






TEST REPORT

Report Number: C21T00061-RF02-V02

| | |
|--------------|-------------------------------------|
| Applicant | Shanghai Sunmi Technology Co., Ltd. |
| Product Name | Handheld Wireless Terminal |
| Model Name | T8911 |
| Brand Name | SUNMI |
| FCC ID | 2AH25T8911 |
| IC | 22621-T8911 |

Industrial Internet Innovation Center (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in FCC Part 2/22/24/90, ANSI/TIA-603-E, ANSI C63.26, KDB 971168 D01, RSS-Gen Issue 5, RSS-130 Issue 2; RSS-132 Issue 3, RSS-133 Issue 6, RSS-139 Issue 3; RSS-199 Issue 3.

| | | | |
|-------------|-------------------------------------------------------------------------------------|-------------|---------------------------------------------------------------------------------------|
| Prepared by |  | Reviewed by |  |
| Approved by |  | Issue Date | 2021-12-08 |

Industrial Internet Innovation Center (Shanghai) Co., Ltd.



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Test Laboratory:

Industrial Internet Innovation Center (Shanghai) Co., Ltd.
Add: Building 4, No. 766 Jingang Rd, Pudong, Shanghai, China
Tel: +86 21 68866880



Revision Version

| Report Number | Revision | Date | Memo |
|--------------------|----------|------------|------------------------------------------------------|
| C21T00061-RF02-V00 | 00 | 2021-11-03 | Initial creation of test report |
| C21T00061-RF02-V01 | 01 | 2021-11-25 | Add test standard on report cover |
| C21T00061-RF02-V02 | 02 | 2021-12-08 | Update output power in e.r.p. and e.i.r.p. in report |

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1. Test Laboratory

1.1. Testing Location

| | |
|----------------------|------------------------------------------------------------|
| Company Name | Industrial Internet Innovation Center (Shanghai) Co., Ltd. |
| Address | Building 4, No. 766 Jingang Rd, Pudong, Shanghai, China |
| FCC Registration No. | 958356 |
| FCC Degistration No. | CN1177 |
| IC Degistration No. | CN0067 |

1.2. Testing Environment

| | |
|--------------------|-------------|
| Normal Temperature | 15°C~35°C |
| Relative Humidity | 30%RH~60%RH |
| Supply Voltage | 120V/60Hz |

1.3. Project Information

| | |
|--------------------|-------------|
| Project Leader | Wang Wenwen |
| Testing Start Date | 2021-06-04 |
| Testing End Date | 2021-10-28 |



2. Client Information

2.1. Applicant Information

| | |
|--------------|-----------------------------------------------------------------------------|
| Company Name | Shanghai Sunmi Technology Co.,Ltd. |
| Address | Room 505, KIC Plaza, No.388 Song Hu Road, Yang Pu District, Shanghai, China |
| Telephone | +86 18721763396 |

2.2. Manufacturer Information

| | |
|--------------|-----------------------------------------------------------------------------|
| Company Name | Shanghai Sunmi Technology Co.,Ltd. |
| Address | Room 505, KIC Plaza, No.388 Song Hu Road, Yang Pu District, Shanghai, China |
| Telephone | +86 18721763396 |

3. Equipment under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

| | |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product Name | Handheld Wireless Terminal |
| Model name | T8911 |
| Supported Radio Technology and Bands | GSM850/GSM900/GSM1800/GSM1900 WCDMA Band I /Band II /BandIV/Band V /BandVIII CDMA Band BC0/BC1/BC10 LTE 1/2/3/4/5/7/12/13/14/17/18/19/25/26/28/38/41/66/71 LTE CA Up Link 2CA: 7C,41C BT5.0 WLAN 802.11b,g,n WLAN 802.11a,n,ac NFC GPS GLONASS Galileo BDS |
| Hardware Version | V1.02 |
| Software Version | V01_T46 |
| FCC ID | 2AH25T8911 |
| IC | 22621-T8911 |
| Extreme Temperature | -20°C~55°C |
| Nominal Voltage | 3.8V |
| Extreme High Voltage | 4.2V |
| Extreme Low Voltage | 3.5V |

3.2. Internal Identification of EUT used during the test

| EUT ID* | SN or IMEI | HW Version | SW Version | Date of receipt |
|---------|------------------------------------|------------|------------|-----------------|
| N01 | 864679050005368 864679050014659 | V1.02 | V01_T46 | 2021-06-04 |
| N03 | 864679050005749 864679050015037 | V1.02 | V01_T46 | 2021-06-04 |
| N05 | 864679050005574 864679050014865 | V1.02 | V01_T46 | 2021-06-04 |

*EUT ID: is internally used to identify the test sample in the lab.



3.3. Internal Identification of AE used during the test

| AE ID* | Description | Model | SN/Remark |
|--------|-------------|-------|-----------|
| AE1 | RF cable | N/A | N/A |

*AE ID: is internally used to identify the test sample in the lab.

4. Reference Documents

4.1. Reference Documents for testing

The following documents listed in this section are referred for testing.

| Reference | Title | Version |
|-----------------|-----------------------------------------------------------------------------------------------------------------|------------|
| FCC Part 2 | FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS | 2018-10-01 |
| FCC Part 22 | PUBLIC MOBILE SERVICES | 2018-10-01 |
| FCC Part 24 | PERSONAL COMMUNICATIONS SERVICES | 2018-10-01 |
| FCC Part 27 | MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES | 2018-10-01 |
| FCC Part 90 | PRIVATE LAND MOBILE RADIO SERVICES | 2018-10-01 |
| ANSI/TIA-603-E | Land Mobile FM or PM Communications Equipment Measurement and Performance Standards | 2016 |
| ANSI C63.26 | American National Standard of Procedures for Compliance Testing of Licensed Transmitters Used in Licensed Radio | 2015 |
| KDB 971168 D01 | Measurement Guidance for Certification of Licensed Digital Transmitters | v03r01 |
| RSS-Gen Issue 5 | RSS-Gen —General Requirements for Compliance of Radio Apparatus | 2019-03 |
| RSS-130 Issue 2 | Equipment Operating in the Frequency Bands 617-652 MHz, 663-698 MHz, 698-756 MHz and 777-787 MHz | 2019-01 |
| RSS-132 Issue 3 | Cellular Telephone Systems Operating in the Bands 824-849 MHz and 869-894 MHz | 2013-01 |
| RSS-133 Issue 6 | 2 GHz Personal Communications Services | 2018-01 |
| RSS-139 Issue 3 | Advanced Wireless Services (AWS) Equipment Operating in the Bands 1710-1780 MHz and 2110-2180 MHz | 2015-07 |
| RSS-199 Issue 3 | Broadband Radio Service (BRS) Equipment Operating in the Band 2500–2690 MHz | 2016-12 |



4.2. Reference Information from client

Antenna gain Information of the test sample provided by Shanghai Sunmi Technology Co., Ltd.

Antenna Gain:

| | | |
|--------------------|---------------------|--------------------|
| LTE B2: 0.13 dBi | LTE B13:-3.07 dBi | LTE B41 : 2.45 dBi |
| LTE B4: 0.21 dBi | LTE B17:-3.54 dBi | LTE B66 : 0.21 dBi |
| LTE B5: -1.74 dBi | LTE B25 : 0.24 dBi | LTE B71 : -5.1 dBi |
| LTE B7: 2.94 dBi | LTE B26 : -1.77 dBi | |
| LTE B12: -3.14 dBi | LTE B38 : 2.67 dBi | |

5. Test Summary

5.1. Summary of Test Results

LTE Band 2

| Items | Test Name | Clause in FCC rules | Sub-clause of IC | Verdict |
|-------|-----------------------------|---------------------|------------------|---------|
| 1 | Output Power | 24.232(c) | RSS-133 6.4 | Pass |
| 2 | Emission Limit | 24.238(a), 2.1051 | RSS-133 6.5 | Pass |
| 3 | Frequency Stability | 24.235, 2.1055 | RSS-133 6.3 | Pass |
| 4 | Occupied Bandwidth | 2.1049(h)(i) | RSS-133 6.6 | Pass |
| 5 | Emission Bandwidth | 24.238(a) | RSS-133 6.6 | Pass |
| 6 | Band Edge Compliance | 24.238(a) | RSS-133 6.5 | Pass |
| 7 | Conducted Spurious Emission | 24.238, 2.1057 | RSS-133 6.13/6.5 | Pass |
| 8 | Peak to Average Power Ratio | 24.232 (d) | RSS-133 6.4 | Pass |

LTE Band 4

| Items | Test Name | Clause in FCC rules | Sub-clause of IC | Verdict |
|-------|-----------------------------|---------------------|------------------|---------|
| 1 | Output Power | 27.50(d)(4) | RSS-139 6.5 | Pass |
| 2 | Emission Limit | 27.53(h), 2.1051 | RSS-139 6.6 | Pass |
| 3 | Frequency Stability | 27.54, 2.1055 | RSS-139 6.4 | Pass |
| 4 | Occupied Bandwidth | 2.1049(h)(i) | RSS-139 6.6 | Pass |
| 5 | Emission Bandwidth | 27.53(h) | RSS-139 6.6 | Pass |
| 6 | Band Edge Compliance | 27.53(h) | RSS-139 6.6 | Pass |
| 7 | Conducted Spurious Emission | 27.53(h), 2.1057 | RSS-139 6.6 | Pass |
| 8 | Peak to Average Power Ratio | 27.50(a) | RSS-139 6.5 | Pass |

LTE Band 5

| Items | Test Name | Clause in FCC rules | Sub-clause of IC | Verdict |
|-------|----------------------|-------------------------|------------------|---------|
| 1 | Output Power | 2.1046(a), 22.913(a) | RSS-132 5.4 | Pass |
| 2 | Emission Limit | 22.917, 2.1051 | RSS-132 6.6 | Pass |
| 3 | Frequency Stability | 22.235, 2.1055 | RSS-132 5.3 | Pass |
| 4 | Occupied Bandwidth | 2.1049(h)(i) | RSS-132 6.6 | Pass |
| 5 | Emission Bandwidth | 22.917(b) | RSS-132 6.6 | Pass |
| 6 | Band Edge Compliance | 22.917(b) | RSS-132 5.5 | Pass |

| | | | | |
|---|-----------------------------|----------------|-------------|------|
| 7 | Conducted Spurious Emission | 22.917, 2.1057 | RSS-132 5.5 | Pass |
|---|-----------------------------|----------------|-------------|------|

LTE Band 7

| Items | Test Name | Clause in FCC rules | Sub-clause of IC | Verdict |
|-------|-----------------------------|---------------------|------------------|---------|
| 1 | Output Power | 27.50(d)(4) | RSS-199 4.4 | Pass |
| 2 | Emission Limit | 27.53(h), 2.1051 | RSS-199 4.5 | Pass |
| 3 | Frequency Stability | 27.54, 2.1055 | RSS-199 4.3 | Pass |
| 4 | Occupied Bandwidth | 2.1049(h)(i) | RSS-199 4.2 | Pass |
| 5 | Emission Bandwidth | 27.53(h) | RSS-199 4.5 | Pass |
| 6 | Band Edge Compliance | 27.53(h) | RSS-199 4.5 | Pass |
| 7 | Conducted Spurious Emission | 27.53(h), 2.1057 | RSS-199 4.5 | Pass |
| 8 | Peak to Average Power Ratio | 27.50(a) | RSS-199 4.4 | Pass |

LTE Band 12

| Items | Test Name | Clause in FCC rules | Sub-clause of IC | Verdict |
|-------|-----------------------------|---------------------|------------------|---------|
| 1 | Output Power | 27.50(d)(4) | RSS-130 4.6 | Pass |
| 2 | Emission Limit | 27.53(h), 2.1051 | RSS-130 4.7 | Pass |
| 3 | Frequency Stability | 27.54, 2.1055 | RSS-130 4.5 | Pass |
| 4 | Occupied Bandwidth | 2.1049(h)(i) | RSS-130 4.5 | Pass |
| 5 | Emission Bandwidth | 27.53(h) | RSS-130 4.7 | Pass |
| 6 | Band Edge Compliance | 27.53(h) | RSS-130 4.7 | Pass |
| 7 | Conducted Spurious Emission | 27.53(h), 2.1057 | RSS-130 4.7 | Pass |
| 8 | Peak to Average Power Ratio | 27.50(a) | RSS-130 4.6 | Pass |

LTE Band 13

| Items | Test Name | Clause in FCC rules | Sub-clause of IC | Verdict |
|-------|-----------------------------|---------------------|------------------|---------|
| 1 | Output Power | 27.50(c)(10) | RSS-130 4.6 | Pass |
| 2 | Emission Limit | 27.53(g),2.1051 | RSS-130 4.7 | Pass |
| 3 | Frequency Stability | 27.54, 2.1055 | RSS-130 4.5 | Pass |
| 4 | Occupied Bandwidth | 2.1049(h)(i) | RSS-130 4.2 | Pass |
| 5 | Emission Bandwidth | 27.53(g) | RSS-130 6.7 | Pass |
| 6 | Band Edge Compliance | 27.53(g) | RSS-130 4.7 | Pass |
| 7 | Conducted Spurious Emission | 27.53(g),2.1057 | RSS-130 4.7 | Pass |
| 8 | Peak to AveragePower Ratio | 27.50(a) | RSS-130 4.4 | Pass |

LTE Band 14

| Items | Test Name | Clause in FCC rules | Sub-clause of IC | Verdict |
|-------|-----------------------------|---------------------|------------------|---------|
| 1 | Output Power | 2.1046, 90.541 | N/A | Pass |
| 2 | Emission Limit | 2.1053,90.543(e) | N/A | Pass |
| 3 | Frequency Stability | 2.1055,90.539(e) | N/A | Pass |
| 4 | Occupied Bandwidth | 2.1049 | N/A | Pass |
| 5 | Emission Bandwidth | 90.543(e) | N/A | Pass |
| 6 | Band Edge Compliance | 2.1051,90.543(e) | N/A | Pass |
| 7 | Conducted Spurious Emission | 90.543(e) | N/A | Pass |
| 8 | Peak to AveragePower Ratio | 90.541 | N/A | Pass |

LTE Band 17

| Items | Test Name | Clause in FCC rules | Sub-clause of IC | Verdict |
|-------|-----------------------------|---------------------|------------------|---------|
| 1 | Output Power | 27.50(d)(4) | RSS-130 4.6 | Pass |
| 2 | Emission Limit | 27.53(h), 2.1051 | RSS-130 4.7 | Pass |
| 3 | Frequency Stability | 27.54, 2.1055 | RSS-130 4.5 | Pass |
| 4 | Occupied Bandwidth | 2.1049(h)(i) | RSS-130 4.5 | Pass |
| 5 | Emission Bandwidth | 27.53(h) | RSS-130 4.7 | Pass |
| 6 | Band Edge Compliance | 27.53(h) | RSS-130 4.7 | Pass |
| 7 | Conducted Spurious Emission | 27.53(h), 2.1057 | RSS-130 4.7 | Pass |
| 8 | Peak to Average Power Ratio | 27.50(a) | RSS-130 4.6 | Pass |

LTE Band 25

| Items | Test Name | Clause in FCC rules | Sub-clause of IC | Verdict |
|-------|-----------------------------|---------------------|------------------|---------|
| 1 | Output Power | 2.1046/24.232 | RSS-133 6.4 | Pass |
| 2 | Emission Limit | 2.1053/24.238 | RSS-133 6.5 | Pass |
| 3 | Frequency Stability | 2.1055/24.235 | RSS-133 6.3 | Pass |
| 4 | Occupied Bandwidth | 2.1049/24.238 | RSS-133 6.6 | Pass |
| 5 | Emission Bandwidth | 2.1049/24.238 | RSS-133 6.6 | Pass |
| 6 | Band Edge Compliance | 2.1049/24.238 | RSS-133 6.5 | Pass |
| 7 | Conducted Spurious Emission | 2.1049/24.238 | RSS-133 6.13/6.5 | Pass |
| 8 | Peak to Average Power Ratio | 2.1049/24.238 | RSS-133 6.4 | Pass |

LTE Band 26(Part 22)

| Items | Test Name | Clause in FCC rules | Sub-clause of IC | Verdict |
|-------|-----------------------------|-------------------------|------------------|---------|
| 1 | Output Power | 2.1046(a), 22.913(a) | RSS-132 5.4 | Pass |
| 2 | Emission Limit | 22.917, 2.1051 | RSS-132 6.6 | Pass |
| 3 | Frequency Stability | 22.235, 2.1055 | RSS-132 5.3 | Pass |
| 4 | Occupied Bandwidth | 2.1049(h)(i) | RSS-132 6.6 | Pass |
| 5 | Emission Bandwidth | 22.917(b) | RSS-132 6.6 | Pass |
| 6 | Band Edge Compliance | 22.917(b) | RSS-132 5.5 | Pass |
| 7 | Conducted Spurious Emission | 22.917, 2.1057 | RSS-132 5.5 | Pass |

LTE Band 38

| Items | Test Name | Clause in FCC rules | Sub-clause of IC | Verdict |
|-------|-----------------------------|---------------------|------------------|---------|
| 1 | Output Power | 27.50(d)(4) | RSS-199 4.4 | Pass |
| 2 | Emission Limit | 27.53(h), 2.1051 | RSS-199 4.5 | Pass |
| 3 | Frequency Stability | 27.54, 2.1055 | RSS-199 4.3 | Pass |
| 4 | Occupied Bandwidth | 2.1049(h)(i) | RSS-199 4.2 | Pass |
| 5 | Emission Bandwidth | 27.53(h) | RSS-199 4.5 | Pass |
| 6 | Band Edge Compliance | 27.53(h) | RSS-199 4.5 | Pass |
| 7 | Conducted Spurious Emission | 27.53(h), 2.1057 | RSS-199 4.5 | Pass |
| 8 | Peak to Average Power Ratio | 27.50(a) | RSS-199 4.4 | Pass |

LTE Band 41

| Items | Test Name | Clause in FCC rules | Sub-clause of IC | Verdict |
|-------|-----------------------------|---------------------|------------------|---------|
| 1 | Output Power | 27.50(d)(4) | RSS-199 4.4 | Pass |
| 2 | Emission Limit | 27.53(h), 2.1051 | RSS-199 4.5 | Pass |
| 3 | Frequency Stability | 27.54, 2.1055 | RSS-199 4.3 | Pass |
| 4 | Occupied Bandwidth | 2.1049(h)(i) | RSS-199 4.2 | Pass |
| 5 | Emission Bandwidth | 27.53(h) | RSS-199 4.5 | Pass |
| 6 | Band Edge Compliance | 27.53(h) | RSS-199 4.5 | Pass |
| 7 | Conducted Spurious Emission | 27.53(h), 2.1057 | RSS-199 4.5 | Pass |
| 8 | Peak to Average Power Ratio | 27.50(a) | RSS-199 4.4 | Pass |

LTE Band 66

| Items | Test Name | Clause in FCC rules | Sub-clause of IC | Verdict |
|-------|-----------------------------|---------------------|------------------|---------|
| 1 | Output Power | 27.50(d)(4) | RSS-139 6.5 | Pass |
| 2 | Emission Limit | 27.53(h), 2.1051 | RSS-139 6.6 | Pass |
| 3 | Frequency Stability | 27.54, 2.1055 | RSS-139 6.4 | Pass |
| 4 | Occupied Bandwidth | 2.1049(h)(i) | RSS-139 6.6 | Pass |
| 5 | Emission Bandwidth | 27.53(h) | RSS-139 6.6 | Pass |
| 6 | Band Edge Compliance | 27.53(h) | RSS-139 6.6 | Pass |
| 7 | Conducted Spurious Emission | 27.53(h), 2.1057 | RSS-139 6.6 | Pass |
| 8 | Peak to Average Power Ratio | 27.50(a) | RSS-139 6.5 | Pass |

LTE Band 71

| Items | Test Name | Clause in FCC rules | Sub-clause of IC | Verdict |
|-------|-----------------------------|---------------------|------------------|---------|
| 1 | Output Power | 27.50(c)(10) | RSS-130 4.6 | Pass |
| 2 | Emission Limit | 27.53(g),2.1051 | RSS-130 4.7 | Pass |
| 3 | Frequency Stability | 27.54, 2.1055 | RSS-130 4.5 | Pass |
| 4 | Occupied Bandwidth | 2.1049(h)(i) | RSS-130 4.2 | Pass |
| 5 | Emission Bandwidth | 27.53(g) | RSS-130 6.7 | Pass |
| 6 | Band Edge Compliance | 27.53(g) | RSS-130 4.7 | Pass |
| 7 | Conducted Spurious Emission | 27.53(g),2.1057 | RSS-130 4.7 | Pass |
| 8 | Peak to Average Power Ratio | 27.50(a) | 4.4 | Pass |

Test Conditions

| | |
|------|--------------------|
| Tnom | Normal Temperature |
| Tmin | Low Temperature |
| Tmax | High Temperature |
| Vnom | Normal Voltage |
| Vmin | Low Voltage |
| Vmax | High Voltage |
| Hnom | Norm Humidity |
| Anom | Norm Air Pressure |

For this report, all the test case listed above are tested under Normal Temperature and Normal Voltage, and also under norm humidity, the specific conditions as following:



| | | |
|--------------|------|---------|
| Temperature | Tnom | 25°C |
| Voltage | Vnom | 3.80V |
| Humidity | Hnom | 48% |
| Air Pressure | Anom | 1010hPa |

5.2. Statements

The T8911, manufactured by Shanghai Sunmi Technology Co., Ltd. is a new product for testing.

The test data in the report conform to current IC valid standards.

Industrial Internet Innovation Center (Shanghai) Co., Ltd. only performed test cases which identified with Pass/Fail/Inc result in section 5.1.

Industrial Internet Innovation Center (Shanghai) Co., Ltd. has verified that the compliance of the tested device specified in section 3 of this test report is successfully evaluated according to the procedure and test methods as defined in type certification requirement listed in section 4 of this test report.

6. Measurement Results

Shielding Room1 (6.0 meters×3.0 meters×2.7 meters) did not exceed following limits along the conducted RF performance testing:

| | |
|--------------------------|----------------------------|
| Temperature | Min. = 15 °C, Max. = 35 °C |
| Relative humidity | Min. = 20 %, Max. = 75 % |
| Shielding effectiveness | > 100 dB |
| Ground system resistance | < 0.5 Ω |
| Temperature | Min. = 15 °C, Max. = 35 °C |

Control room did not exceed following limits along the EMC testing:

| | |
|--------------------------|----------------------------|
| Temperature | Min. = 15 °C, Max. = 35 °C |
| Relative humidity | Min. =30 %, Max. = 60 % |
| Shielding effectiveness | > 100 dB |
| Electrical insulation | > 10 kΩ |
| Ground system resistance | < 0.5 Ω |

Fully-anechoic chamber1 (6.9 meters×10.9 meters×5.4 meters) did not exceed following limits along the EMC testing:

| | |
|------------------------------|--------------------------------------------|
| Temperature | Min. = 15 °C, Max. = 35 °C |
| Relative humidity | Min. = 25 %, Max. = 75 % |
| Shielding effectiveness | > 100 dB |
| Electrical insulation | > 10 kΩ |
| Ground system resistance | < 0.5 Ω |
| VSWR | Between 0 and 6 dB, from 1GHz to 18GHz |
| Site Attenuation Deviation | Between -4 and 4 dB,30MHz to 1GHz |
| Uniformity of field strength | Between 0 and 6 dB, from 80MHz to 3000 MHz |

6.1. Emission Limit

Reference

Rule RSS-132 6.6; Rule RSS-133 6.5; Rule RSS-139 (6.5)

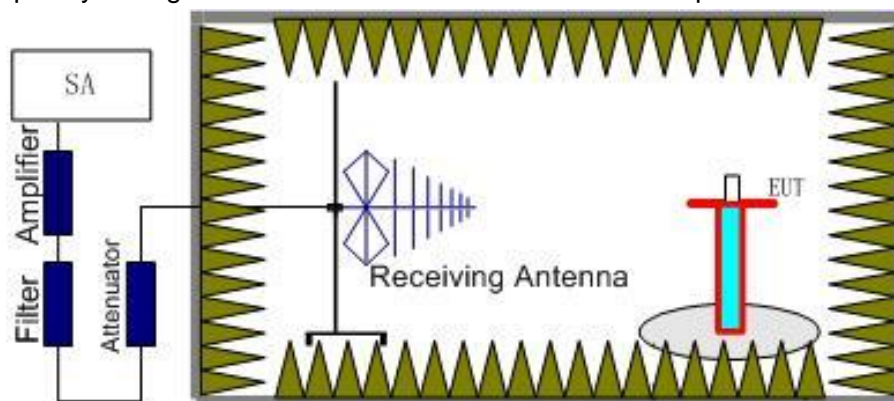
6.1.1 Measurement Method

The measurements procedures in TIA-603E-2016 are used. This measurement is carried out in fully-anechoic chamber FAC-3.

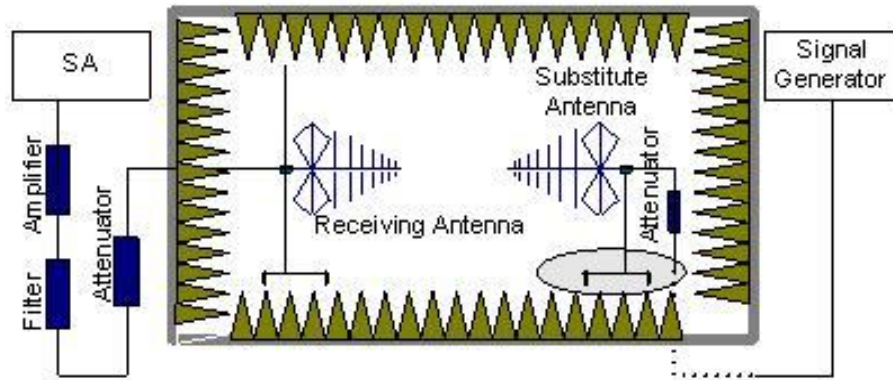
The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier. The resolution bandwidth is set 1MHz as outlined in Part 27.53(g), Part 27.53(h), Part 27.53(m). The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to low, mid and high channels of the LTE Bands 7.

The procedure of radiated spurious emissions is as follows:

- Below 1 GHz, EUT was placed on a 0.8 meter high non-conductive stand at a 3 meter test distance from the receive antenna. Above 1 GHz, EUT was placed on a 1.5 meter high non-conductive stand at a 3 meter test distance from the receive antenna. EUT was placed on a 1.5 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna is 1.5m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10th harmonic were measured with peak detector.



- The EUT is then put into continuously transmitting mode at its maximum power level during the test. And the maximum value of the receiver should be recorded as (Pr).
- The EUT shall be replaced by a substitution antenna. The test setup refers to figure below.



In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (P_{Mea}) is applied to the input of the substitution antenna. Adjust the level of the signal generator output until the value of the receiver reaches the previously recorded (P_r). The power of signal source (P_{Mea}) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

4. The Path loss (P_{pl}) between the Signal Source with the Substitution Antenna and the Substitution Antenna Gain (G_a) should be recorded after test.

An amplifier should be connected in for the test.

The Path loss (P_{pl}) is the summation of the cable loss and the gain of the amplifier.

The measurement results are obtained as described below:

$$\text{Power (EIRP)} = P_{Mea} - P_{pl} + G_a$$

5. This value is EIRP since the measurement is calibrated using an antenna of known gain (unit: dBi) and known input power.
6. ERP can be calculated from EIRP by subtracting the gain of the dipole, $ERP = EIRP - 2.15\text{dBi}$.

6.1.2 Measurement Limit

Rule RSS-132 6.6 specifies that " In the 1.0 MHz bands immediately outside and adjacent to the equipment's operating frequency block, the emission power per any 1% of the emission bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10} p(\text{watts})$.

