

FCC Test Report

(PART 27)

Report No.: RF160317C10-5

FCC ID: NM82PST200

Test Model: 2PST200

Received Date: Mar. 15, 2016

Test Date: Mar. 15, 2016 ~ Apr. 01, 2016

Issued Date: Apr. 28, 2016

Applicant: HTC Corporation

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

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(R.O.C)

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Release Control Record

| Issue No. | Description | Date Issued |
|---------------|------------------|---------------|
| RF160317C10-5 | Original Release | Apr. 28, 2016 |

1 Certificate of Conformity

Product: Smartphone

Brand: HTC

Test Model: 2PST200

Sample Status: Identical Prototype

Applicant: HTC Corporation

Test Date: Mar. 15, 2016 ~ Apr. 01, 2016

Standards: FCC Part 27, Subpart C, L

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by : , **Date:** Apr. 28, 2016

Vera Huang / Specialist

Approved by : , **Date:** Apr. 28, 2016

Stanley Wu / Assistant Manager

2 Summary of Test Results

| Applied Standard: FCC Part 27 & Part 2 (WCDMA) | | | |
|--|-------------------------------------|--------|---|
| FCC Clause | Test Item | Result | Remarks |
| 2.1046 27.50(d)(4) | Equivalent Isotropic Radiated Power | Pass | Meet the requirement of limit. |
| 2.1055 27.54 | Frequency Stability | Pass | Meet the requirement of limit. |
| 2.1049 27.53(h) | Occupied Bandwidth | Pass | Meet the requirement of limit. |
| 27.50(d)(5) | Peak to Average Ratio | Pass | Meet the requirement of limit. |
| 27.53(h) | Band Edge Measurements | Pass | Meet the requirement of limit. |
| 2.1051 27.53(h) | Conducted Spurious Emissions | Pass | Meet the requirement of limit. |
| 2.1053 27.53(h) | Radiated Spurious Emissions | Pass | Meet the requirement of limit. Minimum passing margin is -27.14 dB at 30.00 MHz. |

| Applied Standard: FCC Part 27 & Part 2 (LTE 4) | | | |
|--|------------------------------|--------|---|
| FCC Clause | Test Item | Result | Remarks |
| 2.1046 27.50(d)(4) | Maximum Peak Output Power | Pass | Meet the requirement of limit. |
| 2.1055 27.54 | Frequency Stability | Pass | Meet the requirement of limit. |
| 2.1049 27.53(h) | Occupied Bandwidth | Pass | Meet the requirement of limit. |
| 27.50(d)(5) | Peak to Average Ratio | Pass | Meet the requirement of limit. |
| 27.53(h) | Band Edge Measurements | Pass | Meet the requirement of limit. |
| 2.1051 27.53(h) | Conducted Spurious Emissions | Pass | Meet the requirement of limit. |
| 2.1053 27.53(h) | Radiated Spurious Emissions | Pass | Meet the requirement of limit. Minimum passing margin is -27.14 dB at 30.00 MHz. |

Applied Standard: FCC Part 27 & Part 2 (LTE 12)

| FCC Clause | Test Item | Result | Remarks |
|------------------------|------------------------------|---------------|---|
| 2.1046 27.50(C)(10) | Maximum Peak Output Power | Pass | Meet the requirement of limit. |
| 2.1055 27.54 | Frequency Stability | Pass | Meet the requirement of limit. |
| 2.1049 27.53(g) | Occupied Bandwidth | Pass | Meet the requirement of limit. |
| 27.50(d)(5) | Peak to Average Ratio | Pass | Meet the requirement of limit. |
| 27.53(g) | Band Edge Measurements | Pass | Meet the requirement of limit. |
| 2.1051 27.53(g) | Conducted Spurious Emissions | Pass | Meet the requirement of limit. |
| 2.1053 27.53(g) | Radiated Spurious Emissions | Pass | Meet the requirement of limit. Minimum passing margin is -26.29 dB at 30.00 MHz. |

