11/15         | 6/15  | 15/9  | 2/15  | -           |
|                         | $\beta_{hs}$                         | 22/15         | 12/15 | 30/15 | 4/15  | 5/15        |
|                         | $\beta_{ed}$                         | 1309/225      | 94/75 | 47/15 | 56/75 | 47/15       |
|                         | CM (dB)                              | 1             | 3     | 2     | 3     | 1           |
|                         | MPR (dB)                             | 0             | 2     | 1     | 2     | 0           |
| HSDPA Specific Settings | DACK                                 | 8             |       |       |       | 0           |
|                         | DNAK                                 | 8             |       |       |       | 0           |
|                         | DCQI                                 | 8             |       |       |       | 0           |
|                         | Ack-Nack repetition factor           | 3             |       |       |       |             |
|                         | CQI Feedback (Table 5.2B.4)          | 4ms           |       |       |       |             |
|                         | CQI Repetition Factor (Table 5.2B.4) | 2             |       |       |       |             |
|                         | $A_{hs} = \beta_{hs}/\beta_c$        | 30/15         |       |       |       |             |
| HSUPA Specific Settings | E-DPDCCH                             | 6             | 8     | 8     | 5     | 0           |
|                         | DHARQ                                | 0             | 0     | 0     | 0     | 0           |
|                         | AG Index                             | 20            | 12    | 15    | 17    | 12          |
|                         | ETFCI (from 34.121 Table C.11.1.3)   | 75            | 67    | 92    | 71    | 67          |
|                         | Associated Max UL Data Rate kbps     | 242.1         | 174.9 | 482.8 | 205.8 | 308.9       |
|                         | Reference E-TFCIs                    | 5             | 5     | 2     | 5     | 1           |
|                         | Reference E-TFCI                     | 11            | 11    | 11    | 11    | 67          |
|                         | Reference E-TFCI PO                  | 4             | 4     | 4     | 4     | 18          |
|                         | Reference E-TFCI                     | 67            | 67    | 92    | 67    | 67          |
|                         | Reference E-TFCI PO                  | 18            | 18    | 18    | 18    | 18          |
|                         | Reference E-TFCI                     | 71            | 71    | 71    | 71    | 71          |
|                         | Reference E-TFCI PO                  | 23            | 23    | 23    | 23    | 23          |
|                         | Reference E-TFCI                     | 75            | 75    | 75    | 75    | 75          |
|                         | Reference E-TFCI PO                  | 26            | 26    | 26    | 26    | 26          |
|                         | Reference E-TFCI                     | 81            | 81    | 81    | 81    | 81          |
|                         | Reference E-TFCI PO                  | 27            | 27    | 27    | 27    | 27          |
|                         | Maximum Channelization Codes         | 2xSF2         |       |       |       | SF4         |

Note1:  $\beta_{ed}$  cannot be set directly, it is set by Absolute Grant Value.

### RESULT

|           |                  |
|-----------|------------------|
| Tested By | Vanessa Moestopo |
| Date      | 7/8/2017         |

## 12.8. UMTS HSUPA OUTPUT POWER RESULT

|                           |       |
|---------------------------|-------|
| Antenna gain Band 2 (dBi) | -1.50 |
| Antenna gain Band 4 (dBi) | -2.30 |

### Part 24 / RSS 133 1900MHz Band

| Band               | Subtest | UL Channel | DL Channel | Frequency (MHz) | Conducted Average (dBm) | ERP Average (dBm) | ERP Limit (dBm) | Margin (dB) |
|--------------------|---------|------------|------------|-----------------|-------------------------|-------------------|-----------------|-------------|
| UMTS HSUPA 1900MHz | 1       | 9262       | 9662       | 1852.4          | 17.3                    | 15.8              | 33.0            | -15.7       |
|                    |         | 9400       | 9800       | 1880.0          | 17.3                    | 15.8              | 33.0            | -15.7       |
|                    |         | 9538       | 9938       | 1907.6          | 17.2                    | 15.7              | 33.0            | -15.8       |
|                    | 2       | 9262       | 9662       | 1852.4          | 15.3                    | 13.8              | 33.0            | -17.7       |
|                    |         | 9400       | 9800       | 1880.0          | 15.3                    | 13.8              | 33.0            | -17.7       |
|                    |         | 9538       | 9938       | 1907.6          | 15.1                    | 13.6              | 33.0            | -17.9       |
|                    | 3       | 9262       | 9662       | 1852.4          | 16.4                    | 14.9              | 33.0            | -16.6       |
|                    |         | 9400       | 9800       | 1880.0          | 16.2                    | 14.7              | 33.0            | -16.8       |
|                    |         | 9538       | 9938       | 1907.6          | 16.2                    | 14.7              | 33.0            | -16.8       |
|                    | 4       | 9262       | 9662       | 1852.4          | 15.3                    | 13.8              | 33.0            | -17.7       |
|                    |         | 9400       | 9800       | 1880.0          | 15.3                    | 13.8              | 33.0            | -17.7       |
|                    |         | 9538       | 9938       | 1907.6          | 15.1                    | 13.6              | 33.0            | -17.9       |
|                    | 5       | 9262       | 9662       | 1852.4          | 17.3                    | 15.8              | 33.0            | -15.7       |
|                    |         | 9400       | 9800       | 1880.0          | 17.2                    | 15.7              | 33.0            | -15.8       |
|                    |         | 9538       | 9938       | 1907.6          | 17.0                    | 15.5              | 33.0            | -16.0       |

### Part 27 / RSS 139 1700MHz Band

| Band               | Subtest | UL Channel | DL Channel | Frequency (MHz) | Conducted Average (dBm) | ERP Average (dBm) | ERP Limit (dBm) | Margin (dB) |
|--------------------|---------|------------|------------|-----------------|-------------------------|-------------------|-----------------|-------------|
| UMTS HSUPA 1700MHz | 1       | 1312       | 1537       | 1712.4          | 18.3                    | 16.0              | 30.0            | -11.7       |
|                    |         | 1413       | 1638       | 1732.6          | 18.6                    | 16.3              | 30.0            | -11.4       |
|                    |         | 1513       | 1738       | 1752.6          | 18.9                    | 16.6              | 30.0            | -11.1       |
|                    | 2       | 1312       | 1537       | 1712.4          | 16.5                    | 14.2              | 30.0            | -13.5       |
|                    |         | 1413       | 1638       | 1732.6          | 16.8                    | 14.5              | 30.0            | -13.2       |
|                    |         | 1513       | 1738       | 1752.6          | 16.9                    | 14.6              | 30.0            | -13.1       |
|                    | 3       | 1312       | 1537       | 1712.4          | 17.5                    | 15.2              | 30.0            | -12.5       |
|                    |         | 1413       | 1638       | 1732.6          | 17.7                    | 15.4              | 30.0            | -12.3       |
|                    |         | 1513       | 1738       | 1752.6          | 17.8                    | 15.5              | 30.0            | -12.2       |
|                    | 4       | 1312       | 1537       | 1712.4          | 16.5                    | 14.2              | 30.0            | -13.5       |
|                    |         | 1413       | 1638       | 1732.6          | 16.8                    | 14.5              | 30.0            | -13.2       |
|                    |         | 1513       | 1738       | 1752.6          | 16.9                    | 14.6              | 30.0            | -13.1       |
|                    | 5       | 1312       | 1537       | 1712.4          | 18.3                    | 16.0              | 30.0            | -11.7       |
|                    |         | 1413       | 1638       | 1732.6          | 18.6                    | 16.3              | 30.0            | -11.4       |
|                    |         | 1513       | 1738       | 1752.6          | 18.9                    | 16.6              | 30.0            | -11.1       |

## 12.9. LTE OUTPUT POWER RESULT

### Note(s):

#### LTE Band 17 Measured Results

LTE Band 17 (Frequency range: 704-716) is covered by LTE Band 12 (Frequency range: 699-716MHz) no testing is necessary due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth and same modulations.

#### LTE Band 38 Measured Results

LTE Band 38 (Frequency range: 2570-2620 MHz) is covered by LTE Band 41 (Frequency range: 2496-2690 MHz) and no testing is necessary due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth and same modulations.

#### 64QAM Measured Results

Measured QPSK, 16QAM & 64QAM Mode Output power and found that QPSK and 16QAM results was the worst case. All testing were performed using QPSK and 16QAM mode to represent the worst case mode.

|           |                               |
|-----------|-------------------------------|
| Tested By | Vanessa Moestopo/Nathan Sousa |
| Date      | 7/6-8/2017                    |

**LTE Band 2**

| Antenna gain (dBi) |            | -1.50           |            |         |           |                         |                    |                  |             |
|--------------------|------------|-----------------|------------|---------|-----------|-------------------------|--------------------|------------------|-------------|
| Bandwidth          | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| 1.4                | 18607      | 1850.7          | QPSK       | 1       | 0         | 18.1                    | 16.6               | 33.0             | -16.5       |
|                    |            |                 |            | 1       | 3         | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 1       | 5         | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 3       | 0         | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 3       | 1         | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 3       | 3         | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 6       | 0         | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 | 16QAM      | 1       | 0         | 17.6                    | 16.1               | 33.0             | -16.9       |
|                    |            |                 |            | 1       | 3         | 17.7                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 |            | 1       | 5         | 17.6                    | 16.1               | 33.0             | -16.9       |
|                    |            |                 |            | 3       | 0         | 17.8                    | 16.3               | 33.0             | -16.7       |
|                    |            |                 |            | 3       | 1         | 17.9                    | 16.4               | 33.0             | -16.6       |
|                    |            |                 |            | 3       | 3         | 17.9                    | 16.4               | 33.0             | -16.6       |
|                    |            |                 |            | 6       | 0         | 17.8                    | 16.3               | 33.0             | -16.7       |
|                    |            |                 | 64QAM      | 1       | 0         | 17.2                    | 15.7               | 33.0             | -17.3       |
|                    |            |                 |            | 1       | 3         | 17.5                    | 16.0               | 33.0             | -17.0       |
|                    |            |                 |            | 1       | 5         | 17.5                    | 16.0               | 33.0             | -17.0       |
|                    |            |                 |            | 3       | 0         | 17.3                    | 15.8               | 33.0             | -17.2       |
|                    |            |                 |            | 3       | 1         | 17.2                    | 15.7               | 33.0             | -17.3       |
|                    |            |                 |            | 3       | 3         | 17.2                    | 15.7               | 33.0             | -17.3       |
|                    |            |                 |            | 6       | 0         | 17.1                    | 15.6               | 33.0             | -17.4       |
| 1.4                | 18900      | 1880.0          | QPSK       | 1       | 0         | 18.0                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 1       | 3         | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 1       | 5         | 18.0                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 3       | 0         | 18.0                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 3       | 1         | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 3       | 3         | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 6       | 0         | 18.0                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 | 16QAM      | 1       | 0         | 17.9                    | 16.4               | 33.0             | -16.6       |
|                    |            |                 |            | 1       | 3         | 17.9                    | 16.4               | 33.0             | -16.6       |
|                    |            |                 |            | 1       | 5         | 17.9                    | 16.4               | 33.0             | -16.6       |
|                    |            |                 |            | 3       | 0         | 17.8                    | 16.3               | 33.0             | -16.8       |
|                    |            |                 |            | 3       | 1         | 17.8                    | 16.3               | 33.0             | -16.7       |
|                    |            |                 |            | 3       | 3         | 17.8                    | 16.3               | 33.0             | -16.7       |
|                    |            |                 |            | 6       | 0         | 17.5                    | 16.0               | 33.0             | -17.0       |
|                    |            |                 | 64QAM      | 1       | 0         | 17.2                    | 15.7               | 33.0             | -17.3       |
|                    |            |                 |            | 1       | 3         | 17.2                    | 15.7               | 33.0             | -17.3       |
|                    |            |                 |            | 1       | 5         | 17.1                    | 15.6               | 33.0             | -17.4       |
|                    |            |                 |            | 3       | 0         | 17.1                    | 15.6               | 33.0             | -17.4       |
|                    |            |                 |            | 3       | 1         | 17.1                    | 15.6               | 33.0             | -17.4       |
|                    |            |                 |            | 3       | 3         | 17.1                    | 15.6               | 33.0             | -17.4       |
|                    |            |                 |            | 6       | 0         | 17.1                    | 15.6               | 33.0             | -17.4       |

| Antenna gain (dBi) |            | -1.50           |            |         |           |                         |                    |                  |             |
|--------------------|------------|-----------------|------------|---------|-----------|-------------------------|--------------------|------------------|-------------|
| Bandwidth          | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| 1.4                | 19193      | 1919.3          | QPSK       | 1       | 0         | 18.0                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 1       | 8         | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 1       | 14        | 18.0                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 3       | 0         | 18.0                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 3       | 4         | 18.1                    | 16.6               | 33.0             | -16.5       |
|                    |            |                 |            | 3       | 7         | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 | 16QAM      | 6       | 0         | 18.0                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 1       | 0         | 17.6                    | 16.1               | 33.0             | -16.9       |
|                    |            |                 |            | 1       | 8         | 17.7                    | 16.2               | 33.0             | -16.9       |
|                    |            |                 |            | 1       | 14        | 17.6                    | 16.1               | 33.0             | -16.9       |
|                    |            |                 |            | 3       | 0         | 17.6                    | 16.1               | 33.0             | -16.9       |
|                    |            |                 |            | 3       | 4         | 17.7                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 |            | 3       | 7         | 17.7                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 | 64QAM      | 6       | 0         | 17.7                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 |            | 1       | 0         | 17.3                    | 15.8               | 33.0             | -17.2       |
|                    |            |                 |            | 1       | 8         | 17.4                    | 15.9               | 33.0             | -17.1       |
|                    |            |                 |            | 1       | 14        | 17.4                    | 15.9               | 33.0             | -17.1       |
|                    |            |                 |            | 3       | 0         | 17.1                    | 15.6               | 33.0             | -17.4       |
|                    |            |                 |            | 3       | 4         | 17.2                    | 15.7               | 33.0             | -17.3       |
|                    |            |                 |            | 3       | 7         | 17.2                    | 15.7               | 33.0             | -17.3       |
|                    |            |                 |            | 6       | 0         | 17.2                    | 15.7               | 33.0             | -17.3       |

| Antenna gain (dBi) |            | -1.50           |            |         |           |                         |                    |                  |             |
|--------------------|------------|-----------------|------------|---------|-----------|-------------------------|--------------------|------------------|-------------|
| Bandwidth          | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| 3.0                | 18615      | 1851.5          | QPSK       | 1       | 0         | 18.2                    | 16.7               | 33.0             | -16.4       |
|                    |            |                 |            | 1       | 8         | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 1       | 14        | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 8       | 0         | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 8       | 4         | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 8       | 7         | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 15      | 0         | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 | 16QAM      | 1       | 0         | 17.8                    | 16.3               | 33.0             | -16.7       |
|                    |            |                 |            | 1       | 8         | 17.8                    | 16.3               | 33.0             | -16.7       |
|                    |            |                 |            | 1       | 14        | 17.7                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 |            | 8       | 0         | 17.8                    | 16.3               | 33.0             | -16.7       |
|                    |            |                 |            | 8       | 4         | 17.8                    | 16.3               | 33.0             | -16.7       |
|                    |            |                 |            | 8       | 7         | 17.8                    | 16.3               | 33.0             | -16.7       |
|                    |            |                 |            | 15      | 0         | 17.7                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 | 64QAM      | 1       | 0         | 17.2                    | 15.7               | 33.0             | -17.3       |
|                    |            |                 |            | 1       | 8         | 17.5                    | 16.0               | 33.0             | -17.0       |
|                    |            |                 |            | 1       | 14        | 17.5                    | 16.0               | 33.0             | -17.0       |
|                    |            |                 |            | 8       | 0         | 17.2                    | 15.7               | 33.0             | -17.3       |
|                    |            |                 |            | 8       | 4         | 17.2                    | 15.7               | 33.0             | -17.3       |
|                    |            |                 |            | 8       | 7         | 17.2                    | 15.7               | 33.0             | -17.3       |
|                    |            |                 |            | 15      | 0         | 17.2                    | 15.7               | 33.0             | -17.3       |
| 3.0                | 18900      | 1880.0          | QPSK       | 1       | 0         | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 1       | 8         | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 1       | 14        | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 8       | 0         | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 8       | 4         | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 8       | 7         | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 15      | 0         | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 | 16QAM      | 1       | 0         | 18.0                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 1       | 8         | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 1       | 14        | 18.0                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 8       | 0         | 17.7                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 |            | 8       | 4         | 17.7                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 |            | 8       | 7         | 17.7                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 |            | 15      | 0         | 17.7                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 | 64QAM      | 1       | 0         | 17.4                    | 15.9               | 33.0             | -17.1       |
|                    |            |                 |            | 1       | 8         | 17.3                    | 15.8               | 33.0             | -17.2       |
|                    |            |                 |            | 1       | 14        | 17.3                    | 15.8               | 33.0             | -17.2       |
|                    |            |                 |            | 8       | 0         | 17.0                    | 15.5               | 33.0             | -17.5       |
|                    |            |                 |            | 8       | 4         | 17.1                    | 15.6               | 33.0             | -17.4       |
|                    |            |                 |            | 8       | 7         | 17.0                    | 15.5               | 33.0             | -17.5       |
|                    |            |                 |            | 15      | 0         | 17.1                    | 15.6               | 33.0             | -17.4       |

| Antenna gain (dBi) |            | -1.50           |            |         |           |                         |                    |                  |             |
|--------------------|------------|-----------------|------------|---------|-----------|-------------------------|--------------------|------------------|-------------|
| Bandwidth          | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| 3.0                | 19185      | 1908.5          | QPSK       | 1       | 0         | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 1       | 8         | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 1       | 14        | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 8       | 0         | 18.2                    | 16.7               | 33.0             | -16.4       |
|                    |            |                 |            | 8       | 4         | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 8       | 7         | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 15      | 0         | 18.2                    | 16.7               | 33.0             | -16.4       |
|                    |            |                 | 16QAM      | 1       | 0         | 17.6                    | 16.1               | 33.0             | -17.0       |
|                    |            |                 |            | 1       | 8         | 17.6                    | 16.1               | 33.0             | -16.9       |
|                    |            |                 |            | 1       | 14        | 17.5                    | 16.0               | 33.0             | -17.0       |
|                    |            |                 |            | 8       | 0         | 17.8                    | 16.3               | 33.0             | -16.7       |
|                    |            |                 |            | 8       | 4         | 17.8                    | 16.3               | 33.0             | -16.7       |
|                    |            |                 |            | 8       | 7         | 17.8                    | 16.3               | 33.0             | -16.7       |
|                    |            |                 |            | 15      | 0         | 17.7                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 | 64QAM      | 1       | 0         | 17.4                    | 15.9               | 33.0             | -17.1       |
|                    |            |                 |            | 1       | 8         | 17.4                    | 15.9               | 33.0             | -17.1       |
|                    |            |                 |            | 1       | 14        | 17.4                    | 15.9               | 33.0             | -17.1       |
|                    |            |                 |            | 8       | 0         | 17.1                    | 15.6               | 33.0             | -17.4       |
|                    |            |                 |            | 8       | 4         | 17.2                    | 15.7               | 33.0             | -17.3       |
|                    |            |                 |            | 8       | 7         | 17.1                    | 15.6               | 33.0             | -17.4       |
|                    |            |                 |            | 15      | 0         | 17.1                    | 15.6               | 33.0             | -17.4       |

| Antenna gain (dBi) |            | -1.50           |            |         |           |                         |                    |                  |             |
|--------------------|------------|-----------------|------------|---------|-----------|-------------------------|--------------------|------------------|-------------|
| Bandwidth          | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| 5.0                | 625        | 1852.5          | QPSK       | 1       | 0         | 18.3                    | 16.8               | 33.0             | -16.2       |
|                    |            |                 |            | 1       | 12        | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 1       | 24        | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 12      | 0         | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 12      | 7         | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 12      | 13        | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 25      | 0         | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 | 16QAM      | 1       | 0         | 17.9                    | 16.4               | 33.0             | -16.6       |
|                    |            |                 |            | 1       | 12        | 17.8                    | 16.3               | 33.0             | -16.7       |
|                    |            |                 |            | 1       | 24        | 17.8                    | 16.3               | 33.0             | -16.8       |
|                    |            |                 |            | 12      | 0         | 17.9                    | 16.4               | 33.0             | -16.6       |
|                    |            |                 |            | 12      | 7         | 17.8                    | 16.3               | 33.0             | -16.7       |
|                    |            |                 |            | 12      | 13        | 17.8                    | 16.3               | 33.0             | -16.7       |
|                    |            |                 |            | 25      | 0         | 17.7                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 | 64QAM      | 1       | 0         | 17.7                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 |            | 1       | 12        | 17.5                    | 16.0               | 33.0             | -17.0       |
|                    |            |                 |            | 1       | 24        | 17.5                    | 16.0               | 33.0             | -17.0       |
|                    |            |                 |            | 12      | 0         | 17.3                    | 15.8               | 33.0             | -17.2       |
|                    |            |                 |            | 12      | 7         | 17.2                    | 15.7               | 33.0             | -17.3       |
|                    |            |                 |            | 12      | 13        | 17.2                    | 15.7               | 33.0             | -17.3       |
|                    |            |                 |            | 25      | 0         | 17.2                    | 15.7               | 33.0             | -17.3       |
| 5.0                | 18900      | 1880.0          | QPSK       | 1       | 0         | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 1       | 12        | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 1       | 24        | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 12      | 0         | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 12      | 7         | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 12      | 13        | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 25      | 0         | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 | 16QAM      | 1       | 0         | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 1       | 2         | 18.2                    | 16.7               | 33.0             | -16.4       |
|                    |            |                 |            | 1       | 5         | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 3       | 0         | 17.9                    | 16.4               | 33.0             | -16.6       |
|                    |            |                 |            | 3       | 1         | 17.8                    | 16.3               | 33.0             | -16.7       |
|                    |            |                 |            | 3       | 2         | 17.8                    | 16.3               | 33.0             | -16.7       |
|                    |            |                 |            | 6       | 0         | 17.7                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 | 64QAM      | 1       | 0         | 17.5                    | 16.0               | 33.0             | -17.0       |
|                    |            |                 |            | 1       | 12        | 17.5                    | 16.0               | 33.0             | -17.0       |
|                    |            |                 |            | 1       | 24        | 17.5                    | 16.0               | 33.0             | -17.0       |
|                    |            |                 |            | 12      | 0         | 17.2                    | 15.7               | 33.0             | -17.3       |
|                    |            |                 |            | 12      | 7         | 17.1                    | 15.6               | 33.0             | -17.4       |
|                    |            |                 |            | 12      | 13        | 17.1                    | 15.6               | 33.0             | -17.4       |
|                    |            |                 |            | 25      | 0         | 17.1                    | 15.6               | 33.0             | -17.4       |