After the first 1.0 MHz, the emission power in any 1 MHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10} p(\text{watts})$. If the measurement is performed using 1% of the emission bandwidth, power integration over 1.0 MHz is required." Limit -13 dBm

Rule RSS-133 6.5 specifies that " In the 1.0 MHz bands immediately outside and adjacent to the equipment's operating frequency block, the emission power per any 1% of the emission bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10} p(\text{watts})$.

After the first 1.0 MHz, the emission power in any 1 MHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10} p(\text{watts})$. If the measurement is performed using 1% of the emission bandwidth, power integration over 1.0 MHz is required." Limit -13 dBm

Rule RSS-139 (6.5) specifies that "The equivalent isotropically radiated power (e.i.r.p.) for mobile and portable transmitters shall not exceed one watt."

$$\text{Limit} \leq 1 \text{ W } (30 \text{ dBm})$$

6.1.3 Measurement Results

Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies of the LTE Bands 7. It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of the LTE Bands 7. Into any of the other blocks. The equipment must still, however, meet emissions requirements with the carrier at all frequencies over which it is capable of operating and it is the manufacturer's responsibility to verify this. The evaluated frequency range is from 30MHz to 26GHz.

| BAND | Channel | | Result |
|------|---------|-------|--------|
| 2 | L | 18607 | Pass |
| | M | 18900 | Pass |
| | H | 19193 | Pass |
| 4 | L | 19957 | Pass |
| | M | 20175 | Pass |
| | H | 20393 | Pass |
| 5 | L | 20407 | Pass |
| | M | 20525 | Pass |
| | H | 20643 | Pass |
| 7 | L | 20775 | Pass |
| | M | 21100 | Pass |
| | H | 21425 | Pass |
| 12 | L | 23017 | Pass |
| | M | 23095 | Pass |
| | H | 23173 | Pass |
| 13 | L | 23205 | Pass |
| | M | 23230 | Pass |
| | H | 23255 | Pass |
| 14 | L | 23305 | Pass |
| | M | 23330 | Pass |
| | H | 23355 | Pass |

| | | | |
|----|---|--------|------|
| 17 | L | 23755 | Pass |
| | M | 23790 | Pass |
| | H | 23825 | Pass |
| 25 | L | 26047 | Pass |
| | M | 26365 | Pass |
| | H | 26683 | Pass |
| 26 | L | 27033 | Pass |
| | M | 26915 | Pass |
| | H | 26797 | Pass |
| 38 | L | 37775 | Pass |
| | M | 38000 | Pass |
| | H | 38225 | Pass |
| 41 | L | 40065 | Pass |
| | M | 40640 | Pass |
| | H | 41215 | Pass |
| 66 | L | 131979 | Pass |
| | M | 132322 | Pass |
| | H | 132665 | Pass |
| 71 | L | 133147 | Pass |
| | M | 133297 | Pass |
| | H | 133447 | Pass |



RSE-LTE2-L

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 3700.0 | -54.5 | 6.6 | 7.9 | -53.2 | -13 | V |
| 5496.4 | -52.44 | 8.2 | 9.8 | -50.84 | -13 | H |
| 7412.0 | -52.78 | 9.7 | 11.6 | -50.88 | -13 | H |
| 9255.6 | -48.67 | 10.7 | 12.7 | -46.67 | -13 | V |
| 11098.0 | -46.61 | 12.1 | 12.3 | -46.41 | -13 | H |
| 12906.8 | -44.61 | 13.0 | 12.3 | -45.31 | -13 | H |

RSE-LTE2-M

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 3709.2 | -53.77 | 6.6 | 7.9 | -52.47 | -13 | H |
| 5608.0 | -53.13 | 8.3 | 9.8 | -51.63 | -13 | V |
| 7502.4 | -52.13 | 9.7 | 11.6 | -50.23 | -13 | V |
| 9338.0 | -49.67 | 10.7 | 12.7 | -47.67 | -13 | V |
| 11457.8 | -45.75 | 12.3 | 12.3 | -45.75 | -13 | V |
| 13317.0 | -43.34 | 13.6 | 12.3 | -44.64 | -13 | H |

RSE-LTE2-H

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 3803.2 | -54.12 | 6.7 | 7.9 | -52.92 | -13 | V |
| 5763.2 | -52.29 | 8.5 | 10.2 | -50.59 | -13 | V |
| 7626.8 | -52.34 | 9.7 | 11.8 | -50.24 | -13 | V |
| 9528.4 | -50.19 | 10.7 | 12.7 | -48.19 | -13 | H |
| 11417.2 | -47.47 | 12.1 | 12.3 | -47.27 | -13 | V |
| 13416.4 | -43.22 | 13.7 | 12.3 | -44.62 | -13 | H |

RSE-LTE4-L

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 3420.4 | -50.52 | 6.3 | 7.8 | -49.02 | -13 | V |

| | | | | | | |
|---------|--------|------|------|--------|-----|---|
| 5130.8 | -45.12 | 7.9 | 9.4 | -43.62 | -13 | H |
| 6840.8 | -25.69 | 9.2 | 10.9 | -23.99 | -13 | V |
| 8550.8 | -42.15 | 10.3 | 12.6 | -39.85 | -13 | H |
| 10261.6 | -34.83 | 11.5 | 12.3 | -34.03 | -13 | V |
| 11971.6 | -35.2 | 12.6 | 12.3 | -35.5 | -13 | H |

RSE-LTE4-M

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 3464.0 | -48.47 | 6.4 | 7.8 | -47.07 | -13 | V |
| 5196.4 | -44.84 | 8.0 | 9.4 | -43.44 | -13 | H |
| 6928.4 | -25.39 | 9.3 | 11.1 | -23.59 | -13 | V |
| 8660.0 | -40.72 | 10.3 | 12.7 | -38.32 | -13 | H |
| 10392.4 | -32.81 | 11.6 | 12.3 | -32.11 | -13 | H |
| 12124.2 | -34.04 | 12.6 | 12.3 | -34.34 | -13 | V |

RSE-LTE4-H

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 3507.2 | -43.81 | 6.4 | 7.8 | -42.41 | -13 | V |
| 5261.6 | -41.85 | 8.0 | 9.4 | -40.45 | -13 | V |
| 7016.0 | -34.69 | 9.3 | 11.1 | -32.89 | -13 | V |
| 8769.2 | -37.55 | 10.4 | 12.7 | -35.25 | -13 | H |
| 10523.2 | -31.34 | 11.6 | 12.3 | -30.64 | -13 | H |
| 12276.8 | -25.89 | 12.7 | 12.3 | -26.29 | -13 | H |

RSE-LTE5-L

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 1711.3 | -48.52 | 4.5 | 4.7 | -48.32 | -13 | V |
| 2406.2 | -40.79 | 5.3 | 5.6 | -40.49 | -13 | H |
| 3341.6 | -52.54 | 6.2 | 6.9 | -51.84 | -13 | H |
| 4105.2 | -54.53 | 7.0 | 8.6 | -52.93 | -13 | H |

| | | | | | | |
|--------|--------|-----|------|--------|-----|---|
| 4928.8 | -52.71 | 7.7 | 9.6 | -50.81 | -13 | V |
| 5744.4 | -53.48 | 8.5 | 10.2 | -51.78 | -13 | V |

RSE-LTE5-M

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 1611.6 | -52.98 | 4.2 | 5.3 | -51.88 | -13 | V |
| 2933.8 | -41.2 | 5.8 | 6.7 | -40.3 | -13 | H |
| 3304.4 | -53.48 | 6.2 | 6.9 | -52.78 | -13 | H |
| 4116.4 | -54.78 | 7.0 | 8.6 | -53.18 | -13 | V |
| 5037.6 | -54.42 | 7.8 | 9.6 | -52.62 | -13 | H |
| 5820.8 | -54.31 | 8.4 | 10.2 | -52.51 | -13 | V |

RSE-LTE5-H

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 1715.8 | -48.79 | 4.5 | 4.7 | -48.59 | -13 | H |
| 2491.5 | -43.7 | 5.4 | 5.6 | -43.5 | -13 | H |
| 3346.8 | -52.2 | 6.2 | 6.9 | -51.5 | -13 | H |
| 4197.6 | -53.86 | 7.0 | 8.9 | -51.96 | -13 | V |
| 5086.8 | -50.9 | 7.9 | 9.6 | -49.2 | -13 | V |
| 5899.2 | -53.08 | 8.5 | 10.2 | -51.38 | -13 | V |

RSE-LTE7-L

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 3812.4 | -50.84 | 6.7 | 7.9 | -49.64 | -25 | H |
| 5000.4 | -30.38 | 7.8 | 9.6 | -28.58 | -25 | H |
| 7500.8 | -36.33 | 9.7 | 11.6 | -34.43 | -25 | H |
| 10001.6 | -29.87 | 11.2 | 12.5 | -28.57 | -25 | H |
| 12501.5 | -28.93 | 12.7 | 12.3 | -29.33 | -25 | H |
| 15002.2 | -31.88 | 14.4 | 12.3 | -33.98 | -25 | V |

**RSE-LTE7-M**

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 3849.6 | -50.97 | 6.7 | 7.9 | -49.77 | -25 | H |
| 5065.6 | -30.6 | 7.8 | 9.6 | -28.8 | -25 | H |
| 7598.4 | -37.48 | 9.7 | 11.6 | -35.58 | -25 | H |
| 10130.8 | -32.82 | 11.3 | 12.5 | -31.62 | -25 | H |
| 12664.2 | -30.31 | 12.7 | 12.3 | -30.71 | -25 | H |
| 15196.5 | -29.24 | 14.5 | 12.3 | -31.44 | -25 | V |

RSE-LTE7-H

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 3859.2 | -50.66 | 6.7 | 7.9 | -49.46 | -25 | V |
| 5130.8 | -26.34 | 7.9 | 9.4 | -24.84 | -25 | H |
| 7696.0 | -38.53 | 9.8 | 11.8 | -36.53 | -25 | H |
| 10261.6 | -32.34 | 11.5 | 12.3 | -31.54 | -25 | H |
| 12825.2 | -31.45 | 12.5 | 12.3 | -31.65 | -25 | H |
| 15392.5 | -30.29 | 14.4 | 12.3 | -32.39 | -25 | H |

RSE-LTE12-L

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 1358.6 | -52.35 | 3.9 | 3.0 | -53.25 | -13 | V |
| 2426.5 | -41.63 | 5.3 | 5.6 | -41.33 | -13 | H |
| 2906.9 | -41.15 | 5.8 | 6.7 | -40.25 | -13 | V |
| 3562.4 | -53.83 | 6.4 | 7.8 | -52.43 | -13 | H |
| 4445.2 | -53.09 | 7.3 | 8.7 | -51.69 | -13 | H |
| 5594.0 | -50.94 | 8.3 | 9.8 | -49.44 | -13 | H |

RSE-LTE12-M

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 1417.4 | -54.07 | 4.0 | 5.3 | -52.77 | -13 | H |

| | | | | | | |
|--------|--------|-----|-----|--------|-----|---|
| 2410.8 | -33.5 | 5.3 | 5.6 | -33.2 | -13 | V |
| 2889.6 | -41.5 | 5.8 | 6.7 | -40.6 | -13 | V |
| 3590.8 | -53.21 | 6.5 | 7.8 | -51.91 | -13 | V |
| 4033.6 | -53.88 | 6.9 | 8.6 | -52.18 | -13 | H |
| 4925.2 | -53.17 | 7.7 | 9.6 | -51.27 | -13 | H |

RSE-LTE12-H

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 1431.3 | -51.1 | 4.1 | 5.3 | -49.9 | -13 | H |
| 2116.5 | -46.61 | 4.9 | 4.5 | -47.01 | -13 | H |
| 2892.7 | -41.37 | 5.8 | 6.7 | -40.47 | -13 | H |
| 3502.8 | -54.13 | 6.4 | 7.8 | -52.73 | -13 | H |
| 4011.2 | -53.65 | 6.9 | 8.6 | -51.95 | -13 | V |
| 4968.0 | -54.1 | 7.7 | 9.6 | -52.2 | -13 | H |

RSE-LTE13-L

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 1564.2 | -51.72 | 4.2 | 5.3 | -50.62 | -13 | H |
| 2415.8 | -42.01 | 5.3 | 5.6 | -41.71 | -13 | H |
| 3117.2 | -52.66 | 6.0 | 6.7 | -51.96 | -13 | V |
| 3528.8 | -54.61 | 6.4 | 7.8 | -53.21 | -13 | H |
| 4101.2 | -54.4 | 7.0 | 8.6 | -52.8 | -13 | V |
| 4902.0 | -53.98 | 7.7 | 9.6 | -52.08 | -13 | V |

RSE-LTE13-M

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 1529.6 | -52.21 | 4.2 | 5.3 | -51.11 | -13 | H |
| 2883.5 | -41.45 | 5.8 | 6.7 | -40.55 | -13 | V |
| 3110.4 | -53.03 | 6.0 | 6.7 | -52.33 | -13 | V |
| 3860.0 | -52.4 | 6.7 | 7.9 | -51.2 | -13 | H |

| | | | | | | |
|--------|--------|-----|-----|--------|-----|---|
| 4200.8 | -53.81 | 7.0 | 8.9 | -51.91 | -13 | V |
| 4912.8 | -53.43 | 7.7 | 9.6 | -51.53 | -13 | H |

RSE-LTE13-H

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 1405.0 | -54.65 | 4.0 | 5.3 | -53.35 | -13 | H |
| 2111.2 | -46.01 | 4.9 | 4.5 | -46.41 | -13 | V |
| 2914.2 | -42.09 | 5.8 | 6.7 | -41.19 | -13 | V |
| 3509.6 | -54.96 | 6.4 | 7.8 | -53.56 | -13 | H |
| 4215.2 | -54.51 | 7.0 | 8.9 | -52.61 | -13 | V |
| 5087.6 | -52.79 | 7.9 | 9.6 | -51.09 | -13 | H |

RSE-LTE14-L

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 1586.0 | -53.73 | 4.2 | 5.3 | -52.63 | -13 | V |
| 2413.5 | -41.58 | 5.3 | 5.6 | -41.28 | -13 | V |
| 3153.2 | -52.94 | 6.0 | 6.9 | -52.04 | -13 | H |
| 3949.2 | -53.47 | 6.8 | 8.6 | -51.67 | -13 | H |
| 4700.0 | -53.8 | 7.5 | 9.0 | -52.3 | -13 | H |
| 5558.4 | -52.85 | 8.2 | 9.8 | -51.25 | -13 | H |

RSE-LTE14-M

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 1501.9 | -53.39 | 4.1 | 5.3 | -52.19 | -13 | H |
| 2446.9 | -40.61 | 5.3 | 5.6 | -40.31 | -13 | V |
| 3158.0 | -52.51 | 6.0 | 6.9 | -51.61 | -13 | H |
| 3956.8 | -53.49 | 6.8 | 8.6 | -51.69 | -13 | H |
| 4701.2 | -53.46 | 7.5 | 9.0 | -51.96 | -13 | H |
| 5494.0 | -52.88 | 8.2 | 9.8 | -51.28 | -13 | H |

RSE-LTE14-H

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 1499.1 | -53.11 | 4.1 | 5.3 | -51.91 | -13 | V |
| 2432.3 | -43.51 | 5.3 | 5.6 | -43.21 | -13 | H |
| 3121.6 | -54.41 | 6.0 | 6.7 | -53.71 | -13 | H |
| 3918.4 | -54.44 | 6.8 | 8.6 | -52.64 | -13 | H |
| 4759.6 | -52.89 | 7.5 | 9.0 | -51.39 | -13 | V |
| 5553.2 | -51.22 | 8.2 | 9.8 | -49.62 | -13 | H |

RSE-LTE17-L

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 1728.6 | -45.61 | 4.5 | 4.7 | -45.41 | -13 | H |
| 2138.8 | -46.26 | 5.0 | 5.1 | -46.16 | -13 | H |
| 2820.8 | -41.17 | 5.7 | 6.1 | -40.77 | -13 | H |
| 3502.4 | -55.16 | 6.4 | 7.8 | -53.76 | -13 | V |
| 4040.0 | -54.22 | 6.9 | 8.6 | -52.52 | -13 | H |
| 4813.2 | -52.4 | 7.6 | 9.0 | -51 | -13 | H |

RSE-LTE17-M

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 1400.1 | -54.42 | 4.0 | 5.3 | -53.12 | -13 | H |
| 2401.9 | -41.02 | 5.3 | 5.6 | -40.72 | -13 | H |
| 2877.7 | -41.25 | 5.8 | 6.7 | -40.35 | -13 | H |
| 3546.4 | -54.04 | 6.4 | 7.8 | -52.64 | -13 | V |
| 4210.8 | -54.78 | 7.0 | 8.9 | -52.88 | -13 | H |
| 4921.2 | -54.42 | 7.7 | 9.6 | -52.52 | -13 | H |

RSE-LTE17-H

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 1423.0 | -53.08 | 4.0 | 5.3 | -51.78 | -13 | H |

| | | | | | | |
|--------|--------|-----|-----|--------|-----|---|
| 2480.0 | -39.76 | 5.4 | 5.6 | -39.56 | -13 | V |
| 2801.9 | -40.83 | 5.7 | 6.1 | -40.43 | -13 | H |
| 3508.8 | -54.41 | 6.4 | 7.8 | -53.01 | -13 | V |
| 4141.6 | -53.87 | 7.0 | 8.9 | -51.97 | -13 | H |
| 4827.6 | -52.65 | 7.6 | 9.0 | -51.25 | -13 | V |

RSE-LTE25-L

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 3700.0 | -54.5 | 6.6 | 7.9 | -53.2 | -13 | V |
| 5496.4 | -52.44 | 8.2 | 9.8 | -50.84 | -13 | H |
| 7412.0 | -52.78 | 9.7 | 11.6 | -50.88 | -13 | H |
| 9255.6 | -48.67 | 10.7 | 12.7 | -46.67 | -13 | V |
| 11098.0 | -46.61 | 12.1 | 12.3 | -46.41 | -13 | H |
| 12906.8 | -44.61 | 13.0 | 12.3 | -45.31 | -13 | H |

RSE-LTE25-M

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 3709.2 | -53.77 | 6.6 | 7.9 | -52.47 | -13 | H |
| 5608.0 | -53.13 | 8.3 | 9.8 | -51.63 | -13 | V |
| 7502.4 | -52.13 | 9.7 | 11.6 | -50.23 | -13 | V |
| 9338.0 | -49.67 | 10.7 | 12.7 | -47.67 | -13 | V |
| 11457.8 | -45.75 | 12.3 | 12.3 | -45.75 | -13 | V |
| 13317.0 | -43.34 | 13.6 | 12.3 | -44.64 | -13 | H |

RSE-LTE25-H

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 3803.2 | -54.12 | 6.7 | 7.9 | -52.92 | -13 | V |
| 5763.2 | -52.29 | 8.5 | 10.2 | -50.59 | -13 | V |
| 7626.8 | -52.34 | 9.7 | 11.8 | -50.24 | -13 | V |
| 9528.4 | -50.19 | 10.7 | 12.7 | -48.19 | -13 | H |

| | | | | | | |
|---------|--------|------|------|--------|-----|---|
| 11417.2 | -47.47 | 12.1 | 12.3 | -47.27 | -13 | V |
| 13416.4 | -43.22 | 13.7 | 12.3 | -44.62 | -13 | H |

RSE-LTE26-L

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 1711.3 | -48.52 | 4.5 | 4.7 | -48.32 | -13 | V |
| 2406.2 | -40.79 | 5.3 | 5.6 | -40.49 | -13 | H |
| 3341.6 | -52.54 | 6.2 | 6.9 | -51.84 | -13 | H |
| 4105.2 | -54.53 | 7.0 | 8.6 | -52.93 | -13 | H |
| 4928.8 | -52.71 | 7.7 | 9.6 | -50.81 | -13 | V |
| 5744.4 | -53.48 | 8.5 | 10.2 | -51.78 | -13 | V |

RSE-LTE26-M

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 1611.6 | -52.98 | 4.2 | 5.3 | -51.88 | -13 | V |
| 2933.8 | -41.2 | 5.8 | 6.7 | -40.3 | -13 | H |
| 3304.4 | -53.48 | 6.2 | 6.9 | -52.78 | -13 | H |
| 4116.4 | -54.78 | 7.0 | 8.6 | -53.18 | -13 | V |
| 5037.6 | -54.42 | 7.8 | 9.6 | -52.62 | -13 | H |
| 5820.8 | -54.31 | 8.4 | 10.2 | -52.51 | -13 | V |

RSE-LTE26-H

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 1715.8 | -48.79 | 4.5 | 4.7 | -48.59 | -13 | H |
| 2491.5 | -43.7 | 5.4 | 5.6 | -43.5 | -13 | H |
| 3346.8 | -52.2 | 6.2 | 6.9 | -51.5 | -13 | H |
| 4197.6 | -53.86 | 7.0 | 8.9 | -51.96 | -13 | V |
| 5086.8 | -50.9 | 7.9 | 9.6 | -49.2 | -13 | V |
| 5899.2 | -53.08 | 8.5 | 10.2 | -51.38 | -13 | V |

RSE-LTE38-L

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 3701.6 | -51.61 | 6.6 | 7.9 | -50.31 | -13 | H |
| 5140.4 | -26.61 | 7.9 | 9.4 | -25.11 | -13 | H |
| 7711.2 | -28.14 | 9.8 | 11.8 | -26.14 | -13 | V |
| 10281.2 | -24.81 | 11.5 | 12.3 | -24.01 | -13 | H |
| 12851.5 | -35.01 | 13.0 | 12.3 | -35.71 | -13 | V |
| 15928.0 | -32.76 | 15.0 | 12.3 | -35.46 | -13 | H |

RSE-LTE38-M

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 3872.8 | -51.19 | 6.7 | 7.9 | -49.99 | -13 | V |
| 5185.6 | -31.2 | 8.0 | 9.4 | -29.8 | -13 | H |
| 6379.6 | -49.55 | 8.9 | 10.6 | -47.85 | -13 | V |
| 7778.4 | -26.5 | 9.9 | 11.8 | -24.6 | -13 | V |
| 10371.2 | -23.92 | 11.6 | 12.3 | -23.22 | -13 | V |
| 14920.0 | -37.57 | 14.3 | 12.3 | -39.57 | -13 | V |

RSE-LTE38-H

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 3847.2 | -51.24 | 6.7 | 7.9 | -50.04 | -13 | H |
| 5230.4 | -26.21 | 8.0 | 9.4 | -24.81 | -13 | H |
| 7845.6 | -28.61 | 9.9 | 11.8 | -26.71 | -13 | H |
| 10461.6 | -24.23 | 11.6 | 12.3 | -23.53 | -13 | H |
| 13474.5 | -38.85 | 13.7 | 12.3 | -40.25 | -13 | H |
| 16458.2 | -32.95 | 14.6 | 12.3 | -35.25 | -13 | H |

RSE-LTE41-L

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 3611.2 | -54.26 | 6.5 | 7.8 | -52.96 | -13 | H |

| | | | | | | |
|---------|--------|------|------|--------|-----|---|
| 4992.4 | -33.18 | 7.8 | 9.6 | -31.38 | -13 | H |
| 7488.8 | -23.43 | 9.7 | 11.6 | -21.53 | -13 | H |
| 9985.2 | -25.39 | 11.2 | 12.5 | -24.09 | -13 | H |
| 12481.2 | -34.38 | 12.7 | 12.3 | -34.78 | -13 | V |
| 14978.8 | -38.23 | 14.4 | 12.3 | -40.33 | -13 | H |

RSE-LTE41-M

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 3598.8 | -54.35 | 6.5 | 7.8 | -53.05 | -13 | H |
| 5181.6 | -26.78 | 8.0 | 9.4 | -25.38 | -13 | V |
| 7772.4 | -24.82 | 9.8 | 11.8 | -22.82 | -13 | H |
| 10364.4 | -31.29 | 11.6 | 12.3 | -30.59 | -13 | H |
| 12954.4 | -40.14 | 13.2 | 12.3 | -41.04 | -13 | V |
| 15544.4 | -35.09 | 14.5 | 12.3 | -37.29 | -13 | H |

RSE-LTE41-H

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 3568.0 | -53.97 | 6.4 | 7.8 | -52.57 | -13 | H |
| 5371.2 | -31.41 | 8.1 | 9.4 | -30.11 | -13 | H |
| 7100.0 | -53.09 | 9.4 | 11.1 | -51.39 | -13 | V |
| 8056.4 | -24.82 | 9.9 | 12.2 | -22.52 | -13 | H |
| 10742.0 | -28.08 | 11.7 | 12.3 | -27.48 | -13 | H |
| 13426.2 | -41.02 | 13.7 | 12.3 | -42.42 | -13 | H |

RSE-LTE66-L

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 5130.8 | -43.31 | 7.9 | 9.4 | -41.81 | -13 | H |
| 6841.2 | -24.35 | 9.2 | 10.9 | -22.65 | -13 | V |
| 8551.2 | -37.85 | 10.3 | 12.6 | -35.55 | -13 | H |
| 10262.0 | -31.49 | 11.5 | 12.3 | -30.69 | -13 | H |

| | | | | | | |
|---------|--------|------|------|--------|-----|---|
| 11970.2 | -34 | 12.6 | 12.3 | -34.3 | -13 | V |
| 13681.0 | -40.61 | 13.9 | 12.3 | -42.21 | -13 | H |

RSE-LTE66-M

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 3402.0 | -53.9 | 6.3 | 7.8 | -52.4 | -13 | H |
| 5233.6 | -43.22 | 8.0 | 9.4 | -41.82 | -13 | V |
| 6978.4 | -30.32 | 9.3 | 11.1 | -28.52 | -13 | V |
| 8722.8 | -36.16 | 10.4 | 12.7 | -33.86 | -13 | H |
| 10467.2 | -35.39 | 11.6 | 12.3 | -34.69 | -13 | H |
| 12211.0 | -31.06 | 12.6 | 12.3 | -31.36 | -13 | V |

RSE-LTE66-H

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 3555.6 | -50.08 | 6.4 | 7.8 | -48.68 | -13 | H |
| 5329.6 | -50.57 | 8.1 | 9.4 | -49.27 | -13 | H |
| 7104.4 | -44.95 | 9.4 | 11.1 | -43.25 | -13 | V |
| 8880.8 | -40.72 | 10.4 | 12.6 | -38.52 | -13 | H |
| 10670.0 | -47.97 | 11.7 | 12.3 | -47.37 | -13 | V |
| 12433.6 | -43.23 | 12.5 | 12.3 | -43.43 | -13 | H |

RSE-LTE71-L

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 1330.9 | -54.59 | 3.9 | 3.0 | -55.49 | -13 | H |
| 1996.5 | -50.58 | 4.8 | 4.5 | -50.88 | -13 | H |
| 2662.3 | -44.27 | 5.5 | 6.1 | -43.67 | -13 | H |
| 3327.2 | -53.9 | 6.2 | 6.9 | -53.2 | -13 | V |
| 3992.8 | -54.43 | 6.9 | 8.6 | -52.73 | -13 | H |
| 4658.4 | -54.15 | 7.5 | 9.0 | -52.65 | -13 | H |

RSE-LTE71-M

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 1362.0 | -53.83 | 3.9 | 3.0 | -54.73 | -13 | H |
| 2040.0 | -48.89 | 4.8 | 4.5 | -49.19 | -13 | H |
| 2722.3 | -43.52 | 5.6 | 6.1 | -43.02 | -13 | H |
| 3402.0 | -54.88 | 6.3 | 7.8 | -53.38 | -13 | V |
| 4085.2 | -55.02 | 7.0 | 8.6 | -53.42 | -13 | V |
| 4763.6 | -53.41 | 7.5 | 9.0 | -51.91 | -13 | H |

RSE-LTE71-H

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 1390.8 | -55.71 | 4.0 | 5.3 | -54.41 | -13 | H |
| 2086.2 | -49.54 | 4.9 | 4.5 | -49.94 | -13 | H |
| 2782.3 | -43.56 | 5.7 | 6.1 | -43.16 | -13 | V |
| 3477.6 | -55.02 | 6.4 | 7.8 | -53.62 | -13 | H |
| 4172.8 | -54.93 | 7.0 | 8.9 | -53.03 | -13 | H |
| 4870.0 | -53.51 | 7.6 | 9.0 | -52.11 | -13 | V |