Applied Standard: FCC Part 27 & Part 2 (LTE 13)

| FCC Clause | Test Item | Result | Remarks |
|------------------------|------------------------------|---------------|---|
| 2.1046 27.50(b)(10) | Maximum Peak Output Power | Pass | Meet the requirement of limit. |
| 2.1055 27.54 | Frequency Stability | Pass | Meet the requirement of limit. |
| 2.1049 27.53(g) | Occupied Bandwidth | Pass | Meet the requirement of limit. |
| 27.50(d)(5) | Peak to Average Ratio | Pass | Meet the requirement of limit. |
| 27.53(g) | Band Edge Measurements | Pass | Meet the requirement of limit. |
| 2.1051 27.53(g) | Conducted Spurious Emissions | Pass | Meet the requirement of limit. |
| 2.1053 27.53(g) | Radiated Spurious Emissions | Pass | Meet the requirement of limit. Minimum passing margin is -13.86 dB at 1564.00 MHz. |

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

| Measurement | Frequency | Expanded Uncertainty (k=2) (±) |
|------------------------------------|--------------------|--------------------------------|
| Conducted Emissions at mains ports | 150 kHz ~ 30 MHz | 2.44 dB |
| Radiated Emissions up to 1 GHz | 30 MHz ~ 200 MHz | 2.93 dB |
| | 200 MHz ~ 1000 MHz | 2.95 dB |
| Radiated Emissions above 1 GHz | 1 GHz ~ 18 GHz | 2.26 dB |
| | 18 GHz ~ 40 GHz | 1.94 dB |

2.2 Test Site and Instruments

| Description & Manufacturer | Model No. | Serial No. | Date of Calibration | Due Date of Calibration |
|--|----------------|---------------------|---------------------|-------------------------|
| Test Receiver Agilent | N9038A | MY51210203 | Jan. 21, 2016 | Jan. 20, 2017 |
| Spectrum Analyzer Agilent | N9010A | MY52220314 | Sep. 03, 2015 | Sep. 02, 2016 |
| Spectrum Analyzer ROHDE & SCHWARZ | FSU43 | 101261 | Dec. 17, 2015 | Dec. 16, 2016 |
| BILOG Antenna SCHWARZBECK | VULB9168 | 9168-472 | Jan. 07, 2016 | Jan. 06, 2017 |
| HORN Antenna SCHWARZBECK | BBHA 9120 D | 9120D-969 | Jan. 04, 2016 | Jan. 03, 2017 |
| Double Ridge Guide Horn Antenna EMCO | 3115 | 5619 | Jan. 04, 2016 | Jan. 03, 2017 |
| BILOG Antenna SCHWARZBECK | VULB 9168 | 9168-153 | Jan. 07, 2016 | Jan. 06, 2017 |
| Loop Antenna | EM-6879 | 269 | Jul. 31, 2015 | Jul. 30, 2016 |
| Agilent Communications Tester-Wireless | 8960 Series 10 | MY53201073 | Jul. 03, 2015 | Jul. 02, 2017 |
| Preamplifier EMCI | EMC 012645 | 980115 | Dec. 21, 2015 | Dec. 20, 2016 |
| Preamplifier EMCI | EMC 184045 | 980116 | Dec. 21, 2015 | Dec. 20, 2016 |
| Preamplifier EMCI | EMC 330H | 980112 | Dec. 28, 2015 | Dec. 27, 2016 |
| Power Meter Anritsu | ML2495A | 1232002 | Sep. 21, 2015 | Sep. 20, 2016 |
| Power Sensor Anritsu | MA2411B | 1207325 | Sep. 21, 2015 | Sep. 20, 2016 |
| RF signal cable HUBER+SUHNNER | SUCOFLEX 104 | 309219/4 2950114 | Oct. 12, 2015 | Oct. 11, 2016 |
| RF signal cable HUBER+SUHNNER | SUCOFLEX 104 | 250130/4 | Oct. 12, 2015 | Oct. 11, 2016 |
| RF Coaxial Cable Worken | 8D-FB | Cable-Ch10-01 | Oct. 12, 2015 | Oct. 11, 2016 |
| Software BV ADT | E3 6.120103 | NA | NA | NA |
| Antenna Tower MF | MFA-440H | NA | NA | NA |
| Turn Table MF | MFT-201SS | NA | NA | NA |
| Antenna Tower & Turn Table Controller MF | MF-7802 | NA | NA | NA |