| Antenna gain (dBi) |            | -1.50           |            |         |           |                         |                    |                  |             |
|--------------------|------------|-----------------|------------|---------|-----------|-------------------------|--------------------|------------------|-------------|
| Bandwidth          | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| 5.0                | 19175      | 1907.5          | QPSK       | 1       | 0         | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 1       | 12        | 18.2                    | 16.7               | 33.0             | -16.4       |
|                    |            |                 |            | 1       | 24        | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 12      | 0         | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 12      | 7         | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 12      | 13        | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 25      | 0         | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 | 16QAM      | 1       | 0         | 17.9                    | 16.4               | 33.0             | -16.6       |
|                    |            |                 |            | 1       | 12        | 17.8                    | 16.3               | 33.0             | -16.7       |
|                    |            |                 |            | 1       | 24        | 17.8                    | 16.3               | 33.0             | -16.7       |
|                    |            |                 |            | 12      | 0         | 17.8                    | 16.3               | 33.0             | -16.8       |
|                    |            |                 |            | 12      | 7         | 17.7                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 |            | 12      | 13        | 17.7                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 |            | 25      | 0         | 17.7                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 | 64QAM      | 1       | 0         | 17.5                    | 16.0               | 33.0             | -17.0       |
|                    |            |                 |            | 1       | 12        | 17.4                    | 15.9               | 33.0             | -17.1       |
|                    |            |                 |            | 1       | 24        | 17.4                    | 15.9               | 33.0             | -17.1       |
|                    |            |                 |            | 12      | 0         | 17.2                    | 15.7               | 33.0             | -17.3       |
|                    |            |                 |            | 12      | 7         | 17.2                    | 15.7               | 33.0             | -17.3       |
|                    |            |                 |            | 12      | 13        | 17.1                    | 15.6               | 33.0             | -17.4       |
|                    |            |                 |            | 25      | 0         | 17.2                    | 15.7               | 33.0             | -17.3       |

| Antenna gain (dBi) |            | -1.50           |            |         |           |                         |                    |                  |             |
|--------------------|------------|-----------------|------------|---------|-----------|-------------------------|--------------------|------------------|-------------|
| Bandwidth          | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| 10.0               | 18650      | 1855.0          | QPSK       | 1       | 0         | 18.4                    | 16.9               | 33.0             | -16.1       |
|                    |            |                 |            | 1       | 25        | 18.1                    | 16.6               | 33.0             | -16.5       |
|                    |            |                 |            | 1       | 49        | 18.3                    | 16.8               | 33.0             | -16.2       |
|                    |            |                 |            | 25      | 0         | 18.3                    | 16.8               | 33.0             | -16.2       |
|                    |            |                 |            | 25      | 12        | 18.2                    | 16.7               | 33.0             | -16.4       |
|                    |            |                 |            | 25      | 25        | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 50      | 0         | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 | 16QAM      | 1       | 0         | 18.0                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 1       | 25        | 17.6                    | 16.1               | 33.0             | -16.9       |
|                    |            |                 |            | 1       | 49        | 17.9                    | 16.4               | 33.0             | -16.6       |
|                    |            |                 |            | 25      | 0         | 17.9                    | 16.4               | 33.0             | -16.6       |
|                    |            |                 |            | 25      | 12        | 17.8                    | 16.3               | 33.0             | -16.7       |
|                    |            |                 |            | 25      | 25        | 17.7                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 |            | 50      | 0         | 17.8                    | 16.3               | 33.0             | -16.7       |
|                    |            |                 | 64QAM      | 1       | 0         | 17.9                    | 16.4               | 33.0             | -16.6       |
|                    |            |                 |            | 1       | 25        | 17.6                    | 16.1               | 33.0             | -16.9       |
|                    |            |                 |            | 1       | 49        | 17.5                    | 16.0               | 33.0             | -17.0       |
|                    |            |                 |            | 25      | 0         | 17.1                    | 15.6               | 33.0             | -17.4       |
|                    |            |                 |            | 25      | 12        | 17.2                    | 15.7               | 33.0             | -17.3       |
|                    |            |                 |            | 25      | 25        | 17.0                    | 15.5               | 33.0             | -17.5       |
|                    |            |                 |            | 50      | 0         | 17.1                    | 15.6               | 33.0             | -17.4       |
| 10.0               | 18900      | 1880.0          | QPSK       | 1       | 0         | 18.4                    | 16.9               | 33.0             | -16.1       |
|                    |            |                 |            | 1       | 25        | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 1       | 49        | 18.3                    | 16.8               | 33.0             | -16.2       |
|                    |            |                 |            | 25      | 0         | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 25      | 12        | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 25      | 25        | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 50      | 0         | 18.2                    | 16.7               | 33.0             | -16.4       |
|                    |            |                 | 16QAM      | 1       | 0         | 18.3                    | 16.8               | 33.0             | -16.2       |
|                    |            |                 |            | 1       | 25        | 18.0                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 1       | 49        | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 25      | 0         | 17.8                    | 16.3               | 33.0             | -16.7       |
|                    |            |                 |            | 25      | 12        | 17.7                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 |            | 25      | 25        | 17.7                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 |            | 50      | 0         | 17.7                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 | 64QAM      | 1       | 0         | 17.7                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 |            | 1       | 25        | 17.5                    | 16.0               | 33.0             | -17.0       |
|                    |            |                 |            | 1       | 49        | 17.5                    | 16.0               | 33.0             | -17.0       |
|                    |            |                 |            | 25      | 0         | 17.3                    | 15.8               | 33.0             | -17.2       |
|                    |            |                 |            | 25      | 12        | 17.1                    | 15.6               | 33.0             | -17.4       |
|                    |            |                 |            | 25      | 25        | 17.1                    | 15.6               | 33.0             | -17.4       |
|                    |            |                 |            | 50      | 0         | 17.1                    | 15.6               | 33.0             | -17.4       |

| Antenna gain (dBi) |            | -1.50           |            |         |           |                         |                    |                  |             |
|--------------------|------------|-----------------|------------|---------|-----------|-------------------------|--------------------|------------------|-------------|
| Bandwidth          | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| 10.0               | 19150      | 1905.0          | QPSK       | 1       | 0         | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 1       | 25        | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 1       | 49        | 18.1                    | 16.6               | 33.0             | -16.5       |
|                    |            |                 |            | 25      | 0         | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 25      | 12        | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 25      | 25        | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 50      | 0         | 18.2                    | 16.7               | 33.0             | -16.4       |
|                    |            |                 | 16QAM      | 1       | 0         | 17.7                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 |            | 1       | 25        | 17.5                    | 16.0               | 33.0             | -17.0       |
|                    |            |                 |            | 1       | 49        | 17.5                    | 16.0               | 33.0             | -17.0       |
|                    |            |                 |            | 25      | 0         | 17.8                    | 16.3               | 33.0             | -16.7       |
|                    |            |                 |            | 25      | 12        | 17.7                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 |            | 25      | 25        | 17.7                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 |            | 50      | 0         | 17.7                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 | 64QAM      | 1       | 0         | 17.3                    | 15.8               | 33.0             | -17.2       |
|                    |            |                 |            | 1       | 25        | 17.3                    | 15.8               | 33.0             | -17.2       |
|                    |            |                 |            | 1       | 49        | 17.2                    | 15.7               | 33.0             | -17.3       |
|                    |            |                 |            | 25      | 0         | 17.2                    | 15.7               | 33.0             | -17.3       |
|                    |            |                 |            | 25      | 12        | 17.1                    | 15.6               | 33.0             | -17.4       |
|                    |            |                 |            | 25      | 25        | 17.1                    | 15.6               | 33.0             | -17.4       |
|                    |            |                 |            | 50      | 0         | 17.1                    | 15.6               | 33.0             | -17.4       |

| Antenna gain (dBi) |            | -1.50           |            |         |           |                         |                    |                  |             |
|--------------------|------------|-----------------|------------|---------|-----------|-------------------------|--------------------|------------------|-------------|
| Bandwidth          | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| 15.0               | 18675      | 1857.5          | QPSK       | 1       | 0         | 18.4                    | 16.9               | 33.0             | -16.1       |
|                    |            |                 |            | 1       | 37        | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 1       | 74        | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 36      | 0         | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 36      | 20        | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 36      | 39        | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 75      | 0         | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 | 16QAM      | 1       | 0         | 18.3                    | 16.8               | 33.0             | -16.2       |
|                    |            |                 |            | 1       | 37        | 18.0                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 1       | 74        | 18.0                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 36      | 0         | 17.7                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 |            | 36      | 20        | 17.7                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 |            | 36      | 39        | 17.7                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 |            | 75      | 0         | 17.8                    | 16.3               | 33.0             | -16.7       |
|                    |            |                 | 64QAM      | 1       | 0         | 17.6                    | 16.1               | 33.0             | -16.9       |
|                    |            |                 |            | 1       | 37        | 17.4                    | 15.9               | 33.0             | -17.1       |
|                    |            |                 |            | 1       | 74        | 17.5                    | 16.0               | 33.0             | -17.0       |
|                    |            |                 |            | 36      | 0         | 17.3                    | 15.8               | 33.0             | -17.2       |
|                    |            |                 |            | 36      | 20        | 17.2                    | 15.7               | 33.0             | -17.3       |
|                    |            |                 |            | 36      | 39        | 17.2                    | 15.7               | 33.0             | -17.3       |
|                    |            |                 |            | 75      | 0         | 17.2                    | 15.7               | 33.0             | -17.3       |
| 15.0               | 18900      | 1880.0          | QPSK       | 1       | 0         | 18.3                    | 16.8               | 33.0             | -16.2       |
|                    |            |                 |            | 1       | 37        | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 1       | 74        | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 36      | 0         | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 36      | 20        | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 36      | 39        | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 75      | 0         | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 | 16QAM      | 1       | 0         | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 1       | 37        | 18.0                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 1       | 74        | 18.0                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 36      | 0         | 17.9                    | 16.4               | 33.0             | -16.6       |
|                    |            |                 |            | 36      | 20        | 17.8                    | 16.3               | 33.0             | -16.7       |
|                    |            |                 |            | 36      | 39        | 17.7                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 |            | 75      | 0         | 17.8                    | 16.3               | 33.0             | -16.8       |
|                    |            |                 | 64QAM      | 1       | 0         | 17.5                    | 16.0               | 33.0             | -17.0       |
|                    |            |                 |            | 1       | 37        | 17.4                    | 15.9               | 33.0             | -17.1       |
|                    |            |                 |            | 1       | 74        | 17.2                    | 15.7               | 33.0             | -17.3       |
|                    |            |                 |            | 36      | 0         | 17.2                    | 15.7               | 33.0             | -17.3       |
|                    |            |                 |            | 36      | 20        | 17.1                    | 15.6               | 33.0             | -17.4       |
|                    |            |                 |            | 36      | 39        | 17.1                    | 15.6               | 33.0             | -17.4       |
|                    |            |                 |            | 75      | 0         | 17.1                    | 15.6               | 33.0             | -17.4       |

| Antenna gain (dBi) |            | -1.50           |            |         |           |                         |                    |                  |             |
|--------------------|------------|-----------------|------------|---------|-----------|-------------------------|--------------------|------------------|-------------|
| Bandwidth          | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| 15.0               | 19125      | 1902.5          | QPSK       | 1       | 0         | 18.4                    | 16.9               | 33.0             | -16.1       |
|                    |            |                 |            | 1       | 37        | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 1       | 74        | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 36      | 0         | 18.3                    | 16.8               | 33.0             | -16.2       |
|                    |            |                 |            | 36      | 20        | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 36      | 39        | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 75      | 0         | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 | 16QAM      | 1       | 0         | 17.8                    | 16.3               | 33.0             | -16.7       |
|                    |            |                 |            | 1       | 37        | 17.6                    | 16.1               | 33.0             | -16.9       |
|                    |            |                 |            | 1       | 74        | 17.5                    | 16.0               | 33.0             | -17.0       |
|                    |            |                 |            | 36      | 0         | 17.8                    | 16.3               | 33.0             | -16.7       |
|                    |            |                 |            | 36      | 20        | 17.8                    | 16.3               | 33.0             | -16.8       |
|                    |            |                 |            | 36      | 39        | 17.7                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 |            | 75      | 0         | 17.7                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 | 64QAM      | 1       | 0         | 17.6                    | 16.1               | 33.0             | -16.9       |
|                    |            |                 |            | 1       | 37        | 17.5                    | 16.0               | 33.0             | -17.0       |
|                    |            |                 |            | 1       | 74        | 17.3                    | 15.8               | 33.0             | -17.2       |
|                    |            |                 |            | 36      | 0         | 17.3                    | 15.8               | 33.0             | -17.2       |
|                    |            |                 |            | 36      | 20        | 17.2                    | 15.7               | 33.0             | -17.3       |
|                    |            |                 |            | 36      | 39        | 17.3                    | 15.8               | 33.0             | -17.2       |
|                    |            |                 |            | 75      | 0         | 17.1                    | 15.6               | 33.0             | -17.4       |

| Antenna gain (dBi) |            | -1.50           |            |         |           |                         |                    |                  |             |
|--------------------|------------|-----------------|------------|---------|-----------|-------------------------|--------------------|------------------|-------------|
| Bandwidth          | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| 20.0               | 18700      | 1860.0          | QPSK       | 1       | 0         | 18.5                    | 17.0               | 33.0             | -16.1       |
|                    |            |                 |            | 1       | 49        | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 1       | 99        | 18.0                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 50      | 0         | 18.3                    | 16.8               | 33.0             | -16.2       |
|                    |            |                 |            | 50      | 24        | 18.2                    | 16.7               | 33.0             | -16.4       |
|                    |            |                 |            | 50      | 50        | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 | 16QAM      | 100     | 0         | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 1       | 0         | 18.4                    | 16.9               | 33.0             | -16.1       |
|                    |            |                 |            | 1       | 49        | 18.0                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 1       | 99        | 18.0                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 50      | 0         | 17.8                    | 16.3               | 33.0             | -16.7       |
|                    |            |                 |            | 50      | 24        | 17.7                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 |            | 50      | 50        | 17.7                    | 16.2               | 33.0             | -16.9       |
|                    |            |                 |            | 100     | 0         | 17.7                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 | 64QAM      | 1       | 0         | 17.5                    | 16.0               | 33.0             | -17.0       |
|                    |            |                 |            | 1       | 49        | 17.3                    | 15.8               | 33.0             | -17.2       |
|                    |            |                 |            | 1       | 99        | 17.4                    | 15.9               | 33.0             | -17.1       |
|                    |            |                 |            | 50      | 0         | 17.1                    | 15.6               | 33.0             | -17.4       |
|                    |            |                 |            | 50      | 24        | 17.2                    | 15.7               | 33.0             | -17.3       |
|                    |            |                 |            | 50      | 50        | 17.1                    | 15.6               | 33.0             | -17.4       |
| 20.0               | 18900      | 1880.0          | QPSK       | 100     | 0         | 17.1                    | 15.6               | 33.0             | -17.4       |
|                    |            |                 |            | 1       | 0         | 18.4                    | 16.9               | 33.0             | -16.1       |
|                    |            |                 |            | 1       | 49        | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 1       | 99        | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 50      | 0         | 18.3                    | 16.8               | 33.0             | -16.2       |
|                    |            |                 |            | 50      | 24        | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 | 16QAM      | 50      | 50        | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 100     | 0         | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 1       | 0         | 18.4                    | 16.9               | 33.0             | -16.1       |
|                    |            |                 |            | 1       | 49        | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 1       | 99        | 18.3                    | 16.8               | 33.0             | -16.2       |
|                    |            |                 |            | 50      | 0         | 17.8                    | 16.3               | 33.0             | -16.7       |
|                    |            |                 | 64QAM      | 50      | 24        | 17.8                    | 16.3               | 33.0             | -16.8       |
|                    |            |                 |            | 50      | 50        | 17.7                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 |            | 100     | 0         | 17.8                    | 16.3               | 33.0             | -16.7       |
|                    |            |                 |            | 1       | 0         | 17.8                    | 16.3               | 33.0             | -16.7       |
|                    |            |                 |            | 1       | 49        | 17.0                    | 15.5               | 33.0             | -17.5       |
|                    |            |                 |            | 1       | 99        | 17.6                    | 16.1               | 33.0             | -16.9       |
|                    |            |                 | 64QAM      | 50      | 0         | 17.2                    | 15.7               | 33.0             | -17.3       |
|                    |            |                 |            | 50      | 24        | 17.1                    | 15.6               | 33.0             | -17.4       |
|                    |            |                 |            | 50      | 50        | 17.1                    | 15.6               | 33.0             | -17.4       |
|                    |            |                 |            | 100     | 0         | 17.1                    | 15.6               | 33.0             | -17.4       |

|                    |            |        |            |         |           |                         |                    |                  |             |
|--------------------|------------|--------|------------|---------|-----------|-------------------------|--------------------|------------------|-------------|
| Antenna gain (dBi) |            | -1.50  |            |         |           |                         |                    |                  |             |
| Bandwidth          | UL Channel | -1.5   | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| 20.0               | 19100      | 1900.0 | QPSK       | 1       | 0         | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |        |            | 1       | 49        | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |        |            | 1       | 99        | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |        |            | 50      | 0         | 18.3                    | 16.8               | 33.0             | -16.2       |
|                    |            |        |            | 50      | 24        | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |        |            | 50      | 50        | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |        |            | 100     | 0         | 18.2                    | 16.7               | 33.0             | -16.3       |
|                    |            |        | 16QAM      | 1       | 0         | 18.4                    | 16.9               | 33.0             | -16.1       |
|                    |            |        |            | 1       | 49        | 18.1                    | 16.6               | 33.0             | -16.4       |
|                    |            |        |            | 1       | 99        | 18.3                    | 16.8               | 33.0             | -16.2       |
|                    |            |        |            | 50      | 0         | 17.8                    | 16.3               | 33.0             | -16.7       |
|                    |            |        |            | 50      | 24        | 17.8                    | 16.3               | 33.0             | -16.8       |
|                    |            |        |            | 50      | 50        | 17.7                    | 16.2               | 33.0             | -16.8       |
|                    |            |        |            | 100     | 0         | 17.8                    | 16.3               | 33.0             | -16.7       |
|                    |            |        | 64QAM      | 1       | 0         | 17.5                    | 16.0               | 33.0             | -17.0       |
|                    |            |        |            | 1       | 49        | 17.4                    | 15.9               | 33.0             | -17.1       |
|                    |            |        |            | 1       | 99        | 17.3                    | 15.8               | 33.0             | -17.2       |
|                    |            |        |            | 50      | 0         | 17.2                    | 15.7               | 33.0             | -17.3       |
|                    |            |        |            | 50      | 24        | 17.2                    | 15.7               | 33.0             | -17.3       |
|                    |            |        |            | 50      | 50        | 17.2                    | 15.7               | 33.0             | -17.3       |
|                    |            |        |            | 100     | 0         | 17.2                    | 15.7               | 33.0             | -17.3       |

**LTE Band 4**

| Antenna gain (dBi) |            | -2.30           |            |         |           |                         |                    |                  |             |
|--------------------|------------|-----------------|------------|---------|-----------|-------------------------|--------------------|------------------|-------------|
| Bandwidth          | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| 1.4                | 19957      | 1710.7          | QPSK       | 1       | 0         | 19.7                    | 17.4               | 33.0             | -15.6       |
|                    |            |                 |            | 1       | 3         | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 1       | 5         | 19.7                    | 17.4               | 33.0             | -15.6       |
|                    |            |                 |            | 3       | 0         | 19.7                    | 17.4               | 33.0             | -15.6       |
|                    |            |                 |            | 3       | 1         | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 3       | 3         | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 | 16QAM      | 6       | 0         | 19.7                    | 17.4               | 33.0             | -15.6       |
|                    |            |                 |            | 1       | 0         | 19.3                    | 17.0               | 33.0             | -16.1       |
|                    |            |                 |            | 1       | 3         | 19.3                    | 17.0               | 33.0             | -16.0       |
|                    |            |                 |            | 1       | 5         | 19.3                    | 17.0               | 33.0             | -16.1       |
|                    |            |                 |            | 3       | 0         | 19.4                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 |            | 3       | 1         | 19.5                    | 17.2               | 33.0             | -15.8       |
|                    |            |                 |            | 3       | 3         | 19.5                    | 17.2               | 33.0             | -15.8       |
|                    |            |                 |            | 6       | 0         | 19.5                    | 17.2               | 33.0             | -15.9       |
|                    |            |                 | 64QAM      | 1       | 0         | 18.9                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 1       | 3         | 19.0                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 1       | 5         | 18.9                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 3       | 0         | 18.9                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 3       | 1         | 18.8                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 3       | 3         | 18.8                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 6       | 0         | 18.7                    | 16.4               | 33.0             | -16.6       |
| 1.4                | 20175      | 1732.5          | QPSK       | 1       | 0         | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 1       | 3         | 19.9                    | 17.6               | 33.0             | -15.5       |
|                    |            |                 |            | 1       | 5         | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 3       | 0         | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 3       | 1         | 19.9                    | 17.6               | 33.0             | -15.5       |
|                    |            |                 |            | 3       | 3         | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 | 16QAM      | 6       | 0         | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 1       | 0         | 19.7                    | 17.4               | 33.0             | -15.6       |
|                    |            |                 |            | 1       | 3         | 19.7                    | 17.4               | 33.0             | -15.6       |
|                    |            |                 |            | 1       | 5         | 19.6                    | 17.3               | 33.0             | -15.7       |
|                    |            |                 |            | 3       | 0         | 19.5                    | 17.2               | 33.0             | -15.8       |
|                    |            |                 |            | 3       | 1         | 19.5                    | 17.2               | 33.0             | -15.8       |
|                    |            |                 |            | 3       | 3         | 19.5                    | 17.2               | 33.0             | -15.8       |
|                    |            |                 |            | 6       | 0         | 19.2                    | 16.9               | 33.0             | -16.1       |
|                    |            |                 | 64QAM      | 1       | 0         | 19.0                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 1       | 3         | 19.2                    | 16.9               | 33.0             | -16.1       |
|                    |            |                 |            | 1       | 5         | 19.2                    | 16.9               | 33.0             | -16.1       |
|                    |            |                 |            | 3       | 0         | 18.9                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 3       | 1         | 18.8                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 3       | 3         | 18.9                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 6       | 0         | 18.8                    | 16.5               | 33.0             | -16.5       |

| Antenna gain (dBi) |            | -2.30           |            |         |           |                         |                    |                  |             |
|--------------------|------------|-----------------|------------|---------|-----------|-------------------------|--------------------|------------------|-------------|
| Bandwidth          | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| 1.4                | 20393      | 1754.3          | QPSK       | 1       | 0         | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 1       | 3         | 19.9                    | 17.6               | 33.0             | -15.5       |
|                    |            |                 |            | 1       | 5         | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 3       | 0         | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 3       | 1         | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 3       | 3         | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 6       | 0         | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 | 16QAM      | 1       | 0         | 19.4                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 |            | 1       | 3         | 19.5                    | 17.2               | 33.0             | -15.8       |
|                    |            |                 |            | 1       | 5         | 19.4                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 |            | 3       | 0         | 19.4                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 |            | 3       | 1         | 19.4                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 |            | 3       | 3         | 19.4                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 |            | 6       | 0         | 19.4                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 | 64QAM      | 1       | 0         | 19.2                    | 16.9               | 33.0             | -16.1       |
|                    |            |                 |            | 1       | 3         | 19.2                    | 16.9               | 33.0             | -16.1       |
|                    |            |                 |            | 1       | 5         | 19.1                    | 16.8               | 33.0             | -16.2       |
|                    |            |                 |            | 3       | 0         | 19.0                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 3       | 1         | 18.9                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 3       | 3         | 18.9                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 6       | 0         | 18.9                    | 16.6               | 33.0             | -16.4       |