RSE-CA-7C-L

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 5022.0 | -35.51 | 7.8 | 9.6 | -33.71 | -13 | H |
| 7530.4 | -33.89 | 9.7 | 11.6 | -31.99 | -13 | H |
| 10043.2 | -30.63 | 11.2 | 12.5 | -29.33 | -13 | V |
| 12552.2 | -30.2 | 12.8 | 12.3 | -30.7 | -13 | V |
| 15063.5 | -36.2 | 14.4 | 12.3 | -38.3 | -13 | V |
| 17578.2 | -32.39 | 15.5 | 12.3 | -35.59 | -13 | V |

RSE-CA-7C-M

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 3565.6 | -51.58 | 6.4 | 7.8 | -50.18 | -13 | V |

| | | | | | | |
|---------|--------|------|------|--------|-----|---|
| 5062.4 | -33.49 | 7.8 | 9.6 | -31.69 | -13 | V |
| 7592.0 | -33.61 | 9.7 | 11.6 | -31.71 | -13 | V |
| 10122.4 | -29.39 | 11.3 | 12.5 | -28.19 | -13 | H |
| 12652.0 | -31.14 | 12.7 | 12.3 | -31.54 | -13 | H |
| 16869.5 | -29.49 | 16.3 | 12.3 | -33.49 | -13 | H |

RSE-CA-7C-H

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 5102.4 | -32.14 | 7.9 | 9.6 | -30.44 | -13 | V |
| 7650.0 | -35.08 | 9.7 | 11.8 | -32.98 | -13 | H |
| 10202.0 | -32.63 | 11.3 | 12.5 | -31.43 | -13 | H |
| 12751.8 | -34.85 | 12.5 | 12.3 | -35.05 | -13 | H |
| 15186.0 | -35.88 | 14.5 | 12.3 | -38.08 | -13 | H |
| 17189.8 | -31.98 | 16.0 | 12.3 | -35.68 | -13 | H |

RSE-CA-41C-L

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 5004.4 | -31.65 | 7.8 | 9.6 | -29.85 | -13 | H |
| 7505.2 | -28.27 | 9.7 | 11.6 | -26.37 | -13 | H |
| 10007.6 | -28.79 | 11.2 | 12.5 | -27.49 | -13 | V |
| 12508.5 | -28.73 | 12.7 | 12.3 | -29.13 | -13 | V |
| 15011.0 | -33.19 | 14.4 | 12.3 | -35.29 | -13 | H |
| 17515.2 | -32.72 | 15.1 | 12.3 | -35.52 | -13 | V |

RSE-CA-41C-M

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 3540.8 | -52.41 | 6.4 | 7.8 | -51.01 | -13 | H |
| 5172.4 | -24.27 | 7.9 | 9.4 | -22.77 | -13 | H |
| 7758.4 | -35.33 | 9.8 | 11.8 | -33.33 | -13 | H |
| 10346.0 | -33.81 | 11.5 | 12.3 | -33.01 | -13 | V |



| | | | | | | |
|---------|--------|------|------|--------|-----|---|
| 12932.0 | -34.79 | 13.0 | 12.3 | -35.49 | -13 | V |
| 15518.5 | -30.93 | 14.5 | 12.3 | -33.13 | -13 | V |

RSE-CA-41C-H

| Frequency (MHz) | PMea (dBm) | Pcl (dBm) | Ga (dBd) | Peak ERP (dBm) | Limit (dBm) | Polarization |
|-----------------|------------|-----------|----------|----------------|-------------|--------------|
| 3626.4 | -51.13 | 6.6 | 7.9 | -49.83 | -13 | H |
| 5341.2 | -25.2 | 8.1 | 9.4 | -23.9 | -13 | H |
| 8012.0 | -34.92 | 9.9 | 12.2 | -32.62 | -13 | H |
| 10683.2 | -31.46 | 11.7 | 12.3 | -30.86 | -13 | V |
| 13171.8 | -40.53 | 13.0 | 12.3 | -41.23 | -13 | V |
| 15770.5 | -32.46 | 14.9 | 12.3 | -35.06 | -13 | H |

6.2. Frequency Stability

Reference

Rule RSS-132 5.3; Rule RSS-133 6.3; Rule RSS-139 6.4

6.2.1 Method of Measurement

In order to measure the carrier frequency under the condition of AFC lock, it is necessary to make measurements with the EUT in a "call mode". This is accomplished with the use of R&S CMW500 DIGITAL RADIO COMMUNICATION TESTER.

1. Measure the carrier frequency at room temperature.
2. Subject the EUT to overnight soak at -10°C .
3. With the EUT, powered via nominal voltage, connected to the CMW500 and in a simulated call on middle channel for LTE band 7. Measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.
4. Repeat the above measurements at 10°C increments from -10°C to $+50^{\circ}\text{C}$. Allow at least 1.5 hours at each temperature, unpowered, before making measurements.
5. Re-measure carrier frequency at room temperature with nominal voltage. Vary supply voltage from minimum voltage to maximum voltage, in 0.1Volt increments re-measuring carrier frequency at each voltage. Pause at nominal voltage for 1.5 hours unpowered, to allow any self-heating to stabilize, before continuing.
6. Subject the EUT to overnight soak at $+50^{\circ}\text{C}$.
7. With the EUT, powered via nominal voltage, connected to the CMW500 and in a simulated call on the centre channel, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.
8. Repeat the above measurements at 10°C decrements from $+50^{\circ}\text{C}$ to -10°C . Allow at least 1.5 hours at each temperature, unpowered, before making measurements.
9. At all temperature levels hold the temperature to $\pm 0.5^{\circ}\text{C}$ during the measurement procedure.

6.2.2 Measurement Limit

Rule RSS-132 5.3 specifies that "The carrier frequency shall not depart from the reference frequency in excess of ± 2.5 ppm for mobile stations." Limits $\leq \pm 2.5$ ppm

Rule RSS-133 6.3 specifies that "The carrier frequency shall not depart from the reference frequency, in excess of ± 2.5 ppm for mobile stations." Limit $\leq \pm 2.5$ ppm

Rule RSS-139 6.4 specifies that "The frequency stability shall be sufficient to ensure that the occupied bandwidth stays within the operating frequency block when tested to the temperature and supply voltage variations specified in RSS-Gen."

6.2.3 Measurement results

LTE Band 2, 1.4MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Voltage

| Voltage (V) | Frequency error (Hz) | | | Frequency error (ppm) | | |
|----------------|----------------------|--------|--------|-----------------------|-------|-------|
| | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 3.5 | 9.127 | 89.078 | 19.927 | 0.005 | 0.048 | 0.011 |
| 3.8 | 14.405 | 88.749 | 26.064 | 0.008 | 0.048 | 0.014 |
| 4.2 | 10.042 | 91.481 | 13.475 | 0.005 | 0.049 | 0.012 |

Frequency Error vs Temperature

| Temperature (°C) | Frequency error (Hz) | | | Frequency error (ppm) | | |
|---------------------|----------------------|--------|--------|-----------------------|-------|-------|
| | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 50 | 11.001 | 87.662 | 26.493 | 0.006 | 0.047 | 0.014 |
| 40 | 9.212 | 86.603 | 23.203 | 0.005 | 0.047 | 0.012 |
| 30 | 11.830 | 88.320 | 20.299 | 0.006 | 0.048 | 0.011 |
| 20 | 7.868 | 93.155 | 19.698 | 0.004 | 0.050 | 0.010 |
| 10 | 12.460 | 89.693 | 19.225 | 0.007 | 0.048 | 0.010 |
| 0 | 10.500 | 87.719 | 14.276 | 0.006 | 0.047 | 0.008 |
| -10 | 11.086 | 92.983 | 14.291 | 0.006 | 0.050 | 0.008 |
| -20 | 13.003 | 82.293 | 13.261 | 0.007 | 0.048 | 0.007 |
| -30 | 9.642 | 91.767 | 10.457 | 0.005 | 0.050 | 0.006 |

LTE Band 4, 1.4MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Voltage

| Voltage (V) | Frequency error (Hz) | | | Frequency error (ppm) | | |
|----------------|----------------------|--------|--------|-----------------------|-------|-------|
| | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 3.5 | -9.570 | 69.079 | 17.910 | 0.006 | 0.040 | 0.010 |
| 3.8 | 8.512 | 63.200 | 22.345 | 0.005 | 0.037 | 0.013 |
| 4.2 | -8.268 | 62.385 | 15.507 | 0.005 | 0.036 | 0.009 |

Frequency Error vs Temperature

| Temperature (°C) | Frequency error (Hz) | | | Frequency error (ppm) | | |
|---------------------|----------------------|--------|--------|-----------------------|-------|-------|
| | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 50 | 5.250 | 65.818 | 15.121 | 0.003 | 0.038 | 0.009 |
| 40 | 6.151 | 66.261 | 15.693 | 0.004 | 0.039 | 0.009 |
| 30 | 6.795 | 59.338 | 9.513 | 0.004 | 0.035 | 0.005 |
| 20 | -4.921 | 62.771 | 12.703 | 0.003 | 0.037 | 0.007 |
| 10 | 4.706 | 64.702 | 6.437 | 0.003 | 0.038 | 0.004 |
| 0 | -4.077 | 61.326 | 7.696 | 0.002 | 0.036 | 0.004 |
| -10 | 6.094 | 59.681 | 7.896 | 0.004 | 0.035 | 0.005 |
| -20 | 5.651 | 63.944 | 7.782 | 0.003 | 0.037 | 0.004 |
| -30 | 5.364 | 68.078 | 6.881 | 0.003 | 0.040 | 0.004 |

LTE Band 5, 1.4MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Voltage

| Voltage (V) | Frequency error (Hz) | | | Frequency error (ppm) | | |
|----------------|----------------------|--------|--------|-----------------------|-------|-------|
| | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 3.5 | -4.706 | 34.118 | 17.996 | 0.006 | 0.041 | 0.022 |
| 3.8 | -3.276 | 35.448 | 12.202 | 0.004 | 0.043 | 0.015 |
| 4.2 | -4.306 | 31.986 | 7.195 | 0.005 | 0.039 | 0.009 |

Frequency Error vs Temperature

| Temperature (°C) | Frequency error (Hz) | | | Frequency error (ppm) | | |
|---------------------|----------------------|--------|--------|-----------------------|-------|-------|
| | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 50 | -3.033 | 35.377 | 3.433 | 0.004 | 0.043 | 0.004 |
| 40 | -5.121 | 32.673 | 3.862 | 0.006 | 0.039 | 0.005 |
| 30 | -3.219 | 35.503 | 3.877 | 0.004 | 0.040 | 0.005 |
| 20 | -3.319 | 32.802 | 3.262 | 0.004 | 0.040 | 0.004 |
| 10 | -4.377 | 34.432 | -3.276 | 0.005 | 0.042 | 0.004 |
| 0 | -4.549 | 31.986 | -3.805 | 0.005 | 0.039 | 0.005 |
| -10 | -5.322 | 32.973 | -4.449 | 0.006 | 0.040 | 0.005 |
| -20 | -5.221 | 34.933 | -3.805 | 0.006 | 0.042 | 0.005 |
| -30 | -5.021 | 33.445 | -3.462 | 0.006 | 0.040 | 0.004 |

LTE Band 7, 5MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Voltage

| Voltage (V) | Frequency error (Hz) | | | Frequency error (ppm) | | |
|----------------|----------------------|--------|--------|-----------------------|-------|-------|
| | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 3.5 | -12.245 | 17.123 | -4.749 | 0.005 | 0.007 | 0.002 |
| 3.8 | -9.027 | 10.114 | 7.839 | 0.004 | 0.004 | 0.003 |
| 4.2 | 8.426 | 12.059 | 8.140 | 0.003 | 0.005 | 0.003 |

Frequency Error vs Temperature

| Temperature (°C) | Frequency error (Hz) | | | Frequency error (ppm) | | |
|---------------------|----------------------|---------|---------|-----------------------|-------|-------|
| | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 50 | 7.124 | 16.193 | -6.723 | 0.003 | 0.006 | 0.003 |
| 40 | -11.215 | -19.813 | -8.769 | 0.004 | 0.008 | 0.003 |
| 30 | -8.669 | 14.477 | 13.976 | 0.003 | 0.006 | 0.006 |
| 20 | -6.323 | -15.349 | 7.811 | 0.002 | 0.006 | 0.003 |
| 10 | -8.311 | 14.234 | -6.166 | 0.003 | 0.006 | 0.002 |
| 0 | -10.500 | 13.461 | -11.802 | 0.004 | 0.005 | 0.005 |
| -10 | -6.824 | 20.285 | -7.381 | 0.003 | 0.008 | 0.003 |
| -20 | -13.404 | 13.676 | -12.159 | 0.005 | 0.005 | 0.005 |
| -30 | -13.432 | 14.062 | -9.527 | 0.005 | 0.006 | 0.004 |

LTE Band 12, 1.4MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Voltage

| Voltage (V) | Frequency error (Hz) | | | Frequency error (ppm) | | |
|----------------|----------------------|--------|-------|-----------------------|-------|-------|
| | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 3.5 | -4.406 | 29.225 | 9.127 | 0.006 | 0.041 | 0.013 |
| 3.8 | 3.662 | 31.343 | 8.469 | 0.005 | 0.044 | 0.012 |
| 4.2 | -4.277 | 28.596 | 4.578 | 0.006 | 0.040 | 0.006 |

Frequency Error vs Temperature

| Temperature (°C) | Frequency error (Hz) | | | Frequency error (ppm) | | |
|---------------------|----------------------|--------|--------|-----------------------|-------|-------|
| | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 50 | 1.745 | 31.571 | 4.106 | 0.002 | 0.045 | 0.006 |
| 40 | 4.377 | 23.210 | 2.646 | 0.006 | 0.040 | 0.004 |
| 30 | -5.493 | 28.868 | -2.675 | 0.008 | 0.041 | 0.004 |
| 20 | -3.734 | 29.311 | 6.022 | 0.005 | 0.041 | 0.009 |
| 10 | -5.035 | 27.781 | 4.005 | 0.007 | 0.039 | 0.006 |
| 0 | -2.675 | 31.28 | -4.950 | 0.004 | 0.044 | 0.007 |
| -10 | -6.423 | 27.838 | 3.233 | 0.009 | 0.039 | 0.005 |
| -20 | -5.879 | 29.311 | -3.619 | 0.008 | 0.041 | 0.005 |
| -30 | -5.422 | 28.439 | 3.462 | 0.008 | 0.040 | 0.005 |

LTE Band 13, 5MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Voltage

| Voltage (V) | Frequency error (Hz) | | | Frequency error (ppm) | | |
|----------------|----------------------|--------|-------|-----------------------|-------|-------|
| | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 3.5 | -3.734 | 33.560 | 6.552 | 0.005 | 0.043 | 0.008 |
| 3.8 | 3.333 | 35.648 | 7.696 | 0.004 | 0.046 | 0.010 |
| 4.2 | -4.306 | 33.402 | 5.350 | 0.006 | 0.043 | 0.007 |

Frequency Error vs Temperature

| Temperature (°C) | Frequency error (Hz) | | | Frequency error (ppm) | | |
|---------------------|----------------------|--------|--------|-----------------------|-------|-------|
| | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 50 | -6.294 | 35.563 | 4.234 | 0.008 | 0.045 | 0.005 |
| 40 | 4.005 | 34.604 | 6.537 | 0.005 | 0.044 | 0.008 |
| 30 | 5.178 | 34.089 | -3.161 | 0.007 | 0.044 | 0.004 |
| 20 | -6.466 | 33.302 | 4.706 | 0.008 | 0.043 | 0.006 |
| 10 | 4.479 | 37.150 | -5.293 | 0.006 | 0.048 | 0.007 |
| 0 | 8.626 | 33.875 | 4.649 | 0.011 | 0.043 | 0.006 |
| -10 | -3.505 | 31.700 | 4.735 | 0.004 | 0.041 | 0.006 |
| -20 | -4.134 | 32.229 | -3.762 | 0.005 | 0.041 | 0.005 |
| -30 | -3.448 | 32.287 | 5.121 | 0.004 | 0.041 | 0.007 |

LTE Band 14, 10MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Voltage

| Voltage (V) | Frequency error (Hz) | | | Frequency error (ppm) | | |
|----------------|----------------------|--------|-------|-----------------------|-------|-------|
| | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 3.5 | -2.604 | 36.764 | 3.719 | 0.003 | 0.046 | 0.005 |
| 3.8 | 3.862 | 32.673 | 7.353 | 0.005 | 0.041 | 0.009 |
| 4.2 | 2.489 | 33.545 | 4.563 | 0.003 | 0.042 | 0.006 |

Frequency Error vs Temperature

| Temperature (°C) | Frequency error (Hz) | | | Frequency error (ppm) | | |
|---------------------|----------------------|---------|-------|-----------------------|-------|-------|
| | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 50 | 4.692 | 33.932 | 4.408 | 0.006 | 0.043 | 0.005 |
| 40 | 3.533 | 32.487 | 3.405 | 0.004 | 0.041 | 0.004 |
| 30 | -2.961 | 33.417 | 3.033 | 0.004 | 0.042 | 0.004 |
| 20 | 4.349 | 32.7116 | 5.779 | 0.005 | 0.041 | 0.007 |
| 10 | -3.619 | 32.988 | 6.180 | 0.005 | 0.042 | 0.008 |
| 0 | 3.963 | 32.115 | 3.505 | 0.005 | 0.040 | 0.004 |
| -10 | -6.924 | 36.296 | 3.533 | 0.009 | 0.046 | 0.004 |
| -20 | 3.176 | 31.915 | 3.176 | 0.004 | 0.040 | 0.004 |
| -30 | -3.076 | 33.059 | 4.692 | 0.004 | 0.042 | 0.006 |

LTE Band 17, 5MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Voltage

| Voltage (V) | Frequency error (Hz) | | | Frequency error (ppm) | | |
|----------------|----------------------|--------|-------|-----------------------|-------|-------|
| | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 3.5 | 2.975 | 32.487 | 5.579 | 0.004 | 0.046 | 0.008 |
| 3.8 | -1.445 | 34.661 | 4.306 | 0.002 | 0.049 | 0.006 |
| 4.2 | -6.180 | 34.661 | 3.676 | 0.009 | 0.049 | 0.005 |

Frequency Error vs Temperature

| Temperature (°C) | Frequency error (Hz) | | | Frequency error (ppm) | | |
|---------------------|----------------------|--------|-------|-----------------------|-------|-------|
| | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 50 | 5.965 | 32.473 | 3.147 | 0.008 | 0.046 | 0.004 |
| 40 | 2.546 | 34.690 | 2.718 | 0.004 | 0.049 | 0.004 |
| 30 | 4.191 | 30.484 | 4.921 | 0.006 | 0.043 | 0.007 |
| 20 | -4.020 | 34.089 | 3.991 | 0.006 | 0.048 | 0.006 |
| 10 | -3.290 | 31.543 | 4.163 | 0.005 | 0.044 | 0.006 |
| 0 | -2.704 | 32.973 | 4.621 | 0.004 | 0.047 | 0.007 |
| -10 | -5.279 | 33.674 | 4.592 | 0.007 | 0.047 | 0.006 |
| -20 | 4.091 | 34.629 | 4.735 | 0.006 | 0.045 | 0.007 |
| -30 | -3.905 | 32.244 | 5.093 | 0.006 | 0.045 | 0.007 |

LTE Band 25, 1.4MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Voltage

| Voltage (V) | Frequency error (Hz) | | | Frequency error (ppm) | | |
|----------------|----------------------|--------|---------|-----------------------|-------|-------|
| | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 3.5 | 11.530 | 33.574 | -9.613 | 0.006 | 0.018 | 0.005 |
| 3.8 | 9.913 | 27.208 | -5.207 | 0.005 | 0.014 | 0.003 |
| 4.2 | 12.445 | 28.825 | -13.204 | 0.007 | 0.015 | 0.007 |

Frequency Error vs Temperature

| Temperature (°C) | Frequency error (Hz) | | | Frequency error (ppm) | | |
|---------------------|----------------------|--------|---------|-----------------------|-------|-------|
| | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 50 | 7.224 | 26.293 | -14.791 | 0.004 | 0.014 | 0.008 |
| 40 | 7.567 | 32.988 | -21.229 | 0.004 | 0.017 | 0.011 |
| 30 | 11.072 | 34.862 | -17.924 | 0.006 | 0.018 | 0.010 |
| 20 | 10.071 | 32.372 | -16.150 | 0.005 | 0.017 | 0.009 |
| 10 | 12.374 | 30.384 | -14.048 | 0.006 | 0.016 | 0.007 |
| 0 | 6.237 | 31.343 | -11.058 | 0.003 | 0.016 | 0.006 |
| -10 | 10.700 | 29.626 | -10.643 | 0.006 | 0.016 | 0.006 |
| -20 | 7.739 | 28.753 | -8.082 | 0.004 | 0.015 | 0.004 |
| -30 | 12.231 | 27.151 | -5.579 | 0.006 | 0.014 | 0.003 |

LTE Band 26 (Part22) , 1.4MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Voltage

| Voltage (V) | Frequency error (Hz) | | | Frequency error (ppm) | | |
|----------------|----------------------|--------|--------|-----------------------|-------|-------|
| | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 3.5 | -6.580 | 38.824 | 17.281 | 0.008 | 0.046 | 0.021 |
| 3.8 | -2.446 | 35.362 | 8.311 | 0.003 | 0.042 | 0.010 |
| 4.2 | -6.051 | 35.362 | 6.495 | 0.007 | 0.042 | 0.008 |

Frequency Error vs Temperature

| Temperature (°C) | Frequency error (Hz) | | | Frequency error (ppm) | | |
|---------------------|----------------------|--------|--------|-----------------------|-------|-------|
| | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 50 | 4.048 | 36.273 | 2.775 | 0.005 | 0.043 | 0.003 |
| 40 | 6.022 | 36.349 | 3.619 | 0.007 | 0.043 | 0.004 |
| 30 | 5.665 | 34.175 | -3.319 | 0.007 | 0.041 | 0.004 |
| 20 | 3.333 | 36.349 | 3.891 | 0.004 | 0.043 | 0.005 |
| 10 | 4.234 | 32.001 | -5.250 | 0.005 | 0.038 | 0.006 |
| 0 | 4.005 | 35.906 | 6.351 | 0.005 | 0.043 | 0.008 |
| -10 | 3.633 | 35.076 | -4.163 | 0.004 | 0.042 | 0.005 |
| -20 | -2.704 | 32.773 | -3.777 | 0.003 | 0.039 | 0.005 |
| -30 | 4.792 | 33.603 | -3.533 | 0.006 | 0.040 | 0.004 |



LTE Band 38, 5MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Voltage

| Voltage (V) | Frequency error (Hz) | | | Frequency error (ppm) | | |
|----------------|----------------------|--------|---------|-----------------------|-------|-------|
| | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 3.5 | 13.204 | 41.928 | 9.756 | 0.005 | 0.016 | 0.004 |
| 3.8 | 8.168 | 42.300 | -12.002 | 0.003 | 0.016 | 0.005 |
| 4.2 | 9.298 | 37.909 | 25.907 | 0.004 | 0.015 | 0.010 |

Frequency Error vs Temperature

| Temperature (°C) | Frequency error (Hz) | | | Frequency error (ppm) | | |
|---------------------|----------------------|--------|--------|-----------------------|-------|-------|
| | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 50 | -10.900 | 38.767 | 19.355 | 0.004 | 0.015 | 0.007 |
| 40 | 10.357 | 39.568 | 19.112 | 0.004 | 0.015 | 0.007 |
| 30 | 14.491 | 52.085 | 20.070 | 0.006 | 0.020 | 0.008 |
| 20 | 18.353 | 44.417 | 19.741 | 0.007 | 0.017 | 0.008 |
| 10 | 17.824 | 43.859 | 18.353 | 0.007 | 0.017 | 0.007 |
| 0 | 7.854 | 40.426 | 17.023 | 0.003 | 0.015 | 0.007 |
| -10 | 10.414 | 37.079 | 27.680 | 0.004 | 0.014 | 0.011 |
| -20 | -18.182 | 43.073 | 28.095 | 0.007 | 0.017 | 0.011 |
| -30 | -14.362 | 38.667 | 28.439 | 0.006 | 0.015 | 0.011 |

LTE Band 41, 5MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Voltage

| Voltage (V) | Frequency error (Hz) | | | Frequency error (ppm) | | |
|----------------|----------------------|---------|--------|-----------------------|-------|-------|
| | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 3.5 | 17.323 | -78.092 | 37.107 | 0.007 | 0.030 | 0.014 |
| 3.8 | 28.110 | -79.112 | 35.949 | 0.011 | 0.031 | 0.014 |
| 4.2 | 17.638 | -81.553 | 36.750 | 0.007 | 0.031 | 0.014 |

Frequency Error vs Temperature

| Temperature (°C) | Frequency error (Hz) | | | Frequency error (ppm) | | |
|---------------------|----------------------|---------|--------|-----------------------|-------|-------|
| | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 50 | 18.697 | -85.788 | 26.793 | 0.007 | 0.033 | 0.010 |
| 40 | 22.988 | -72.470 | 29.753 | 0.009 | 0.028 | 0.011 |
| 30 | 25.320 | -70.496 | 42.143 | 0.010 | 0.027 | 0.016 |
| 20 | 21.977 | -76.833 | 26.722 | 0.008 | 0.030 | 0.010 |
| 10 | 26.507 | -78.521 | 20.971 | 0.010 | 0.030 | 0.008 |
| 0 | 15.306 | -78.020 | 26.736 | 0.006 | 0.030 | 0.010 |
| -10 | 28.696 | -88.162 | 32.458 | 0.011 | 0.034 | 0.013 |
| -20 | 24.548 | -79.050 | 28.052 | 0.009 | 0.030 | 0.011 |
| -30 | 21.944 | -75.302 | 28.853 | 0.008 | 0.029 | 0.011 |

LTE Band 66, 1.4MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Voltage

| Voltage (V) | Frequency error (Hz) | | | Frequency error (ppm) | | |
|----------------|----------------------|---------|---------|-----------------------|-------|-------|
| | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 3.5 | 9.456 | -74.430 | -15.149 | 0.005 | 0.042 | 0.009 |
| 3.8 | 15.550 | -70.810 | -19.655 | 0.009 | 0.040 | 0.011 |
| 4.2 | 9.198 | -74.644 | -16.279 | 0.005 | 0.042 | 0.009 |

Frequency Error vs Temperature

| Temperature (°C) | Frequency error (Hz) | | | Frequency error (ppm) | | |
|---------------------|----------------------|---------|---------|-----------------------|-------|-------|
| | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 50 | 8.097 | -70.653 | -19.598 | 0.005 | 0.040 | 0.011 |
| 40 | 7.224 | -71.697 | -12.045 | 0.004 | 0.041 | 0.007 |
| 30 | 11.744 | -71.597 | -12.074 | 0.007 | 0.040 | 0.007 |
| 20 | 9.584 | -70.567 | -12.259 | 0.005 | 0.040 | 0.007 |
| 10 | 9.055 | -70.753 | -12.546 | 0.005 | 0.040 | 0.007 |
| 0 | 9.170 | -71.783 | -7.796 | 0.005 | 0.041 | 0.004 |
| -10 | 10.915 | -71.197 | -10.056 | 0.006 | 0.040 | 0.006 |
| -20 | 11.902 | -71.325 | -9.241 | 0.007 | 0.040 | 0.005 |
| -30 | 5.722 | -74.787 | -6.824 | 0.003 | 0.042 | 0.004 |