- Note: 1. The calibration interval of the above test instruments is 12 / 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 10.
3. The horn antenna and preamplifier (model: EMC 184045) are used only for the measurement of emission frequency above 1 GHz if tested.
4. The FCC Site Registration No. is 690701.
5. The IC Site Registration No. is IC7450F-10.

3 General Information

3.1 General Description of EUT

| | | |
|----------------------------|--|---------------------|
| Product | Smartphone | |
| Brand | HTC | |
| Test Model | 2PST200 | |
| Power Supply Rating | 5.0 Vdc (adapter or host equipment) 3.85 Vdc (Li-ion battery) | |
| Modulation Type | WCDMA | QPSK, BPSK |
| | LTE | QPSK, 16QAM |
| Frequency Range | WCDMA | 1712.4 ~ 1752.6 MHz |
| | LTE Band 4 (Channel Bandwidth: 1.4 MHz) | 1710.7 ~ 1754.3 MHz |
| | LTE Band 4 (Channel Bandwidth: 3 MHz) | 1711.5 ~ 1753.5 MHz |
| | LTE Band 4 (Channel Bandwidth: 5 MHz) | 1712.5 ~ 1752.5 MHz |
| | LTE Band 4 (Channel Bandwidth: 10 MHz) | 1715.0 ~ 1750.0 MHz |
| | LTE Band 4 (Channel Bandwidth: 15 MHz) | 1717.5 ~ 1747.5 MHz |
| | LTE Band 4 (Channel Bandwidth: 20 MHz) | 1720.0 ~ 1745.0 MHz |
| | LTE Band 12 (Channel Bandwidth: 1.4 MHz) | 699.7 ~ 715.3 MHz |
| | LTE Band 12 (Channel Bandwidth: 3 MHz) | 700.5 ~ 714.5 MHz |
| | LTE Band 12 (Channel Bandwidth: 5 MHz) | 701.5 ~ 713.5 MHz |
| | LTE Band 12 (Channel Bandwidth: 10 MHz) | 704.0 ~ 711.0 MHz |
| | LTE Band 13 (Channel Bandwidth: 5 MHz) | 779.5 ~ 784.5 MHz |
| | LTE Band 13 (Channel Bandwidth: 10 MHz) | 782.0 MHz |
| Emission Designator | WCDMA | 4M15F9W |
| | LTE Band 4 (Channel Bandwidth: 1.4 MHz) | 1M10G7D |
| | LTE Band 4 (Channel Bandwidth: 3 MHz) | 2M70W7D |
| | LTE Band 4 (Channel Bandwidth: 5 MHz) | 4M50G7D |
| | LTE Band 4 (Channel Bandwidth: 10 MHz) | 8M97G7D |
| | LTE Band 4 (Channel Bandwidth: 15 MHz) | 13M5G7D |
| | LTE Band 4 (Channel Bandwidth: 20 MHz) | 18M0W7D |
| | LTE Band 12 (Channel Bandwidth: 1.4 MHz) | 1M09G7D |
| | LTE Band 12 (Channel Bandwidth: 3 MHz) | 2M70W7D |
| | LTE Band 12 (Channel Bandwidth: 5 MHz) | 4M50G7D |
| | LTE Band 12 (Channel Bandwidth: 10 MHz) | 8M98W7D |
| | LTE Band 13 (Channel Bandwidth: 5 MHz) | 4M50G7D |
| | LTE Band 13 (Channel Bandwidth: 10 MHz) | 8M96W7D |