| Antenna gain (dBi) |            | -2.30           |            |         |           |                         |                    |                  |             |
|--------------------|------------|-----------------|------------|---------|-----------|-------------------------|--------------------|------------------|-------------|
| Bandwidth          | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| 3.0                | 19965      | 1711.5          | QPSK       | 1       | 0         | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 1       | 8         | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 1       | 14        | 19.7                    | 17.4               | 33.0             | -15.6       |
|                    |            |                 |            | 8       | 0         | 19.9                    | 17.6               | 33.0             | -15.4       |
|                    |            |                 |            | 8       | 4         | 19.9                    | 17.6               | 33.0             | -15.4       |
|                    |            |                 |            | 8       | 7         | 19.7                    | 17.4               | 33.0             | -15.6       |
|                    |            |                 | 16QAM      | 15      | 0         | 19.7                    | 17.4               | 33.0             | -15.6       |
|                    |            |                 |            | 1       | 0         | 19.4                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 |            | 1       | 8         | 19.3                    | 17.0               | 33.0             | -16.0       |
|                    |            |                 |            | 1       | 14        | 19.2                    | 16.9               | 33.0             | -16.1       |
|                    |            |                 |            | 8       | 0         | 19.4                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 |            | 8       | 4         | 19.4                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 |            | 8       | 7         | 19.3                    | 17.0               | 33.0             | -16.0       |
|                    |            |                 |            | 15      | 0         | 19.2                    | 16.9               | 33.0             | -16.1       |
|                    |            |                 | 64QAM      | 1       | 0         | 18.9                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 1       | 8         | 18.8                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 1       | 14        | 18.8                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 8       | 0         | 18.8                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 8       | 4         | 18.8                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 8       | 7         | 18.7                    | 16.4               | 33.0             | -16.6       |
| 3.0                | 20175      | 1732.5          | QPSK       | 15      | 0         | 18.7                    | 16.4               | 33.0             | -16.6       |
|                    |            |                 |            | 1       | 0         | 20.0                    | 17.7               | 33.0             | -15.3       |
|                    |            |                 |            | 1       | 8         | 20.0                    | 17.7               | 33.0             | -15.3       |
|                    |            |                 |            | 1       | 14        | 20.0                    | 17.7               | 33.0             | -15.3       |
|                    |            |                 |            | 8       | 0         | 20.1                    | 17.8               | 33.0             | -15.2       |
|                    |            |                 |            | 8       | 4         | 20.1                    | 17.8               | 33.0             | -15.2       |
|                    |            |                 | 16QAM      | 8       | 7         | 20.1                    | 17.8               | 33.0             | -15.2       |
|                    |            |                 |            | 15      | 0         | 20.1                    | 17.8               | 33.0             | -15.2       |
|                    |            |                 |            | 1       | 0         | 19.5                    | 17.2               | 33.0             | -15.8       |
|                    |            |                 |            | 1       | 8         | 19.5                    | 17.2               | 33.0             | -15.8       |
|                    |            |                 |            | 1       | 14        | 19.5                    | 17.2               | 33.0             | -15.8       |
|                    |            |                 |            | 8       | 0         | 19.7                    | 17.4               | 33.0             | -15.6       |
|                    |            |                 | 64QAM      | 8       | 4         | 19.7                    | 17.4               | 33.0             | -15.6       |
|                    |            |                 |            | 8       | 7         | 19.6                    | 17.3               | 33.0             | -15.7       |
|                    |            |                 |            | 15      | 0         | 19.7                    | 17.4               | 33.0             | -15.6       |
|                    |            |                 |            | 1       | 0         | 18.6                    | 16.3               | 33.0             | -16.7       |
|                    |            |                 |            | 1       | 8         | 18.5                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 |            | 1       | 14        | 18.5                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 |            | 8       | 0         | 18.7                    | 16.4               | 33.0             | -16.6       |
|                    |            |                 |            | 8       | 4         | 18.8                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 8       | 7         | 18.7                    | 16.4               | 33.0             | -16.6       |
|                    |            |                 |            | 15      | 0         | 18.7                    | 16.4               | 33.0             | -16.6       |

| Antenna gain (dBi) |            | -2.30           |            |         |           |                         |                    |                  |             |
|--------------------|------------|-----------------|------------|---------|-----------|-------------------------|--------------------|------------------|-------------|
| Bandwidth          | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| 3.0                | 20385      | 1753.5          | QPSK       | 1       | 0         | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 1       | 8         | 19.9                    | 17.6               | 33.0             | -15.4       |
|                    |            |                 |            | 1       | 14        | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 8       | 0         | 19.9                    | 17.6               | 33.0             | -15.5       |
|                    |            |                 |            | 8       | 4         | 19.9                    | 17.6               | 33.0             | -15.5       |
|                    |            |                 |            | 8       | 7         | 19.9                    | 17.6               | 33.0             | -15.5       |
|                    |            |                 |            | 15      | 0         | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 | 16QAM      | 1       | 0         | 19.3                    | 17.0               | 33.0             | -16.0       |
|                    |            |                 |            | 1       | 8         | 19.4                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 |            | 1       | 14        | 19.2                    | 16.9               | 33.0             | -16.1       |
|                    |            |                 |            | 8       | 0         | 19.5                    | 17.2               | 33.0             | -15.8       |
|                    |            |                 |            | 8       | 4         | 19.5                    | 17.2               | 33.0             | -15.8       |
|                    |            |                 |            | 8       | 7         | 19.5                    | 17.2               | 33.0             | -15.8       |
|                    |            |                 |            | 15      | 0         | 19.4                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 | 64QAM      | 1       | 0         | 19.1                    | 16.8               | 33.0             | -16.2       |
|                    |            |                 |            | 1       | 8         | 19.2                    | 16.9               | 33.0             | -16.1       |
|                    |            |                 |            | 1       | 14        | 19.2                    | 16.9               | 33.0             | -16.1       |
|                    |            |                 |            | 8       | 0         | 18.9                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 8       | 4         | 18.9                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 8       | 7         | 18.9                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 15      | 0         | 18.9                    | 16.6               | 33.0             | -16.4       |

| Antenna gain (dBi) |            | -2.30           |            |         |           |                         |                    |                  |             |
|--------------------|------------|-----------------|------------|---------|-----------|-------------------------|--------------------|------------------|-------------|
| Bandwidth          | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| 5.0                | 19975      | 1712.5          | QPSK       | 1       | 0         | 20.0                    | 17.7               | 33.0             | -15.4       |
|                    |            |                 |            | 1       | 12        | 19.8                    | 17.5               | 33.0             | -15.6       |
|                    |            |                 |            | 1       | 24        | 19.7                    | 17.4               | 33.0             | -15.6       |
|                    |            |                 |            | 12      | 0         | 19.9                    | 17.6               | 33.0             | -15.5       |
|                    |            |                 |            | 12      | 7         | 19.8                    | 17.5               | 33.0             | -15.6       |
|                    |            |                 |            | 12      | 13        | 19.7                    | 17.4               | 33.0             | -15.6       |
|                    |            |                 |            | 25      | 0         | 19.7                    | 17.4               | 33.0             | -15.6       |
|                    |            |                 | 16QAM      | 1       | 0         | 19.5                    | 17.2               | 33.0             | -15.8       |
|                    |            |                 |            | 1       | 12        | 19.3                    | 17.0               | 33.0             | -16.0       |
|                    |            |                 |            | 1       | 24        | 19.3                    | 17.0               | 33.0             | -16.0       |
|                    |            |                 |            | 12      | 0         | 19.5                    | 17.2               | 33.0             | -15.9       |
|                    |            |                 |            | 12      | 7         | 19.3                    | 17.0               | 33.0             | -16.0       |
|                    |            |                 |            | 12      | 13        | 19.3                    | 17.0               | 33.0             | -16.0       |
|                    |            |                 |            | 25      | 0         | 19.2                    | 16.9               | 33.0             | -16.1       |
|                    |            |                 | 64QAM      | 1       | 0         | 19.0                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 1       | 12        | 18.8                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 1       | 24        | 18.8                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 12      | 0         | 18.7                    | 16.4               | 33.0             | -16.6       |
|                    |            |                 |            | 12      | 7         | 18.6                    | 16.3               | 33.0             | -16.7       |
|                    |            |                 |            | 12      | 13        | 18.6                    | 16.3               | 33.0             | -16.7       |
|                    |            |                 |            | 25      | 0         | 18.5                    | 16.2               | 33.0             | -16.8       |
| 5.0                | 20175      | 1732.5          | QPSK       | 1       | 0         | 19.9                    | 17.6               | 33.0             | -15.4       |
|                    |            |                 |            | 1       | 12        | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 1       | 24        | 19.9                    | 17.6               | 33.0             | -15.4       |
|                    |            |                 |            | 12      | 0         | 19.9                    | 17.6               | 33.0             | -15.4       |
|                    |            |                 |            | 12      | 7         | 19.9                    | 17.6               | 33.0             | -15.4       |
|                    |            |                 |            | 12      | 13        | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 25      | 0         | 19.9                    | 17.6               | 33.0             | -15.4       |
|                    |            |                 | 16QAM      | 1       | 0         | 20.0                    | 17.7               | 33.0             | -15.3       |
|                    |            |                 |            | 1       | 2         | 19.9                    | 17.6               | 33.0             | -15.4       |
|                    |            |                 |            | 1       | 5         | 19.9                    | 17.6               | 33.0             | -15.4       |
|                    |            |                 |            | 3       | 0         | 19.6                    | 17.3               | 33.0             | -15.7       |
|                    |            |                 |            | 3       | 1         | 19.6                    | 17.3               | 33.0             | -15.7       |
|                    |            |                 |            | 3       | 2         | 19.5                    | 17.2               | 33.0             | -15.8       |
|                    |            |                 |            | 6       | 0         | 19.5                    | 17.2               | 33.0             | -15.9       |
|                    |            |                 | 64QAM      | 1       | 0         | 19.0                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 1       | 12        | 19.0                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 1       | 24        | 18.9                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 12      | 0         | 18.7                    | 16.4               | 33.0             | -16.6       |
|                    |            |                 |            | 12      | 7         | 18.7                    | 16.4               | 33.0             | -16.6       |
|                    |            |                 |            | 12      | 13        | 18.7                    | 16.4               | 33.0             | -16.6       |
|                    |            |                 |            | 25      | 0         | 18.6                    | 16.3               | 33.0             | -16.7       |

| Antenna gain (dBi) |            | -2.30           |            |         |           |                         |                    |                  |             |
|--------------------|------------|-----------------|------------|---------|-----------|-------------------------|--------------------|------------------|-------------|
| Bandwidth          | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| 5.0                | 20375      | 1752.5          | QPSK       | 1       | 0         | 20.0                    | 17.7               | 33.0             | -15.3       |
|                    |            |                 |            | 1       | 12        | 19.9                    | 17.6               | 33.0             | -15.4       |
|                    |            |                 |            | 1       | 24        | 20.0                    | 17.7               | 33.0             | -15.3       |
|                    |            |                 |            | 12      | 0         | 19.9                    | 17.6               | 33.0             | -15.5       |
|                    |            |                 |            | 12      | 7         | 19.9                    | 17.6               | 33.0             | -15.4       |
|                    |            |                 |            | 12      | 13        | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 25      | 0         | 19.9                    | 17.6               | 33.0             | -15.5       |
|                    |            |                 | 16QAM      | 1       | 0         | 19.6                    | 17.3               | 33.0             | -15.7       |
|                    |            |                 |            | 1       | 12        | 19.5                    | 17.2               | 33.0             | -15.8       |
|                    |            |                 |            | 1       | 24        | 19.5                    | 17.2               | 33.0             | -15.8       |
|                    |            |                 |            | 12      | 0         | 19.5                    | 17.2               | 33.0             | -15.8       |
|                    |            |                 |            | 12      | 7         | 19.5                    | 17.2               | 33.0             | -15.8       |
|                    |            |                 |            | 12      | 13        | 19.5                    | 17.2               | 33.0             | -15.8       |
|                    |            |                 |            | 25      | 0         | 19.4                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 | 64QAM      | 1       | 0         | 19.0                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 1       | 12        | 19.0                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 1       | 24        | 19.1                    | 16.8               | 33.0             | -16.2       |
|                    |            |                 |            | 12      | 0         | 18.8                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 12      | 7         | 18.7                    | 16.4               | 33.0             | -16.6       |
|                    |            |                 |            | 12      | 13        | 18.7                    | 16.4               | 33.0             | -16.6       |
|                    |            |                 |            | 25      | 0         | 18.7                    | 16.4               | 33.0             | -16.6       |

| Antenna gain (dBi) |            | -2.30           |            |         |           |                         |                    |                  |             |
|--------------------|------------|-----------------|------------|---------|-----------|-------------------------|--------------------|------------------|-------------|
| Bandwidth          | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| 10.0               | 20000      | 1715.0          | QPSK       | 1       | 0         | 19.9                    | 17.6               | 33.0             | -15.4       |
|                    |            |                 |            | 1       | 25        | 19.7                    | 17.4               | 33.0             | -15.6       |
|                    |            |                 |            | 1       | 49        | 19.6                    | 17.3               | 33.0             | -15.7       |
|                    |            |                 |            | 25      | 0         | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 25      | 12        | 19.8                    | 17.5               | 33.0             | -15.6       |
|                    |            |                 |            | 25      | 25        | 19.7                    | 17.4               | 33.0             | -15.6       |
|                    |            |                 |            | 50      | 0         | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 | 16QAM      | 1       | 0         | 19.4                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 |            | 1       | 25        | 19.2                    | 16.9               | 33.0             | -16.1       |
|                    |            |                 |            | 1       | 49        | 19.2                    | 16.9               | 33.0             | -16.1       |
|                    |            |                 |            | 25      | 0         | 19.4                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 |            | 25      | 12        | 19.4                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 |            | 25      | 25        | 19.3                    | 17.0               | 33.0             | -16.0       |
|                    |            |                 |            | 50      | 0         | 19.3                    | 17.0               | 33.0             | -16.0       |
|                    |            |                 | 64QAM      | 1       | 0         | 19.2                    | 16.9               | 33.0             | -16.1       |
|                    |            |                 |            | 1       | 25        | 18.9                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 1       | 49        | 18.9                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 25      | 0         | 18.6                    | 16.3               | 33.0             | -16.7       |
|                    |            |                 |            | 25      | 12        | 18.5                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 |            | 25      | 25        | 18.5                    | 16.2               | 33.0             | -16.8       |
|                    |            |                 |            | 50      | 0         | 18.5                    | 16.2               | 33.0             | -16.8       |
| 10.0               | 20175      | 1732.5          | QPSK       | 1       | 0         | 20.0                    | 17.7               | 33.0             | -15.3       |
|                    |            |                 |            | 1       | 25        | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 1       | 49        | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 25      | 0         | 19.9                    | 17.6               | 33.0             | -15.4       |
|                    |            |                 |            | 25      | 12        | 19.9                    | 17.6               | 33.0             | -15.4       |
|                    |            |                 |            | 25      | 25        | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 50      | 0         | 19.9                    | 17.6               | 33.0             | -15.4       |
|                    |            |                 | 16QAM      | 1       | 0         | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 1       | 25        | 19.7                    | 17.4               | 33.0             | -15.6       |
|                    |            |                 |            | 1       | 49        | 19.7                    | 17.4               | 33.0             | -15.6       |
|                    |            |                 |            | 25      | 0         | 19.5                    | 17.2               | 33.0             | -15.8       |
|                    |            |                 |            | 25      | 12        | 19.4                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 |            | 25      | 25        | 19.4                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 |            | 50      | 0         | 19.4                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 | 64QAM      | 1       | 0         | 19.0                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 1       | 25        | 18.8                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 1       | 49        | 18.8                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 25      | 0         | 18.6                    | 16.3               | 33.0             | -16.7       |
|                    |            |                 |            | 25      | 12        | 18.7                    | 16.4               | 33.0             | -16.6       |
|                    |            |                 |            | 25      | 25        | 18.7                    | 16.4               | 33.0             | -16.6       |
|                    |            |                 |            | 50      | 0         | 18.7                    | 16.4               | 33.0             | -16.6       |

| Antenna gain (dBi) |            | -2.30           |            |         |           |                         |                    |                  |             |
|--------------------|------------|-----------------|------------|---------|-----------|-------------------------|--------------------|------------------|-------------|
| Bandwidth          | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| 10.0               | 20350      | 1750.0          | QPSK       | 1       | 0         | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 1       | 25        | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 1       | 49        | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 25      | 0         | 19.9                    | 17.6               | 33.0             | -15.4       |
|                    |            |                 |            | 25      | 12        | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 25      | 25        | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 50      | 0         | 19.9                    | 17.6               | 33.0             | -15.5       |
|                    |            |                 | 16QAM      | 1       | 0         | 19.3                    | 17.0               | 33.0             | -16.0       |
|                    |            |                 |            | 1       | 25        | 19.3                    | 17.0               | 33.0             | -16.1       |
|                    |            |                 |            | 1       | 49        | 19.2                    | 16.9               | 33.0             | -16.1       |
|                    |            |                 |            | 25      | 0         | 19.5                    | 17.2               | 33.0             | -15.8       |
|                    |            |                 |            | 25      | 12        | 19.4                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 |            | 25      | 25        | 19.4                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 |            | 50      | 0         | 19.4                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 | 64QAM      | 1       | 0         | 18.8                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 1       | 25        | 18.8                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 1       | 49        | 18.9                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 25      | 0         | 18.8                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 25      | 12        | 18.7                    | 16.4               | 33.0             | -16.6       |
|                    |            |                 |            | 25      | 25        | 18.7                    | 16.4               | 33.0             | -16.6       |
|                    |            |                 |            | 50      | 0         | 18.7                    | 16.4               | 33.0             | -16.6       |

| Antenna gain (dBi) |            | -2.30           |            |         |           |                         |                    |                  |             |
|--------------------|------------|-----------------|------------|---------|-----------|-------------------------|--------------------|------------------|-------------|
| Bandwidth          | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| 15.0               | 20025      | 1717.5          | QPSK       | 1       | 0         | 20.0                    | 17.7               | 33.0             | -15.3       |
|                    |            |                 |            | 1       | 37        | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 1       | 74        | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 36      | 0         | 19.9                    | 17.6               | 33.0             | -15.4       |
|                    |            |                 |            | 36      | 20        | 19.9                    | 17.6               | 33.0             | -15.4       |
|                    |            |                 |            | 36      | 39        | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 75      | 0         | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 | 16QAM      | 1       | 0         | 20.0                    | 17.7               | 33.0             | -15.3       |
|                    |            |                 |            | 1       | 37        | 19.7                    | 17.4               | 33.0             | -15.6       |
|                    |            |                 |            | 1       | 74        | 19.7                    | 17.4               | 33.0             | -15.7       |
|                    |            |                 |            | 36      | 0         | 19.4                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 |            | 36      | 20        | 19.4                    | 17.1               | 33.0             | -16.0       |
|                    |            |                 |            | 36      | 39        | 19.3                    | 17.0               | 33.0             | -16.0       |
|                    |            |                 |            | 75      | 0         | 19.4                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 | 64QAM      | 1       | 0         | 19.3                    | 17.0               | 33.0             | -16.0       |
|                    |            |                 |            | 1       | 37        | 19.1                    | 16.8               | 33.0             | -16.2       |
|                    |            |                 |            | 1       | 74        | 19.0                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 36      | 0         | 18.7                    | 16.4               | 33.0             | -16.6       |
|                    |            |                 |            | 36      | 20        | 18.7                    | 16.4               | 33.0             | -16.6       |
|                    |            |                 |            | 36      | 39        | 18.7                    | 16.4               | 33.0             | -16.6       |
|                    |            |                 |            | 75      | 0         | 18.7                    | 16.4               | 33.0             | -16.6       |
| 15.0               | 20175      | 1732.5          | QPSK       | 1       | 0         | 20.0                    | 17.7               | 33.0             | -15.3       |
|                    |            |                 |            | 1       | 37        | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 1       | 74        | 19.9                    | 17.6               | 33.0             | -15.4       |
|                    |            |                 |            | 36      | 0         | 19.9                    | 17.6               | 33.0             | -15.4       |
|                    |            |                 |            | 36      | 20        | 19.9                    | 17.6               | 33.0             | -15.4       |
|                    |            |                 |            | 36      | 39        | 19.9                    | 17.6               | 33.0             | -15.5       |
|                    |            |                 |            | 75      | 0         | 19.9                    | 17.6               | 33.0             | -15.4       |
|                    |            |                 | 16QAM      | 1       | 0         | 20.0                    | 17.7               | 33.0             | -15.3       |
|                    |            |                 |            | 1       | 37        | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 1       | 74        | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 36      | 0         | 19.6                    | 17.3               | 33.0             | -15.8       |
|                    |            |                 |            | 36      | 20        | 19.5                    | 17.2               | 33.0             | -15.8       |
|                    |            |                 |            | 36      | 39        | 19.4                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 |            | 75      | 0         | 19.4                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 | 64QAM      | 1       | 0         | 19.2                    | 16.9               | 33.0             | -16.1       |
|                    |            |                 |            | 1       | 37        | 19.0                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 1       | 74        | 19.0                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 36      | 0         | 18.8                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 36      | 20        | 18.7                    | 16.4               | 33.0             | -16.6       |
|                    |            |                 |            | 36      | 39        | 18.7                    | 16.4               | 33.0             | -16.6       |
|                    |            |                 |            | 75      | 0         | 18.7                    | 16.4               | 33.0             | -16.6       |

| Antenna gain (dBi) |            | -2.30           |            |         |           |                         |                    |                  |             |
|--------------------|------------|-----------------|------------|---------|-----------|-------------------------|--------------------|------------------|-------------|
| Bandwidth          | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| 15.0               | 20325      | 1747.5          | QPSK       | 1       | 0         | 20.0                    | 17.7               | 33.0             | -15.4       |
|                    |            |                 |            | 1       | 37        | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 1       | 74        | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 36      | 0         | 19.9                    | 17.6               | 33.0             | -15.4       |
|                    |            |                 |            | 36      | 20        | 19.9                    | 17.6               | 33.0             | -15.4       |
|                    |            |                 |            | 36      | 39        | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 75      | 0         | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 | 16QAM      | 1       | 0         | 19.4                    | 17.1               | 33.0             | -16.0       |
|                    |            |                 |            | 1       | 37        | 19.3                    | 17.0               | 33.0             | -16.0       |
|                    |            |                 |            | 1       | 74        | 19.3                    | 17.0               | 33.0             | -16.0       |
|                    |            |                 |            | 36      | 0         | 19.4                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 |            | 36      | 20        | 19.4                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 |            | 36      | 39        | 19.4                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 |            | 75      | 0         | 19.3                    | 17.0               | 33.0             | -16.0       |
|                    |            |                 | 64QAM      | 1       | 0         | 19.0                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 1       | 37        | 19.0                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 1       | 74        | 19.1                    | 16.8               | 33.0             | -16.2       |
|                    |            |                 |            | 36      | 0         | 18.8                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 36      | 20        | 18.7                    | 16.4               | 33.0             | -16.6       |
|                    |            |                 |            | 36      | 39        | 18.8                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 75      | 0         | 18.7                    | 16.4               | 33.0             | -16.6       |

| Antenna gain (dBi) |            | -2.30           |            |         |           |                         |                    |                  |             |
|--------------------|------------|-----------------|------------|---------|-----------|-------------------------|--------------------|------------------|-------------|
| Bandwidth          | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| 20.0               | 20175      | 1732.5          | QPSK       | 1       | 0         | 20.0                    | 17.7               | 33.0             | -15.3       |
|                    |            |                 |            | 1       | 12        | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 1       | 24        | 19.9                    | 17.6               | 33.0             | -15.5       |
|                    |            |                 |            | 12      | 0         | 20.0                    | 17.7               | 33.0             | -15.3       |
|                    |            |                 |            | 12      | 7         | 19.9                    | 17.6               | 33.0             | -15.4       |
|                    |            |                 |            | 12      | 13        | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 25      | 0         | 19.9                    | 17.6               | 33.0             | -15.4       |
|                    |            |                 | 16QAM      | 1       | 0         | 20.0                    | 17.7               | 33.0             | -15.3       |
|                    |            |                 |            | 1       | 12        | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 1       | 24        | 19.8                    | 17.5               | 33.0             | -15.5       |
|                    |            |                 |            | 12      | 0         | 19.5                    | 17.2               | 33.0             | -15.8       |
|                    |            |                 |            | 12      | 7         | 19.4                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 |            | 12      | 13        | 19.4                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 |            | 25      | 0         | 19.4                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 | 64QAM      | 1       | 0         | 19.2                    | 16.9               | 33.0             | -16.1       |
|                    |            |                 |            | 1       | 12        | 19.0                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 1       | 24        | 18.9                    | 16.6               | 33.0             | -16.4       |
|                    |            |                 |            | 12      | 0         | 18.8                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 12      | 7         | 18.8                    | 16.5               | 33.0             | -16.5       |
|                    |            |                 |            | 12      | 13        | 18.7                    | 16.4               | 33.0             | -16.6       |
|                    |            |                 |            | 25      | 0         | 18.7                    | 16.4               | 33.0             | -16.6       |