LTE Band 71, 20MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Voltage

| Voltage (V) | Frequency error (Hz) | | | Frequency error (ppm) | | |
|----------------|----------------------|--------|-------|-----------------------|-------|-------|
| | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 3.5 | 13.747 | 30.627 | 6.223 | 0.020 | 0.045 | 0.009 |
| 3.8 | 10.443 | 31.528 | 8.025 | 0.015 | 0.046 | 0.012 |
| 4.2 | 8.025 | 32.930 | 4.306 | 0.012 | 0.048 | 0.006 |

Frequency Error vs Temperature

| Temperature (°C) | Frequency error (Hz) | | | Frequency error (ppm) | | |
|---------------------|----------------------|--------|--------|-----------------------|-------|-------|
| | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 50 | 12.174 | 30.470 | 6.924 | 0.018 | 0.044 | 0.010 |
| 40 | 7.582 | 38.166 | 7.253 | 0.011 | 0.055 | 0.011 |
| 30 | 20.528 | 30.799 | 8.254 | 0.030 | 0.045 | 0.012 |
| 20 | 16.279 | 30.313 | -7.153 | 0.024 | 0.044 | 0.011 |
| 10 | 8.497 | 27.423 | 4.463 | 0.012 | 0.040 | 0.007 |
| 0 | 11.759 | 32.072 | 7.038 | 0.017 | 0.047 | 0.010 |
| -10 | 8.297 | 35.205 | 6.652 | 0.012 | 0.051 | 0.010 |
| -20 | 6.495 | 36.235 | 7.210 | 0.009 | 0.053 | 0.011 |
| -30 | 10.600 | 28.996 | 5.350 | 0.015 | 0.042 | 0.008 |

LTE CA-7C, 15MHz+20MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Voltage

| Voltage (V) | Frequency error (Hz) | | | Frequency error (ppm) | | |
|----------------|----------------------|-------|-------|-----------------------|---------|--------|
| | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 3.5 | -1.86 | -0.36 | 0.21 | -0.0007 | -0.0001 | 0.0001 |
| 3.8 | 1.21 | 1.14 | 1.20 | 0.0005 | 0.0005 | 0.0005 |
| 4.2 | 3.22 | 0.54 | 2.31 | 0.0013 | 0.0002 | 0.0009 |

Frequency Error vs Temperature

| Temperature (°C) | Frequency error (Hz) | | | Frequency error (ppm) | | |
|---------------------|----------------------|-------|-------|-----------------------|---------|--------|
| | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 50 | 3.92 | 1.21 | 1.31 | 0.0016 | 0.0005 | 0.0005 |
| 40 | -1.59 | 0.47 | 2.13 | -0.0006 | 0.0002 | 0.0008 |
| 30 | 0.53 | 1.2 | 4.13 | 0.0002 | 0.0005 | 0.0016 |
| 20 | 2.12 | -2.2 | 2.1 | 0.0008 | -0.0009 | 0.0008 |
| 10 | -0.47 | 2.6 | 2.6 | -0.0002 | 0.0010 | 0.0010 |
| 0 | 1.44 | 1.01 | 4.21 | 0.0006 | 0.0004 | 0.0017 |
| -10 | 1.92 | 2.10 | 2.13 | 0.0008 | 0.0008 | 0.0008 |
| -20 | 0.17 | -1.0 | 0.7 | 0.0001 | -0.0004 | 0.0003 |
| -30 | 2.40 | -0.94 | 3.6 | 0.0010 | -0.0004 | 0.0014 |

LTE CA-41C, 15MHz+20MHz bandwidth Low(worst case of all bandwidths)

Frequency Error vs Voltage

| Voltage (V) | Frequency error (Hz) | | | Frequency error (ppm) | | |
|----------------|----------------------|-------|-------|-----------------------|-------|-------|
| | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 3.5 | 14.26 | 15.05 | 15.12 | 0.006 | 0.006 | 0.006 |
| 3.8 | 15.69 | 14.98 | 15.21 | 0.006 | 0.006 | 0.006 |
| 4.2 | 17.01 | 18.05 | 17.64 | 0.007 | 0.007 | 0.007 |

Frequency Error vs Temperature

| Temperature (°C) | Frequency error (Hz) | | | Frequency error (ppm) | | |
|---------------------|----------------------|-------|-------|-----------------------|-------|-------|
| | QPSK | 16QAM | 64QAM | QPSK | 16QAM | 64QAM |
| 50 | 15.02 | 13.53 | 14.21 | 0.006 | 0.005 | 0.005 |
| 40 | 11.34 | 12.12 | 13.12 | 0.004 | 0.005 | 0.005 |
| 30 | 15.76 | 16.34 | 15.21 | 0.006 | 0.006 | 0.006 |
| 20 | 16.61 | 17.91 | 17.92 | 0.006 | 0.007 | 0.007 |
| 10 | 19.91 | 9.82 | 8.61 | 0.008 | 0.004 | 0.003 |
| 0 | 16.48 | 6.53 | 15.31 | 0.006 | 0.003 | 0.006 |
| -10 | 19.40 | 17.10 | 20.62 | 0.007 | 0.007 | 0.008 |
| -20 | 18.25 | 16.24 | 18.21 | 0.007 | 0.006 | 0.007 |
| -30 | 14.49 | 12.12 | 10.41 | 0.006 | 0.005 | 0.004 |

6.3. Output Power

6.3.1. Summary

During the process of testing, the EUT was controlled via Rhode & Schwarz Digital Radio Communication tester (CMW500) to ensure max power transmission and proper modulation.

In all cases, output power is within the specified limits.

CMW500 setting:

1: CMW500 is connected to the DUT

2; Set RX Expected PEP to 30 dBm

6.3.2. Conducted

6.3.2.1. Method of Measurements

The EUT was set up for the max output power with pseudo random data modulation.

These measurements were done at 3 frequencies (bottom, middle and top of operational frequency range) for each bandwidth.

6.3.2.2 Measurement result

LTE band 2

| LTE 2 | | | Output power (dBm) | | | | |
|------------|------------|-----------|--------------------|---------|-------|-------|-------|
| Modulation | RB | RB Offset | Tune up | 1.4MHz | | | |
| | | | | 18607 | 18900 | 19193 | |
| QPSK | 1 | Low | 23 | 21.90 | 22.11 | 22.22 | |
| | | Middle | | 21.93 | 22.25 | 22.23 | |
| | | High | | 21.94 | 22.10 | 22.23 | |
| | 50% | Low | 23 | 21.96 | 22.13 | 22.26 | |
| | | Middle | | 21.98 | 22.15 | 22.41 | |
| | | High | | 22.00 | 22.11 | 22.30 | |
| | 100% | / | 22 | 20.94 | 21.12 | 21.22 | |
| | 16QAM | 1 | Low | 22 | 21.37 | 21.53 | 21.59 |
| | | | Middle | | 21.33 | 21.36 | 21.67 |
| High | | | 21.24 | | 21.41 | 21.63 | |
| 5 | | Low | 22 | 20.86 | 21.13 | 21.30 | |
| | | Middle | | 20.88 | 21.26 | 21.33 | |
| | | High | | 20.90 | 21.15 | 21.29 | |
| 100% | | / | 21 | 20.14 | 20.27 | 20.34 | |
| 64QAM | | 1 | Low | 21 | 20.59 | 20.67 | 20.37 |
| | | | Middle | | 20.67 | 20.69 | 20.41 |
| | High | | 20.58 | | 20.58 | 20.35 | |
| | 5 | Low | 21 | 20.44 | 20.47 | 20.58 | |
| | | Middle | | 20.38 | 20.45 | 20.55 | |
| | | High | | 20.44 | 20.46 | 20.61 | |
| | 100% | / | 20 | 19.23 | 19.30 | 19.59 | |
| | Modulation | RB | RB Offset | Tune up | 3MHz | | |
| | QPSK | 1 | Low | 23 | 18615 | 18900 | 19185 |
| | | | | 21.94 | 22.25 | 22.54 | |



| | | | | | | |
|------------|-----|-----------|---------|-------|-------|-------|
| | | Middle | | 21.92 | 22.36 | 22.14 |
| | | High | | 21.88 | 22.18 | 22.26 |
| | | Low | | 20.99 | 21.25 | 21.36 |
| | 50% | Middle | 22 | 21.00 | 21.21 | 21.36 |
| | | High | | 20.96 | 21.19 | 21.40 |
| | | / | | 22 | 20.99 | 21.25 |
| 16QAM | 1 | Low | 22 | 21.34 | 21.69 | 21.77 |
| | | Middle | | 21.21 | 21.42 | 21.63 |
| | | High | | 21.23 | 21.44 | 21.64 |
| | 50% | Low | 22 | 20.00 | 20.23 | 20.40 |
| | | Middle | | 20.07 | 20.24 | 20.47 |
| | | High | | 20.05 | 20.29 | 20.38 |
| 100% | / | 21 | 20.02 | 20.24 | 20.40 | |
| 64QAM | 1 | Low | 21 | 20.36 | 20.60 | 20.40 |
| | | Middle | | 20.32 | 20.59 | 20.45 |
| | | High | | 20.27 | 20.52 | 20.45 |
| | 50% | Low | 20 | 19.18 | 19.51 | 19.29 |
| | | Middle | | 19.07 | 19.48 | 19.28 |
| | | High | | 19.16 | 19.42 | 19.28 |
| 100% | / | 20 | 19.42 | 19.35 | 19.23 | |
| Modulation | RB | RB Offset | Tune up | 5MHz | | |
| | | | | 18625 | 18900 | 19175 |
| QPSK | 1 | Low | 23 | 22.03 | 22.42 | 22.45 |
| | | Middle | | 21.98 | 22.30 | 22.26 |
| | | High | | 22.00 | 22.14 | 22.31 |
| | 50% | Low | 22 | 21.02 | 21.29 | 21.46 |
| | | Middle | | 20.97 | 21.21 | 21.38 |
| | | High | | 20.94 | 21.29 | 21.25 |
| 100% | / | 22 | 21.03 | 21.21 | 21.40 | |
| 16QAM | 1 | Low | 22 | 21.27 | 21.69 | 21.86 |
| | | Middle | | 21.26 | 21.48 | 21.51 |
| | | High | | 21.37 | 21.55 | 21.66 |
| | 50% | Low | 22 | 20.04 | 20.32 | 20.45 |
| | | Middle | | 20.00 | 20.21 | 20.40 |
| | | High | | 19.94 | 20.27 | 20.39 |
| 100% | / | 21 | 20.00 | 20.21 | 20.37 | |
| 64QAM | 1 | Low | 21 | 20.44 | 20.48 | 20.66 |
| | | Middle | | 20.53 | 20.33 | 20.56 |
| | | High | | 20.46 | 20.33 | 20.48 |
| | 50% | Low | 20 | 19.36 | 19.37 | 19.49 |
| | | Middle | | 19.35 | 19.27 | 19.44 |
| | | High | | 19.27 | 19.37 | 19.37 |



| | 100% | / | 20 | 19.35 | 19.40 | 19.48 |
|------------|------|-----------|---------|-------|-------|-------|
| Modulation | RB | RB Offset | Tune up | 10MHz | | |
| | | | | 18650 | 18900 | 19150 |
| QPSK | 1 | Low | 23 | 22.28 | 22.29 | 22.61 |
| | | Middle | | 22.15 | 22.14 | 22.46 |
| | | High | | 22.20 | 22.21 | 22.34 |
| | 50% | Low | 22 | 21.04 | 21.33 | 21.41 |
| | | Middle | | 21.03 | 21.16 | 21.35 |
| | | High | | 21.06 | 21.21 | 21.35 |
| | 100% | / | 22 | 21.02 | 21.18 | 21.37 |
| 16QAM | 1 | Low | 22 | 21.47 | 21.59 | 21.87 |
| | | Middle | | 21.20 | 21.33 | 21.49 |
| | | High | | 21.47 | 21.43 | 21.56 |
| | 50% | Low | 22 | 19.98 | 20.26 | 20.37 |
| | | Middle | | 20.06 | 20.18 | 20.41 |
| | | High | | 20.05 | 20.19 | 20.32 |
| | 100% | / | 21 | 20.05 | 20.21 | 20.37 |
| 64QAM | 1 | Low | 21 | 20.42 | 20.72 | 20.67 |
| | | Middle | | 20.34 | 20.60 | 20.53 |
| | | High | | 20.52 | 20.69 | 20.68 |
| | 50% | Low | 20 | 19.32 | 19.42 | 19.47 |
| | | Middle | | 19.42 | 19.40 | 19.44 |
| | | High | | 19.41 | 19.36 | 19.52 |
| | 100% | / | 20 | 19.32 | 19.36 | 19.48 |
| Modulation | RB | RB Offset | Tune up | 15MHz | | |
| | | | | 18675 | 18900 | 19125 |
| QPSK | 1 | Low | 23 | 22.09 | 22.42 | 22.62 |
| | | Middle | | 22.06 | 22.21 | 22.24 |
| | | High | | 22.18 | 22.45 | 22.38 |
| | 50% | Low | 22 | 21.03 | 21.13 | 21.25 |
| | | Middle | | 21.09 | 21.18 | 21.34 |
| | | High | | 20.99 | 21.20 | 21.37 |
| | 100% | / | 22 | 21.04 | 21.17 | 21.27 |
| 16QAM | 1 | Low | 22 | 21.26 | 21.59 | 21.98 |
| | | Middle | | 21.23 | 21.30 | 21.65 |
| | | High | | 21.52 | 21.40 | 21.68 |
| | 50% | Low | 22 | 20.04 | 20.15 | 20.27 |
| | | Middle | | 20.05 | 20.17 | 20.33 |
| | | High | | 19.98 | 20.16 | 20.30 |
| | 100% | / | 21 | 20.03 | 20.16 | 20.26 |
| 64QAM | 1 | Low | 21 | 20.39 | 20.75 | 20.76 |
| | | Middle | | 20.28 | 20.71 | 20.52 |

| | | | | | | |
|------------|------|-----------|---------|-------|-------|-------|
| | | High | | 20.63 | 20.48 | 20.61 |
| | 50% | Low | 20 | 19.43 | 19.70 | 19.76 |
| | | Middle | | 19.62 | 19.67 | 19.58 |
| | | High | | 19.57 | 19.74 | 19.60 |
| | 100% | / | 20 | 19.26 | 19.30 | 19.36 |
| Modulation | RB | RB Offset | Tune up | 20MHz | | |
| | | | | 18700 | 18900 | 19100 |
| QPSK | 1 | Low | 23 | 21.97 | 22.22 | 22.41 |
| | | Middle | | 21.91 | 22.10 | 22.29 |
| | | High | | 21.82 | 21.97 | 22.07 |
| | 50% | Low | 22 | 21.04 | 21.25 | 21.35 |
| | | Middle | | 21.02 | 21.22 | 21.28 |
| | | High | | 20.96 | 21.13 | 21.33 |
| 100% | / | 22 | 20.96 | 21.14 | 21.33 | |
| 16QAM | 1 | Low | 22 | 21.00 | 21.55 | 21.59 |
| | | Middle | | 21.13 | 21.27 | 21.84 |
| | | High | | 21.02 | 21.08 | 21.14 |
| | 50% | Low | 22 | 20.06 | 20.22 | 20.35 |
| | | Middle | | 20.04 | 20.22 | 20.31 |
| | | High | | 19.98 | 20.15 | 20.29 |
| 100% | / | 21 | 19.96 | 20.14 | 20.38 | |
| 64QAM | 1 | Low | 21 | 20.52 | 20.56 | 20.78 |
| | | Middle | | 20.56 | 20.45 | 20.87 |
| | | High | | 20.41 | 20.27 | 20.50 |
| | 50% | Low | 20 | 19.27 | 19.33 | 19.39 |
| | | Middle | | 19.18 | 19.28 | 19.38 |
| | | High | | 19.21 | 19.34 | 19.35 |
| 100% | / | 20 | 19.16 | 19.22 | 19.34 | |

LTE band 4

| LTE 4 | | | Output power (dBm) | | | |
|------------|-----|-----------|--------------------|--------|-------|-------|
| Modulation | RB | RB Offset | Tune up | 1.4MHz | | |
| | | | | 19957 | 20175 | 20393 |
| QPSK | 1 | Low | 23 | 21.89 | 22.10 | 21.85 |
| | | Middle | | 21.99 | 21.94 | 21.87 |
| | | High | | 21.89 | 22.12 | 22.11 |
| | 50% | Low | 23 | 21.89 | 22.36 | 22.13 |
| | | Middle | | 21.86 | 22.31 | 21.97 |
| | | High | | 21.86 | 22.29 | 22.02 |
| 100% | / | 22 | 20.89 | 21.15 | 20.95 | |
| 16QAM | 1 | Low | 22 | 21.29 | 21.52 | 21.41 |



| | | | | | | | |
|------------|------------|-----------|-----------|---------|-------|--------|-------|
| | | Middle | | 21.27 | 21.55 | 21.33 | |
| | | High | | 21.27 | 21.39 | 21.18 | |
| | | Low | | 20.79 | 21.20 | 21.02 | |
| | 5 | Middle | 21.5 | 20.85 | 21.24 | 20.91 | |
| | | High | | 20.79 | 21.01 | 21.01 | |
| | | 100% | | / | 21 | 19.99 | 20.32 |
| 64QAM | 1 | Low | 21 | 20.00 | 20.48 | 20.14 | |
| | | Middle | | 20.00 | 20.57 | 20.15 | |
| | | High | | 19.95 | 20.43 | 20.16 | |
| | 5 | Low | 21 | 19.92 | 20.42 | 20.36 | |
| | | Middle | | 19.94 | 20.37 | 20.33 | |
| | | High | | 19.96 | 20.39 | 20.35 | |
| | 100% | / | 20 | 19.20 | 19.13 | 19.34 | |
| | Modulation | RB | RB Offset | Tune up | 3MHz | | |
| | | | | | 19965 | 20175 | 20385 |
| QPSK | 1 | Low | 23 | 22.11 | 22.35 | 22.07 | |
| | | Middle | | 21.86 | 22.20 | 22.17 | |
| | | High | | 22.01 | 22.19 | -10.94 | |
| | 50% | Low | 22 | 21.13 | 21.38 | 21.13 | |
| | | Middle | | 21.04 | 21.29 | 21.06 | |
| | | High | | 21.01 | 21.33 | 21.05 | |
| | 100% | / | 22 | 20.99 | 21.28 | 21.10 | |
| 16QAM | 1 | Low | 22 | 21.20 | 21.73 | 21.19 | |
| | | Middle | | 21.24 | 21.47 | 21.34 | |
| | | High | | 21.16 | 21.42 | 21.29 | |
| | 50% | Low | 21.5 | 20.16 | 20.42 | 20.24 | |
| | | Middle | | 20.06 | 20.39 | 20.15 | |
| | | High | | 20.06 | 20.33 | 20.12 | |
| 100% | / | 21 | 20.08 | 20.32 | 20.13 | | |
| 64QAM | 1 | Low | 21 | 20.19 | 20.59 | 20.23 | |
| | | Middle | | 20.16 | 20.45 | 20.25 | |
| | | High | | 20.09 | 20.31 | 20.22 | |
| | 50% | Low | 21 | 19.08 | 19.40 | 19.09 | |
| | | Middle | | 19.14 | 19.38 | 19.01 | |
| | | High | | 18.89 | 19.32 | 19.00 | |
| | 100% | / | 20 | 19.19 | 19.16 | 19.29 | |
| Modulation | RB | RB Offset | Tune up | 5MHz | | | |
| | | | | 19975 | 20175 | 20375 | |
| QPSK | 1 | Low | 23 | 22.05 | 22.52 | 22.23 | |
| | | Middle | | 22.11 | 22.26 | 22.29 | |
| | | High | | 22.00 | 22.26 | 22.02 | |
| | 50% | Low | 22 | 21.08 | 21.47 | 21.27 | |



| | | | | | | |
|------------|------|-----------|---------|-------|-------|-------|
| | | Middle | | 21.09 | 21.29 | 21.17 |
| | | High | | 21.00 | 21.25 | 21.10 |
| | 100% | / | 22 | 21.13 | 21.35 | 21.18 |
| 16QAM | 1 | Low | 22 | 21.38 | 21.96 | 21.47 |
| | | Middle | | 21.24 | 21.35 | 21.40 |
| | | High | | 21.33 | 21.64 | 21.35 |
| | 50% | Low | 21.5 | 20.09 | 20.50 | 20.27 |
| | | Middle | | 20.10 | 20.30 | 20.19 |
| | | High | | 20.06 | 20.27 | 20.12 |
| | 100% | / | 21 | 20.17 | 20.31 | 20.19 |
| 64QAM | 1 | Low | 21 | 20.21 | 20.27 | 20.43 |
| | | Middle | | 20.32 | 20.47 | 20.35 |
| | | High | | 20.23 | 20.27 | 20.24 |
| | 50% | Low | 21 | 19.12 | 19.29 | 19.29 |
| | | Middle | | 19.17 | 19.27 | 19.19 |
| | | High | | 19.05 | 19.13 | 19.13 |
| | 100% | / | 20 | 19.19 | 19.22 | 19.26 |
| Modulation | RB | RB Offset | Tune up | 10MHz | | |
| | | | | 20000 | 20175 | 20350 |
| QPSK | 1 | Low | 23 | 22.34 | 22.60 | 22.62 |
| | | Middle | | 22.09 | 22.37 | 22.20 |
| | | High | | 22.36 | 22.46 | 22.25 |
| | 50% | Low | 22 | 21.11 | 21.47 | 21.30 |
| | | Middle | | 21.15 | 21.44 | 21.22 |
| | | High | | 21.19 | 21.32 | 21.20 |
| | 100% | / | 22 | 21.17 | 21.39 | 21.29 |
| 16QAM | 1 | Low | 22 | 21.50 | 21.73 | 21.63 |
| | | Middle | | 21.29 | 21.56 | 21.32 |
| | | High | | 21.51 | 21.76 | 21.61 |
| | 50% | Low | 21.5 | 20.17 | 20.52 | 20.25 |
| | | Middle | | 20.17 | 20.50 | 20.25 |
| | | High | | 20.13 | 20.36 | 20.23 |
| | 100% | / | 21 | 20.26 | 20.48 | 20.31 |
| 64QAM | 1 | Low | 21 | 20.36 | 20.66 | 20.47 |
| | | Middle | | 20.27 | 20.47 | 20.28 |
| | | High | | 20.56 | 20.69 | 20.48 |
| | 50% | Low | 21 | 19.16 | 19.38 | 19.31 |
| | | Middle | | 19.07 | 19.33 | 19.28 |
| | | High | | 19.28 | 19.23 | 19.30 |
| | 100% | / | 20 | 19.24 | 19.31 | 19.27 |
| Modulation | RB | RB Offset | Tune up | 15MHz | | |
| | | | | 20025 | 20175 | 20325 |

| | | | | | | |
|------------|------|-----------|---------|-------|-------|-------|
| QPSK | 1 | Low | 23 | 22.46 | 22.51 | 22.52 |
| | | Middle | | 22.12 | 22.07 | 21.88 |
| | | High | | 22.33 | 22.41 | 22.14 |
| | 50% | Low | 22 | 21.22 | 21.30 | 21.13 |
| | | Middle | | 21.34 | 21.17 | 20.99 |
| | | High | | 21.28 | 21.21 | 21.03 |
| | 100% | / | 22 | 21.27 | 21.26 | 21.09 |
| 16QAM | 1 | Low | 22 | 21.73 | 21.52 | 21.61 |
| | | Middle | | 21.39 | 21.25 | 21.19 |
| | | High | | 21.55 | 21.56 | 21.37 |
| | 50% | Low | 21.5 | 20.28 | 20.29 | 20.14 |
| | | Middle | | 20.35 | 20.20 | 20.02 |
| | | High | | 20.22 | 20.25 | 20.08 |
| | 100% | / | 21 | 20.26 | 20.25 | 20.10 |
| 64QAM | 1 | Low | 21 | 20.53 | 20.66 | 20.40 |
| | | Middle | | 20.34 | 20.38 | 20.17 |
| | | High | | 20.49 | 20.67 | 20.44 |
| | 50% | Low | 21 | 19.52 | 19.66 | 19.52 |
| | | Middle | | 19.44 | 19.56 | 19.44 |
| | | High | | 19.49 | 19.68 | 19.35 |
| | 100% | / | 20 | 19.21 | 19.19 | 19.06 |
| Modulation | RB | RB Offset | Tune up | 20MHz | | |
| | | | | 20050 | 20175 | 20300 |
| QPSK | 1 | Low | 23 | 22.41 | 22.24 | 22.53 |
| | | Middle | | 22.19 | 22.04 | 22.11 |
| | | High | | 22.30 | 22.36 | 22.10 |
| | 50% | Low | 22 | 21.43 | 21.40 | 21.23 |
| | | Middle | | 21.33 | 21.27 | 21.17 |
| | | High | | 21.33 | 21.26 | 21.13 |
| | 100% | / | 22 | 21.38 | 21.37 | 21.28 |
| 16QAM | 1 | Low | 22 | 21.68 | 21.48 | 21.55 |
| | | Middle | | 21.30 | 21.44 | 21.32 |
| | | High | | 21.45 | 21.59 | 21.36 |
| | 50% | Low | 21.5 | 20.49 | 20.33 | 20.32 |
| | | Middle | | 20.40 | 20.27 | 20.26 |
| | | High | | 20.43 | 20.26 | 20.25 |
| | 100% | / | 21 | 20.38 | 20.35 | 20.30 |
| 64QAM | 1 | Low | 21 | 20.57 | 20.43 | 20.58 |
| | | Middle | | 20.49 | 20.32 | 20.46 |
| | | High | | 20.64 | 20.51 | 20.59 |
| | 50% | Low | 21 | 19.27 | 19.31 | 19.18 |
| | | Middle | | 19.29 | 19.29 | 19.25 |



| | | | | | | |
|--|------|------|----|-------|-------|-------|
| | | High | | 19.30 | 19.27 | 19.21 |
| | 100% | / | 20 | 19.24 | 19.29 | 19.21 |