**LTE Band 12**

| Antenna gain (dBi) |            | -7.90           |            |         |           |                         |                   |                 |             |
|--------------------|------------|-----------------|------------|---------|-----------|-------------------------|-------------------|-----------------|-------------|
| Bandwidth          | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | ERP Average (dBm) | ERP Limit (dBm) | Margin (dB) |
| 1.4                | 23017      | 699.7           | QPSK       | 1       | 0         | 24.9                    | 14.5              | 34.7            | -20.2       |
|                    |            |                 |            | 1       | 3         | 25.0                    | 14.6              | 34.7            | -20.1       |
|                    |            |                 |            | 1       | 5         | 24.9                    | 14.5              | 34.7            | -20.2       |
|                    |            |                 |            | 3       | 0         | 24.9                    | 14.5              | 34.7            | -20.2       |
|                    |            |                 |            | 3       | 1         | 25.0                    | 14.6              | 34.7            | -20.1       |
|                    |            |                 |            | 3       | 3         | 25.0                    | 14.6              | 34.7            | -20.1       |
|                    |            |                 |            | 6       | 0         | 23.9                    | 13.5              | 34.7            | -21.2       |
|                    |            |                 | 16QAM      | 1       | 0         | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 |            | 1       | 3         | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 |            | 1       | 5         | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 |            | 3       | 0         | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 |            | 3       | 1         | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 |            | 3       | 3         | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 |            | 6       | 0         | 23.0                    | 12.6              | 34.7            | -22.1       |
|                    |            |                 | 64QAM      | 1       | 0         | 22.9                    | 12.5              | 34.7            | -22.2       |
|                    |            |                 |            | 1       | 3         | 23.0                    | 12.6              | 34.7            | -22.1       |
|                    |            |                 |            | 1       | 5         | 22.9                    | 12.5              | 34.7            | -22.2       |
|                    |            |                 |            | 3       | 0         | 22.8                    | 12.4              | 34.7            | -22.3       |
|                    |            |                 |            | 3       | 1         | 22.8                    | 12.4              | 34.7            | -22.3       |
|                    |            |                 |            | 3       | 3         | 22.9                    | 12.5              | 34.7            | -22.2       |
|                    |            |                 |            | 6       | 0         | 21.8                    | 11.4              | 34.7            | -23.3       |
| 1.4                | 23095      | 707.5           | QPSK       | 1       | 0         | 24.9                    | 14.5              | 34.7            | -20.2       |
|                    |            |                 |            | 1       | 3         | 25.0                    | 14.6              | 34.7            | -20.1       |
|                    |            |                 |            | 1       | 5         | 24.9                    | 14.5              | 34.7            | -20.2       |
|                    |            |                 |            | 3       | 0         | 24.9                    | 14.5              | 34.7            | -20.2       |
|                    |            |                 |            | 3       | 1         | 25.0                    | 14.6              | 34.7            | -20.1       |
|                    |            |                 |            | 3       | 3         | 25.0                    | 14.6              | 34.7            | -20.1       |
|                    |            |                 |            | 6       | 0         | 23.9                    | 13.5              | 34.7            | -21.2       |
|                    |            |                 | 16QAM      | 1       | 0         | 23.6                    | 13.2              | 34.7            | -21.5       |
|                    |            |                 |            | 1       | 3         | 23.7                    | 13.3              | 34.7            | -21.4       |
|                    |            |                 |            | 1       | 5         | 23.7                    | 13.3              | 34.7            | -21.4       |
|                    |            |                 |            | 3       | 0         | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 |            | 3       | 1         | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 |            | 3       | 3         | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 |            | 6       | 0         | 22.8                    | 12.4              | 34.7            | -22.3       |
|                    |            |                 | 64QAM      | 1       | 0         | 22.5                    | 12.1              | 34.7            | -22.6       |
|                    |            |                 |            | 1       | 3         | 23.0                    | 12.6              | 34.7            | -22.1       |
|                    |            |                 |            | 1       | 5         | 22.6                    | 12.2              | 34.7            | -22.5       |
|                    |            |                 |            | 3       | 0         | 22.7                    | 12.3              | 34.7            | -22.4       |
|                    |            |                 |            | 3       | 1         | 23.0                    | 12.6              | 34.7            | -22.1       |
|                    |            |                 |            | 3       | 3         | 23.0                    | 12.6              | 34.7            | -22.1       |
|                    |            |                 |            | 6       | 0         | 21.7                    | 11.3              | 34.7            | -23.4       |

| Antenna gain (dBi) |            | -7.90           |            |         |           |                         |                   |                 |             |
|--------------------|------------|-----------------|------------|---------|-----------|-------------------------|-------------------|-----------------|-------------|
| Bandwidth          | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | ERP Average (dBm) | ERP Limit (dBm) | Margin (dB) |
| 1.4                | 23173      | 715.3           | QPSK       | 1       | 0         | 23.8                    | 13.4              | 34.7            | -21.3       |
|                    |            |                 |            | 1       | 3         | 24.9                    | 14.5              | 34.7            | -20.2       |
|                    |            |                 |            | 1       | 5         | 24.7                    | 14.3              | 34.7            | -20.4       |
|                    |            |                 |            | 3       | 0         | 24.8                    | 14.4              | 34.7            | -20.3       |
|                    |            |                 |            | 3       | 1         | 24.8                    | 14.4              | 34.7            | -20.3       |
|                    |            |                 |            | 3       | 3         | 24.8                    | 14.4              | 34.7            | -20.3       |
|                    |            |                 | 16QAM      | 6       | 0         | 23.8                    | 13.4              | 34.7            | -21.3       |
|                    |            |                 |            | 1       | 0         | 23.9                    | 13.5              | 34.7            | -21.2       |
|                    |            |                 |            | 1       | 3         | 23.9                    | 13.5              | 34.7            | -21.2       |
|                    |            |                 |            | 1       | 5         | 23.8                    | 13.4              | 34.7            | -21.3       |
|                    |            |                 |            | 3       | 0         | 23.9                    | 13.5              | 34.7            | -21.2       |
|                    |            |                 |            | 3       | 1         | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 |            | 3       | 3         | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 | 64QAM      | 6       | 0         | 22.9                    | 12.5              | 34.7            | -22.2       |
|                    |            |                 |            | 1       | 0         | 22.7                    | 12.3              | 34.7            | -22.4       |
|                    |            |                 |            | 1       | 3         | 23.0                    | 12.6              | 34.7            | -22.1       |
|                    |            |                 |            | 1       | 5         | 22.8                    | 12.4              | 34.7            | -22.3       |
|                    |            |                 |            | 3       | 0         | 22.7                    | 12.3              | 34.7            | -22.4       |
|                    |            |                 |            | 3       | 1         | 22.7                    | 12.3              | 34.7            | -22.4       |
|                    |            |                 |            | 3       | 3         | 22.6                    | 12.2              | 34.7            | -22.5       |
|                    |            |                 |            | 6       | 0         | 21.5                    | 11.1              | 34.7            | -23.6       |

| Antenna gain (dBi) |            | -7.90           |            |         |           |                         |                   |                 |             |
|--------------------|------------|-----------------|------------|---------|-----------|-------------------------|-------------------|-----------------|-------------|
| Bandwidth          | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | ERP Average (dBm) | ERP Limit (dBm) | Margin (dB) |
| 3.0                | 23025      | 700.5           | QPSK       | 1       | 0         | 24.3                    | 13.9              | 34.7            | -20.8       |
|                    |            |                 |            | 1       | 8         | 24.3                    | 13.9              | 34.7            | -20.8       |
|                    |            |                 |            | 1       | 14        | 24.2                    | 13.8              | 34.7            | -20.9       |
|                    |            |                 |            | 8       | 0         | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 |            | 8       | 4         | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 |            | 8       | 7         | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 |            | 15      | 0         | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 | 16QAM      | 1       | 0         | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 |            | 1       | 8         | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 |            | 1       | 14        | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 |            | 8       | 0         | 23.0                    | 12.6              | 34.7            | -22.1       |
|                    |            |                 |            | 8       | 4         | 23.0                    | 12.6              | 34.7            | -22.1       |
|                    |            |                 |            | 8       | 7         | 23.0                    | 12.6              | 34.7            | -22.1       |
|                    |            |                 |            | 15      | 0         | 22.9                    | 12.5              | 34.7            | -22.2       |
|                    |            |                 | 64QAM      | 1       | 0         | 23.0                    | 12.6              | 34.7            | -22.1       |
|                    |            |                 |            | 1       | 8         | 23.0                    | 12.6              | 34.7            | -22.1       |
|                    |            |                 |            | 1       | 14        | 22.8                    | 12.4              | 34.7            | -22.3       |
|                    |            |                 |            | 8       | 0         | 21.8                    | 11.4              | 34.7            | -23.3       |
|                    |            |                 |            | 8       | 4         | 21.7                    | 11.3              | 34.7            | -23.4       |
|                    |            |                 |            | 8       | 7         | 21.7                    | 11.3              | 34.7            | -23.4       |
|                    |            |                 |            | 15      | 0         | 21.7                    | 11.3              | 34.7            | -23.4       |
| 3.0                | 23095      | 707.5           | QPSK       | 1       | 0         | 24.2                    | 13.8              | 34.7            | -20.9       |
|                    |            |                 |            | 1       | 8         | 24.4                    | 14.0              | 34.7            | -20.7       |
|                    |            |                 |            | 1       | 14        | 24.2                    | 13.8              | 34.7            | -20.9       |
|                    |            |                 |            | 8       | 0         | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 |            | 8       | 4         | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 |            | 8       | 7         | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 |            | 15      | 0         | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 | 16QAM      | 1       | 0         | 23.7                    | 13.3              | 34.7            | -21.4       |
|                    |            |                 |            | 1       | 8         | 23.8                    | 13.4              | 34.7            | -21.3       |
|                    |            |                 |            | 1       | 14        | 23.8                    | 13.4              | 34.7            | -21.3       |
|                    |            |                 |            | 8       | 0         | 23.0                    | 12.6              | 34.7            | -22.1       |
|                    |            |                 |            | 8       | 4         | 23.0                    | 12.6              | 34.7            | -22.1       |
|                    |            |                 |            | 8       | 7         | 23.0                    | 12.6              | 34.7            | -22.1       |
|                    |            |                 |            | 15      | 0         | 23.0                    | 12.6              | 34.7            | -22.1       |
|                    |            |                 | 64QAM      | 1       | 0         | 22.6                    | 12.2              | 34.7            | -22.5       |
|                    |            |                 |            | 1       | 8         | 23.0                    | 12.6              | 34.7            | -22.1       |
|                    |            |                 |            | 1       | 14        | 22.8                    | 12.4              | 34.7            | -22.3       |
|                    |            |                 |            | 8       | 0         | 21.7                    | 11.3              | 34.7            | -23.4       |
|                    |            |                 |            | 8       | 4         | 21.8                    | 11.4              | 34.7            | -23.3       |
|                    |            |                 |            | 8       | 7         | 21.8                    | 11.4              | 34.7            | -23.3       |
|                    |            |                 |            | 15      | 0         | 21.7                    | 11.3              | 34.7            | -23.4       |

| Antenna gain (dBi) |            | -9.00           |            |         |           |                         |                   |                 |             |
|--------------------|------------|-----------------|------------|---------|-----------|-------------------------|-------------------|-----------------|-------------|
| Bandwidth          | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | ERP Average (dBm) | ERP Limit (dBm) | Margin (dB) |
| 3.0                | 23165      | 714.5           | QPSK       | 1       | 0         | 24.2                    | 12.7              | 34.7            | -22.0       |
|                    |            |                 |            | 1       | 8         | 24.2                    | 12.7              | 34.7            | -22.0       |
|                    |            |                 |            | 1       | 14        | 24.1                    | 12.6              | 34.7            | -22.1       |
|                    |            |                 |            | 8       | 0         | 23.9                    | 12.4              | 34.7            | -22.3       |
|                    |            |                 |            | 8       | 4         | 23.9                    | 12.4              | 34.7            | -22.3       |
|                    |            |                 |            | 8       | 7         | 23.9                    | 12.4              | 34.7            | -22.3       |
|                    |            |                 |            | 15      | 0         | 23.9                    | 12.4              | 34.7            | -22.3       |
|                    |            |                 | 16QAM      | 1       | 0         | 23.8                    | 12.3              | 34.7            | -22.4       |
|                    |            |                 |            | 1       | 8         | 23.8                    | 12.3              | 34.7            | -22.4       |
|                    |            |                 |            | 1       | 14        | 23.7                    | 12.2              | 34.7            | -22.5       |
|                    |            |                 |            | 8       | 0         | 23.0                    | 11.5              | 34.7            | -23.2       |
|                    |            |                 |            | 8       | 4         | 23.0                    | 11.5              | 34.7            | -23.2       |
|                    |            |                 |            | 8       | 7         | 23.0                    | 11.5              | 34.7            | -23.2       |
|                    |            |                 |            | 15      | 0         | 22.9                    | 11.4              | 34.7            | -23.3       |
|                    |            |                 | 64QAM      | 1       | 0         | 22.6                    | 11.1              | 34.7            | -23.6       |
|                    |            |                 |            | 1       | 8         | 22.6                    | 11.1              | 34.7            | -23.6       |
|                    |            |                 |            | 1       | 14        | 22.7                    | 11.2              | 34.7            | -23.5       |
|                    |            |                 |            | 8       | 0         | 21.8                    | 10.3              | 34.7            | -24.4       |
|                    |            |                 |            | 8       | 4         | 21.6                    | 10.1              | 34.7            | -24.6       |
|                    |            |                 |            | 8       | 7         | 21.6                    | 10.1              | 34.7            | -24.6       |
|                    |            |                 |            | 15      | 0         | 21.5                    | 10.0              | 34.7            | -24.7       |

| Antenna gain (dBi) |            | -7.90           |            |         |           |                         |                   |                 |             |
|--------------------|------------|-----------------|------------|---------|-----------|-------------------------|-------------------|-----------------|-------------|
| Bandwidth          | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | ERP Average (dBm) | ERP Limit (dBm) | Margin (dB) |
| 5.0                | 23035      | 701.5           | QPSK       | 1       | 0         | 24.3                    | 13.9              | 34.7            | -20.8       |
|                    |            |                 |            | 1       | 12        | 24.3                    | 13.9              | 34.7            | -20.8       |
|                    |            |                 |            | 1       | 24        | 24.2                    | 13.8              | 34.7            | -20.9       |
|                    |            |                 |            | 12      | 0         | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 |            | 12      | 7         | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 |            | 12      | 13        | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 |            | 25      | 0         | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 | 16QAM      | 1       | 0         | 23.8                    | 13.4              | 34.7            | -21.3       |
|                    |            |                 |            | 1       | 12        | 23.9                    | 13.5              | 34.7            | -21.2       |
|                    |            |                 |            | 1       | 24        | 23.8                    | 13.4              | 34.7            | -21.3       |
|                    |            |                 |            | 12      | 0         | 23.0                    | 12.6              | 34.7            | -22.1       |
|                    |            |                 |            | 12      | 7         | 23.0                    | 12.6              | 34.7            | -22.1       |
|                    |            |                 |            | 12      | 13        | 23.0                    | 12.6              | 34.7            | -22.1       |
|                    |            |                 |            | 25      | 0         | 23.0                    | 12.6              | 34.7            | -22.1       |
|                    |            |                 | 64QAM      | 1       | 0         | 23.0                    | 12.6              | 34.7            | -22.1       |
|                    |            |                 |            | 1       | 12        | 23.0                    | 12.6              | 34.7            | -22.1       |
|                    |            |                 |            | 1       | 24        | 23.0                    | 12.6              | 34.7            | -22.1       |
|                    |            |                 |            | 12      | 0         | 22.0                    | 11.6              | 34.7            | -23.1       |
|                    |            |                 |            | 12      | 7         | 21.6                    | 11.2              | 34.7            | -23.5       |
|                    |            |                 |            | 12      | 13        | 21.7                    | 11.3              | 34.7            | -23.4       |
|                    |            |                 |            | 25      | 0         | 21.6                    | 11.2              | 34.7            | -23.5       |
| 5.0                | 23095      | 707.5           | QPSK       | 1       | 0         | 24.3                    | 13.9              | 34.7            | -20.8       |
|                    |            |                 |            | 1       | 12        | 24.3                    | 13.9              | 34.7            | -20.8       |
|                    |            |                 |            | 1       | 24        | 24.2                    | 13.8              | 34.7            | -20.9       |
|                    |            |                 |            | 12      | 0         | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 |            | 12      | 7         | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 |            | 12      | 13        | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 |            | 25      | 0         | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 | 16QAM      | 1       | 0         | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 |            | 1       | 2         | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 |            | 1       | 5         | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 |            | 3       | 0         | 23.0                    | 12.6              | 34.7            | -22.1       |
|                    |            |                 |            | 3       | 1         | 23.0                    | 12.6              | 34.7            | -22.1       |
|                    |            |                 |            | 3       | 2         | 23.0                    | 12.6              | 34.7            | -22.1       |
|                    |            |                 |            | 6       | 0         | 23.0                    | 12.6              | 34.7            | -22.1       |
|                    |            |                 | 64QAM      | 1       | 0         | 22.4                    | 12.0              | 34.7            | -22.7       |
|                    |            |                 |            | 1       | 12        | 22.6                    | 12.2              | 34.7            | -22.5       |
|                    |            |                 |            | 1       | 24        | 22.4                    | 12.0              | 34.7            | -22.7       |
|                    |            |                 |            | 12      | 0         | 21.7                    | 11.3              | 34.7            | -23.4       |
|                    |            |                 |            | 12      | 7         | 21.7                    | 11.3              | 34.7            | -23.4       |
|                    |            |                 |            | 12      | 13        | 21.6                    | 11.2              | 34.7            | -23.5       |
|                    |            |                 |            | 25      | 0         | 21.6                    | 11.2              | 34.7            | -23.5       |

| Antenna gain (dBi) |            | -7.90           |            |         |           |                         |                   |                 |             |
|--------------------|------------|-----------------|------------|---------|-----------|-------------------------|-------------------|-----------------|-------------|
| Bandwidth          | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | ERP Average (dBm) | ERP Limit (dBm) | Margin (dB) |
| 5.0                | 23155      | 713.5           | QPSK       | 1       | 0         | 24.3                    | 13.9              | 34.7            | -20.8       |
|                    |            |                 |            | 1       | 12        | 24.2                    | 13.8              | 34.7            | -20.9       |
|                    |            |                 |            | 1       | 24        | 24.2                    | 13.8              | 34.7            | -20.9       |
|                    |            |                 |            | 12      | 0         | 23.9                    | 13.5              | 34.7            | -21.2       |
|                    |            |                 |            | 12      | 7         | 23.9                    | 13.5              | 34.7            | -21.2       |
|                    |            |                 |            | 12      | 13        | 23.9                    | 13.5              | 34.7            | -21.2       |
|                    |            |                 |            | 25      | 0         | 23.9                    | 13.5              | 34.7            | -21.2       |
|                    |            |                 | 16QAM      | 1       | 0         | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 |            | 1       | 12        | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 |            | 1       | 24        | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 |            | 12      | 0         | 23.0                    | 12.6              | 34.7            | -22.1       |
|                    |            |                 |            | 12      | 7         | 23.0                    | 12.6              | 34.7            | -22.1       |
|                    |            |                 |            | 12      | 13        | 22.9                    | 12.5              | 34.7            | -22.2       |
|                    |            |                 |            | 25      | 0         | 22.9                    | 12.5              | 34.7            | -22.2       |
|                    |            |                 | 64QAM      | 1       | 0         | 22.9                    | 12.5              | 34.7            | -22.2       |
|                    |            |                 |            | 1       | 12        | 23.0                    | 12.6              | 34.7            | -22.1       |
|                    |            |                 |            | 1       | 24        | 23.0                    | 12.6              | 34.7            | -22.1       |
|                    |            |                 |            | 12      | 0         | 21.6                    | 11.2              | 34.7            | -23.5       |
|                    |            |                 |            | 12      | 7         | 21.6                    | 11.2              | 34.7            | -23.5       |
|                    |            |                 |            | 12      | 13        | 21.6                    | 11.2              | 34.7            | -23.5       |
|                    |            |                 |            | 25      | 0         | 21.6                    | 11.2              | 34.7            | -23.5       |

| Antenna gain (dBi) |            | -7.90           |            |         |           |                         |                   |                 |             |
|--------------------|------------|-----------------|------------|---------|-----------|-------------------------|-------------------|-----------------|-------------|
| Bandwidth          | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | ERP Average (dBm) | ERP Limit (dBm) | Margin (dB) |
| 10.0               | 23095      | 707.5           | QPSK       | 1       | 0         | 24.3                    | 13.9              | 34.7            | -20.8       |
|                    |            |                 |            | 1       | 25        | 24.3                    | 13.9              | 34.7            | -20.8       |
|                    |            |                 |            | 1       | 49        | 24.2                    | 13.8              | 34.7            | -20.9       |
|                    |            |                 |            | 25      | 0         | 23.9                    | 13.5              | 34.7            | -21.2       |
|                    |            |                 |            | 25      | 12        | 24.0                    | 13.6              | 34.7            | -21.1       |
|                    |            |                 |            | 25      | 25        | 23.8                    | 13.4              | 34.7            | -21.3       |
|                    |            |                 |            | 50      | 0         | 23.9                    | 13.5              | 34.7            | -21.2       |
|                    |            |                 | 16QAM      | 1       | 0         | 23.7                    | 13.3              | 34.7            | -21.4       |
|                    |            |                 |            | 1       | 25        | 23.8                    | 13.4              | 34.7            | -21.3       |
|                    |            |                 |            | 1       | 49        | 23.6                    | 13.2              | 34.7            | -21.5       |
|                    |            |                 |            | 25      | 0         | 23.0                    | 12.6              | 34.7            | -22.1       |
|                    |            |                 |            | 25      | 12        | 23.0                    | 12.6              | 34.7            | -22.1       |
|                    |            |                 |            | 25      | 25        | 22.9                    | 12.5              | 34.7            | -22.2       |
|                    |            |                 |            | 50      | 0         | 22.9                    | 12.5              | 34.7            | -22.2       |
|                    |            |                 | 64QAM      | 1       | 0         | 22.8                    | 12.4              | 34.7            | -22.3       |
|                    |            |                 |            | 1       | 25        | 22.9                    | 12.5              | 34.7            | -22.2       |
|                    |            |                 |            | 1       | 49        | 22.8                    | 12.4              | 34.7            | -22.3       |
|                    |            |                 |            | 25      | 0         | 21.5                    | 11.1              | 34.7            | -23.6       |
|                    |            |                 |            | 25      | 12        | 21.7                    | 11.3              | 34.7            | -23.4       |
|                    |            |                 |            | 25      | 25        | 21.5                    | 11.1              | 34.7            | -23.6       |
|                    |            |                 |            | 50      | 0         | 21.6                    | 11.2              | 34.7            | -23.5       |

**LTE Band 41**

| Antenna gain (dBi) |            | -3.80           |            |         |           |                         |                    |                  |             |
|--------------------|------------|-----------------|------------|---------|-----------|-------------------------|--------------------|------------------|-------------|
| Bandwidth          | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| 5.0                | 39675      | 2498.5          | QPSK       | 1       | 0         | 23.8                    | 20.0               | 33.0             | -13.0       |
|                    |            |                 |            | 1       | 12        | 23.7                    | 19.9               | 33.0             | -13.1       |
|                    |            |                 |            | 1       | 24        | 23.7                    | 19.9               | 33.0             | -13.1       |
|                    |            |                 |            | 12      | 0         | 23.8                    | 20.0               | 33.0             | -13.0       |
|                    |            |                 |            | 12      | 7         | 23.8                    | 20.0               | 33.0             | -13.0       |
|                    |            |                 |            | 12      | 13        | 23.7                    | 19.9               | 33.0             | -13.1       |
|                    |            |                 |            | 25      | 0         | 23.8                    | 20.0               | 33.0             | -13.0       |
|                    |            |                 | 16QAM      | 1       | 0         | 23.2                    | 19.4               | 33.0             | -13.6       |
|                    |            |                 |            | 1       | 12        | 23.2                    | 19.4               | 33.0             | -13.6       |
|                    |            |                 |            | 1       | 24        | 23.1                    | 19.3               | 33.0             | -13.7       |
|                    |            |                 |            | 12      | 0         | 22.2                    | 18.4               | 33.0             | -14.6       |
|                    |            |                 |            | 12      | 7         | 22.3                    | 18.5               | 33.0             | -14.6       |
|                    |            |                 |            | 12      | 13        | 22.2                    | 18.4               | 33.0             | -14.6       |
|                    |            |                 |            | 25      | 0         | 22.3                    | 18.5               | 33.0             | -14.6       |
|                    |            |                 | 64QAM      | 1       | 0         | 21.7                    | 17.9               | 33.0             | -15.1       |
|                    |            |                 |            | 1       | 12        | 21.8                    | 18.0               | 33.0             | -15.0       |
|                    |            |                 |            | 1       | 24        | 21.7                    | 17.9               | 33.0             | -15.1       |
|                    |            |                 |            | 12      | 0         | 20.7                    | 16.9               | 33.0             | -16.1       |
|                    |            |                 |            | 12      | 7         | 20.7                    | 16.9               | 33.0             | -16.1       |
|                    |            |                 |            | 12      | 13        | 20.7                    | 16.9               | 33.0             | -16.1       |
|                    |            |                 |            | 25      | 0         | 20.7                    | 16.9               | 33.0             | -16.1       |
| 5.0                | 40620      | 2593.0          | QPSK       | 1       | 0         | 23.9                    | 20.1               | 33.0             | -13.0       |
|                    |            |                 |            | 1       | 12        | 23.8                    | 20.0               | 33.0             | -13.0       |
|                    |            |                 |            | 1       | 24        | 23.7                    | 19.9               | 33.0             | -13.1       |
|                    |            |                 |            | 12      | 0         | 23.8                    | 20.0               | 33.0             | -13.0       |
|                    |            |                 |            | 12      | 7         | 23.9                    | 20.1               | 33.0             | -12.9       |
|                    |            |                 |            | 12      | 13        | 23.8                    | 20.0               | 33.0             | -13.0       |
|                    |            |                 |            | 25      | 0         | 23.8                    | 20.0               | 33.0             | -13.0       |
|                    |            |                 | 16QAM      | 1       | 0         | 23.4                    | 19.6               | 33.0             | -13.4       |
|                    |            |                 |            | 1       | 12        | 23.4                    | 19.6               | 33.0             | -13.4       |
|                    |            |                 |            | 1       | 24        | 23.3                    | 19.5               | 33.0             | -13.5       |
|                    |            |                 |            | 12      | 0         | 22.4                    | 18.6               | 33.0             | -14.4       |
|                    |            |                 |            | 12      | 7         | 22.4                    | 18.6               | 33.0             | -14.4       |
|                    |            |                 |            | 12      | 13        | 22.4                    | 18.6               | 33.0             | -14.5       |
|                    |            |                 |            | 25      | 0         | 22.3                    | 18.5               | 33.0             | -14.5       |
|                    |            |                 | 64QAM      | 1       | 0         | 22.3                    | 18.5               | 33.0             | -14.5       |
|                    |            |                 |            | 1       | 12        | 22.0                    | 18.2               | 33.0             | -14.8       |
|                    |            |                 |            | 1       | 24        | 21.9                    | 18.1               | 33.0             | -14.9       |
|                    |            |                 |            | 12      | 0         | 20.9                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 |            | 12      | 7         | 20.9                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 |            | 12      | 13        | 20.8                    | 17.0               | 33.0             | -16.0       |
|                    |            |                 |            | 25      | 0         | 20.9                    | 17.1               | 33.0             | -15.9       |

| Antenna gain (dBi) |            | -3.80           |            |         |           |                         |                    |                  |             |
|--------------------|------------|-----------------|------------|---------|-----------|-------------------------|--------------------|------------------|-------------|
| Bandwidth          | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| 5.0                | 41565      | 2687.5          | QPSK       | 1       | 0         | 23.4                    | 19.6               | 33.0             | -13.4       |
|                    |            |                 |            | 1       | 12        | 23.4                    | 19.6               | 33.0             | -13.4       |
|                    |            |                 |            | 1       | 24        | 23.3                    | 19.5               | 33.0             | -13.5       |
|                    |            |                 |            | 12      | 0         | 23.3                    | 19.5               | 33.0             | -13.5       |
|                    |            |                 |            | 12      | 7         | 23.3                    | 19.5               | 33.0             | -13.5       |
|                    |            |                 |            | 12      | 13        | 23.3                    | 19.5               | 33.0             | -13.5       |
|                    |            |                 |            | 25      | 0         | 23.2                    | 19.4               | 33.0             | -13.6       |
|                    |            |                 | 16QAM      | 1       | 0         | 23.3                    | 19.5               | 33.0             | -13.5       |
|                    |            |                 |            | 1       | 12        | 23.3                    | 19.5               | 33.0             | -13.5       |
|                    |            |                 |            | 1       | 24        | 23.2                    | 19.4               | 33.0             | -13.6       |
|                    |            |                 |            | 12      | 0         | 22.4                    | 18.6               | 33.0             | -14.5       |
|                    |            |                 |            | 12      | 7         | 22.3                    | 18.5               | 33.0             | -14.5       |
|                    |            |                 |            | 12      | 13        | 22.3                    | 18.5               | 33.0             | -14.5       |
|                    |            |                 |            | 25      | 0         | 22.3                    | 18.5               | 33.0             | -14.5       |
|                    |            |                 | 64QAM      | 1       | 0         | 21.6                    | 17.8               | 33.0             | -15.2       |
|                    |            |                 |            | 1       | 12        | 21.6                    | 17.8               | 33.0             | -15.2       |
|                    |            |                 |            | 1       | 24        | 21.7                    | 17.9               | 33.0             | -15.1       |
|                    |            |                 |            | 12      | 0         | 20.6                    | 16.8               | 33.0             | -16.2       |
|                    |            |                 |            | 12      | 7         | 20.6                    | 16.8               | 33.0             | -16.2       |
|                    |            |                 |            | 12      | 13        | 20.5                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 25      | 0         | 20.0                    | 16.2               | 33.0             | -16.8       |

| Antenna gain (dBi) |            | -3.80           |            |         |           |                         |                    |                  |             |
|--------------------|------------|-----------------|------------|---------|-----------|-------------------------|--------------------|------------------|-------------|
| Bandwidth          | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| 10.0               | 39700      | 2501.0          | QPSK       | 1       | 0         | 23.7                    | 19.9               | 33.0             | -13.2       |
|                    |            |                 |            | 1       | 25        | 23.6                    | 19.8               | 33.0             | -13.3       |
|                    |            |                 |            | 1       | 49        | 23.5                    | 19.7               | 33.0             | -13.3       |
|                    |            |                 |            | 25      | 0         | 23.7                    | 19.9               | 33.0             | -13.1       |
|                    |            |                 |            | 25      | 12        | 23.7                    | 19.9               | 33.0             | -13.1       |
|                    |            |                 |            | 25      | 25        | 23.6                    | 19.8               | 33.0             | -13.2       |
|                    |            |                 |            | 50      | 0         | 23.6                    | 19.8               | 33.0             | -13.2       |
|                    |            |                 | 16QAM      | 1       | 0         | 23.2                    | 19.4               | 33.0             | -13.7       |
|                    |            |                 |            | 1       | 25        | 23.1                    | 19.3               | 33.0             | -13.8       |
|                    |            |                 |            | 1       | 49        | 23.0                    | 19.2               | 33.0             | -13.8       |
|                    |            |                 |            | 25      | 0         | 22.2                    | 18.4               | 33.0             | -14.6       |
|                    |            |                 |            | 25      | 12        | 22.2                    | 18.4               | 33.0             | -14.6       |
|                    |            |                 |            | 25      | 25        | 22.1                    | 18.3               | 33.0             | -14.7       |
|                    |            |                 |            | 50      | 0         | 22.2                    | 18.4               | 33.0             | -14.7       |
|                    |            |                 | 64QAM      | 1       | 0         | 21.7                    | 17.9               | 33.0             | -15.1       |
|                    |            |                 |            | 1       | 25        | 21.8                    | 18.0               | 33.0             | -15.0       |
|                    |            |                 |            | 1       | 49        | 21.7                    | 17.9               | 33.0             | -15.1       |
|                    |            |                 |            | 25      | 0         | 20.7                    | 16.9               | 33.0             | -16.1       |
|                    |            |                 |            | 25      | 12        | 20.7                    | 16.9               | 33.0             | -16.1       |
|                    |            |                 |            | 25      | 25        | 20.7                    | 16.9               | 33.0             | -16.1       |
|                    |            |                 |            | 50      | 0         | 20.7                    | 16.9               | 33.0             | -16.1       |
| 10.0               | 40620      | 2593.0          | QPSK       | 1       | 0         | 23.8                    | 20.0               | 33.0             | -13.0       |
|                    |            |                 |            | 1       | 25        | 23.7                    | 19.9               | 33.0             | -13.1       |
|                    |            |                 |            | 1       | 49        | 23.7                    | 19.9               | 33.0             | -13.1       |
|                    |            |                 |            | 25      | 0         | 23.9                    | 20.1               | 33.0             | -12.9       |
|                    |            |                 |            | 25      | 12        | 23.8                    | 20.0               | 33.0             | -13.0       |
|                    |            |                 |            | 25      | 25        | 23.8                    | 20.0               | 33.0             | -13.1       |
|                    |            |                 |            | 50      | 0         | 23.7                    | 19.9               | 33.0             | -13.1       |
|                    |            |                 | 16QAM      | 1       | 0         | 23.4                    | 19.6               | 33.0             | -13.4       |
|                    |            |                 |            | 1       | 25        | 23.4                    | 19.6               | 33.0             | -13.4       |
|                    |            |                 |            | 1       | 49        | 23.3                    | 19.5               | 33.0             | -13.5       |
|                    |            |                 |            | 25      | 0         | 22.4                    | 18.6               | 33.0             | -14.4       |
|                    |            |                 |            | 25      | 12        | 22.3                    | 18.5               | 33.0             | -14.5       |
|                    |            |                 |            | 25      | 25        | 22.3                    | 18.5               | 33.0             | -14.5       |
|                    |            |                 |            | 50      | 0         | 22.3                    | 18.5               | 33.0             | -14.5       |
|                    |            |                 | 64QAM      | 1       | 0         | 22.3                    | 18.5               | 33.0             | -14.5       |
|                    |            |                 |            | 1       | 25        | 22.0                    | 18.2               | 33.0             | -14.8       |
|                    |            |                 |            | 1       | 49        | 21.9                    | 18.1               | 33.0             | -14.9       |
|                    |            |                 |            | 25      | 0         | 20.9                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 |            | 25      | 12        | 20.9                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 |            | 25      | 25        | 20.8                    | 17.0               | 33.0             | -16.0       |
|                    |            |                 |            | 50      | 0         | 20.9                    | 17.1               | 33.0             | -15.9       |

| Antenna gain (dBi) |            | -3.80           |            |         |           |                         |                    |                  |             |
|--------------------|------------|-----------------|------------|---------|-----------|-------------------------|--------------------|------------------|-------------|
| Bandwidth          | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| 10.0               | 41540      | 2685.0          | QPSK       | 1       | 0         | 23.6                    | 19.8               | 33.0             | -13.2       |
|                    |            |                 |            | 1       | 25        | 23.4                    | 19.6               | 33.0             | -13.4       |
|                    |            |                 |            | 1       | 49        | 23.4                    | 19.6               | 33.0             | -13.4       |
|                    |            |                 |            | 25      | 0         | 23.1                    | 19.3               | 33.0             | -13.7       |
|                    |            |                 |            | 25      | 12        | 23.1                    | 19.3               | 33.0             | -13.7       |
|                    |            |                 |            | 25      | 25        | 23.0                    | 19.2               | 33.0             | -13.8       |
|                    |            |                 |            | 50      | 0         | 23.1                    | 19.3               | 33.0             | -13.7       |
|                    |            |                 | 16QAM      | 1       | 0         | 23.0                    | 19.2               | 33.0             | -13.8       |
|                    |            |                 |            | 1       | 25        | 23.0                    | 19.2               | 33.0             | -13.8       |
|                    |            |                 |            | 1       | 49        | 22.9                    | 19.1               | 33.0             | -13.9       |
|                    |            |                 |            | 25      | 0         | 22.1                    | 18.3               | 33.0             | -14.7       |
|                    |            |                 |            | 25      | 12        | 22.1                    | 18.3               | 33.0             | -14.7       |
|                    |            |                 |            | 25      | 25        | 22.1                    | 18.3               | 33.0             | -14.7       |
|                    |            |                 |            | 50      | 0         | 22.1                    | 18.3               | 33.0             | -14.7       |
|                    |            |                 | 64QAM      | 1       | 0         | 21.6                    | 17.8               | 33.0             | -15.2       |
|                    |            |                 |            | 1       | 25        | 21.6                    | 17.8               | 33.0             | -15.2       |
|                    |            |                 |            | 1       | 49        | 21.7                    | 17.9               | 33.0             | -15.1       |
|                    |            |                 |            | 25      | 0         | 20.6                    | 16.8               | 33.0             | -16.2       |
|                    |            |                 |            | 25      | 12        | 20.6                    | 16.8               | 33.0             | -16.2       |
|                    |            |                 |            | 25      | 25        | 20.5                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 50      | 0         | 20.0                    | 16.2               | 33.0             | -16.8       |

| Antenna gain (dBi) |            | -3.80           |            |         |           |                         |                    |                  |             |
|--------------------|------------|-----------------|------------|---------|-----------|-------------------------|--------------------|------------------|-------------|
| Bandwidth          | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| 15.0               | 39725      | 2503.5          | QPSK       | 1       | 0         | 23.8                    | 20.0               | 33.0             | -13.0       |
|                    |            |                 |            | 1       | 37        | 23.6                    | 19.8               | 33.0             | -13.2       |
|                    |            |                 |            | 1       | 74        | 23.6                    | 19.8               | 33.0             | -13.2       |
|                    |            |                 |            | 36      | 0         | 23.6                    | 19.8               | 33.0             | -13.2       |
|                    |            |                 |            | 36      | 20        | 23.7                    | 19.9               | 33.0             | -13.1       |
|                    |            |                 |            | 36      | 39        | 23.6                    | 19.8               | 33.0             | -13.2       |
|                    |            |                 |            | 75      | 0         | 23.4                    | 19.6               | 33.0             | -13.4       |
|                    |            |                 | 16QAM      | 1       | 0         | 23.3                    | 19.5               | 33.0             | -13.5       |
|                    |            |                 |            | 1       | 37        | 23.1                    | 19.3               | 33.0             | -13.7       |
|                    |            |                 |            | 1       | 74        | 23.0                    | 19.2               | 33.0             | -13.8       |
|                    |            |                 |            | 36      | 0         | 22.2                    | 18.4               | 33.0             | -14.6       |
|                    |            |                 |            | 36      | 20        | 22.2                    | 18.4               | 33.0             | -14.7       |
|                    |            |                 |            | 36      | 39        | 22.1                    | 18.3               | 33.0             | -14.7       |
|                    |            |                 |            | 75      | 0         | 22.2                    | 18.4               | 33.0             | -14.7       |
|                    |            |                 | 64QAM      | 1       | 0         | 21.7                    | 17.9               | 33.0             | -15.1       |
|                    |            |                 |            | 1       | 37        | 21.8                    | 18.0               | 33.0             | -15.0       |
|                    |            |                 |            | 1       | 74        | 21.7                    | 17.9               | 33.0             | -15.1       |
|                    |            |                 |            | 36      | 0         | 20.7                    | 16.9               | 33.0             | -16.1       |
|                    |            |                 |            | 36      | 20        | 20.7                    | 16.9               | 33.0             | -16.1       |
|                    |            |                 |            | 36      | 39        | 20.7                    | 16.9               | 33.0             | -16.1       |
|                    |            |                 |            | 75      | 0         | 20.7                    | 16.9               | 33.0             | -16.1       |
| 15.0               | 40620      | 2593.0          | QPSK       | 1       | 0         | 23.9                    | 20.1               | 33.0             | -12.9       |
|                    |            |                 |            | 1       | 37        | 23.8                    | 20.0               | 33.0             | -13.0       |
|                    |            |                 |            | 1       | 74        | 23.7                    | 19.9               | 33.0             | -13.1       |
|                    |            |                 |            | 36      | 0         | 23.8                    | 20.0               | 33.0             | -13.0       |
|                    |            |                 |            | 36      | 20        | 23.8                    | 20.0               | 33.0             | -13.0       |
|                    |            |                 |            | 36      | 39        | 23.8                    | 20.0               | 33.0             | -13.0       |
|                    |            |                 |            | 75      | 0         | 23.7                    | 19.9               | 33.0             | -13.1       |
|                    |            |                 | 16QAM      | 1       | 0         | 23.5                    | 19.7               | 33.0             | -13.3       |
|                    |            |                 |            | 1       | 37        | 23.3                    | 19.5               | 33.0             | -13.5       |
|                    |            |                 |            | 1       | 74        | 23.2                    | 19.4               | 33.0             | -13.6       |
|                    |            |                 |            | 36      | 0         | 22.3                    | 18.5               | 33.0             | -14.5       |
|                    |            |                 |            | 36      | 20        | 22.4                    | 18.6               | 33.0             | -14.4       |
|                    |            |                 |            | 36      | 39        | 22.3                    | 18.5               | 33.0             | -14.5       |
|                    |            |                 |            | 75      | 0         | 22.3                    | 18.5               | 33.0             | -14.5       |
|                    |            |                 | 64QAM      | 1       | 0         | 22.3                    | 18.5               | 33.0             | -14.5       |
|                    |            |                 |            | 1       | 37        | 22.0                    | 18.2               | 33.0             | -14.8       |
|                    |            |                 |            | 1       | 74        | 21.9                    | 18.1               | 33.0             | -14.9       |
|                    |            |                 |            | 36      | 0         | 20.9                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 |            | 36      | 20        | 20.9                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 |            | 36      | 39        | 20.8                    | 17.0               | 33.0             | -16.0       |
|                    |            |                 |            | 75      | 0         | 20.9                    | 17.1               | 33.0             | -15.9       |