LTE band 5

| LTE 5 | | | Output power (dBm) | | | | |
|------------|------------|-----------|--------------------|---------|-------|-------|-------|
| Modulation | RB | RB Offset | Tune up | 1.4MHz | | | |
| | | | | 20407 | 20525 | 20643 | |
| QPSK | 1 | Low | 23.5 | 22.91 | 23.00 | 23.09 | |
| | | Middle | | 22.98 | 22.95 | 22.98 | |
| | | High | | 22.91 | 22.89 | 22.93 | |
| | 50% | Low | 23.5 | 22.95 | 22.96 | 23.09 | |
| | | Middle | | 22.96 | 23.02 | 23.07 | |
| | | High | | 22.97 | 22.95 | 23.01 | |
| | 100% | / | 22.5 | 21.93 | 22.01 | 22.06 | |
| | 16QAM | 1 | Low | 23 | 22.31 | 22.20 | 22.43 |
| | | | Middle | | 22.36 | 22.45 | 22.54 |
| High | | | 22.36 | | 22.45 | 22.32 | |
| 5 | | Low | 22.5 | 21.99 | 22.12 | 22.05 | |
| | | Middle | | 22.05 | 22.11 | 22.07 | |
| | | High | | 22.04 | 22.06 | 22.01 | |
| 100% | | / | 21.5 | 21.03 | 21.09 | 21.09 | |
| 64QAM | | 1 | Low | 21.5 | 20.20 | 20.79 | 20.67 |
| | | | Middle | | 20.24 | 20.86 | 20.59 |
| | High | | 20.29 | | 20.75 | 20.47 | |
| | 5 | Low | 21.5 | 20.34 | 20.67 | 20.66 | |
| | | Middle | | 20.33 | 20.56 | 20.56 | |
| | | High | | 20.37 | 20.61 | 20.65 | |
| | 100% | / | 20.5 | 19.41 | 19.43 | 19.72 | |
| | Modulation | RB | RB Offset | Tune up | 3MHz | | |
| | | | | | 20415 | 20525 | 20635 |
| QPSK | 1 | Low | 23.5 | 22.89 | 22.95 | 23.08 | |
| | | Middle | | 23.00 | 23.05 | 23.07 | |
| | | High | | 22.96 | 23.10 | 23.15 | |
| | 50% | Low | 22.5 | 22.00 | 22.01 | 21.99 | |
| | | Middle | | 21.99 | 22.08 | 22.17 | |
| | | High | | 21.99 | 22.04 | 22.09 | |
| | 100% | / | 22.5 | 21.97 | 22.08 | 22.18 | |
| | 16QAM | 1 | Low | 23 | 22.31 | 22.50 | 22.36 |
| | | | Middle | | 22.30 | 22.35 | 22.73 |
| High | | | 22.44 | | 22.43 | 22.46 | |
| 50% | | Low | 22 | 21.10 | 21.08 | 21.12 | |

| | | | | | | |
|------------|------|-----------|---------|-------|-------|-------|
| | | Middle | | 21.07 | 21.20 | 21.15 |
| | | High | | 21.05 | 21.11 | 21.17 |
| | 100% | / | 22 | 20.93 | 21.13 | 21.19 |
| 64QAM | 1 | Low | 21.5 | 20.41 | 20.68 | 20.60 |
| | | Middle | | 20.54 | 20.73 | 20.61 |
| | | High | | 20.46 | 20.71 | 20.67 |
| | 50% | Low | 20.5 | 19.32 | 19.52 | 19.44 |
| | | Middle | | 19.42 | 19.47 | 19.58 |
| | | High | | 19.35 | 19.58 | 19.51 |
| | 100% | / | 20.5 | 19.54 | 19.47 | 19.74 |
| Modulation | RB | RB Offset | Tune up | 5MHz | | |
| | | | | 20425 | 20525 | 20625 |
| QPSK | 1 | Low | 23.5 | 22.95 | 23.01 | 23.17 |
| | | Middle | | 22.92 | 22.98 | 23.00 |
| | | High | | 23.02 | 22.93 | 23.06 |
| | 50% | Low | 22.5 | 21.98 | 22.08 | 22.08 |
| | | Middle | | 21.97 | 22.09 | 22.06 |
| | | High | | 21.97 | 22.06 | 22.08 |
| | 100% | / | 22.5 | 22.01 | 22.09 | 22.10 |
| 16QAM | 1 | Low | 23 | 22.36 | 22.35 | 22.38 |
| | | Middle | | 22.04 | 22.29 | 22.29 |
| | | High | | 22.23 | 22.40 | 22.45 |
| | 50% | Low | 22 | 20.98 | 21.10 | 21.15 |
| | | Middle | | 20.99 | 21.13 | 21.13 |
| | | High | | 21.08 | 21.16 | 21.16 |
| | 100% | / | 22 | 21.09 | 21.09 | 21.18 |
| 64QAM | 1 | Low | 21.5 | 20.57 | 20.42 | 20.81 |
| | | Middle | | 20.63 | 20.48 | 20.74 |
| | | High | | 20.53 | 20.40 | 20.65 |
| | 50% | Low | 20.5 | 19.42 | 19.35 | 19.58 |
| | | Middle | | 19.49 | 19.44 | 19.66 |
| | | High | | 19.41 | 19.49 | 19.60 |
| | 100% | / | 20.5 | 19.49 | 19.47 | 19.65 |
| Modulation | RB | RB Offset | Tune up | 10MHz | | |
| | | | | 20450 | 20525 | 20600 |
| QPSK | 1 | Low | 23.5 | 23.02 | 23.04 | 23.29 |
| | | Middle | | 23.05 | 23.05 | 23.06 |
| | | High | | 23.41 | 23.30 | 23.32 |
| | 50% | Low | 22.5 | 22.05 | 22.13 | 22.18 |
| | | Middle | | 22.06 | 22.16 | 22.14 |
| | | High | | 22.01 | 22.14 | 22.12 |
| | 100% | / | 22.5 | 22.10 | 22.18 | 22.14 |

| | | | | | | |
|-------|------|--------|------|-------|-------|-------|
| 16QAM | 1 | Low | 23 | 22.33 | 22.53 | 22.61 |
| | | Middle | | 22.39 | 22.42 | 22.41 |
| | | High | | 22.61 | 22.72 | 22.44 |
| | 50% | Low | 22 | 21.03 | 21.12 | 21.20 |
| | | Middle | | 21.10 | 21.13 | 21.13 |
| | | High | | 21.01 | 21.21 | 21.30 |
| | 100% | / | 22 | 21.13 | 21.16 | 21.18 |
| 64QAM | 1 | Low | 21.5 | 20.62 | 20.79 | 20.82 |
| | | Middle | | 20.54 | 20.67 | 20.60 |
| | | High | | 20.93 | 21.02 | 20.89 |
| | 50% | Low | 20.5 | 19.55 | 19.49 | 19.70 |
| | | Middle | | 19.65 | 19.59 | 19.73 |
| | | High | | 19.61 | 19.55 | 19.67 |
| | 100% | / | 20.5 | 19.58 | 19.57 | 19.68 |

LTE band 7

| LTE 7 | | | Output power (dBm) | | | |
|------------|------|-----------|--------------------|-------|-------|-------|
| Modulation | RB | RB Offset | Tune up | 5MHz | | |
| | | | | 20775 | 21100 | 21425 |
| QPSK | 1 | Low | 23 | 21.84 | 21.99 | 22.17 |
| | | Middle | | 21.66 | 22.01 | 22.29 |
| | | High | | 21.68 | 21.98 | 22.23 |
| | 50% | Low | 22 | 20.81 | 20.95 | 21.17 |
| | | Middle | | 20.65 | 20.98 | 21.21 |
| | | High | | 20.83 | 20.98 | 21.12 |
| | 100% | / | 22 | 20.72 | 20.94 | 21.22 |
| 16QAM | 1 | Low | 22 | 21.13 | 21.30 | 21.49 |
| | | Middle | | 20.88 | 21.11 | 21.29 |
| | | High | | 20.87 | 21.21 | 21.34 |
| | 5 | Low | 21 | 19.73 | 19.95 | 20.23 |
| | | Middle | | 19.58 | 19.99 | 20.20 |
| | | High | | 19.71 | 19.97 | 20.22 |
| | 100% | / | 21 | 19.75 | 20.00 | 20.27 |
| 64QAM | 1 | Low | 21 | 19.39 | 19.59 | 19.91 |
| | | Middle | | 19.38 | 19.58 | 19.88 |
| | | High | | 19.50 | 19.59 | 19.89 |
| | 5 | Low | 20 | 18.43 | 18.59 | 18.81 |
| | | Middle | | 18.45 | 18.53 | 18.77 |
| | | High | | 18.34 | 18.59 | 18.83 |
| | 100% | / | 20 | 18.37 | 18.64 | 18.73 |
| Modulation | RB | RB Offset | Tune up | 10MHz | | |
| | | | | 20800 | 21100 | 21400 |



| | | | | | | |
|------------|------|-----------|---------|-------|-------|-------|
| QPSK | 1 | Low | 23 | 21.86 | 22.16 | 22.51 |
| | | Middle | | 21.69 | 21.93 | 22.02 |
| | | High | | 21.98 | 22.10 | 22.37 |
| | 50% | Low | 22 | 20.74 | 20.92 | 21.24 |
| | | Middle | | 20.70 | 20.96 | 21.16 |
| | | High | | 20.66 | 21.04 | 21.17 |
| | 100% | / | 22 | 20.74 | 20.97 | 21.24 |
| 16QAM | 1 | Low | 22 | 21.08 | 21.31 | 21.65 |
| | | Middle | | 20.83 | 21.00 | 21.38 |
| | | High | | 21.01 | 21.17 | 21.43 |
| | 50% | Low | 21 | 19.83 | 19.94 | 20.19 |
| | | Middle | | 19.71 | 19.99 | 20.14 |
| | | High | | 19.72 | 20.01 | 20.17 |
| | 100% | / | 21 | 19.80 | 19.95 | 20.20 |
| 64QAM | 1 | Low | 21 | 19.64 | 19.85 | 19.95 |
| | | Middle | | 19.41 | 19.64 | 19.75 |
| | | High | | 19.58 | 19.81 | 20.00 |
| | 50% | Low | 20 | 18.59 | 18.61 | 18.86 |
| | | Middle | | 18.48 | 18.59 | 18.84 |
| | | High | | 18.42 | 18.62 | 18.88 |
| | 100% | / | 20 | 18.42 | 18.59 | 18.92 |
| Modulation | RB | RB Offset | Tune up | 15MHz | | |
| | | | | 20825 | 21100 | 21375 |
| QPSK | 1 | Low | 23 | 21.59 | 21.86 | 22.02 |
| | | Middle | | 21.72 | 21.95 | 22.29 |
| | | High | | 21.73 | 22.03 | 22.08 |
| | 50% | Low | 22 | 20.83 | 20.94 | 21.14 |
| | | Middle | | 20.81 | 21.10 | 21.21 |
| | | High | | 20.81 | 21.20 | 21.19 |
| | 100% | / | 22 | 20.82 | 21.08 | 21.18 |
| 16QAM | 1 | Low | 22 | 20.86 | 20.88 | 21.33 |
| | | Middle | | 20.93 | 21.13 | 21.32 |
| | | High | | 20.94 | 21.11 | 21.34 |
| | 50% | Low | 21 | 19.78 | 19.92 | 20.10 |
| | | Middle | | 19.82 | 20.10 | 20.24 |
| | | High | | 19.81 | 20.11 | 20.14 |
| | 100% | / | 21 | 19.79 | 20.08 | 20.16 |
| 64QAM | 1 | Low | 21 | 19.64 | 19.64 | 19.71 |
| | | Middle | | 19.41 | 19.71 | 19.73 |
| | | High | | 19.58 | 19.78 | 19.87 |
| | 50% | Low | 20 | 18.59 | 19.61 | 19.72 |
| | | Middle | | 18.47 | 19.59 | 19.78 |

| | | High | | 18.42 | 19.76 | 19.79 |
|------------|------|-----------|---------|-------|-------|-------|
| | | | | 100% | / | 20 |
| Modulation | RB | RB Offset | Tune up | 20MHz | | |
| | | | | 20850 | 21100 | 21350 |
| QPSK | 1 | Low | 23 | 21.69 | 21.85 | 22.00 |
| | | Middle | | 21.70 | 21.96 | 22.11 |
| | | High | | 21.97 | 22.05 | 22.06 |
| | 50% | Low | 22 | 20.77 | 21.04 | 21.10 |
| | | Middle | | 20.79 | 21.16 | 21.19 |
| | | High | | 20.90 | 21.06 | 21.24 |
| | 100% | / | 22 | 20.84 | 21.00 | 21.29 |
| 16QAM | 1 | Low | 22 | 20.81 | 20.91 | 21.13 |
| | | Middle | | 20.71 | 21.17 | 21.34 |
| | | High | | 20.92 | 21.29 | 21.41 |
| | 50% | Low | 21 | 19.77 | 20.02 | 20.17 |
| | | Middle | | 19.80 | 20.11 | 20.24 |
| | | High | | 19.92 | 20.16 | 20.18 |
| | 100% | / | 21 | 19.83 | 20.00 | 20.20 |
| 64QAM | 1 | Low | 21 | 19.29 | 19.75 | 19.94 |
| | | Middle | | 19.39 | 19.84 | 20.01 |
| | | High | | 19.34 | 19.77 | 20.04 |
| | 50% | Low | 20 | 19.33 | 18.58 | 18.74 |
| | | Middle | | 19.39 | 18.64 | 18.77 |
| | | High | | 19.38 | 18.71 | 18.69 |
| | 100% | / | 20 | 18.41 | 18.61 | 18.75 |

LTE band 12

| LTE 12 | | | | Output power (dBm) | | |
|------------|-----|-----------|---------|--------------------|-------|-------|
| Modulation | RB | RB Offset | Tune up | 1.4MHz | | |
| | | | | 23017 | 23095 | 23173 |
| QPSK | 1 | Low | 23.5 | 22.37 | 22.55 | 22.58 |
| | | Middle | | 22.47 | 22.54 | 22.69 |
| | | High | | 22.54 | 22.71 | 22.68 |
| | 50% | Low | 23.5 | 22.63 | 22.72 | 22.66 |
| | | Middle | | 22.57 | 22.72 | 22.85 |
| | | High | | 22.59 | 22.82 | 22.77 |
| 100% | / | 22.5 | 21.61 | 21.66 | 21.57 | |
| 16QAM | 1 | Low | 22.5 | 21.93 | 22.09 | 21.88 |
| | | Middle | | 21.80 | 22.20 | 22.15 |
| | | High | | 21.72 | 21.93 | 21.90 |
| | 5 | Low | 22 | 21.59 | 21.70 | 21.63 |
| | | Middle | | 21.59 | 21.80 | 21.68 |



| | | | | | | |
|------------|------|-----------|---------|-------|-------|-------|
| | | High | | 21.61 | 21.71 | 21.59 |
| | 100% | / | 21.5 | 20.62 | 20.76 | 20.71 |
| 64QAM | 1 | Low | 21.5 | 20.40 | 20.58 | 20.31 |
| | | Middle | | 20.48 | 20.54 | 20.38 |
| | | High | | 20.26 | 20.63 | 20.36 |
| | 5 | Low | 21.5 | 20.29 | 19.39 | 19.19 |
| | | Middle | | 20.26 | 19.44 | 19.11 |
| | | High | | 20.00 | 19.41 | 19.09 |
| 100% | / | 20.5 | 18.89 | 18.33 | 18.40 | |
| Modulation | RB | RB Offset | Tune up | 3MHz | | |
| | | | | 23025 | 23095 | 23165 |
| QPSK | 1 | Low | 23.5 | 22.48 | 22.68 | 22.76 |
| | | Middle | | 22.63 | 22.94 | 22.67 |
| | | High | | 22.60 | 22.66 | 22.82 |
| | 50% | Low | 22.5 | 21.60 | 21.78 | 21.77 |
| | | Middle | | 21.60 | 21.80 | 21.72 |
| | | High | | 21.58 | 21.83 | 21.67 |
| 100% | / | 22.5 | 21.68 | 21.80 | 21.80 | |
| 16QAM | 1 | Low | 22.5 | 21.63 | 22.11 | 21.90 |
| | | Middle | | 21.99 | 22.30 | 21.96 |
| | | High | | 21.93 | 21.99 | 22.13 |
| | 50% | Low | 22 | 20.47 | 20.74 | 20.79 |
| | | Middle | | 20.60 | 20.79 | 20.85 |
| | | High | | 20.53 | 20.78 | 20.71 |
| 100% | / | 21.5 | 20.61 | 20.74 | 20.78 | |
| 64QAM | 1 | Low | 21.5 | 20.06 | 20.39 | 20.34 |
| | | Middle | | 20.16 | 20.47 | 20.45 |
| | | High | | 20.25 | 20.35 | 20.39 |
| | 50% | Low | 20.5 | 18.82 | 19.29 | 19.20 |
| | | Middle | | 18.88 | 19.33 | 19.11 |
| | | High | | 18.89 | 19.29 | 19.19 |
| 100% | / | 20.5 | 19.26 | 19.36 | 19.28 | |
| Modulation | RB | RB Offset | Tune up | 5MHz | | |
| | | | | 23035 | 23095 | 23155 |
| QPSK | 1 | Low | 23.5 | 22.56 | 22.77 | 22.64 |
| | | Middle | | 22.81 | 22.72 | 22.58 |
| | | High | | 22.80 | 22.90 | 22.98 |
| | 50% | Low | 22.5 | 21.66 | 21.81 | 21.69 |
| | | Middle | | 21.70 | 21.79 | 21.69 |
| | | High | | 21.68 | 21.79 | 21.67 |
| 100% | / | 22.5 | 21.68 | 21.84 | 21.78 | |
| 16QAM | 1 | Low | 22.5 | 21.81 | 22.09 | 21.93 |

| | | | | | | | |
|-------|------------|--------|-----------|---------|-------|-------|-------|
| | | Middle | | 21.66 | 22.03 | 22.17 | |
| | | High | | 21.91 | 22.24 | 22.05 | |
| | | Low | | 20.67 | 20.73 | 20.74 | |
| | 50% | Middle | 22 | 20.70 | 20.78 | 20.77 | |
| | | High | | 20.67 | 20.69 | 20.75 | |
| | | / | | 21.5 | 20.75 | 20.74 | 20.81 |
| 64QAM | 1 | Low | 21.5 | 20.36 | 20.67 | 20.53 | |
| | | Middle | | 20.37 | 20.49 | 20.30 | |
| | | High | | 20.34 | 20.70 | 20.47 | |
| | 50% | Low | 20.5 | 19.17 | 19.43 | 19.46 | |
| | | Middle | | 19.11 | 19.35 | 19.37 | |
| | | High | | 19.15 | 19.45 | 19.37 | |
| | 100% | / | 20.5 | 19.30 | 19.38 | 19.31 | |
| | Modulation | RB | RB Offset | Tune up | 10MHz | | |
| | | | | | 23060 | 23095 | 23130 |
| QPSK | 1 | Low | 23.5 | 22.73 | 22.85 | 22.89 | |
| | | Middle | | 22.84 | 23.02 | 22.73 | |
| | | High | | 22.85 | 23.10 | 22.88 | |
| | 50% | Low | 22.5 | 21.90 | 21.83 | 21.86 | |
| | | Middle | | 21.82 | 21.81 | 21.72 | |
| | | High | | 21.76 | 21.95 | 21.81 | |
| | 100% | / | 22.5 | 21.79 | 21.90 | 21.69 | |
| 16QAM | 1 | Low | 22.5 | 22.07 | 22.09 | 22.25 | |
| | | Middle | | 21.92 | 22.11 | 22.18 | |
| | | High | | 22.18 | 22.23 | 22.17 | |
| | 50% | Low | 22 | 20.80 | 20.74 | 20.87 | |
| | | Middle | | 20.78 | 20.75 | 20.80 | |
| | | High | | 20.74 | 20.95 | 20.83 | |
| 100% | / | 21.5 | 20.81 | 20.82 | 20.87 | | |
| 64QAM | 1 | Low | 21.5 | 20.46 | 20.33 | 20.56 | |
| | | Middle | | 20.34 | 20.30 | 20.55 | |
| | | High | | 20.54 | 20.33 | 20.54 | |
| | 50% | Low | 20.5 | 19.40 | 20.37 | 19.57 | |
| | | Middle | | 19.44 | 20.16 | 19.55 | |
| | | High | | 19.37 | 20.39 | 19.59 | |
| | 100% | / | 20.5 | 19.32 | 19.35 | 19.40 | |

LTE Band 13

| LTE 13 | | | | Output power (dBm) | | |
|------------|----|-----------|---------|--------------------|-------|-------|
| Modulation | RB | RB Offset | Tune up | 5MHz | | |
| | | | | 23205 | 23230 | 23255 |
| QPSK | 1 | Low | 24 | 22.96 | 22.92 | 23.01 |



| | | | | | | |
|------------|-----|-----------|---------|-------|-------|-------|
| | | Middle | | 22.80 | 22.98 | 23.12 |
| | | High | | 22.91 | 23.01 | 22.96 |
| | | Low | | 21.92 | 22.04 | 22.05 |
| | 50% | Middle | 23 | 21.90 | 21.97 | 22.06 |
| | | High | | 21.87 | 22.02 | 22.12 |
| | | / | | 23 | 21.85 | 22.02 |
| 16QAM | 1 | Low | 23 | 22.21 | 22.19 | 22.27 |
| | | Middle | | 22.22 | 22.23 | 22.16 |
| | | High | | 22.17 | 22.30 | 22.55 |
| | 5 | Low | 22 | 20.94 | 21.11 | 21.01 |
| | | Middle | | 20.93 | 21.03 | 21.03 |
| | | High | | 20.93 | 20.97 | 21.09 |
| 100% | / | 22 | 20.91 | 21.03 | 21.02 | |
| 64QAM | 1 | Low | 22 | 21.15 | 21.14 | 21.12 |
| | | Middle | | 20.82 | 10.81 | 20.78 |
| | | High | | 20.97 | 20.99 | 20.98 |
| | 5 | Low | 21 | 19.66 | 19.66 | 19.66 |
| | | Middle | | 19.65 | 19.68 | 19.58 |
| | | High | | 19.56 | 19.51 | 19.55 |
| 100% | / | 21 | 19.65 | 19.68 | 19.68 | |
| Modulation | RB | RB Offset | Tune up | 10MHz | | |
| | | | | 23230 | 23230 | 23230 |
| QPSK | 1 | Low | 24 | 23.49 | 23.25 | 23.42 |
| | | Middle | | 22.99 | 22.95 | 22.96 |
| | | High | | 23.26 | 23.25 | 23.32 |
| | 50% | Low | 23 | 22.12 | 22.07 | 22.10 |
| | | Middle | | 22.07 | 22.07 | 22.08 |
| | | High | | 22.06 | 22.03 | 22.04 |
| 100% | / | 23 | 22.10 | 22.10 | 22.11 | |
| 16QAM | 1 | Low | 23 | 22.55 | 22.61 | 22.43 |
| | | Middle | | 22.28 | 22.34 | 22.25 |
| | | High | | 22.54 | 22.43 | 22.38 |
| | 50% | Low | 22 | 20.91 | 20.96 | 21.07 |
| | | Middle | | 21.00 | 21.10 | 21.09 |
| | | High | | 21.04 | 20.97 | 21.03 |
| 100% | / | 22 | 21.03 | 21.03 | 21.09 | |
| 64QAM | 1 | Low | 22 | 20.40 | 20.66 | 21.00 |
| | | Middle | | 20.54 | 20.66 | 20.96 |
| | | High | | 20.45 | 20.71 | 21.06 |
| | 50% | Low | 21 | 19.54 | 19.52 | 19.91 |
| | | Middle | | 19.44 | 19.55 | 19.84 |
| | | High | | 19.43 | 19.59 | 19.88 |

| | | | | | | |
|--|------|---|----|-------|-------|-------|
| | 100% | / | 21 | 19.54 | 19.58 | 19.99 |
|--|------|---|----|-------|-------|-------|

LTE band 14

| LTE 14 | | | Output power (dBm) | | | |
|------------|------|-----------|--------------------|-------|-------|-------|
| Modulation | RB | RB Offset | Tune up | 5MHz | | |
| | | | | 23305 | 23330 | 23355 |
| QPSK | 1 | Low | 24 | 23.54 | 23.44 | 23.37 |
| | | Middle | | 23.38 | 23.36 | 23.35 |
| | | High | | 23.39 | 23.26 | 23.41 |
| | 50% | Low | 23 | 22.48 | 22.30 | 22.36 |
| | | Middle | | 22.47 | 22.35 | 22.31 |
| | | High | | 22.41 | 22.26 | 22.28 |
| | 100% | / | 23 | 22.62 | 22.35 | 22.37 |
| 16QAM | 1 | Low | 23 | 22.87 | 22.79 | 22.62 |
| | | Middle | | 22.67 | 22.54 | 22.54 |
| | | High | | 22.65 | 22.45 | 22.65 |
| | 5 | Low | 22 | 21.51 | 21.21 | 21.38 |
| | | Middle | | 21.53 | 21.24 | 21.29 |
| | | High | | 21.40 | 21.25 | 21.27 |
| | 100% | / | 22 | 21.57 | 21.23 | 21.27 |
| 64QAM | 1 | Low | 22 | 21.39 | 21.41 | 21.08 |
| | | Middle | | 20.99 | 20.98 | 21.00 |
| | | High | | 21.19 | 21.15 | 21.15 |
| | 5 | Low | 21 | 20.10 | 20.07 | 20.09 |
| | | Middle | | 19.89 | 20.07 | 19.98 |
| | | High | | 19.78 | 19.76 | 19.74 |
| | 100% | / | 21 | 20.01 | 20.01 | 19.91 |
| Modulation | RB | RB Offset | Tune up | 10MHz | | |
| QPSK | 1 | Low | 24 | 23.65 | 23.60 | 23.63 |
| | | Middle | | 23.35 | 23.34 | 23.25 |
| | | High | | 23.50 | 23.44 | 23.45 |
| | 50% | Low | 23 | 22.67 | 22.60 | 22.59 |
| | | Middle | | 22.30 | 22.38 | 22.37 |
| | | High | | 22.24 | 22.27 | 22.29 |
| | 100% | / | 23 | 22.48 | 22.53 | 22.46 |
| 16QAM | 1 | Low | 23 | 22.86 | 22.87 | 22.79 |
| | | Middle | | 22.48 | 22.46 | 22.51 |
| | | High | | 22.71 | 22.76 | 22.63 |
| | 50% | Low | 22 | 21.42 | 21.55 | 21.49 |
| | | Middle | | 21.31 | 21.31 | 21.39 |
| | | High | | 21.32 | 21.30 | 21.22 |



| | | | | | | |
|-------|------|--------|----|-------|-------|-------|
| | 100% | / | 22 | 21.40 | 21.60 | 21.53 |
| 64QAM | 1 | Low | 22 | 20.92 | 21.06 | 21.15 |
| | | Middle | | 20.82 | 21.08 | 21.42 |
| | | High | | 20.69 | 21.00 | 21.00 |
| | 50% | Low | 21 | 19.71 | 19.89 | 20.09 |
| | | Middle | | 19.82 | 19.88 | 19.74 |
| | | High | | 19.73 | 19.84 | 19.98 |
| | 100% | / | 21 | 19.82 | 19.91 | 19.98 |

LTE band 17

| LTE 17 | | | Output power (dBm) | | | |
|------------|------|-----------|--------------------|-------|-------|-------|
| Modulation | RB | RB Offset | Tune up | 5MHz | | |
| | | | | 23755 | 23790 | 23825 |
| QPSK | 1 | Low | 23.5 | 22.89 | 22.87 | 22.79 |
| | | Middle | | 22.81 | 22.91 | 22.70 |
| | | High | | 22.94 | 22.91 | 22.70 |
| | 50% | Low | 22.5 | 21.88 | 21.90 | 21.84 |
| | | Middle | | 21.90 | 21.96 | 21.91 |
| | | High | | 21.89 | 21.91 | 21.90 |
| | 100% | / | 22.5 | 21.90 | 21.86 | 21.95 |
| 16QAM | 1 | Low | 22.5 | 22.12 | 22.04 | 22.15 |
| | | Middle | | 22.13 | 22.09 | 22.09 |
| | | High | | 22.21 | 22.11 | 22.16 |
| | 5 | Low | 21.5 | 20.88 | 20.92 | 20.87 |
| | | Middle | | 20.89 | 21.00 | 20.85 |
| | | High | | 20.95 | 20.85 | 20.89 |
| | 100% | / | 21.5 | 20.85 | 20.79 | 20.95 |
| 64QAM | 1 | Low | 21.5 | 20.55 | 20.72 | 20.61 |
| | | Middle | | 20.29 | 20.54 | 20.32 |
| | | High | | 20.50 | 20.68 | 20.53 |
| | 5 | Low | 20.5 | 19.43 | 19.40 | 19.45 |
| | | Middle | | 19.41 | 19.33 | 19.49 |
| | | High | | 19.39 | 19.32 | 19.50 |
| | 100% | / | 20.5 | 19.32 | 19.43 | 19.33 |
| Modulation | RB | RB Offset | Tune up | 10MHz | | |
| | | | | 23780 | 23790 | 23800 |
| QPSK | 1 | Low | 23.5 | 23.14 | 23.10 | 23.02 |
| | | Middle | | 22.83 | 22.96 | 22.93 |
| | | High | | 22.96 | 23.02 | 23.07 |
| | 50% | Low | 22.5 | 21.93 | 21.91 | 21.93 |
| | | Middle | | 21.87 | 21.80 | 21.89 |



| | | | | | | |
|-------|------|--------|-------|-------|-------|-------|
| | | High | | 21.88 | 21.91 | 21.91 |
| | 100% | / | 22.5 | 21.87 | 21.97 | 21.95 |
| 16QAM | 1 | Low | 23 | 22.27 | 22.28 | 22.36 |
| | | Middle | | 22.00 | 22.23 | 22.01 |
| | | High | | 22.33 | 22.30 | 22.27 |
| | 50% | Low | 21.5 | 20.88 | 20.84 | 20.91 |
| | | Middle | | 20.94 | 20.83 | 20.90 |
| | | High | | 20.88 | 20.92 | 20.94 |
| 100% | / | 21.5 | 20.88 | 20.91 | 20.91 | |
| 64QAM | 1 | Low | 21.5 | 20.34 | 20.53 | 20.37 |
| | | Middle | | 20.30 | 20.58 | 20.40 |
| | | High | | 20.31 | 20.49 | 20.43 |
| | 50% | Low | 20.5 | 19.27 | 19.40 | 19.45 |
| | | Middle | | 19.29 | 19.38 | 19.39 |
| | | High | | 19.24 | 19.33 | 19.30 |
| | 100% | / | 20.5 | 19.23 | 19.47 | 19.30 |

LTE band 25

| LTE 25 | | | Output power (dBm) | | | |
|------------|-----|-----------|--------------------|--------|-------|-------|
| Modulation | RB | RB Offset | Tune up | 1.4MHz | | |
| | | | | 26047 | 26365 | 26683 |
| QPSK | 1 | Low | 23 | 21.95 | 22.02 | 22.38 |
| | | Middle | | 22.03 | 21.98 | 22.45 |
| | | High | | 21.98 | 22.01 | 22.36 |
| | 50% | Low | 23 | 22.01 | 22.05 | 22.46 |
| | | Middle | | 22.07 | 22.10 | 22.41 |
| | | High | | 22.02 | 22.05 | 22.35 |
| 100% | / | 22.5 | 21.04 | 21.11 | 21.43 | |
| 16QAM | 1 | Low | 22.5 | 21.38 | 21.40 | 21.89 |
| | | Middle | | 21.31 | 21.31 | 21.80 |
| | | High | | 21.24 | 21.22 | 21.57 |
| | 5 | Low | 22 | 20.99 | 21.12 | 21.41 |
| | | Middle | | 21.05 | 21.18 | 21.45 |
| | | High | | 20.97 | 21.08 | 21.45 |
| 100% | / | 21 | 20.05 | 20.11 | 20.51 | |
| 64QAM | 1 | Low | 21 | 20.28 | 20.34 | 20.45 |
| | | Middle | | 20.42 | 20.33 | 20.41 |
| | | High | | 20.33 | 20.21 | 20.27 |
| | 5 | Low | 21 | 20.23 | 20.15 | 20.44 |
| | | Middle | | 20.28 | 20.18 | 20.56 |
| | | High | | 20.20 | 20.12 | 20.46 |
| 100% | / | 20 | 18.98 | 18.94 | 19.57 | |



| Modulation | RB | RB Offset | Tune up | 3MHz | | |
|------------|-----|-----------|---------|-------|-------|-------|
| | | | | 26055 | 26365 | 26675 |
| QPSK | 1 | Low | 23 | 22.05 | 21.99 | 22.51 |
| | | Middle | | 22.02 | 22.11 | 22.42 |
| | | High | | 21.98 | 21.96 | 22.30 |
| | 50% | Low | 22 | 21.05 | 21.16 | 21.47 |
| | | Middle | | 21.02 | 21.10 | 21.42 |
| | | High | | 20.97 | 21.12 | 21.37 |
| 100% | / | 22 | 20.99 | 21.10 | 21.44 | |
| 16QAM | 1 | Low | 22.5 | 21.30 | 21.29 | 21.71 |
| | | Middle | | 21.26 | 21.43 | 22.03 |
| | | High | | 21.34 | 21.37 | 21.90 |
| | 50% | Low | 22 | 20.06 | 20.21 | 20.64 |
| | | Middle | | 20.09 | 20.08 | 20.40 |
| | | High | | 20.01 | 20.24 | 20.46 |
| 100% | / | 21 | 20.02 | 20.03 | 20.36 | |
| 64QAM | 1 | Low | 21 | 20.15 | 20.26 | 20.55 |
| | | Middle | | 20.11 | 20.21 | 20.42 |
| | | High | | 20.19 | 20.21 | 20.28 |
| | 50% | Low | 20 | 19.00 | 19.16 | 19.27 |
| | | Middle | | 18.91 | 19.18 | 19.28 |
| | | High | | 18.99 | 19.15 | 19.21 |
| 100% | / | 20 | 19.61 | 19.01 | 19.49 | |
| Modulation | RB | RB Offset | Tune up | 5MHz | | |
| | | | | 26065 | 26365 | 26665 |
| QPSK | 1 | Low | 23 | 22.03 | 22.21 | 22.62 |
| | | Middle | | 22.08 | 22.13 | 22.37 |
| | | High | | 22.01 | 22.16 | 22.38 |
| | 50% | Low | 22 | 20.99 | 21.11 | 21.35 |
| | | Middle | | 21.03 | 21.17 | 21.51 |
| | | High | | 21.01 | 21.07 | 21.47 |
| 100% | / | 22 | 21.07 | 21.11 | 21.42 | |
| 16QAM | 1 | Low | 22.5 | 21.43 | 21.53 | 21.89 |
| | | Middle | | 21.23 | 21.42 | 21.68 |
| | | High | | 21.29 | 21.41 | 21.73 |
| | 50% | Low | 22 | 20.01 | 20.10 | 20.55 |
| | | Middle | | 20.06 | 20.13 | 20.48 |
| | | High | | 20.02 | 20.10 | 20.36 |
| 100% | / | 21 | 20.04 | 20.12 | 20.52 | |
| 64QAM | 1 | Low | 21 | 20.21 | 20.12 | 20.75 |
| | | Middle | | 20.24 | 19.99 | 20.42 |
| | | High | | 20.17 | 19.98 | 20.32 |

| | | | | | | | |
|------------|-------|-----------|---------|-------|-------|-------|-------|
| | 50% | Low | 20 | 19.00 | 19.00 | 19.42 | |
| | | Middle | | 19.01 | 18.97 | 19.42 | |
| | | High | | 19.21 | 18.99 | 19.29 | |
| | 100% | / | 20 | 19.11 | 19.06 | 19.33 | |
| Modulation | RB | RB Offset | Tune up | 10MHz | | | |
| QPSK | 1 | Low | 23 | 22.08 | 22.37 | 22.65 | |
| | | Middle | | 21.97 | 22.09 | 22.39 | |
| | | High | | 22.07 | 22.35 | 22.48 | |
| | 50% | Low | 22 | 21.09 | 21.16 | 21.32 | |
| | | Middle | | 21.00 | 21.15 | 21.46 | |
| | | High | | 21.15 | 21.11 | 21.48 | |
| | 100% | / | 22 | 20.99 | 21.10 | 21.49 | |
| | 16QAM | 1 | Low | 22.5 | 21.34 | 21.75 | 21.77 |
| | | | Middle | | 21.34 | 21.40 | 21.69 |
| | | | High | | 21.65 | 21.33 | 21.78 |
| 50% | | Low | 22 | 20.06 | 20.17 | 20.42 | |
| | | Middle | | 20.00 | 20.13 | 20.49 | |
| | | High | | 20.14 | 20.14 | 20.54 | |
| 100% | | / | 21 | 19.99 | 20.12 | 20.43 | |
| 64QAM | 1 | Low | 21 | 20.38 | 20.21 | 20.87 | |
| | | Middle | | 20.15 | 20.49 | 20.30 | |
| | | High | | 20.13 | 20.43 | 20.12 | |
| | 50% | Low | 20 | 19.15 | 19.07 | 19.34 | |
| | | Middle | | 19.24 | 19.06 | 19.44 | |
| | | High | | 19.27 | 19.09 | 19.47 | |
| | 100% | / | 20 | 19.04 | 19.08 | 19.34 | |
| Modulation | RB | RB Offset | Tune up | 15MHz | | | |
| QPSK | 1 | Low | 23 | 22.15 | 22.37 | 22.63 | |
| | | Middle | | 22.12 | 22.14 | 22.67 | |
| | | High | | 22.27 | 22.41 | 22.73 | |
| | 50% | Low | 22 | 21.14 | 21.24 | 21.73 | |
| | | Middle | | 21.14 | 21.30 | 21.64 | |
| | | High | | 21.18 | 21.37 | 21.81 | |
| | 100% | / | 22 | 21.20 | 21.31 | 21.81 | |
| | 16QAM | 1 | Low | 22.5 | 21.51 | 21.70 | 22.11 |
| | | | Middle | | 21.39 | 21.41 | 22.06 |
| | | | High | | 21.66 | 21.69 | 21.89 |
| 50% | | Low | 22 | 20.17 | 20.25 | 20.68 | |
| | | Middle | | 20.17 | 20.25 | 20.71 | |
| | | High | | 20.12 | 20.31 | 20.84 | |



| | | | | | | |
|------------|------|-----------|---------|-------|-------|-------|
| | 100% | / | 21 | 20.19 | 20.34 | 20.80 |
| 64QAM | 1 | Low | 21 | 20.09 | 20.42 | 20.41 |
| | | Middle | | 20.15 | 20.48 | 20.44 |
| | | High | | 20.33 | 20.31 | 20.43 |
| | 50% | Low | 20 | 19.10 | 19.41 | 19.80 |
| | | Middle | | 19.33 | 19.49 | 19.33 |
| | | High | | 19.14 | 19.45 | 19.36 |
| | 100% | / | 20 | 19.19 | 19.27 | 19.68 |
| Modulation | RB | RB Offset | Tune up | 20MHz | | |
| | | | | 26140 | 26365 | 26590 |
| QPSK | 1 | Low | 23 | 22.16 | 22.29 | 22.94 |
| | | Middle | | 22.14 | 22.09 | 22.60 |
| | | High | | 21.71 | 21.69 | 22.40 |
| | 50% | Low | 22 | 21.11 | 21.23 | 21.61 |
| | | Middle | | 21.08 | 21.14 | 21.60 |
| | | High | | 21.03 | 21.16 | 21.58 |
| | 100% | / | 22 | 21.04 | 21.18 | 21.48 |
| 16QAM | 1 | Low | 22.5 | 21.49 | 21.70 | 22.45 |
| | | Middle | | 21.50 | 21.53 | 22.11 |
| | | High | | 21.14 | 21.45 | 21.61 |
| | 50% | Low | 22 | 20.09 | 20.17 | 20.64 |
| | | Middle | | 20.06 | 20.18 | 20.68 |
| | | High | | 20.04 | 20.12 | 20.52 |
| | 100% | / | 21 | 20.05 | 20.17 | 20.66 |
| 64QAM | 1 | Low | 21 | 20.32 | 20.43 | 20.85 |
| | | Middle | | 20.33 | 20.31 | 20.87 |
| | | High | | 20.10 | 20.14 | 20.51 |
| | 50% | Low | 20 | 19.07 | 19.13 | 19.52 |
| | | Middle | | 19.00 | 19.18 | 19.45 |
| | | High | | 19.09 | 19.25 | 19.54 |
| | 100% | / | 20 | 19.04 | 19.12 | 19.52 |

LTE band 26(part22)

| LTE 26 | | | | Output power (dBm) | | |
|------------|-----|-----------|---------|--------------------|-------|-------|
| Modulation | RB | RB Offset | Tune up | 1.4MHz | | |
| | | | | 26697 | 26865 | 27033 |
| QPSK | 1 | Low | 24 | 22.81 | 22.85 | 22.95 |
| | | Middle | | 22.77 | 22.87 | 23.02 |
| | | High | | 22.74 | 22.90 | 22.93 |
| | 50% | Low | 24 | 22.88 | 22.82 | 22.96 |
| | | Middle | | 22.90 | 22.87 | 22.95 |
| | | High | | 22.84 | 22.86 | 23.03 |



| | | | | | | |
|------------|------|-----------|---------|-------|-------|-------|
| | 100% | / | 23 | 21.83 | 21.85 | 22.01 |
| 16QAM | 1 | Low | 23.5 | 22.07 | 22.17 | 22.26 |
| | | Middle | | 22.17 | 22.05 | 22.17 |
| | | High | | 21.97 | 22.15 | 22.31 |
| | 5 | Low | 22.5 | 21.90 | 21.89 | 22.05 |
| | | Middle | | 21.82 | 21.91 | 22.01 |
| | | High | | 21.88 | 21.86 | 21.89 |
| | 100% | / | 22 | 20.92 | 20.98 | 21.04 |
| 64QAM | 1 | Low | 22 | 20.24 | 20.73 | 20.64 |
| | | Middle | | 20.23 | 20.73 | 20.63 |
| | | High | | 20.23 | 20.69 | 20.56 |
| | 5 | Low | 22 | 20.35 | 20.54 | 20.68 |
| | | Middle | | 20.33 | 20.46 | 20.56 |
| | | High | | 20.30 | 20.48 | 20.66 |
| | 100% | / | 21 | 19.42 | 19.42 | 19.71 |
| Modulation | RB | RB Offset | Tune up | 3MHz | | |
| | | | | 26705 | 26865 | 27025 |
| QPSK | 1 | Low | 24 | 21.88 | 22.89 | 22.98 |
| | | Middle | | 22.06 | 22.98 | 22.93 |
| | | High | | 21.83 | 22.79 | 22.90 |
| | 50% | Low | 23 | 20.99 | 21.82 | 22.06 |
| | | Middle | | 20.96 | 21.91 | 22.04 |
| | | High | | 20.94 | 21.85 | 21.96 |
| | 100% | / | 23 | 20.92 | 21.89 | 22.03 |
| 16QAM | 1 | Low | 23.5 | 21.14 | 22.15 | 22.30 |
| | | Middle | | 21.33 | 22.33 | 22.23 |
| | | High | | 21.18 | 22.19 | 22.18 |
| | 50% | Low | 22.5 | 20.74 | 20.95 | 21.09 |
| | | Middle | | 20.73 | 21.01 | 21.08 |
| | | High | | 20.71 | 20.90 | 21.05 |
| | 100% | / | 22 | 20.88 | 20.98 | 21.11 |
| 64QAM | 1 | Low | 22 | 20.45 | 20.66 | 20.65 |
| | | Middle | | 20.37 | 20.54 | 20.65 |
| | | High | | 20.25 | 20.55 | 20.60 |
| | 50% | Low | 21 | 19.23 | 19.52 | 19.47 |
| | | Middle | | 19.09 | 19.55 | 19.48 |
| | | High | | 19.07 | 19.49 | 19.47 |
| | 100% | / | 21 | 19.43 | 19.41 | 19.72 |
| Modulation | RB | RB Offset | Tune up | 5MHz | | |
| | | | | 26715 | 26865 | 27015 |
| QPSK | 1 | Low | 24 | 22.89 | 22.98 | 23.19 |
| | | Middle | | 22.59 | 22.89 | 23.13 |

| | | | | | | |
|------------|------|-----------|---------|-------|-------|-------|
| | | High | | 22.78 | 22.86 | 22.96 |
| | 50% | Low | 23 | 21.74 | 21.85 | 22.11 |
| | | Middle | | 21.75 | 21.83 | 22.07 |
| | | High | | 21.79 | 21.92 | 22.02 |
| | 100% | / | 23 | 21.79 | 21.89 | 22.11 |
| 16QAM | 1 | Low | 23.5 | 22.33 | 22.31 | 22.58 |
| | | Middle | | 21.93 | 22.16 | 22.30 |
| | | High | | 22.08 | 22.14 | 22.24 |
| | 50% | Low | 22.5 | 20.77 | 20.82 | 21.09 |
| | | Middle | | 20.69 | 20.82 | 21.09 |
| | | High | | 20.82 | 20.86 | 21.01 |
| 100% | / | 22 | 20.80 | 20.85 | 21.11 | |
| 64QAM | 1 | Low | 22 | 20.41 | 20.43 | 20.91 |
| | | Middle | | 20.39 | 20.37 | 20.77 |
| | | High | | 20.64 | 20.41 | 20.67 |
| | 50% | Low | 21 | 19.28 | 19.43 | 19.65 |
| | | Middle | | 19.32 | 19.30 | 19.59 |
| | | High | | 19.28 | 19.33 | 19.56 |
| 100% | / | 21 | 19.36 | 19.32 | 19.68 | |
| Modulation | RB | RB Offset | Tune up | 10MHz | | |
| | | | | 26750 | 26865 | 26990 |
| QPSK | 1 | Low | 24 | 22.84 | 23.11 | 23.49 |
| | | Middle | | 22.64 | 22.84 | 23.14 |
| | | High | | 23.00 | 23.13 | 23.22 |
| | 50% | Low | 23 | 21.72 | 22.02 | 22.28 |
| | | Middle | | 21.72 | 21.96 | 22.19 |
| | | High | | 21.75 | 21.98 | 22.10 |
| 100% | / | 23 | 21.76 | 22.01 | 22.18 | |
| 16QAM | 1 | Low | 23.5 | 22.11 | 22.52 | 22.79 |
| | | Middle | | 21.87 | 22.24 | 22.28 |
| | | High | | 22.27 | 22.53 | 22.51 |
| | 50% | Low | 22.5 | 20.75 | 20.98 | 21.29 |
| | | Middle | | 20.76 | 21.00 | 21.11 |
| | | High | | 20.80 | 20.98 | 21.14 |
| 100% | / | 22 | 20.72 | 21.05 | 21.22 | |
| 64QAM | 1 | Low | 22 | 20.49 | 20.90 | 21.09 |
| | | Middle | | 20.31 | 20.59 | 21.76 |
| | | High | | 20.62 | 20.91 | 20.85 |
| | 50% | Low | 21 | 19.33 | 19.57 | 19.88 |
| | | Middle | | 19.41 | 19.60 | 19.77 |
| | | High | | 19.40 | 19.58 | 19.76 |
| 100% | / | 21 | 19.31 | 19.52 | 19.76 | |

| Modulation | RB | RB Offset | Tune up | 15MHz | | |
|------------|------|-----------|---------|-------|-------|-------|
| | | | | 26775 | 26865 | 26965 |
| QPSK | 1 | Low | 24 | 23.08 | 23.59 | 23.77 |
| | | Middle | | 22.99 | 23.15 | 23.46 |
| | | High | | 23.40 | 23.63 | 23.74 |
| | 50% | Low | 23 | 22.12 | 22.59 | 22.77 |
| | | Middle | | 22.02 | 22.33 | 22.57 |
| | | High | | 21.88 | 22.15 | 22.37 |
| | 100% | / | 23 | 22.06 | 22.34 | 22.62 |
| 16QAM | 1 | Low | 23.5 | 22.31 | 22.87 | 23.07 |
| | | Middle | | 22.41 | 22.81 | 22.68 |
| | | High | | 22.71 | 23.02 | 22.86 |
| | 50% | Low | 22.5 | 21.15 | 21.65 | 21.84 |
| | | Middle | | 21.06 | 21.37 | 21.59 |
| | | High | | 20.93 | 21.13 | 21.34 |
| | 100% | / | 22 | 21.02 | 21.28 | 21.60 |
| 64QAM | 1 | Low | 22 | 20.71 | 21.35 | 21.36 |
| | | Middle | | 20.52 | 21.44 | 21.11 |
| | | High | | 21.01 | 21.41 | 21.33 |
| | 50% | Low | 21.5 | 20.66 | 21.34 | 21.38 |
| | | Middle | | 20.78 | 21.41 | 21.26 |
| | | High | | 20.99 | 21.14 | 21.29 |
| | 100% | / | 21 | 19.55 | 19.83 | 20.15 |

LTE Band 38

| LTE 38 | | | | Output power (dBm) | | |
|------------|------|-----------|---------|--------------------|-------|-------|
| Modulation | RB | RB Offset | Tune up | 5MHz | | |
| | | | | 37775 | 38000 | 38225 |
| QPSK | 1 | Low | 23 | 22.08 | 22.17 | 22.38 |
| | | Middle | | 22.15 | 22.07 | 22.32 |
| | | High | | 21.95 | 22.16 | 22.22 |
| | 50% | Low | 22 | 21.05 | 21.13 | 21.20 |
| | | Middle | | 20.99 | 21.14 | 21.20 |
| | | High | | 20.98 | 21.23 | 21.26 |
| | 100% | / | 22 | 20.97 | 21.27 | 21.19 |
| 16QAM | 1 | Low | 22 | 21.23 | 21.43 | 21.41 |
| | | Middle | | 21.24 | 21.46 | 21.43 |
| | | High | | 21.25 | 21.34 | 21.49 |
| | 5 | Low | 21 | 20.12 | 20.26 | 20.33 |
| | | Middle | | 20.18 | 20.18 | 20.38 |
| | | High | | 20.09 | 20.21 | 20.34 |

| | | | | | | |
|------------|------|-----------|---------|-------|-------|-------|
| | 100% | / | 21 | 20.19 | 20.26 | 20.22 |
| 64QAM | 1 | Low | 21 | 20.50 | 20.49 | 20.44 |
| | | Middle | | 20.46 | 20.50 | 20.36 |
| | | High | | 20.45 | 20.41 | 20.35 |
| | 5 | Low | 20 | 19.10 | 19.45 | 19.44 |
| | | Middle | | 19.00 | 19.51 | 19.59 |
| | | High | | 19.02 | 19.50 | 19.35 |
| | 100% | / | 20 | 18.96 | 19.51 | 19.39 |
| Modulation | RB | RB Offset | Tune up | 10MHz | | |
| | | | | 37800 | 38000 | 38200 |
| QPSK | 1 | Low | 23 | 22.28 | 22.36 | 22.53 |
| | | Middle | | 22.08 | 22.04 | 22.13 |
| | | High | | 22.19 | 22.44 | 22.37 |
| | 50% | Low | 22 | 21.12 | 21.13 | 21.31 |
| | | Middle | | 21.16 | 21.22 | 21.23 |
| | | High | | 21.10 | 21.28 | 21.25 |
| | 100% | / | 22 | 21.18 | 21.17 | 21.23 |
| 16QAM | 1 | Low | 22 | 21.47 | 21.62 | 21.68 |
| | | Middle | | 21.29 | 21.26 | 21.28 |
| | | High | | 21.60 | 21.65 | 21.84 |
| | 50% | Low | 21 | 20.09 | 20.17 | 20.34 |
| | | Middle | | 20.22 | 20.17 | 20.32 |
| | | High | | 20.21 | 20.45 | 20.38 |
| | 100% | / | 21 | 20.24 | 20.24 | 20.36 |
| 64QAM | 1 | Low | 21 | 20.58 | 20.49 | 20.44 |
| | | Middle | | 20.33 | 20.31 | 20.31 |
| | | High | | 20.62 | 20.61 | 20.66 |
| | 50% | Low | 20 | 19.01 | 19.47 | 19.52 |
| | | Middle | | 19.03 | 19.55 | 19.67 |
| | | High | | 19.05 | 19.56 | 19.55 |
| | 100% | / | 20 | 19.08 | 19.45 | 19.36 |
| Modulation | RB | RB Offset | Tune up | 15MHz | | |
| | | | | 37825 | 38000 | 38175 |
| QPSK | 1 | Low | 23 | 22.27 | 22.27 | 22.49 |
| | | Middle | | 21.94 | 22.06 | 22.36 |
| | | High | | 22.35 | 22.63 | 22.76 |
| | 50% | Low | 22 | 20.93 | 21.03 | 21.31 |
| | | Middle | | 21.09 | 21.24 | 21.30 |
| | | High | | 21.19 | 21.20 | 21.45 |
| | 100% | / | 22 | 21.04 | 21.20 | 21.43 |
| 16QAM | 1 | Low | 22 | 21.37 | 21.42 | 21.71 |
| | | Middle | | 21.22 | 21.25 | 21.30 |



| | | | | | | |
|------------|------|-----------|---------|-------|-------|-------|
| | | High | | 21.74 | 21.80 | 21.93 |
| | 50% | Low | 21 | 19.96 | 20.05 | 20.28 |
| | | Middle | | 20.18 | 20.15 | 20.53 |
| | | High | | 20.32 | 20.22 | 20.33 |
| | 100% | / | 21 | 20.10 | 20.32 | 20.50 |
| 64QAM | 1 | Low | 21 | 20.58 | 20.21 | 20.28 |
| | | Middle | | 20.38 | 20.08 | 20.16 |
| | | High | | 20.90 | 20.61 | 20.56 |
| | 50% | Low | 20 | 19.52 | 19.35 | 19.54 |
| | | Middle | | 19.78 | 19.56 | 19.55 |
| | | High | | 19.77 | 19.89 | 19.76 |
| 100% | / | 20 | 19.05 | 19.23 | 19.18 | |
| Modulation | RB | RB Offset | Tune up | 20MHz | | |
| | | | | 37850 | 38000 | 38150 |
| QPSK | 1 | Low | 23 | 22.11 | 22.13 | 22.40 |
| | | Middle | | 22.10 | 22.03 | 22.22 |
| | | High | | 22.60 | 22.42 | 22.82 |
| | 50% | Low | 22 | 21.03 | 20.99 | 21.25 |
| | | Middle | | 21.09 | 21.09 | 21.34 |
| | | High | | 21.38 | 21.33 | 21.37 |
| 100% | / | 22 | 21.21 | 21.22 | 21.31 | |
| 16QAM | 1 | Low | 22 | 21.28 | 21.31 | 21.51 |
| | | Middle | | 21.32 | 21.25 | 21.56 |
| | | High | | 21.65 | 21.71 | 21.88 |
| | 50% | Low | 21 | 20.17 | 20.07 | 20.33 |
| | | Middle | | 20.28 | 20.28 | 20.34 |
| | | High | | 20.32 | 20.42 | 20.46 |
| 100% | / | 21 | 20.31 | 20.21 | 20.37 | |
| 64QAM | 1 | Low | 21 | 20.21 | 20.15 | 20.22 |
| | | Middle | | 20.16 | 20.19 | 20.45 |
| | | High | | 20.66 | 20.35 | 20.41 |
| | 50% | Low | 20 | 18.98 | 18.94 | 18.99 |
| | | Middle | | 19.25 | 18.89 | 19.04 |
| | | High | | 19.38 | 19.09 | 19.23 |
| 100% | / | 20 | 19.12 | 19.06 | 19.04 | |