| Antenna gain (dBi) |            | -3.80           |            |         |           |                         |                    |                  |             |
|--------------------|------------|-----------------|------------|---------|-----------|-------------------------|--------------------|------------------|-------------|
| Bandwidth          | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| 15.0               | 41515      | 2682.5          | QPSK       | 1       | 0         | 23.5                    | 19.7               | 33.0             | -13.3       |
|                    |            |                 |            | 1       | 37        | 23.3                    | 19.5               | 33.0             | -13.5       |
|                    |            |                 |            | 1       | 74        | 23.2                    | 19.4               | 33.0             | -13.6       |
|                    |            |                 |            | 36      | 0         | 23.2                    | 19.4               | 33.0             | -13.6       |
|                    |            |                 |            | 36      | 20        | 23.2                    | 19.4               | 33.0             | -13.6       |
|                    |            |                 |            | 36      | 39        | 23.1                    | 19.3               | 33.0             | -13.7       |
|                    |            |                 |            | 75      | 0         | 22.8                    | 19.0               | 33.0             | -14.0       |
|                    |            |                 | 16QAM      | 1       | 0         | 23.2                    | 19.4               | 33.0             | -13.6       |
|                    |            |                 |            | 1       | 37        | 22.9                    | 19.1               | 33.0             | -13.9       |
|                    |            |                 |            | 1       | 74        | 23.0                    | 19.2               | 33.0             | -13.8       |
|                    |            |                 |            | 36      | 0         | 22.3                    | 18.5               | 33.0             | -14.5       |
|                    |            |                 |            | 36      | 20        | 22.2                    | 18.4               | 33.0             | -14.7       |
|                    |            |                 |            | 36      | 39        | 22.1                    | 18.3               | 33.0             | -14.7       |
|                    |            |                 |            | 75      | 0         | 22.0                    | 18.2               | 33.0             | -14.8       |
|                    |            |                 | 64QAM      | 1       | 0         | 21.6                    | 17.8               | 33.0             | -15.2       |
|                    |            |                 |            | 1       | 37        | 21.6                    | 17.8               | 33.0             | -15.2       |
|                    |            |                 |            | 1       | 74        | 21.7                    | 17.9               | 33.0             | -15.1       |
|                    |            |                 |            | 36      | 0         | 20.6                    | 16.8               | 33.0             | -16.2       |
|                    |            |                 |            | 36      | 20        | 20.6                    | 16.8               | 33.0             | -16.2       |
|                    |            |                 |            | 36      | 39        | 20.5                    | 16.7               | 33.0             | -16.3       |
|                    |            |                 |            | 75      | 0         | 20.0                    | 16.2               | 33.0             | -16.8       |

| Antenna gain (dBi) |            | -3.80           |            |         |           |                         |                    |                  |             |
|--------------------|------------|-----------------|------------|---------|-----------|-------------------------|--------------------|------------------|-------------|
| Bandwidth          | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| 20.0               | 39750      | 2506.0          | QPSK       | 1       | 0         | 23.8                    | 20.0               | 33.0             | -13.0       |
|                    |            |                 |            | 1       | 49        | 23.6                    | 19.8               | 33.0             | -13.2       |
|                    |            |                 |            | 1       | 99        | 23.5                    | 19.7               | 33.0             | -13.3       |
|                    |            |                 |            | 50      | 0         | 23.6                    | 19.8               | 33.0             | -13.2       |
|                    |            |                 |            | 50      | 24        | 23.6                    | 19.8               | 33.0             | -13.2       |
|                    |            |                 |            | 50      | 50        | 23.5                    | 19.7               | 33.0             | -13.3       |
|                    |            |                 | 16QAM      | 100     | 0         | 23.4                    | 19.6               | 33.0             | -13.4       |
|                    |            |                 |            | 1       | 0         | 23.1                    | 19.3               | 33.0             | -13.7       |
|                    |            |                 |            | 1       | 49        | 22.9                    | 19.1               | 33.0             | -13.9       |
|                    |            |                 |            | 1       | 99        | 22.8                    | 19.0               | 33.0             | -14.0       |
|                    |            |                 |            | 50      | 0         | 22.2                    | 18.4               | 33.0             | -14.6       |
|                    |            |                 |            | 50      | 24        | 22.1                    | 18.3               | 33.0             | -14.7       |
|                    |            |                 |            | 50      | 50        | 22.0                    | 18.2               | 33.0             | -14.8       |
|                    |            |                 | 64QAM      | 100     | 0         | 22.1                    | 18.3               | 33.0             | -14.7       |
|                    |            |                 |            | 1       | 0         | 21.7                    | 17.9               | 33.0             | -15.1       |
|                    |            |                 |            | 1       | 49        | 21.8                    | 18.0               | 33.0             | -15.0       |
|                    |            |                 |            | 1       | 99        | 21.7                    | 17.9               | 33.0             | -15.1       |
|                    |            |                 |            | 50      | 0         | 20.7                    | 16.9               | 33.0             | -16.1       |
|                    |            |                 |            | 50      | 24        | 20.7                    | 16.9               | 33.0             | -16.1       |
|                    |            |                 |            | 50      | 50        | 20.7                    | 16.9               | 33.0             | -16.1       |
|                    |            |                 |            | 100     | 0         | 20.7                    | 16.9               | 33.0             | -16.1       |
| 20.0               | 40620      | 2593.0          | QPSK       | 1       | 0         | 23.9                    | 20.1               | 33.0             | -12.9       |
|                    |            |                 |            | 1       | 49        | 23.7                    | 19.9               | 33.0             | -13.1       |
|                    |            |                 |            | 1       | 99        | 23.6                    | 19.8               | 33.0             | -13.2       |
|                    |            |                 |            | 50      | 0         | 23.8                    | 20.0               | 33.0             | -13.0       |
|                    |            |                 |            | 50      | 24        | 23.8                    | 20.0               | 33.0             | -13.0       |
|                    |            |                 |            | 50      | 50        | 23.7                    | 19.9               | 33.0             | -13.1       |
|                    |            |                 | 16QAM      | 100     | 0         | 23.7                    | 19.9               | 33.0             | -13.1       |
|                    |            |                 |            | 1       | 0         | 23.4                    | 19.6               | 33.0             | -13.4       |
|                    |            |                 |            | 1       | 49        | 23.2                    | 19.4               | 33.0             | -13.6       |
|                    |            |                 |            | 1       | 99        | 23.1                    | 19.3               | 33.0             | -13.7       |
|                    |            |                 |            | 50      | 0         | 22.3                    | 18.5               | 33.0             | -14.5       |
|                    |            |                 |            | 50      | 24        | 22.3                    | 18.5               | 33.0             | -14.6       |
|                    |            |                 |            | 50      | 50        | 22.2                    | 18.4               | 33.0             | -14.7       |
|                    |            |                 | 64QAM      | 100     | 0         | 22.3                    | 18.5               | 33.0             | -14.5       |
|                    |            |                 |            | 1       | 0         | 22.3                    | 18.5               | 33.0             | -14.5       |
|                    |            |                 |            | 1       | 49        | 22.0                    | 18.2               | 33.0             | -14.8       |
|                    |            |                 |            | 1       | 99        | 21.9                    | 18.1               | 33.0             | -14.9       |
|                    |            |                 |            | 50      | 0         | 20.9                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 |            | 50      | 24        | 20.9                    | 17.1               | 33.0             | -15.9       |
|                    |            |                 |            | 50      | 50        | 20.8                    | 17.0               | 33.0             | -16.0       |
|                    |            |                 |            | 100     | 0         | 20.9                    | 17.1               | 33.0             | -15.9       |

|                    |            |        |            |         |           |                         |                    |                  |             |
|--------------------|------------|--------|------------|---------|-----------|-------------------------|--------------------|------------------|-------------|
| Antenna gain (dBi) |            | -3.80  |            |         |           |                         |                    |                  |             |
| Bandwidth          | UL Channel | -1.5   | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| 20.0               | 41490      | 2680.0 | QPSK       | 1       | 0         | 23.8                    | 20.0               | 33.0             | -13.0       |
|                    |            |        |            | 1       | 49        | 23.6                    | 19.8               | 33.0             | -13.2       |
|                    |            |        |            | 1       | 99        | 23.4                    | 19.6               | 33.0             | -13.4       |
|                    |            |        |            | 50      | 0         | 23.7                    | 19.9               | 33.0             | -13.2       |
|                    |            |        |            | 50      | 24        | 23.6                    | 19.8               | 33.0             | -13.2       |
|                    |            |        |            | 50      | 50        | 23.4                    | 19.6               | 33.0             | -13.4       |
|                    |            |        |            | 100     | 0         | 23.3                    | 19.5               | 33.0             | -13.5       |
|                    |            |        | 16QAM      | 1       | 0         | 23.5                    | 19.7               | 33.0             | -13.3       |
|                    |            |        |            | 1       | 49        | 23.2                    | 19.4               | 33.0             | -13.6       |
|                    |            |        |            | 1       | 99        | 22.9                    | 19.1               | 33.0             | -13.9       |
|                    |            |        |            | 50      | 0         | 22.2                    | 18.4               | 33.0             | -14.6       |
|                    |            |        |            | 50      | 24        | 22.2                    | 18.4               | 33.0             | -14.6       |
|                    |            |        |            | 50      | 50        | 22.0                    | 18.2               | 33.0             | -14.8       |
|                    |            |        |            | 100     | 0         | 22.1                    | 18.3               | 33.0             | -14.7       |
|                    |            |        | 64QAM      | 1       | 0         | 21.4                    | 17.6               | 33.0             | -15.4       |
|                    |            |        |            | 1       | 49        | 21.3                    | 17.5               | 33.0             | -15.5       |
|                    |            |        |            | 1       | 99        | 21.1                    | 17.3               | 33.0             | -15.7       |
|                    |            |        |            | 50      | 0         | 20.3                    | 16.5               | 33.0             | -16.5       |
|                    |            |        |            | 50      | 24        | 20.3                    | 16.5               | 33.0             | -16.5       |
|                    |            |        |            | 50      | 50        | 20.2                    | 16.4               | 33.0             | -16.6       |
|                    |            |        |            | 100     | 0         | 20.2                    | 16.4               | 33.0             | -16.6       |

## **13. PEAK TO AVERAGE RATIO**

### **TEST PROCEDURE**

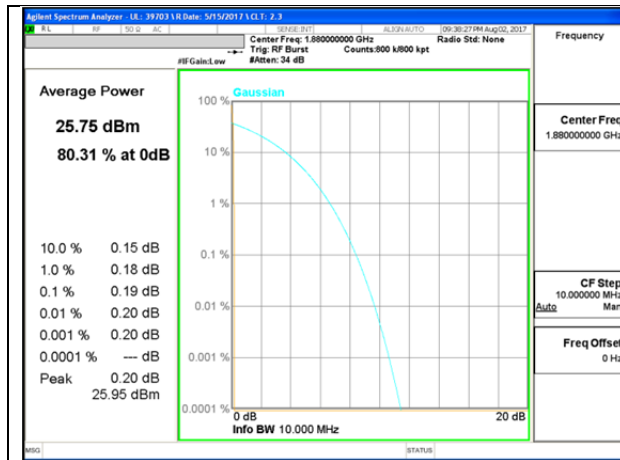
Per KDB 971168 D01 Power Meas License Digital Systems v02r02

### **TEST SPEC**

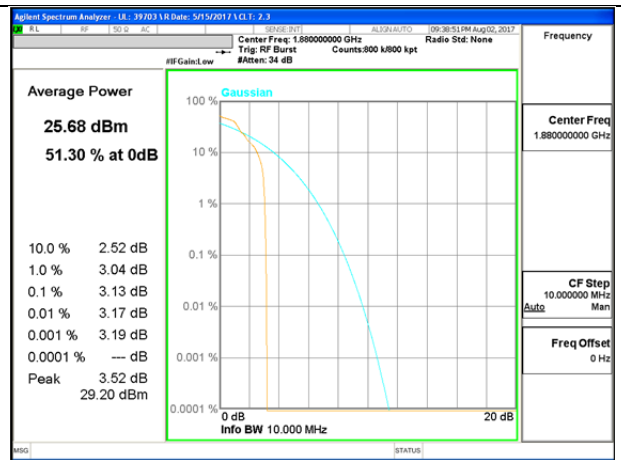
In addition, when the transmitter power is measured in terms of average value, the peak-to-average ratio of the power shall not exceed 13 dB.