LTE band 41

| LTE 41 | | | | Output power (dBm) | | |
|------------|----|-----------|---------|--------------------|-------|-------|
| Modulation | RB | RB Offset | Tune up | 5MHz | | |
| | | | | 39675 | 40620 | 41565 |
| QPSK | 1 | Low | 23 | 20.99 | 21.78 | 21.04 |
| | | Middle | | 20.98 | 21.70 | 21.19 |



| | | | | | | |
|------------|------|-----------|---------|-------|-------|-------|
| | | High | | 20.98 | 21.56 | 21.10 |
| | 50% | Low | 22 | 20.02 | 20.85 | 20.31 |
| | | Middle | | 19.97 | 20.77 | 20.24 |
| | | High | | 19.99 | 20.71 | 20.22 |
| | 100% | / | 22 | 19.92 | 20.68 | 20.21 |
| 16QAM | 1 | Low | 22 | 20.16 | 20.98 | 20.27 |
| | | Middle | | 20.16 | 20.89 | 20.40 |
| | | High | | 20.19 | 20.74 | 20.27 |
| | 5 | Low | 21 | 19.20 | 19.75 | 19.33 |
| | | Middle | | 19.14 | 19.91 | 19.34 |
| | | High | | 19.12 | 19.67 | 19.26 |
| 100% | / | 21 | 19.08 | 19.74 | 19.27 | |
| 64QAM | 1 | Low | 22 | 21.02 | 20.90 | 20.40 |
| | | Middle | | 20.97 | 21.05 | 20.61 |
| | | High | | 20.99 | 20.74 | 20.32 |
| | 5 | Low | 21 | 19.59 | 20.19 | 20.23 |
| | | Middle | | 19.58 | 20.12 | 20.21 |
| | | High | | 19.55 | 20.11 | 20.18 |
| 100% | / | 21 | 19.47 | 20.14 | 20.18 | |
| Modulation | RB | RB Offset | Tune up | 10MHz | | |
| | | | | 39700 | 40620 | 41540 |
| QPSK | 1 | Low | 23 | 21.29 | 21.71 | 20.81 |
| | | Middle | | 21.13 | 21.73 | 21.19 |
| | | High | | 21.29 | 21.61 | 20.80 |
| | 50% | Low | 22 | 20.04 | 20.72 | 20.44 |
| | | Middle | | 19.93 | 20.65 | 20.15 |
| | | High | | 20.03 | 20.69 | 20.19 |
| 100% | / | 22 | 19.93 | 20.70 | 20.35 | |
| 16QAM | 1 | Low | 22 | 20.40 | 21.13 | 20.03 |
| | | Middle | | 20.17 | 20.83 | 20.41 |
| | | High | | 20.49 | 20.91 | 19.99 |
| | 50% | Low | 21 | 19.09 | 19.72 | 19.28 |
| | | Middle | | 19.13 | 19.70 | 19.21 |
| | | High | | 19.08 | 19.71 | 19.25 |
| 100% | / | 21 | 19.13 | 19.70 | 19.42 | |
| 64QAM | 1 | Low | 21 | 21.03 | 20.68 | 20.17 |
| | | Middle | | 20.84 | 20.88 | 20.50 |
| | | High | | 21.07 | 20.35 | 19.98 |
| | 50% | Low | 21 | 19.51 | 20.17 | 20.09 |
| | | Middle | | 19.53 | 20.11 | 20.05 |
| | | High | | 19.57 | 20.08 | 20.01 |
| 100% | / | 21 | 19.60 | 20.06 | 20.07 | |



| Modulation | RB | RB Offset | Tune up | 15MHz | | |
|------------|------|-----------|---------|-------|-------|-------|
| | | | | 39725 | 40620 | 41515 |
| QPSK | 1 | Low | 23 | 21.06 | 21.81 | 21.05 |
| | | Middle | | 21.50 | 21.99 | 21.13 |
| | | High | | 20.73 | 21.37 | 20.95 |
| | 50% | Low | 22 | 20.46 | 21.15 | 20.87 |
| | | Middle | | 20.43 | 21.22 | 20.82 |
| | | High | | 20.27 | 20.76 | 20.45 |
| | 100% | / | 22 | 20.44 | 20.96 | 20.60 |
| 16QAM | 1 | Low | 22 | 20.17 | 21.13 | 20.31 |
| | | Middle | | 20.57 | 21.35 | 20.39 |
| | | High | | 20.03 | 20.67 | 20.13 |
| | 50% | Low | 21 | 19.43 | 20.09 | 19.96 |
| | | Middle | | 19.30 | 20.05 | 19.74 |
| | | High | | 19.17 | 19.79 | 19.43 |
| | 100% | / | 21 | 19.30 | 19.95 | 19.68 |
| 64QAM | 1 | Low | 22 | 20.67 | 20.76 | 20.45 |
| | | Middle | | 21.11 | 20.81 | 20.45 |
| | | High | | 20.38 | 20.43 | 20.25 |
| | 50% | Low | 21 | 19.66 | 19.74 | 20.46 |
| | | Middle | | 19.44 | 19.82 | 20.31 |
| | | High | | 19.46 | 19.47 | 20.25 |
| | 100% | / | 21 | 19.68 | 19.91 | 20.16 |
| Modulation | RB | RB Offset | Tune up | 20MHz | | |
| | | | | 39750 | 40620 | 41490 |
| QPSK | 1 | Low | 23 | 21.43 | 21.91 | 20.97 |
| | | Middle | | 21.47 | 21.96 | 21.08 |
| | | High | | 21.64 | 21.73 | 20.97 |
| | 50% | Low | 22 | 20.44 | 21.07 | 20.82 |
| | | Middle | | 20.56 | 21.13 | 20.83 |
| | | High | | 20.57 | 21.17 | 20.84 |
| | 100% | / | 22 | 20.55 | 21.15 | 20.97 |
| 16QAM | 1 | Low | 22 | 20.66 | 21.41 | 20.27 |
| | | Middle | | 20.76 | 21.36 | 20.35 |
| | | High | | 20.87 | 21.06 | 20.23 |
| | 50% | Low | 21 | 19.45 | 20.29 | 19.96 |
| | | Middle | | 19.67 | 20.10 | 19.94 |
| | | High | | 19.60 | 20.33 | 19.80 |
| | 100% | / | 21 | 19.56 | 20.17 | 19.90 |
| 64QAM | 1 | Low | 22 | 20.93 | 21.50 | 20.13 |
| | | Middle | | 20.94 | 21.30 | 20.10 |
| | | High | | 21.04 | 20.88 | 19.87 |



| | | | | | | |
|--|------|--------|----|-------|-------|-------|
| | 50% | Low | 21 | 19.86 | 20.17 | 20.25 |
| | | Middle | | 19.89 | 20.09 | 20.13 |
| | | High | | 20.01 | 20.30 | 20.12 |
| | 100% | / | 21 | 19.85 | 20.20 | 20.15 |

LTE band 66

| LTE 66 | | | Output power (dBm) | | | |
|------------|-------|-----------|--------------------|--------|--------|--------|
| Modulation | RB | RB Offset | Tune up | 1.4MHz | | |
| | | | | 131979 | 132322 | 132665 |
| QPSK | 1 | Low | 23 | 21.32 | 21.23 | 21.14 |
| | | Middle | | 21.42 | 21.27 | 21.13 |
| | | High | | 21.37 | 21.2 | 21.1 |
| | 50% | Low | 23 | 21.42 | 21.32 | 21.22 |
| | | Middle | | 21.49 | 21.36 | 21.24 |
| | | High | | 21.47 | 21.37 | 21.21 |
| | 100% | / | 22 | 20.38 | 20.3 | 20.14 |
| 16QAM | 1 | Low | 22.5 | 21.24 | 21.14 | 21.04 |
| | | Middle | | 21.21 | 21.16 | 21.05 |
| | | High | | 21.21 | 21.06 | 20.98 |
| | 5 | Low | 21.5 | 20.9 | 20.79 | 20.64 |
| | | Middle | | 20.95 | 20.84 | 20.71 |
| | | High | | 20.91 | 20.82 | 20.71 |
| | 100% | / | 21 | 19.99 | 19.79 | 19.67 |
| 64QAM | 1 | Low | 21 | 19.84 | 19.73 | 19.50 |
| | | Middle | | 19.78 | 19.73 | 19.38 |
| | | High | | 19.72 | 19.71 | 19.48 |
| | 5 | Low | 21 | 18.74 | 19.61 | 19.63 |
| | | Middle | | 18.66 | 19.55 | 19.58 |
| | | High | | 18.63 | 19.56 | 19.63 |
| | 100% | / | 20 | 18.71 | 18.44 | 18.58 |
| Modulation | RB | RB Offset | Tune up | 3MHz | | |
| QPSK | 1 | Low | 23 | 131987 | 132322 | 132657 |
| | | Middle | | 21.34 | 21.22 | 21.27 |
| | | High | | 21.43 | 21.38 | 21.01 |
| | 50% | Low | 22 | 21.20 | 21.13 | 21.00 |
| | | Middle | | 21.47 | 21.35 | 21.36 |
| | | High | | 21.51 | 21.36 | 21.23 |
| | 100% | / | 22 | 21.53 | 21.37 | 21.28 |
| | 20.55 | 20.37 | 20.12 | 20.55 | 20.37 | 20.12 |
| | | | | 21.63 | 20.63 | 20.64 |
| 21.46 | | | | 20.87 | 20.72 | |
| 16QAM | 1 | High | 22 | 21.14 | 20.57 | 21.17 |



| | | | | | | |
|------------|------|-----------|---------|--------|--------|--------|
| | 50% | Low | 21.5 | 20.96 | 20.80 | 20.83 |
| | | Middle | | 20.86 | 20.88 | 20.72 |
| | | High | | 20.97 | 20.92 | 20.67 |
| | 100% | / | 21 | 20.17 | 19.81 | 19.66 |
| 64QAM | 1 | Low | 21 | 19.49 | 19.64 | 19.45 |
| | | Middle | | 19.57 | 19.77 | 19.45 |
| | | High | | 19.58 | 19.63 | 19.42 |
| | 50% | Low | 21 | 18.47 | 18.65 | 18.27 |
| | | Middle | | 18.39 | 18.38 | 18.31 |
| | | High | | 18.55 | 18.58 | 18.33 |
| | 100% | / | 20 | 18.31 | 18.47 | 18.61 |
| Modulation | RB | RB Offset | Tune up | 5MHz | | |
| | | | | 131997 | 132322 | 132647 |
| QPSK | 1 | Low | 23 | 22.13 | 21.97 | 21.79 |
| | | Middle | | 21.97 | 21.84 | 21.63 |
| | | High | | 21.98 | 21.81 | 21.56 |
| | 50% | Low | 22 | 21.05 | 20.86 | 20.74 |
| | | Middle | | 20.93 | 20.78 | 20.66 |
| | | High | | 20.93 | 20.71 | 20.59 |
| | 100% | / | 22 | 20.95 | 20.81 | 20.64 |
| 16QAM | 1 | Low | 22 | 21.5 | 21.31 | 21.05 |
| | | Middle | | 21.27 | 21.1 | 20.95 |
| | | High | | 21.31 | 21.15 | 20.93 |
| | 50% | Low | 21.5 | 20.15 | 19.95 | 19.76 |
| | | Middle | | 20.02 | 19.9 | 19.71 |
| | | High | | 19.97 | 19.81 | 19.65 |
| | 100% | / | 21 | 19.97 | 19.87 | 19.67 |
| 64QAM | 1 | Low | 21 | 19.84 | 19.59 | 19.52 |
| | | Middle | | 19.78 | 19.50 | 19.50 |
| | | High | | 19.72 | 19.41 | 19.41 |
| | 50% | Low | 21 | 18.74 | 18.46 | 18.50 |
| | | Middle | | 18.77 | 18.44 | 18.45 |
| | | High | | 18.63 | 18.31 | 18.37 |
| | 100% | / | 20 | 18.71 | 18.48 | 18.49 |
| Modulation | RB | RB Offset | Tune up | 10MHz | | |
| | | | | 132022 | 132322 | 132622 |
| QPSK | 1 | Low | 23 | 20.97 | 21.12 | 21 |
| | | Middle | | 21.6 | 21.62 | 21.46 |
| | | High | | 22.1 | 22.13 | 22.11 |
| | 50% | Low | 22 | 20.56 | 20.74 | 20.58 |
| | | Middle | | 20.71 | 20.75 | 20.6 |
| | | High | | 20.71 | 20.84 | 20.69 |



| | | | | | | |
|------------|------|-----------|---------|--------|--------|--------|
| | 100% | / | 22 | 20.7 | 20.75 | 20.6 |
| 16QAM | 1 | Low | 22 | 20.39 | 20.49 | 20.22 |
| | | Middle | | 20.94 | 20.98 | 20.74 |
| | | High | | 21.32 | 21.34 | 21.12 |
| | 50% | Low | 21.5 | 19.67 | 19.7 | 19.46 |
| | | Middle | | 19.88 | 19.73 | 19.49 |
| | | High | | 19.87 | 19.77 | 19.52 |
| | 100% | / | 21 | 19.85 | 19.7 | 19.46 |
| 64QAM | 1 | Low | 21 | 19.24 | 19.24 | 18.86 |
| | | Middle | | 19.79 | 19.28 | 19.44 |
| | | High | | 20.24 | 20.14 | 19.95 |
| | 50% | Low | 21 | 18.67 | 18.51 | 18.37 |
| | | Middle | | 18.86 | 18.52 | 18.45 |
| | | High | | 18.68 | 18.57 | 18.61 |
| | 100% | / | 20 | 18.76 | 18.52 | 18.35 |
| Modulation | RB | RB Offset | Tune up | 15MHz | | |
| | | | | 132047 | 132322 | 132597 |
| QPSK | 1 | Low | 23 | 22.24 | 22.09 | 21.95 |
| | | Middle | | 21.91 | 21.61 | 21.6 |
| | | High | | 22.03 | 21.81 | 21.71 |
| | 50% | Low | 22 | 21.03 | 20.81 | 20.76 |
| | | Middle | | 20.98 | 20.72 | 20.69 |
| | | High | | 20.89 | 20.64 | 20.61 |
| | 100% | / | 22 | 21.01 | 20.73 | 20.72 |
| 16QAM | 1 | Low | 22 | 21.21 | 21.08 | 20.96 |
| | | Middle | | 20.87 | 20.7 | 20.77 |
| | | High | | 20.94 | 20.78 | 20.69 |
| | 50% | Low | 21.5 | 19.67 | 19.42 | 19.49 |
| | | Middle | | 19.63 | 19.4 | 19.42 |
| | | High | | 19.57 | 19.33 | 19.33 |
| | 100% | / | 21 | 19.61 | 19.37 | 19.41 |
| 64QAM | 1 | Low | 21 | 20.11 | 19.93 | 19.82 |
| | | Middle | | 19.67 | 19.66 | 19.46 |
| | | High | | 19.83 | 19.76 | 19.61 |
| | 50% | Low | 21 | 20.07 | 19.97 | 19.79 |
| | | Middle | | 19.74 | 19.88 | 19.66 |
| | | High | | 19.74 | 19.76 | 19.57 |
| | 100% | / | 20 | 18.54 | 18.36 | 18.35 |
| Modulation | RB | RB Offset | Tune up | 20MHz | | |
| | | | | 132072 | 132322 | 132572 |
| QPSK | 1 | Low | 23 | 21.42 | 21.2 | 21.24 |
| | | Middle | | 21.4 | 21.27 | 21.21 |

| | | | | | | |
|-------|-----|--------|-------|-------|-------|-------|
| | 50% | High | 22 | 21.6 | 21.57 | 21.74 |
| | | Low | | 20.47 | 20.28 | 20.26 |
| | | Middle | | 20.44 | 20.28 | 20.24 |
| | | High | | 20.39 | 20.27 | 20.49 |
| 100% | / | 22 | 20.45 | 20.26 | 20.29 | |
| 16QAM | 1 | Low | 22 | 20.79 | 20.55 | 20.53 |
| | | Middle | | 20.65 | 20.54 | 20.56 |
| | | High | | 20.97 | 20.88 | 20.81 |
| | 50% | Low | 21.5 | 19.45 | 19.22 | 19.24 |
| | | Middle | | 19.43 | 19.28 | 19.25 |
| | | High | | 19.46 | 19.27 | 19.23 |
| 100% | / | 21 | 19.41 | 19.29 | 19.25 | |
| 64QAM | 1 | Low | 21 | 19.92 | 19.43 | 19.59 |
| | | Middle | | 19.87 | 19.45 | 19.65 |
| | | High | | 20.18 | 19.83 | 19.96 |
| | 50% | Low | 21 | 18.55 | 18.37 | 18.31 |
| | | Middle | | 18.65 | 18.33 | 18.38 |
| | | High | | 18.66 | 18.38 | 18.30 |
| 100% | / | 20 | 18.51 | 18.34 | 18.36 | |

LTE Band 71

| LTE 71 | | | Output power (dBm) | | | |
|------------|-----|-----------|--------------------|--------|--------|--------|
| Modulation | RB | RB Offset | Tune up | 5MHz | | |
| | | | | 133147 | 133297 | 133447 |
| QPSK | 1 | Low | 23 | 21.99 | 21.94 | 21.96 |
| | | Middle | | 21.81 | 21.90 | 21.94 |
| | | High | | 21.78 | 21.86 | 21.93 |
| | 50% | Low | 22.5 | 21.32 | 20.87 | 20.82 |
| | | Middle | | 21.31 | 20.92 | 20.79 |
| | | High | | 21.29 | 20.97 | 20.76 |
| 100% | / | 22 | 21.26 | 20.94 | 20.89 | |
| 16QAM | 1 | Low | 22.5 | 21.28 | 20.95 | 21.07 |
| | | Middle | | 21.30 | 20.91 | 21.05 |
| | | High | | 21.34 | 20.87 | 21.04 |
| | 5 | Low | 21.5 | 20.31 | 19.88 | 19.93 |
| | | Middle | | 20.30 | 19.93 | 19.90 |
| | | High | | 20.28 | 19.98 | 19.87 |
| 100% | / | 21 | 20.25 | 19.95 | 20.00 | |
| 64QAM | 1 | Low | 21 | 20.27 | 19.96 | 20.18 |
| | | Middle | | 20.29 | 19.92 | 20.16 |
| | | High | | 20.33 | 19.88 | 20.15 |
| | 5 | Low | 20 | 19.30 | 18.89 | 19.04 |

| | | | | | | | |
|------------|------------|-----------|-----------|---------|--------|--------|--------|
| | | Middle | | 19.29 | 18.94 | 19.01 | |
| | | High | | 19.27 | 18.99 | 18.98 | |
| | 100% | / | 20 | 19.24 | 18.96 | 19.11 | |
| Modulation | RB | RB Offset | Tune up | 10MHz | | | |
| | | | | 133172 | 133297 | 133422 | |
| QPSK | 1 | Low | 23 | 21.43 | 21.49 | 20.98 | |
| | | Middle | | 22.18 | 22.22 | 21.83 | |
| | | High | | 22.59 | 22.64 | 22.20 | |
| | 50% | Low | 22.5 | 21.05 | 20.81 | 20.67 | |
| | | Middle | | 21.18 | 20.90 | 20.79 | |
| | | High | | 21.31 | 20.99 | 20.90 | |
| | 100% | / | 22 | 21.09 | 20.89 | 20.75 | |
| | 16QAM | 1 | Low | 22.5 | 20.42 | 20.50 | 20.09 |
| | | | Middle | | 21.17 | 21.23 | 20.94 |
| High | | | 21.58 | | 21.65 | 21.31 | |
| 50% | | Low | 21.5 | 20.04 | 19.82 | 19.78 | |
| | | Middle | | 20.17 | 19.91 | 19.90 | |
| | | High | | 20.30 | 20.00 | 20.01 | |
| 100% | | / | 21 | 20.08 | 19.90 | 19.86 | |
| 64QAM | | 1 | Low | 21 | 19.41 | 19.51 | 19.20 |
| | | | Middle | | 20.16 | 20.24 | 20.05 |
| | High | | 20.57 | | 20.66 | 20.42 | |
| | 50% | Low | 20 | 19.03 | 18.83 | 18.89 | |
| | | Middle | | 19.16 | 18.92 | 19.01 | |
| | | High | | 19.29 | 19.01 | 19.12 | |
| | 100% | / | 20 | 19.07 | 18.91 | 18.97 | |
| | Modulation | RB | RB Offset | Tune up | 15MHz | | |
| | | | | | 133197 | 133297 | 133397 |
| QPSK | 1 | Low | 23 | 21.82 | 21.77 | 21.56 | |
| | | Middle | | 22.04 | 22.08 | 21.75 | |
| | | High | | 21.97 | 21.79 | 21.67 | |
| | 50% | Low | 22.5 | 21.81 | 21.77 | 21.49 | |
| | | Middle | | 21.86 | 21.77 | 21.60 | |
| | | High | | 21.90 | 21.76 | 21.71 | |
| | 100% | / | 22 | 20.81 | 20.65 | 20.45 | |
| | 16QAM | 1 | Low | 22.5 | 20.81 | 20.78 | 20.67 |
| | | | Middle | | 21.03 | 21.09 | 20.86 |
| High | | | 20.96 | | 20.80 | 20.78 | |
| 50% | | Low | 21.5 | 20.80 | 20.78 | 20.60 | |
| | | Middle | | 20.85 | 20.78 | 20.71 | |
| | | High | | 20.89 | 20.77 | 20.82 | |
| 100% | | / | 21 | 19.80 | 19.66 | 19.56 | |

| | | | | | | |
|------------|------|-----------|---------|--------|--------|--------|
| 64QAM | 1 | Low | 21 | 19.80 | 19.79 | 19.78 |
| | | Middle | | 20.02 | 20.10 | 19.97 |
| | | High | | 19.95 | 19.81 | 19.89 |
| | 50% | Low | 20 | 19.79 | 19.79 | 19.71 |
| | | Middle | | 19.84 | 19.79 | 19.82 |
| | | High | | 19.88 | 19.78 | 19.93 |
| | 100% | / | 20 | 18.79 | 18.67 | 18.67 |
| Modulation | RB | RB Offset | Tune up | 20MHz | | |
| | | | | 133222 | 133322 | 133372 |
| QPSK | 1 | Low | 23 | 21.58 | 21.56 | 21.43 |
| | | Middle | | 22.43 | 22.55 | 22.57 |
| | | High | | 22.47 | 22.45 | 22.49 |
| | 50% | Low | 22.5 | 20.70 | 21.15 | 21.13 |
| | | Middle | | 21.51 | 21.50 | 21.56 |
| | | High | | 20.98 | 21.44 | 21.45 |
| | 100% | / | 22 | 20.81 | 20.83 | 20.75 |
| 16QAM | 1 | Low | 22.5 | 21.17 | 21.15 | 21.20 |
| | | Middle | | 22.13 | 22.24 | 22.12 |
| | | High | | 22.10 | 22.14 | 22.15 |
| | 50% | Low | 21.5 | 20.12 | 20.28 | 20.18 |
| | | Middle | | 20.56 | 20.55 | 20.47 |
| | | High | | 20.45 | 20.46 | 20.44 |
| | 100% | / | 21 | 20.32 | 20.38 | 20.27 |
| 64QAM | 1 | Low | 21 | 19.24 | 19.20 | 19.17 |
| | | Middle | | 20.30 | 20.29 | 20.15 |
| | | High | | 20.12 | 20.05 | 20.15 |
| | 50% | Low | 20 | 18.50 | 18.57 | 18.53 |
| | | Middle | | 18.60 | 18.67 | 18.65 |
| | | High | | 18.70 | 18.77 | 18.76 |
| | 100% | / | 20 | 18.62 | 18.64 | 18.58 |

LTE CA_7C

| LTE CA_7C (Sensor off) | | | | | Output power (dBm) | | |
|------------------------|---------------------|---------------------|--------|--------|--------------------|-------|-------|
| BW | PCC Frequency (MHz) | SCC Frequency (MHz) | PCC RB | SCC RB | QPSK | 16QAM | 64QAM |
| 10MHz/20MHz | 2505.5 | 2519.9 | 1@49 | 1@0 | 20.88 | 20.94 | 20.36 |
| | | | 50@0 | 100@0 | 20.71 | 20.93 | 20.27 |
| | 2525.6 | 2540.0 | 1@49 | 1@0 | 21.39 | 21.64 | 21.43 |
| | | | 50@0 | 100@0 | 20.65 | 20.62 | 20.33 |

| | | | | | | | |
|-------------|--------|--------|-------|-------|-------|-------|-------|
| | 2545.6 | 2560.0 | 1@49 | 1@0 | 21.61 | 21.61 | 21.18 |
| | | | 50@0 | 100@0 | 21.04 | 20.72 | 20.31 |
| 20MHz/10MHz | 2510.0 | 2524.4 | 1@99 | 1@0 | 20.94 | 21.58 | 20.85 |
| | | | 100@0 | 50@0 | 20.37 | 20.42 | 20.21 |
| | 2530.1 | 2544.5 | 1@99 | 1@0 | 21.22 | 21.45 | 21.3 |
| | | | 100@0 | 50@0 | 20.02 | 19.12 | 18.78 |
| | 2550.1 | 2564.5 | 1@99 | 1@0 | 21.45 | 21.96 | 20.64 |
| | | | 100@0 | 50@0 | 20.33 | 20.34 | 20.13 |
| 15MHz/15MHz | 2507.5 | 2522.5 | 1@74 | 1@0 | 20.98 | 21.63 | 21.24 |
| | | | 75@0 | 75@0 | 20.83 | 20.68 | 20.25 |
| | 2527.5 | 2542.5 | 1@74 | 1@0 | 20.85 | 21.43 | 21.03 |
| | | | 75@0 | 75@0 | 20.73 | 20.02 | 19.96 |
| | 2547.5 | 2562.5 | 1@74 | 1@0 | 21.14 | 21.36 | 21.17 |
| | | | 75@0 | 75@0 | 20.87 | 20.86 | 20.63 |
| 15MHz/20MHz | 2507.8 | 2524.9 | 1@74 | 1@0 | 21.03 | 22.91 | 21.86 |
| | | | 75@0 | 75@0 | 20.78 | 20.62 | 20.36 |
| | 2525.3 | 2542.4 | 1@74 | 1@0 | 20.83 | 21.37 | 21.28 |
| | | | 75@0 | 75@0 | 20.58 | 20.51 | 20.32 |
| | 2542.9 | 2560.0 | 1@74 | 1@0 | 21.60 | 21.52 | 20.97 |
| | | | 75@0 | 75@0 | 21.26 | 21.03 | 20.54 |
| 20MHz/15MHz | 2510.0 | 2527.1 | 1@99 | 1@0 | 20.58 | 21.56 | 21.16 |
| | | | 100@0 | 50@0 | 20.61 | 20.55 | 20.33 |
| | 2527.6 | 2544.7 | 1@99 | 1@0 | 20.90 | 21.12 | 21.02 |
| | | | 100@0 | 50@0 | 21.02 | 20.70 | 19.64 |
| | 2545.1 | 2562.2 | 1@99 | 1@0 | 20.97 | 21.14 | 20.43 |
| | | | 100@0 | 50@0 | 21.36 | 21.27 | 21.03 |
| 20MHz/20MHz | 2510.0 | 2529.8 | 1@99 | 1@0 | 21.50 | 21.54 | 21.27 |
| | | | 1@0 | 1@99 | 12.49 | 12.47 | 11.95 |
| | | | 100@0 | 100@0 | 20.48 | 20.46 | 20.27 |
| | 2525.1 | 2544.9 | 1@99 | 1@0 | 21.02 | 21.84 | 21.46 |
| | | | 1@0 | 1@99 | 13.03 | 12.89 | 12.74 |
| | | | 100@0 | 100@0 | 20.58 | 20.48 | 20.34 |

| | | | | | | | |
|--|--------|--------|-------|-------|-------|-------|-------|
| | 2540.2 | 2560.0 | 1@99 | 1@0 | 21.29 | 21.58 | 21.19 |
| | | | 1@0 | 1@99 | 12.92 | 12.47 | 12.37 |
| | | | 100@0 | 100@0 | 20.96 | 20.70 | 19.84 |

LTE CA_41C

| LTE CA_41C (Sensor off) | | | | | Output power (dBm) | | |
|-------------------------|---------------------|---------------------|--------|--------|--------------------|-------|-------|
| BW | PCC Frequency (MHz) | SCC Frequency (MHz) | PCC RB | SCC RB | QPSK | 16QAM | 64QAM |
| 10MHz/20MHz | 2501.5 | 2515.9 | 1@49 | 1@0 | 19.78 | 21.39 | 21.23 |
| | | | 50@0 | 100@0 | 21.02 | 21.04 | 20.86 |
| | 2583.6 | 2598.0 | 1@49 | 1@0 | 20.96 | 20.42 | 20.37 |
| | | | 50@0 | 100@0 | 20.55 | 20.33 | 19.96 |
| | 2665.6 | 2680.0 | 1@49 | 1@0 | 20.53 | 19.46 | 19.18 |
| | | | 50@0 | 100@0 | 18.71 | 16.82 | 16.43 |
| 20MHz/10MHz | 2506.0 | 2520.4 | 1@99 | 1@0 | 20.94 | 21.03 | 20.97 |
| | | | 100@0 | 50@0 | 20.50 | 20.34 | 20.21 |
| | 2588.1 | 2602.5 | 1@99 | 1@0 | 20.13 | 20.31 | 19.92 |
| | | | 100@0 | 50@0 | 21.03 | 20.11 | 18.46 |
| | 2670.1 | 2684.5 | 1@99 | 1@0 | 15.93 | 20.17 | 20.05 |
| | | | 100@0 | 50@0 | 17.63 | 15.56 | 14.53 |
| 15MHz/15MHz | 2503.5 | 2518.5 | 1@74 | 1@0 | 20.62 | 20.43 | 19.65 |
| | | | 75@0 | 75@0 | 21.05 | 20.58 | 20.31 |
| | 2585.5 | 2600.5 | 1@74 | 1@0 | 20.97 | 20.01 | 18.99 |
| | | | 75@0 | 75@0 | 21.04 | 20.27 | 20.12 |
| | 2667.5 | 2682.5 | 1@74 | 1@0 | 20.13 | 18.44 | 17.79 |
| | | | 75@0 | 75@0 | 17.80 | 15.96 | 13.57 |
| 15MHz/20MHz | 2503.8 | 2520.9 | 1@74 | 1@0 | 21.03 | 20.67 | 19.4 |
| | | | 75@0 | 75@0 | 20.57 | 20.35 | 20.05 |
| | 2583.3 | 2600.4 | 1@74 | 1@0 | 20.57 | 20.35 | 19.99 |
| | | | 75@0 | 75@0 | 20.45 | 20.48 | 20.04 |
| | 2662.9 | 2680.0 | 1@74 | 1@0 | 20.46 | 19.43 | 18.95 |
| | | | 75@0 | 75@0 | 18.80 | 16.27 | 15.87 |

| | | | | | | | |
|-------------|--------|--------|-------|-------|-------|-------|-------|
| 20MHz/15MHz | 2506.0 | 2523.1 | 1@99 | 1@0 | 20.17 | 19.84 | 18.66 |
| | | | 100@0 | 50@0 | 21.04 | 20.21 | 20.04 |
| | 2585.6 | 2602.7 | 1@99 | 1@0 | 20.09 | 20.14 | 19.85 |
| | | | 100@0 | 50@0 | 20.28 | 20.23 | 19.35 |
| | 2665.1 | 2682.2 | 1@99 | 1@0 | 20.12 | 19.14 | 18.74 |
| | | | 100@0 | 50@0 | 17.65 | 15.62 | 14.68 |
| 20MHz/20MHz | 2506.0 | 2525.8 | 1@99 | 1@0 | 20.23 | 20.64 | 20.35 |
| | | | 1@0 | 1@99 | 19.43 | 15.03 | 13.98 |
| | | | 100@0 | 100@0 | 20.46 | 21.05 | 20.42 |
| | 2583.1 | 2602.9 | 1@99 | 1@0 | 20.44 | 20.61 | 20.33 |
| | | | 1@0 | 1@99 | 18.73 | 18.81 | 17.84 |
| | | | 100@0 | 100@0 | 20.35 | 20.03 | 18.4 |
| | 2660.2 | 2680.0 | 1@99 | 1@0 | 20.23 | 19.25 | 17.94 |
| | | | 1@0 | 1@99 | 18.84 | 19.25 | 17.63 |
| | | | 100@0 | 100@0 | 17.76 | 19.66 | 18.49 |

6.1.3 Radiated

6.1.3.1 Description

This is the test for the maximum radiated power from the EUT.

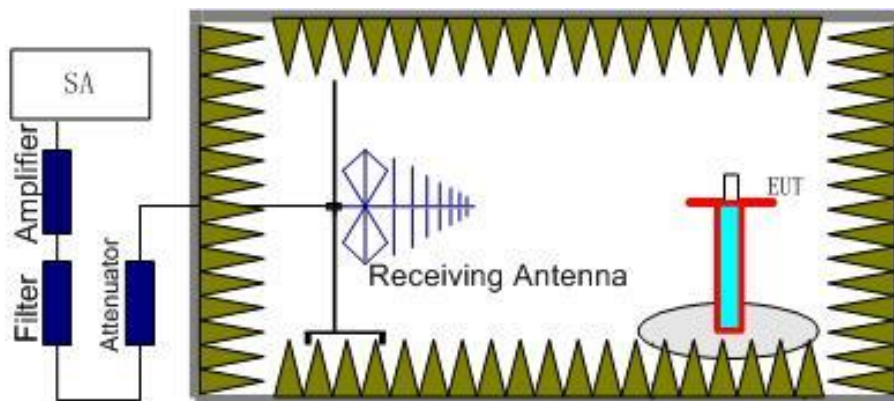
Rule Part 24.232(b) specifies, "Mobile/portable stations are limited to 2 watts e.i.r.p. Peak power" and 24.232(c) specifies that "Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage."

Rule Part 27.50(d) specifies "Fixed, mobile, and portable (handheld) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP".

Rule Part 27.50(h)(2) specifies "Mobile stations are limited to 2.0 watts EIRP".

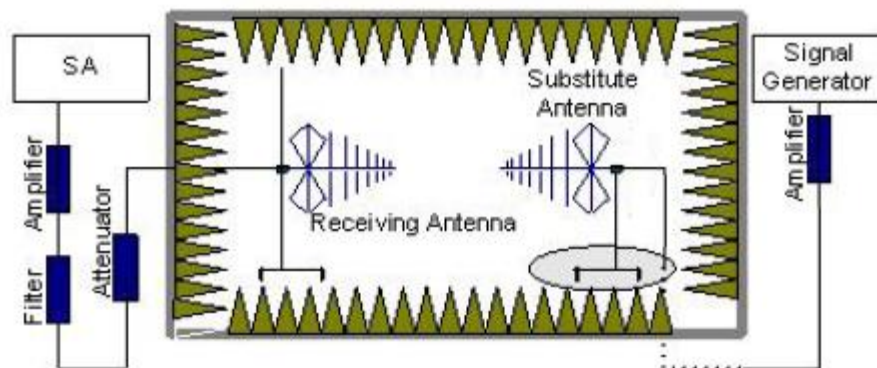
Rule Part 27.50(c) specifies "Portable stations (hand-held de-vices) are limited to 3 watts ERP".

6.1.3.2 Method of Measurement



The measurements procedures in TIA-603E-2016 are used.

1. EUT was placed on a 1.5 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna is 1.5m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all transmit frequencies in three channels (High, Middle, Low) were measured with peak detector.
2. The EUT is then put into continuously transmitting mode at its maximum power level during the test. And the maximum value of the receiver should be recorded as (P_r).
3. The EUT shall be replaced by a substitution antenna. The test setup refers to figure below.



In the chamber, a substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (P_{Mea}) is applied to the input of the substitution antenna. Adjust the level of the signal generator output until the value of the receiver reaches the previously recorded (P_r). The power of signal source (P_{Mea}) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

4. An amplifier should be connected to the Signal Source output port. And the cable should be connected between the amplifier and the substitution antenna.
The cable loss (P_{cl}), the substitution antenna Gain (G_a) and the amplifier Gain (P_{Ag}) should be recorded after test.

The measurement results are obtained as described below:

$$\text{Power (EIRP)} = P_{Mea} + P_{Ag} - P_{cl} + G_a$$

5. This value is EIRP since the measurement is calibrated using an antenna of known gain (unit dBi) and known input power.
6. ERP can be calculated from EIRP by subtracting the gain of the dipole, $ERP = EIRP - 2.15\text{dBi}$.



6.3.3.3 Measurement result

LTE Band 2- EIRP 24. 232(b)

Limits: ≤33dBm (2W)

LTE Band 2_1.4MHz_QPSK

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 1850.7 | 22.13 | 33.00 | H |
| 1880 | 22.38 | 33.00 | H |
| 1909.3 | 22.54 | 33.00 | H |

LTE Band 2_3MHz_QPSK

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 1851.5 | 22.07 | 33.00 | H |
| 1880 | 22.49 | 33.00 | H |
| 1908.5 | 22.67 | 33.00 | H |

LTE Band 2_5MHz_QPSK

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 1852.5 | 22.16 | 33.00 | H |
| 1880 | 22.55 | 33.00 | H |
| 1907.5 | 22.58 | 33.00 | H |

LTE Band 2_10MHz_QPSK

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 1855 | 22.41 | 33.00 | H |
| 1880 | 22.42 | 33.00 | H |
| 1905 | 22.74 | 33.00 | H |

LTE Band 2_15MHz_QPSK

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 1857.5 | 22.31 | 33.00 | H |
| 1880 | 22.58 | 33.00 | H |
| 1902.5 | 22.75 | 33.00 | H |

LTE Band 2_20 MHz_QPSK

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 1860 | 22.10 | 33.00 | H |
| 1880 | 22.35 | 33.00 | H |
| 1900 | 22.54 | 33.00 | H |

LTE Band 2_1.4MHz_16QAM

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 1850.7 | 21.50 | 33.00 | H |
| 1880 | 21.66 | 33.00 | H |
| 1909.3 | 21.80 | 33.00 | H |

LTE Band 2_3MHz_16QAM

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 1851.5 | 21.47 | 33.00 | H |

| | | | |
|--------|-------|-------|---|
| 1880 | 21.82 | 33.00 | H |
| 1908.5 | 21.90 | 33.00 | H |

LTE Band 2_5MHz_16QAM

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 1852.5 | 21.50 | 33.00 | H |
| 1880 | 21.82 | 33.00 | H |
| 1907.5 | 21.99 | 33.00 | H |

LTE Band 2_10MHz_16QAM

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 1855 | 21.60 | 33.00 | H |
| 1880 | 21.72 | 33.00 | H |
| 1905 | 22.00 | 33.00 | H |

LTE Band 2_15MHz_16QAM

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 1857.5 | 21.65 | 33.00 | H |
| 1880 | 21.72 | 33.00 | H |
| 1902.5 | 22.11 | 33.00 | H |

LTE Band 2_20 MHz_16QAM

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 1860 | 21.26 | 33.00 | H |
| 1880 | 21.68 | 33.00 | H |
| 1900 | 21.97 | 33.00 | H |

LTE Band 2_1.4MHz_64QAM

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 1850.7 | 20.80 | 33.00 | H |
| 1880 | 20.82 | 33.00 | H |
| 1909.3 | 20.74 | 33.00 | H |

LTE Band 2_3MHz_64QAM

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 1851.5 | 20.49 | 33.00 | H |
| 1880 | 20.73 | 33.00 | H |
| 1908.5 | 20.58 | 33.00 | H |

LTE Band 2_5MHz_64QAM

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 1852.5 | 20.66 | 33.00 | H |
| 1880 | 20.61 | 33.00 | H |
| 1907.5 | 20.79 | 33.00 | H |

LTE Band 2_10MHz_64QAM

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 1855 | 20.65 | 33.00 | H |
| 1880 | 20.85 | 33.00 | H |



| | | | |
|------|-------|-------|---|
| 1905 | 20.81 | 33.00 | H |
|------|-------|-------|---|

LTE Band 2_15MHz_64QAM

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 1857.5 | 20.76 | 33.00 | H |
| 1880 | 20.88 | 33.00 | H |
| 1902.5 | 20.89 | 33.00 | H |

LTE Band 2_20 MHz_64QAM

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 1860 | 20.69 | 33.00 | H |
| 1880 | 20.69 | 33.00 | H |
| 1900 | 21.00 | 33.00 | H |

LTE Band 4- EIRP 27.50(d)

Limits: ≤30dBm (1W)

LTE Band 4_1.4MHz_QPSK

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 1710.7 | 22.20 | 30.00 | H |
| 1732.5 | 22.57 | 30.00 | H |
| 1754.3 | 22.34 | 30.00 | H |

LTE Band 4_3MHz_QPSK

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 1711.5 | 22.32 | 30.00 | H |
| 1732.5 | 22.56 | 30.00 | H |
| 1753.5 | 22.38 | 30.00 | H |

LTE Band 4_5MHz_QPSK

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 1712.5 | 22.32 | 30.00 | H |
| 1732.5 | 22.73 | 30.00 | H |
| 1752.5 | 22.50 | 30.00 | H |

LTE Band 4_10MHz_QPSK

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 1715 | 22.57 | 30.00 | H |
| 1732.5 | 22.81 | 30.00 | H |
| 1750 | 22.83 | 30.00 | H |

LTE Band 4_15MHz_QPSK

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 1717.5 | 22.67 | 30.00 | H |
| 1732.5 | 22.72 | 30.00 | H |
| 1747.5 | 22.73 | 30.00 | H |

LTE Band 4_20MHz_QPSK

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
|----------------|-----------|------------|--------------|



| | | | |
|--------|-------|-------|---|
| 1720 | 22.62 | 30.00 | H |
| 1732.5 | 22.57 | 30.00 | H |
| 1745 | 22.74 | 30.00 | H |

LTE Band 4_1.4MHz_16QAM

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 1710.7 | 21.50 | 30.00 | H |
| 1732.5 | 21.76 | 30.00 | H |
| 1754.3 | 21.62 | 30.00 | H |

LTE Band 4_3MHz_16QAM

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 1711.5 | 21.45 | 30.00 | H |
| 1732.5 | 21.94 | 30.00 | H |
| 1753.5 | 21.55 | 30.00 | H |

LTE Band 4_5MHz_16QAM

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 1712.5 | 21.59 | 30.00 | H |
| 1732.5 | 22.17 | 30.00 | H |
| 1752.5 | 21.68 | 30.00 | H |

LTE Band 4_10MHz_16QAM

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 1715 | 21.72 | 30.00 | H |
| 1732.5 | 21.97 | 30.00 | H |
| 1750.5 | 21.84 | 30.00 | H |

LTE Band 4_15MHz_16QAM

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 1717.5 | 21.94 | 30.00 | H |
| 1732.5 | 21.77 | 30.00 | H |
| 1747.5 | 21.82 | 30.00 | H |

LTE Band 4_20MHz_16QAM

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 1720 | 21.92 | 30.00 | H |
| 1732.5 | 21.83 | 30.00 | H |
| 1745 | 21.79 | 30.00 | H |

LTE Band 4_1.4MHz_64QAM

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 1710.7 | 20.21 | 30.00 | H |
| 1732.5 | 20.78 | 30.00 | H |
| 1754.3 | 20.57 | 30.00 | H |

LTE Band 4_3MHz_64QAM

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 1711.5 | 20.40 | 30.00 | H |



| | | | |
|--------|-------|-------|---|
| 1732.5 | 20.80 | 30.00 | H |
| 1753.5 | 20.46 | 30.00 | H |

LTE Band 4_5MHz_64QAM

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 1712.5 | 20.53 | 30.00 | H |
| 1732.5 | 20.68 | 30.00 | H |
| 1752.5 | 20.64 | 30.00 | H |

LTE Band 4_10MHz_64QAM

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 1715 | 20.77 | 30.00 | H |
| 1732.5 | 20.90 | 30.00 | H |
| 1750.5 | 20.69 | 30.00 | H |

LTE Band 4_15MHz_64QAM

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 1717.5 | 20.74 | 30.00 | H |
| 1732.5 | 20.88 | 30.00 | H |
| 1747.5 | 20.65 | 30.00 | H |

LTE Band 4_20MHz_64QAM

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 1720 | 20.85 | 30.00 | H |
| 1732.5 | 20.72 | 30.00 | H |
| 1745 | 20.80 | 30.00 | H |

LTE Band 5- ERP/EIRP 22.913(a)

Limits: ≤38.45dBm (7W)

LTE Band 5_1.4MHz_QPSK

| Frequency(MHz) | ERP(dBm) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|----------|-----------|------------|--------------|
| 824.70 | 19.09 | 21.24 | 38.45 | H |
| 836.50 | 19.13 | 21.28 | 38.45 | H |
| 848.30 | 19.2 | 21.35 | 38.45 | H |

LTE Band 5_3MHz_QPSK

| Frequency(MHz) | ERP(dBm) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|----------|-----------|------------|--------------|
| 825.50 | 19.11 | 21.26 | 38.45 | H |
| 836.50 | 19.21 | 21.36 | 38.45 | H |
| 847.50 | 19.26 | 21.41 | 38.45 | H |

LTE Band 5_5MHz_QPSK

| Frequency(MHz) | ERP(dBm) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|----------|-----------|------------|--------------|
| 826.50 | 19.13 | 21.28 | 38.45 | H |
| 836.50 | 19.12 | 21.27 | 38.45 | H |
| 846.50 | 19.28 | 21.43 | 38.45 | H |

LTE Band 5_10MHz_QPSK



| Frequency(MHz) | ERP(dBm) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|----------|-----------|------------|--------------|
| 829.00 | 19.52 | 21.67 | 38.45 | H |
| 836.50 | 19.41 | 21.56 | 38.45 | H |
| 844.00 | 19.43 | 21.58 | 38.45 | H |

LTE Band 5_1.4MHz_16QAM

| Frequency(MHz) | ERP(dBm) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|----------|-----------|------------|--------------|
| 824.70 | 18.47 | 20.62 | 38.45 | H |
| 836.50 | 18.56 | 20.71 | 38.45 | H |
| 848.30 | 18.65 | 20.8 | 38.45 | H |

LTE Band 5_3MHz_16QAM

| Frequency(MHz) | ERP(dBm) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|----------|-----------|------------|--------------|
| 825.50 | 18.55 | 20.7 | 38.45 | H |
| 836.50 | 18.61 | 20.76 | 38.45 | H |
| 847.50 | 18.84 | 20.99 | 38.45 | H |

LTE Band 5_5MHz_16QAM

| Frequency(MHz) | ERP(dBm) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|----------|-----------|------------|--------------|
| 826.50 | 18.47 | 20.62 | 38.45 | H |
| 836.50 | 18.51 | 20.66 | 38.45 | H |
| 846.50 | 18.56 | 20.71 | 38.45 | H |

LTE Band 5_10MHz_16QAM

| Frequency(MHz) | ERP(dBm) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|----------|-----------|------------|--------------|
| 829.00 | 18.72 | 20.87 | 38.45 | H |
| 836.50 | 18.83 | 20.98 | 38.45 | H |
| 844.00 | 18.72 | 20.87 | 38.45 | H |

LTE Band 5_1.4MHz_64QAM

| Frequency(MHz) | ERP(dBm) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|----------|-----------|------------|--------------|
| 824.70 | 16.48 | 18.63 | 38.45 | H |
| 836.50 | 16.97 | 19.12 | 38.45 | H |
| 848.30 | 16.78 | 18.93 | 38.45 | H |

LTE Band 5_3MHz_64QAM

| Frequency(MHz) | ERP(dBm) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|----------|-----------|------------|--------------|
| 825.50 | 16.65 | 18.8 | 38.45 | H |
| 836.50 | 16.84 | 18.99 | 38.45 | H |
| 847.50 | 16.78 | 18.93 | 38.45 | H |

LTE Band 5_5MHz_64QAM

| Frequency(MHz) | ERP(dBm) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|----------|-----------|------------|--------------|
| 826.50 | 16.74 | 18.89 | 38.45 | H |
| 836.50 | 16.59 | 18.74 | 38.45 | H |
| 846.50 | 16.92 | 19.07 | 38.45 | H |

LTE Band 5_10MHz_64QAM

| Frequency(MHz) | ERP(dBm) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|----------|-----------|------------|--------------|
|----------------|----------|-----------|------------|--------------|



| | | | | |
|--------|-------|-------|-------|---|
| 829.00 | 17.04 | 19.19 | 38.45 | H |
| 836.50 | 17.13 | 19.28 | 38.45 | H |
| 844.00 | 17 | 19.15 | 38.45 | H |

LTE Band 7- EIRP 27.50(h)(2)

Limits: ≤33 dBm (2W)

LTE Band 7_5MHz_QPSK

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 2502.5 | 24.78 | 33.00 | H |
| 2535 | 24.95 | 33.00 | H |
| 2567.5 | 25.23 | 33.00 | H |

LTE Band 7_10MHz_QPSK

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 2505 | 24.92 | 33.00 | H |
| 2535 | 25.10 | 33.00 | H |
| 2565 | 25.45 | 33.00 | H |

LTE Band 7_15MHz_QPSK

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 2507.5 | 24.67 | 33.00 | H |
| 2535 | 24.97 | 33.00 | H |
| 2562.5 | 25.23 | 33.00 | H |

LTE Band 7_20MHz_QPSK

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 2510 | 24.91 | 33.00 | H |
| 2535 | 24.99 | 33.00 | H |
| 2560 | 25.05 | 33.00 | H |

LTE Band 7_5MHz_16QAM

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 2502.5 | 24.07 | 33.00 | H |
| 2535 | 24.24 | 33.00 | H |
| 2567.5 | 24.43 | 33.00 | H |

LTE Band 7_10MHz_16QAM

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 2505 | 24.02 | 33.00 | H |
| 2535 | 24.25 | 33.00 | H |
| 2565 | 24.59 | 33.00 | H |

LTE Band 7_15MHz_16QAM

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 2507.5 | 23.88 | 33.00 | H |
| 2535 | 24.07 | 33.00 | H |
| 2562.5 | 24.28 | 33.00 | H |

**LTE Band 7_20MHz_16QAM**

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 2510 | 23.86 | 33.00 | H |
| 2535 | 24.23 | 33.00 | H |
| 2560 | 24.35 | 33.00 | H |

LTE Band 7_5MHz_64QAM

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 2502.5 | 22.44 | 33.00 | H |
| 2535 | 22.53 | 33.00 | H |
| 2567.5 | 22.85 | 33.00 | H |

LTE Band 7_10MHz_64QAM

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 2505 | 22.58 | 33.00 | H |
| 2535 | 22.79 | 33.00 | H |
| 2565 | 22.94 | 33.00 | H |

LTE Band 7_15MHz_64QAM

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 2507.5 | 22.58 | 33.00 | H |
| 2535 | 22.72 | 33.00 | H |
| 2562.5 | 22.81 | 33.00 | H |

LTE Band 7_20MHz_64QAM

| Frequency(MHz) | EIRP(dBm) | Limit(dBm) | Polarization |
|----------------|-----------|------------|--------------|
| 2510 | 22.33 | 33.00 | H |
| 2535 | 22.78 | 33.00 | H |
| 2560 | 22.98 | 33.00 | H |

LTE Band 12- ERP 27.50(c)

Limits: ≤38.45dBm (7W)

LTE Band 12_1.4MHz_QPSK

| Frequency(MHz) | ERP(dBm) | Limit(dBm) | Polarization |
|----------------|----------|------------|--------------|
| 699.7 | 17.34 | 38.45 | H |
| 707.5 | 17.53 | 38.45 | H |
| 715.3 | 17.56 | 38.45 | H |

LTE Band 12_3MHz_QPSK

| Frequency(MHz) | ERP(dBm) | Limit(dBm) | Polarization |
|----------------|----------|------------|--------------|
| 700.5 | 17.34 | 38.45 | H |
| 707.5 | 17.65 | 38.45 | H |
| 714.5 | 17.53 | 38.45 | H |

LTE Band 12_5MHz_QPSK

| Frequency(MHz) | ERP(dBm) | Limit(dBm) | Polarization |
|----------------|----------|------------|--------------|
| 701.5 | 17.52 | 38.45 | H |

| | | | |
|-------|-------|-------|---|
| 707.5 | 17.61 | 38.45 | H |
| 713.5 | 17.69 | 38.45 | H |

LTE Band 12_10MHz_QPSK

| Frequency(MHz) | ERP(dBm) | Limit(dBm) | Polarization |
|----------------|----------|------------|--------------|
| 704 | 17.56 | 38.45 | H |
| 707.5 | 17.81 | 38.45 | H |
| 711 | 17.6 | 38.45 | H |

LTE Band 12_1.4MHz_16QAM

| Frequency(MHz) | ERP(dBm) | Limit(dBm) | Polarization |
|----------------|----------|------------|--------------|
| 699.7 | 16.64 | 38.45 | H |
| 707.5 | 16.91 | 38.45 | H |
| 715.3 | 16.86 | 38.45 | H |

LTE Band 12_3MHz_16QAM

| Frequency(MHz) | ERP(dBm) | Limit(dBm) | Polarization |
|----------------|----------|------------|--------------|
| 700.5 | 16.7 | 38.45 | H |
| 707.5 | 17.01 | 38.45 | H |
| 714.5 | 16.84 | 38.45 | H |

LTE Band 12_5MHz_16QAM

| Frequency(MHz) | ERP(dBm) | Limit(dBm) | Polarization |
|----------------|----------|------------|--------------|
| 701.5 | 16.62 | 38.45 | H |
| 707.5 | 16.95 | 38.45 | H |
| 713.5 | 16.88 | 38.45 | H |

LTE Band 12_10MHz_16QAM

| Frequency(MHz) | ERP(dBm) | Limit(dBm) | Polarization |
|----------------|----------|------------|--------------|
| 704 | 16.89 | 38.45 | H |
| 707.5 | 16.94 | 38.45 | H |
| 711 | 16.96 | 38.45 | H |

LTE Band 12_1.4MHz_64QAM

| Frequency(MHz) | ERP(dBm) | Limit(dBm) | Polarization |
|----------------|----------|------------|--------------|
| 699.7 | 15.19 | 38.45 | H |
| 707.5 | 15.34 | 38.45 | H |
| 715.3 | 15.09 | 38.45 | H |

LTE Band 12_3MHz_64QAM

| Frequency(MHz) | ERP(dBm) | Limit(dBm) | Polarization |
|----------------|----------|------------|--------------|
| 700.5 | 14.96 | 38.45 | H |
| 707.5 | 15.18 | 38.45 | H |
| 714.5 | 15.16 | 38.45 | H |

LTE Band 12_5MHz_64QAM

| Frequency(MHz) | ERP(dBm) | Limit(dBm) | Polarization |
|----------------|----------|------------|--------------|
| 701.5 | 15.08 | 38.45 | H |
| 707.5 | 15.41 | 38.45 | H |



| | | | |
|-------|-------|-------|---|
| 713.5 | 15.24 | 38.45 | H |
|-------|-------|-------|---|

LTE Band 12_10MHz_64QAM

| Frequency(MHz) | ERP(dBm) | Limit(dBm) | Polarization |
|----------------|----------|------------|--------------|
| 704 | 15.25 | 38.45 | H |
| 707.5 | 15.1 | 38.45 | H |
| 711 | 15.27 | 38.45 | H |

LTE Band 13- ERP 27.50(c)

Limits: ≤38.45dBm (7W)

LTE Band 13_5MHz_QPSK

| Frequency(MHz) | ERP(dBm) | Limit(dBm) | Polarization |
|----------------|----------|------------|--------------|
| 779.5 | 17.74 | 38.45 | H |
| 782 | 17.79 | 38.45 | H |
| 784.5 | 17.9 | 38.45 | H |

LTE Band 13_10MHz_QPSK

| Frequency(MHz) | ERP(dBm) | Limit(dBm) | Polarization |
|----------------|----------|------------|--------------|
| 782 | 18.27 | 38.45 | H |
| 782 | 18.03 | 38.45 | H |
| 782 | 18.2 | 38.45 | H |

LTE Band 13_5MHz_16QAM

| Frequency(MHz) | ERP(dBm) | Limit(dBm) | Polarization |
|----------------|----------|------------|--------------|
| 779.5 | 17 | 38.45 | H |
| 782 | 17.08 | 38.45 | H |
| 784.5 | 17.33 | 38.45 | H |

LTE Band 13_10MHz_16QAM

| Frequency(MHz) | ERP(dBm) | Limit(dBm) | Polarization |
|----------------|----------|------------|--------------|
| 782 | 17.33 | 38.45 | H |
| 782 | 17.39 | 38.45 | H |
| 782 | 17.21 | 38.45 | H |

LTE Band 13_5MHz_64QAM

| Frequency(MHz) | ERP(dBm) | Limit(dBm) | Polarization |
|----------------|----------|------------|--------------|
| 779.5 | 15.93 | 38.45 | H |
| 782 | 15.92 | 38.45 | H |
| 784.5 | 15.9 | 38.45 | H |

LTE Band 13_10MHz_64QAM

| Frequency(MHz) | ERP(dBm) | Limit(dBm) | Polarization |
|----------------|----------|------------|--------------|
| 782 | 15.32 | 38.45 | H |
| 782 | 15.49 | 38.45 | H |
| 782 | 15.84 | 38.45 | H |