### 13.1. CONDUCTED PEAK TO AVERAGE RESULT

#### GSM

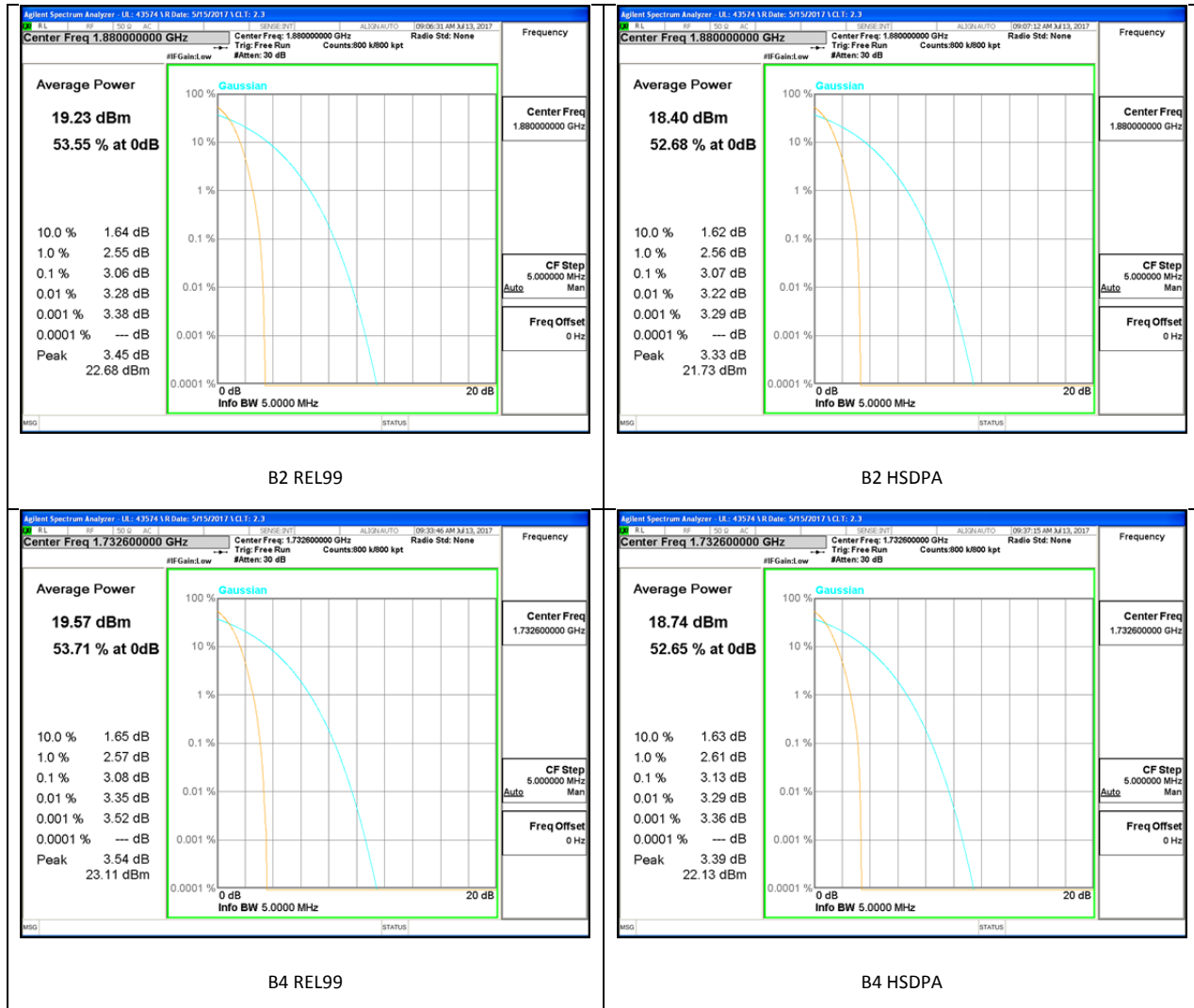


GSM1900 GPRS Middle Channel

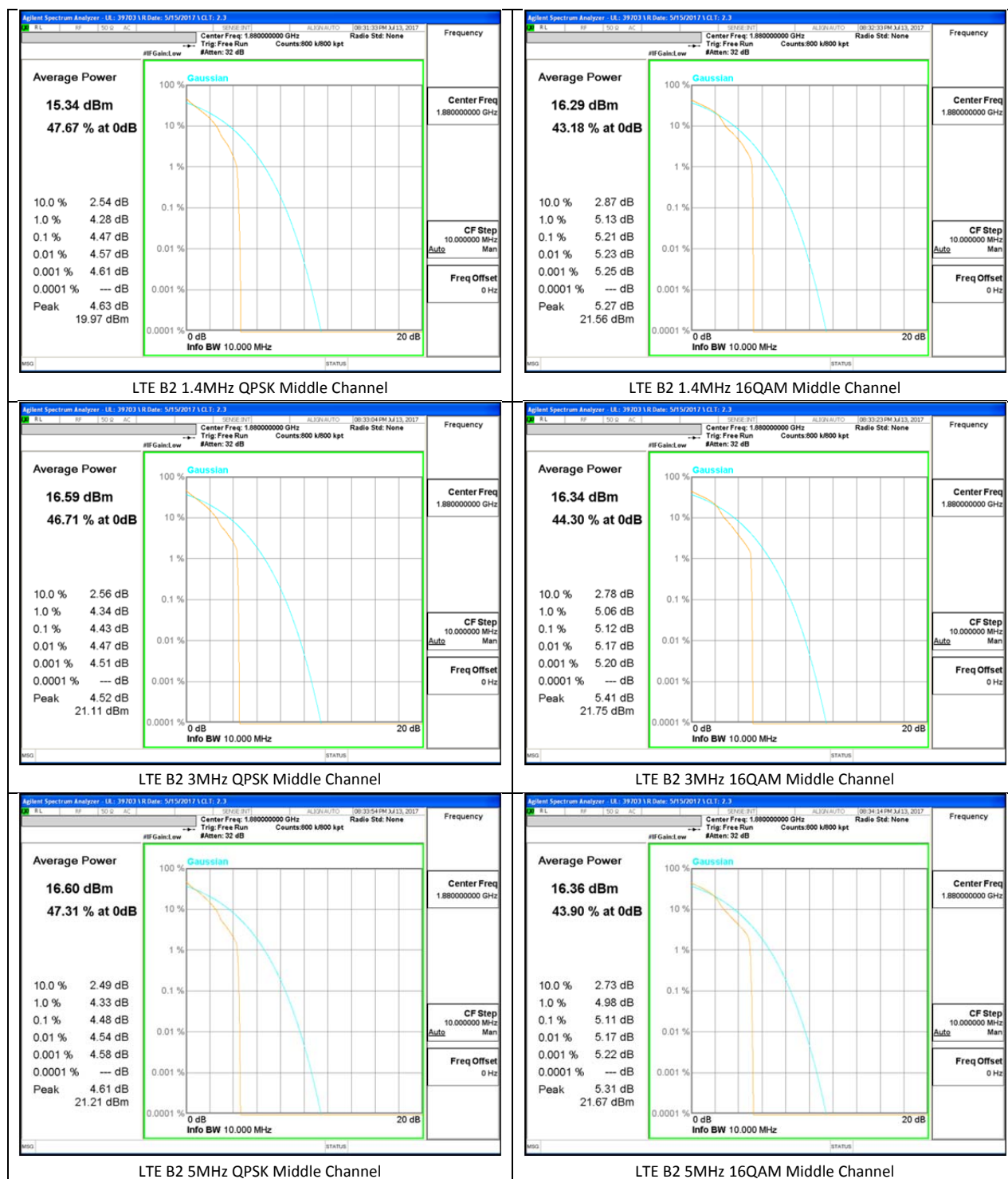


GSM1900 EGPRS Middle Channel

**WCDMA**

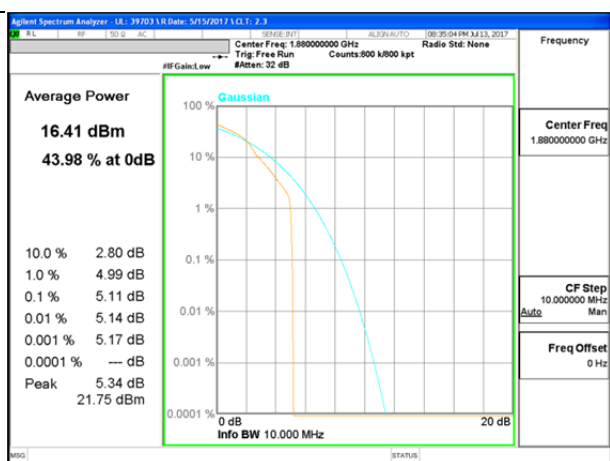


## LTE Band 2

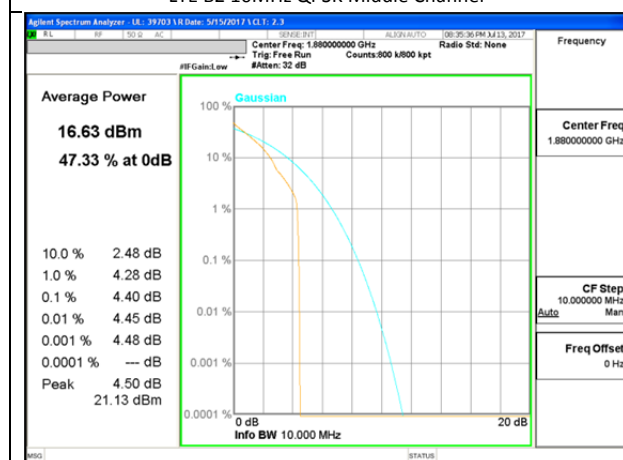




LTE B2 10MHz QPSK Middle Channel



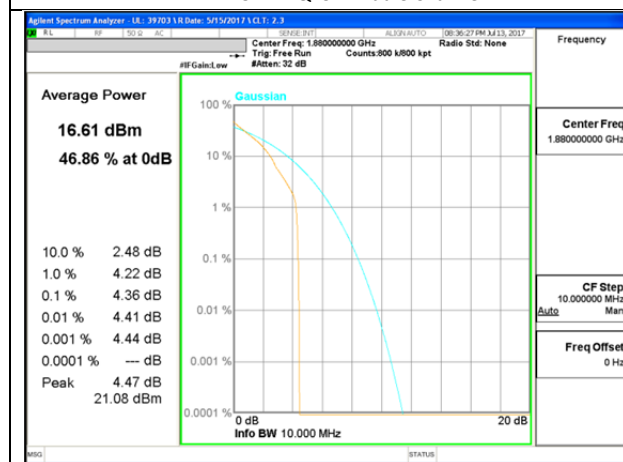
LTE B2 10MHz 16QAM Middle Channel



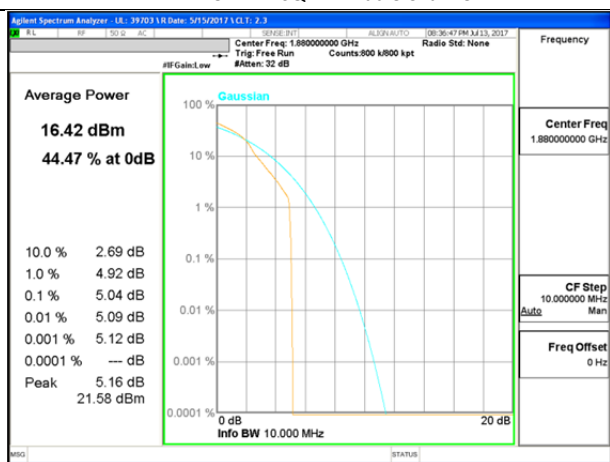
LTE B2 15MHz QPSK Middle Channel



LTE B2 15MHz 16QAM Middle Channel

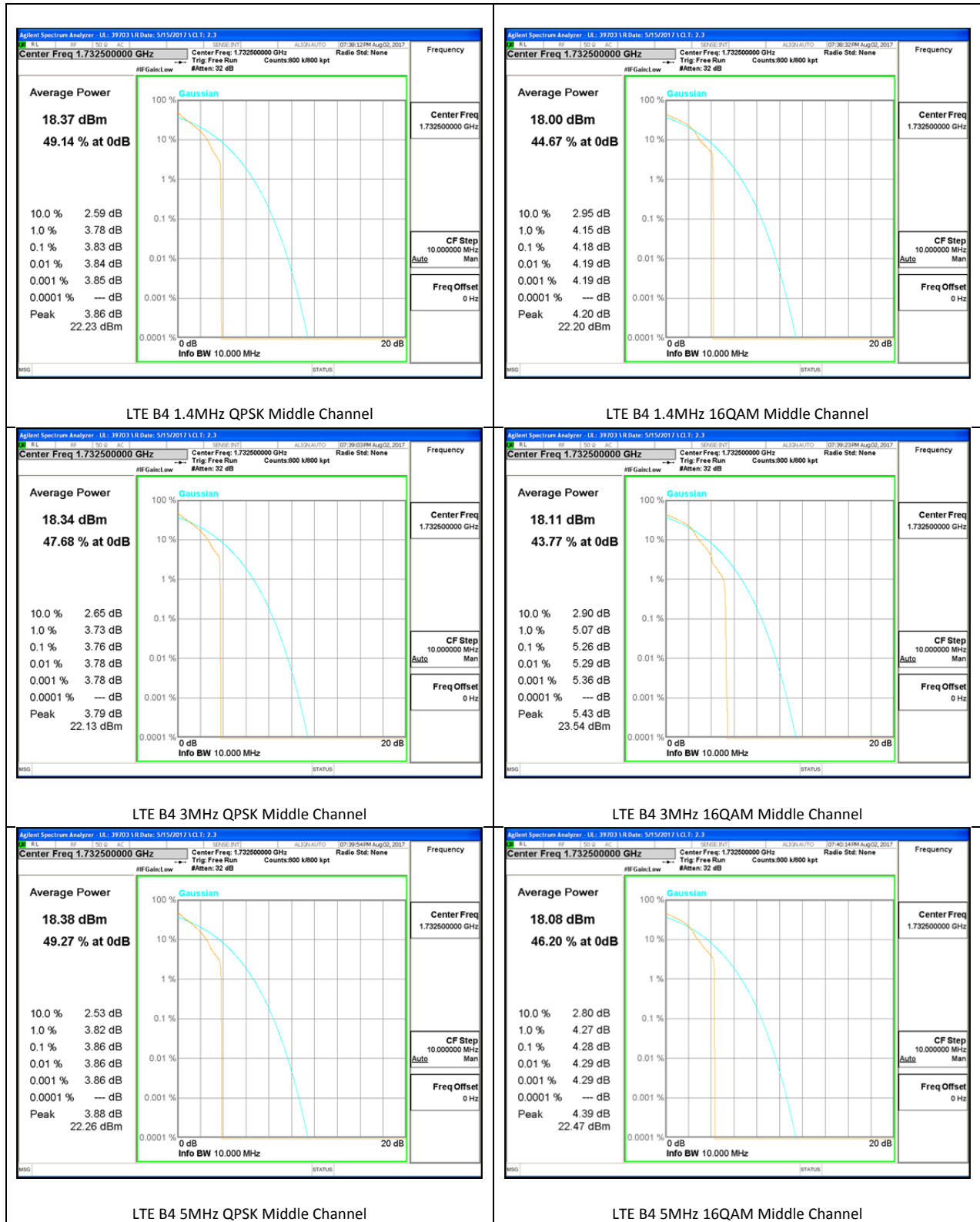


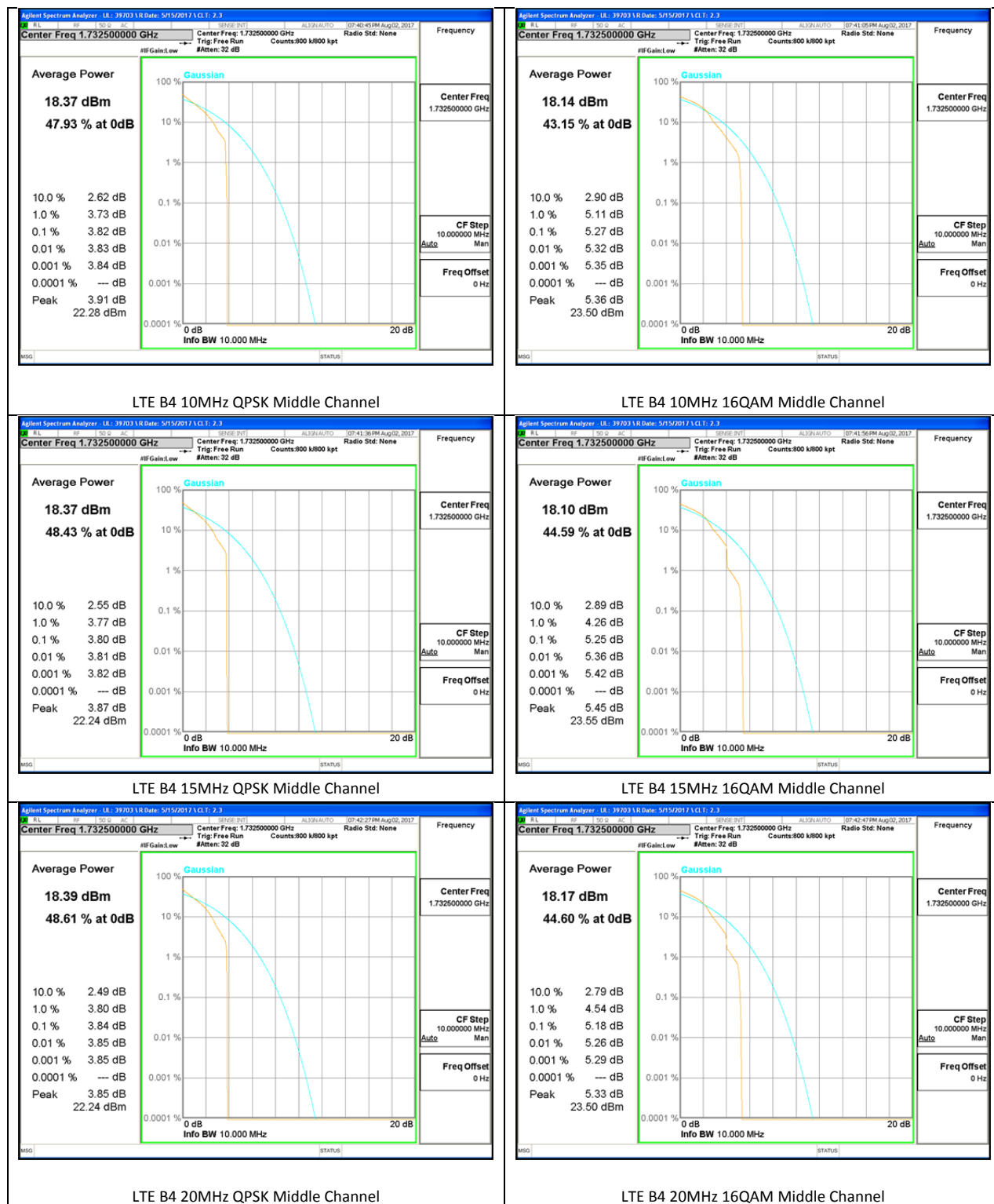
LTE B2 20MHz QPSK Middle Channel



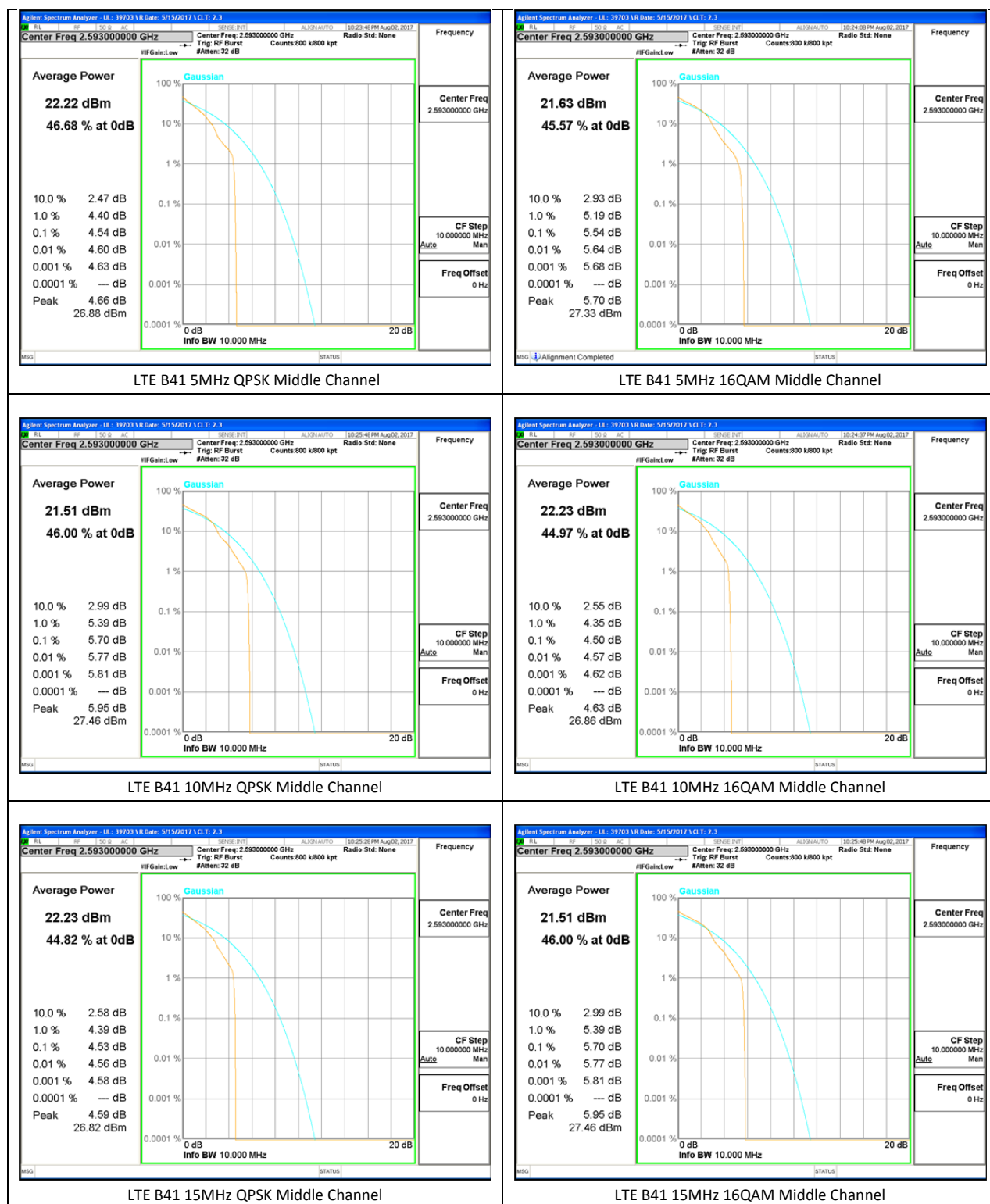
LTE B2 20MHz 16QAM Middle Channel

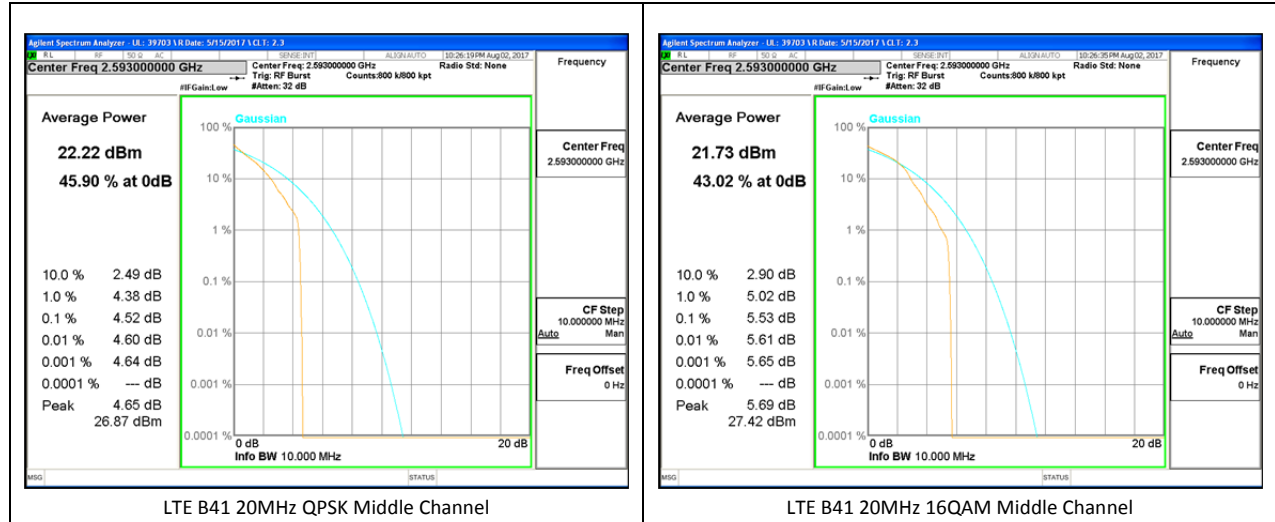
## LTE Band 4





# **LTE Band 41**





## 14. OCCUPIED BANDWIDTH

### RULE PART(S)

FCC: §2.1049

### LIMITS

For reporting purposes only

### TEST PROCEDURE

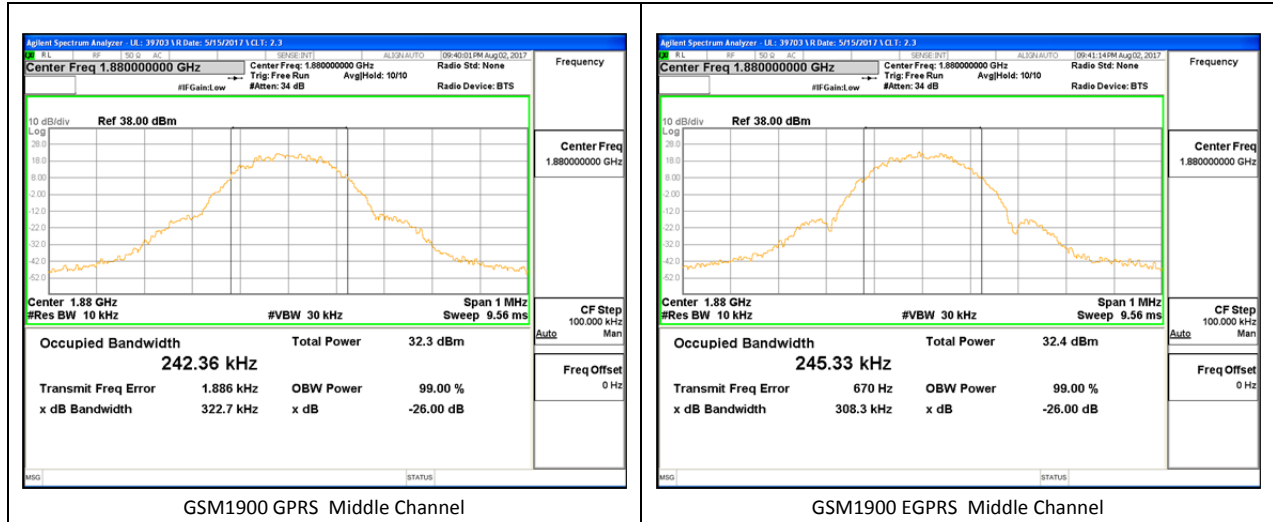
The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the low, middle and high channel in each band. The -26dB bandwidth was also measured and recorded.

(KDB 971168 D01 Power Meas License Digital Systems v02r02)

## 14.1. OCCUPIED BANDWIDTH RESULTS AND PLOTS

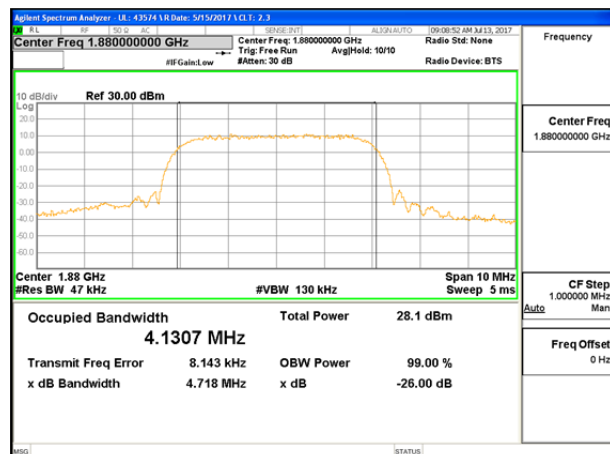
### GSM

| Band     | Mode  | Channel | f (MHz) | 99% BW (kHz) | -26dB (kHz) |
|----------|-------|---------|---------|--------------|-------------|
| GSM 1900 | GPRS  | 512     | 1850.2  | 245.4        | 314.2       |
|          |       | 661     | 1880    | 242.4        | 322.7       |
|          |       | 810     | 1909.8  | 246.9        | 311.7       |
|          | EGPRS | 512     | 1850.2  | 239.9        | 318         |
|          |       | 661     | 1880    | 245.3        | 308.3       |
|          |       | 810     | 1909.8  | 244.9        | 308.6       |

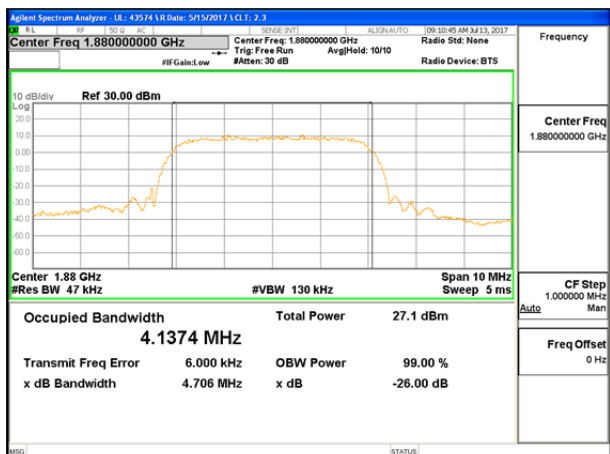


**WCDMA**

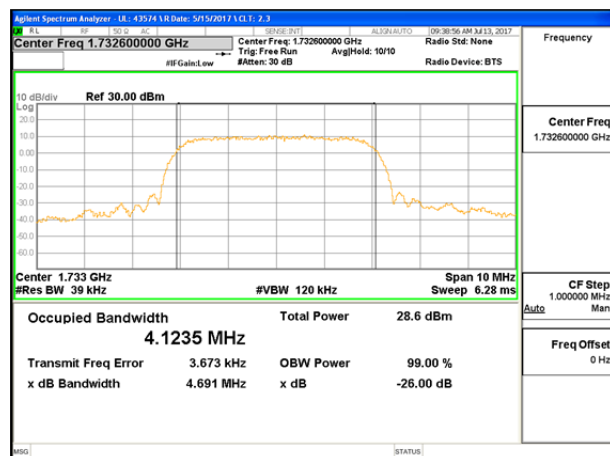
| Band   | Mode  | Channel | f (MHz) | 99% BW (MHz) | -26dB (MHz) |
|--------|-------|---------|---------|--------------|-------------|
| Band 2 | REL99 | 9262    | 1852.4  | 4.126        | 4.697       |
|        |       | 9400    | 1880    | 4.131        | 4.718       |
|        |       | 9538    | 1907.6  | 4.116        | 4.692       |
|        | HSDPA | 9262    | 1852.4  | 4.127        | 4.699       |
|        |       | 9400    | 1880    | 4.137        | 4.706       |
|        |       | 9538    | 1907.6  | 4.134        | 4.689       |
| Band 4 | REL99 | 9262    | 1712.4  | 4.119        | 4.698       |
|        |       | 9400    | 1732.6  | 4.124        | 4.691       |
|        |       | 9538    | 1752.6  | 4.122        | 4.674       |
|        | HSDPA | 9262    | 1712.4  | 4.145        | 4.696       |
|        |       | 9400    | 1732.6  | 4.138        | 4.686       |
|        |       | 9538    | 1752.6  | 4.14         | 4.691       |



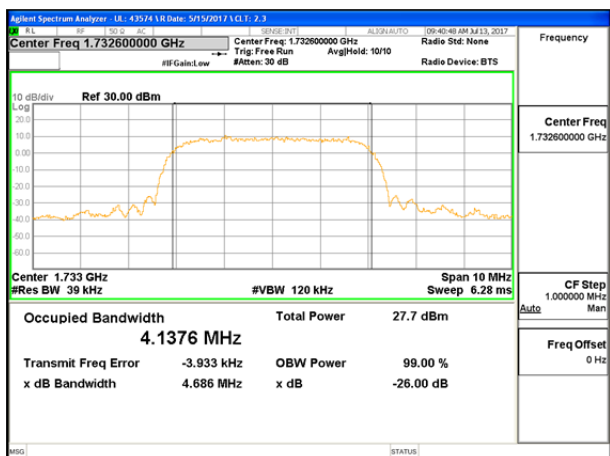
B2 REL99 Middle Channel



B2 HSDPA Middle Channel



B4 REL99 Middle Channel

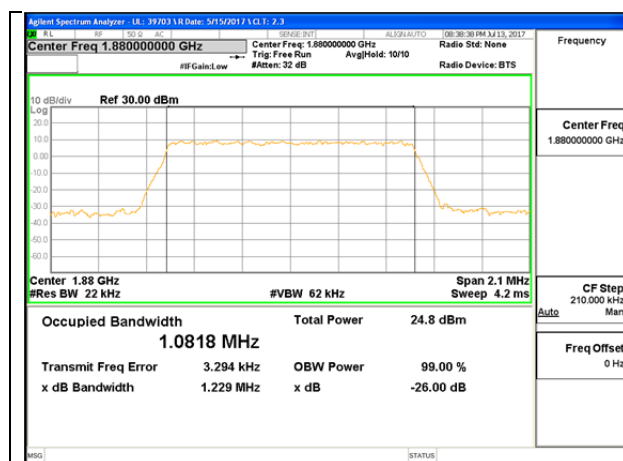


B4 HSDPA Middle Channel

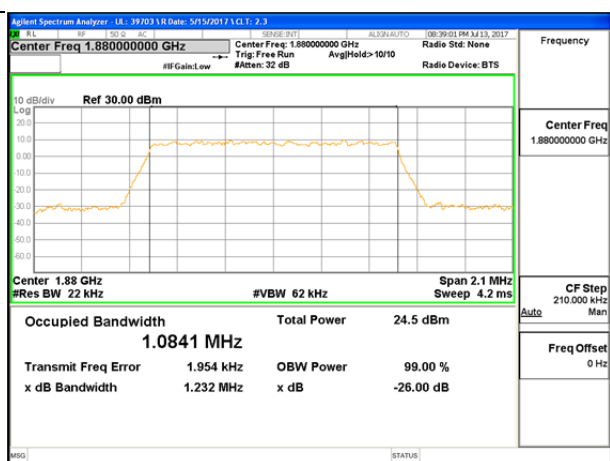
**LTE Band 2**

| Band | BW(MHz) | Mode  | RB/RB Size | f (MHz) | 99% BW (MHz) | -26dB BW (MHz) |
|------|---------|-------|------------|---------|--------------|----------------|
| LTE2 | 1.4     | QPSK  | 6/0        | 1850.7  | 1.1          | 1.25           |
|      |         |       | 6/0        | 1880    | 1.08         | 1.23           |
|      |         |       | 6/0        | 1909.3  | 1.09         | 1.23           |
|      |         | 16QAM | 6/0        | 1850.7  | 1.08         | 1.24           |
|      |         |       | 6/0        | 1880    | 1.08         | 1.23           |
|      |         |       | 6/0        | 1909.3  | 1.09         | 1.24           |
|      | 3       | QPSK  | 15/0       | 1851.5  | 2.7          | 3.0            |
|      |         |       | 15/0       | 1880    | 2.7          | 3.0            |
|      |         |       | 15/0       | 1908.5  | 2.7          | 2.98           |
|      |         | 16QAM | 15/0       | 1851.5  | 2.7          | 3.01           |
|      |         |       | 15/0       | 1880    | 2.7          | 3.0            |
|      |         |       | 15/0       | 1908.5  | 2.69         | 3.0            |
|      | 5       | QPSK  | 25/0       | 1852.5  | 4.52         | 4.92           |
|      |         |       | 25/0       | 1880    | 4.49         | 4.95           |
|      |         |       | 25/0       | 1907.5  | 4.5          | 4.93           |
|      |         | 16QAM | 25/0       | 1852.5  | 4.5          | 4.98           |
|      |         |       | 25/0       | 1880    | 4.49         | 4.94           |
|      |         |       | 25/0       | 1907.5  | 4.48         | 4.91           |
|      | 10      | QPSK  | 50/0       | 1855    | 8.96         | 9.8            |
|      |         |       | 50/0       | 1880    | 8.97         | 9.77           |
|      |         |       | 50/0       | 1905    | 8.98         | 9.74           |
|      |         | 16QAM | 50/0       | 1855    | 8.96         | 9.72           |
|      |         |       | 50/0       | 1880    | 8.94         | 9.72           |
|      |         |       | 50/0       | 1905    | 8.98         | 9.79           |

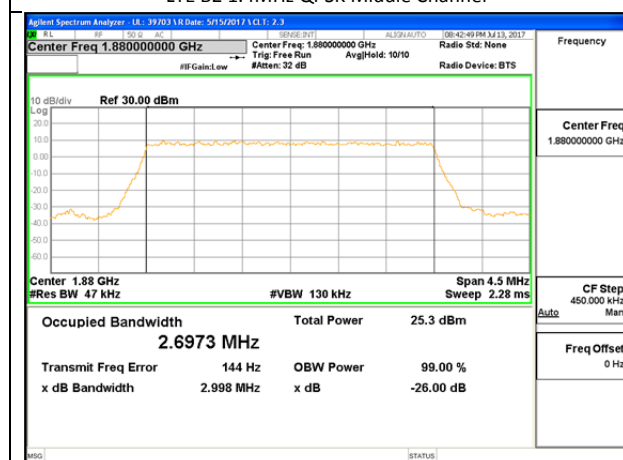
| Band | BW(MHz) | Mode  | RB/RB Size | f (MHz) | 99% BW (MHz) | -26dB BW (MHz) |
|------|---------|-------|------------|---------|--------------|----------------|
| LTE2 | 15      | QPSK  | 75/0       | 1857.5  | 13.41        | 14.56          |
|      |         |       | 75/0       | 1880    | 13.42        | 14.59          |
|      |         |       | 75/0       | 1902.5  | 13.42        | 14.55          |
|      |         | 16QAM | 75/0       | 1857.5  | 13.43        | 14.56          |
|      |         |       | 75/0       | 1880    | 13.45        | 14.46          |
|      |         |       | 75/0       | 1902.5  | 13.44        | 14.5           |
|      | 20      | QPSK  | 100/0      | 1860    | 17.9         | 19.31          |
|      |         |       | 100/0      | 1880    | 17.9         | 19.22          |
|      |         |       | 100/0      | 1900    | 17.87        | 19.28          |
|      |         | 16QAM | 100/0      | 1860    | 17.9         | 19.34          |
|      |         |       | 100/0      | 1880    | 17.88        | 19.33          |
|      |         |       | 100/0      | 1900    | 17.88        | 19.3           |



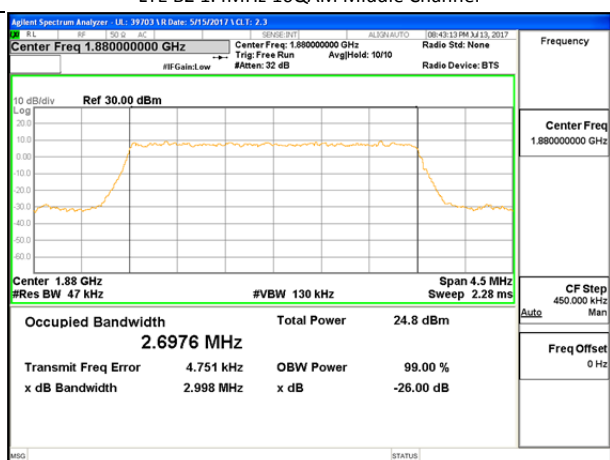
LTE B2 1.4MHz QPSK Middle Channel



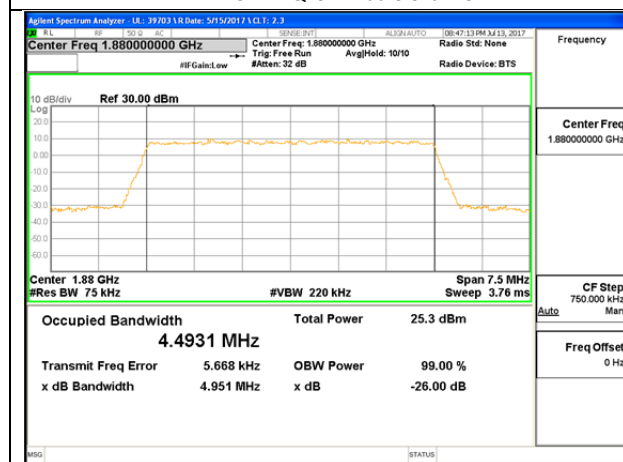
LTE B2 1.4MHz 16QAM Middle Channel



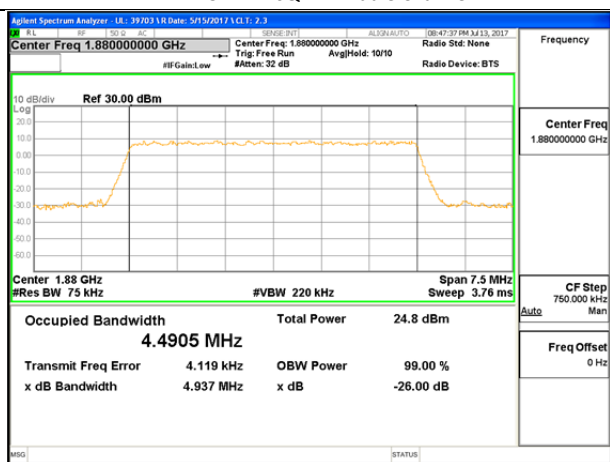
LTE B2 3MHz QPSK Middle Channel



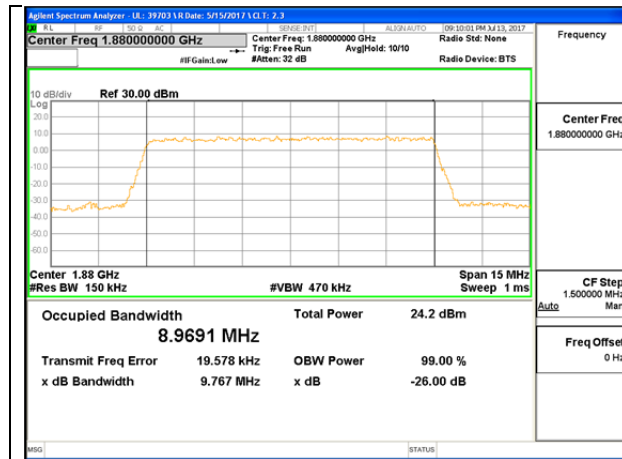
LTE B2 3MHz 16QAM Middle Channel



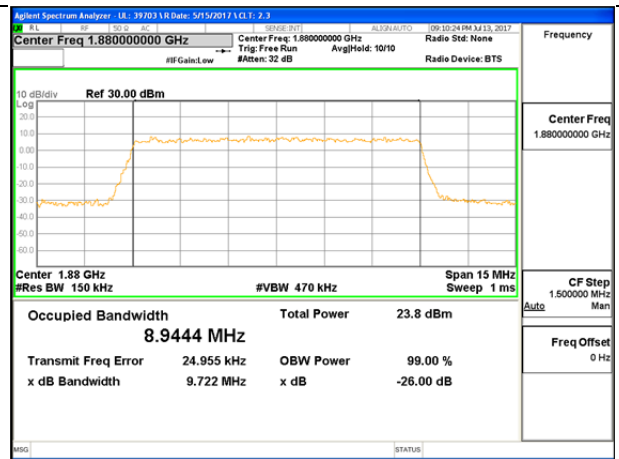
LTE B2 5MHz QPSK Middle Channel



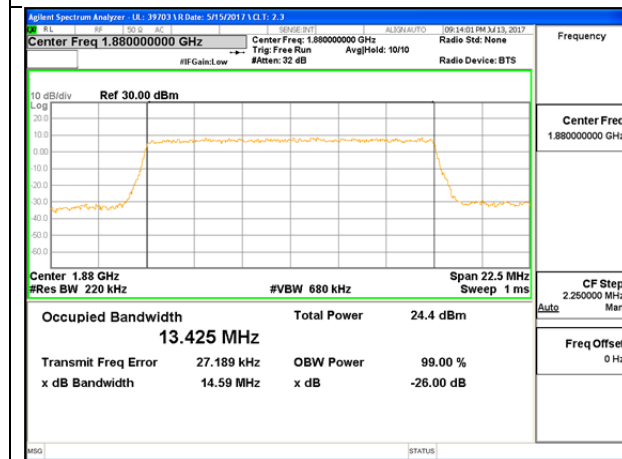
LTE B2 5MHz 16QAM Middle Channel



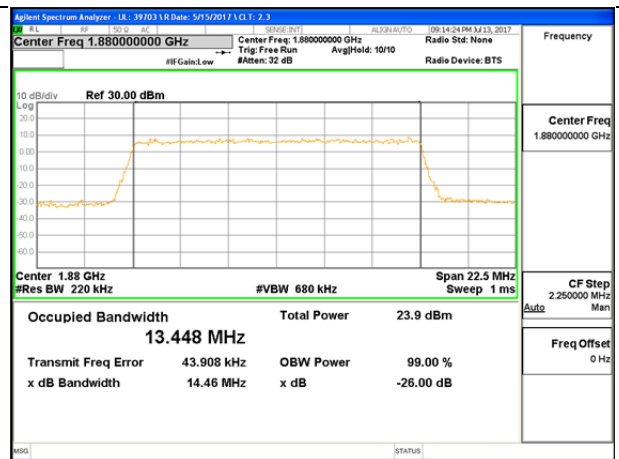
LTE B2 10MHz QPSK Middle Channel



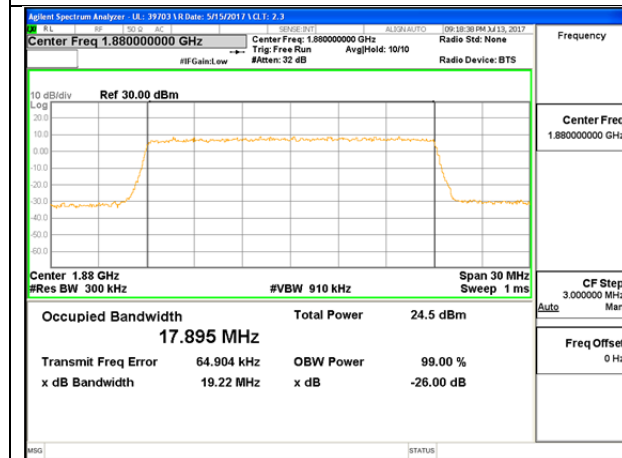
LTE B2 10MHz 16QAM Middle Channel



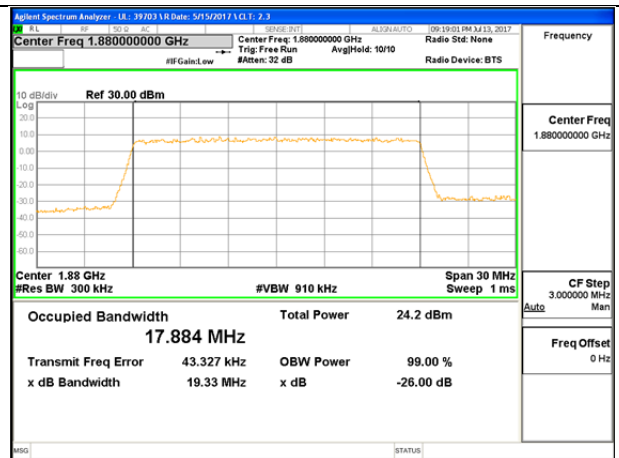
LTE B2 15MHz QPSK Middle Channel



LTE B2 15MHz 16QAM Middle Channel



LTE B25 20MHz QPSK Middle Channel

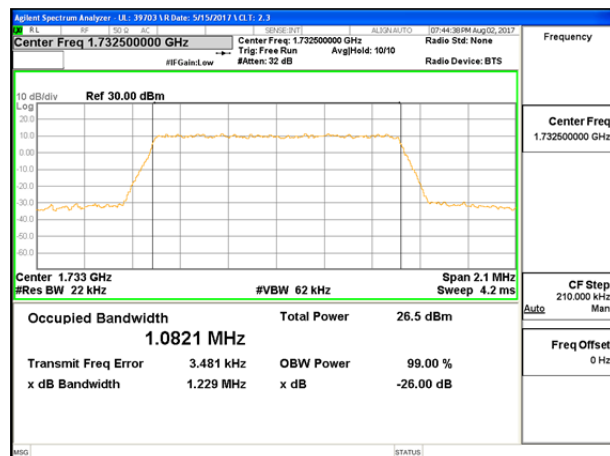


LTE B2 20MHz 16QAM Middle Channel

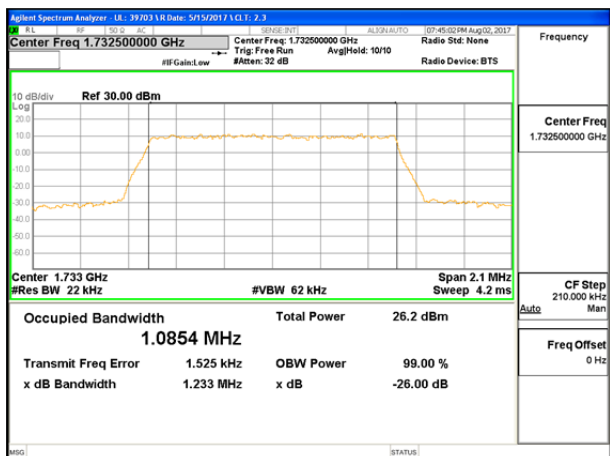
**LTE Band 4**

| Band | BW(MHz) | Mode  | RB/RB Size | f (MHz) | 99% BW (MHz) | -26dB BW (MHz) |
|------|---------|-------|------------|---------|--------------|----------------|
| LTE4 | 1.4     | QPSK  | 6/0        | 1710.7  | 1.09         | 1.24           |
|      |         |       | 6/0        | 1732.5  | 1.08         | 1.23           |
|      |         |       | 6/0        | 1754.3  | 1.09         | 1.22           |
|      |         | 16QAM | 6/0        | 1710.7  | 1.08         | 1.24           |
|      |         |       | 6/0        | 1732.5  | 1.08         | 1.23           |
|      |         |       | 6/0        | 1754.3  | 1.09         | 1.23           |
|      | 3       | QPSK  | 15/0       | 1711.5  | 2.7          | 3              |
|      |         |       | 15/0       | 1732.5  | 2.7          | 2.99           |
|      |         |       | 15/0       | 1753.5  | 2.7          | 2.99           |
|      |         | 16QAM | 15/0       | 1711.5  | 2.7          | 2.98           |
|      |         |       | 15/0       | 1732.5  | 2.7          | 2.99           |
|      |         |       | 15/0       | 1753.5  | 2.69         | 3              |
|      | 5       | QPSK  | 25/0       | 1712.5  | 4.5          | 4.94           |
|      |         |       | 25/0       | 1732.5  | 4.49         | 4.93           |
|      |         |       | 25/0       | 1752.5  | 4.5          | 4.91           |
|      |         | 16QAM | 25/0       | 1712.5  | 4.5          | 4.97           |
|      |         |       | 25/0       | 1732.5  | 4.49         | 4.93           |
|      |         |       | 25/0       | 1752.5  | 4.48         | 4.9            |
|      | 10      | QPSK  | 50/0       | 1715    | 8.96         | 9.79           |
|      |         |       | 50/0       | 1732.5  | 8.96         | 9.84           |
|      |         |       | 50/0       | 1750    | 8.97         | 9.82           |
|      |         | 16QAM | 50/0       | 1715    | 8.99         | 9.74           |
|      |         |       | 50/0       | 1732.5  | 8.97         | 9.76           |
|      |         |       | 50/0       | 1750    | 8.95         | 9.79           |

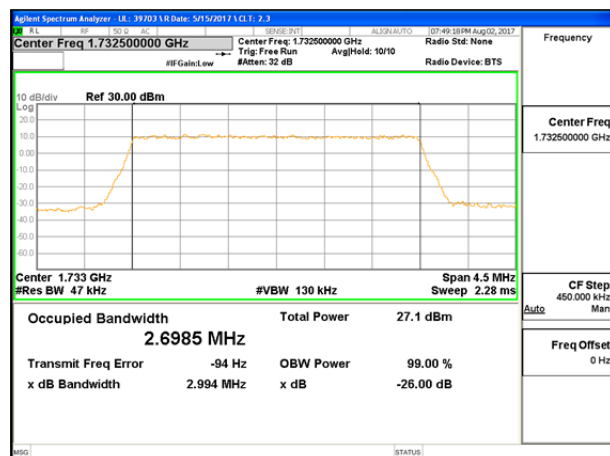
| Band | BW(MHz) | Mode  | RB/RB Size | f (MHz) | 99% BW (MHz) | -26dB BW (MHz) |
|------|---------|-------|------------|---------|--------------|----------------|
| LTE4 | 15      | QPSK  | 75/0       | 1717.5  | 13.44        | 14.65          |
|      |         |       | 75/0       | 1732.5  | 13.45        | 14.52          |
|      |         |       | 75/0       | 1747.5  | 13.42        | 14.56          |
|      |         | 16QAM | 75/0       | 1717.5  | 13.44        | 14.51          |
|      |         |       | 75/0       | 1732.5  | 13.44        | 14.57          |
|      |         |       | 75/0       | 1747.5  | 13.42        | 14.58          |
|      | 20      | QPSK  | 100/0      | 1720    | 17.91        | 19.37          |
|      |         |       | 100/0      | 1732.5  | 17.87        | 19.19          |
|      |         |       | 100/0      | 1745    | 17.86        | 19.27          |
|      |         | 16QAM | 100/0      | 1720    | 17.89        | 19.33          |
|      |         |       | 100/0      | 1732.5  | 17.89        | 19.33          |
|      |         |       | 100/0      | 1745    | 17.87        | 19.36          |



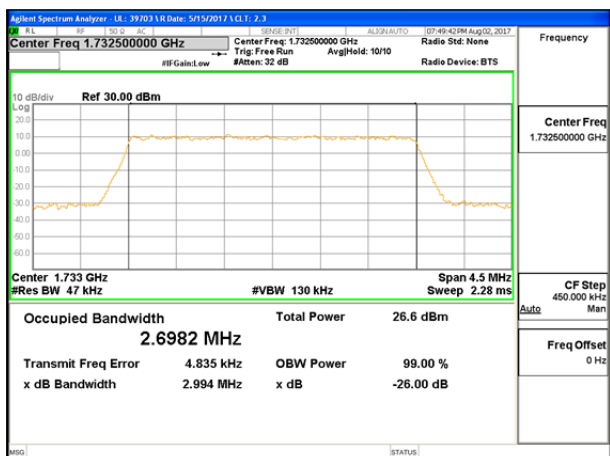
LTE B4 1.4MHz QPSK Middle Channel



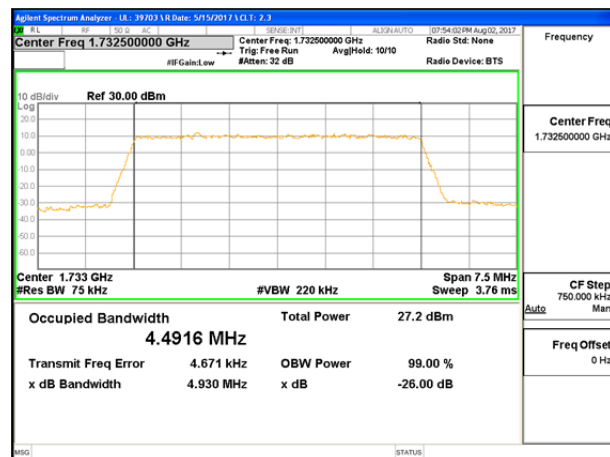
LTE B4 1.4MHz 16QAM Middle Channel



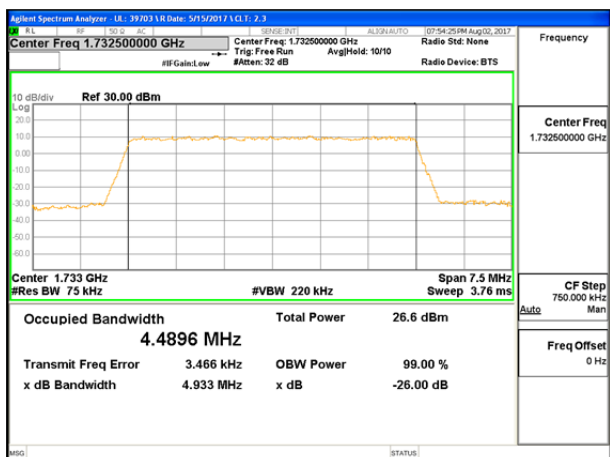
LTE B4 3MHz QPSK Middle Channel



LTE B4 3MHz 16QAM Middle Channel



LTE B4 5MHz QPSK Middle Channel



LTE B4 5MHz 16QAM Middle Channel