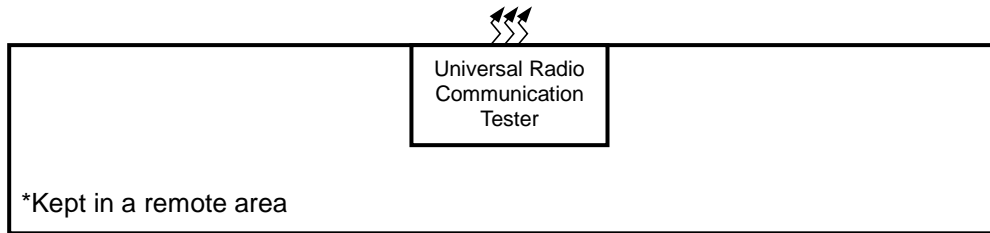
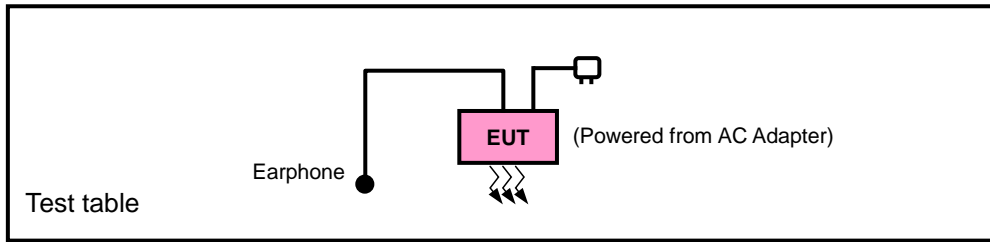
| | | |
|----------------------------|--|----------|
| Max. ERP Power | LTE Band 12 (Channel Bandwidth: 1.4 MHz) | 35.16mW |
| | LTE Band 12 (Channel Bandwidth: 3 MHz) | 35.65mW |
| | LTE Band 12 (Channel Bandwidth: 5 MHz) | 36.56 mW |
| | LTE Band 12 (Channel Bandwidth: 10 MHz) | 37.58mW |
| | LTE Band 13 (Channel Bandwidth: 5 MHz) | 92.90mW |
| | LTE Band 13 (Channel Bandwidth: 10 MHz) | 93.76mW |
| Max. EIRP Power | WCDMA | 188.36mW |
| | LTE Band 4 (Channel Bandwidth: 1.4 MHz) | 142.89mW |
| | LTE Band 4 (Channel Bandwidth: 3 MHz) | 145.55mW |
| | LTE Band 4 (Channel Bandwidth: 5 MHz) | 147.57mW |
| | LTE Band 4 (Channel Bandwidth: 10 MHz) | 150.97mW |
| | LTE Band 4 (Channel Bandwidth: 15 MHz) | 154.88mW |
| | LTE Band 4 (Channel Bandwidth: 20 MHz) | 155.96mW |
| Antenna Type | Fixed Internal Antenna | |
| Accessory Device | Refer to Note as below | |
| Data Cable Supplied | Refer to Note as below | |

Note:

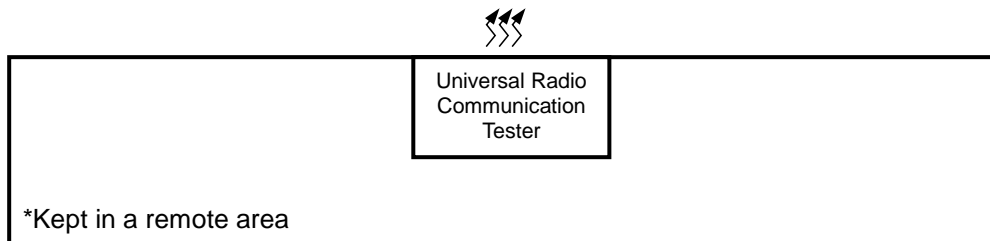
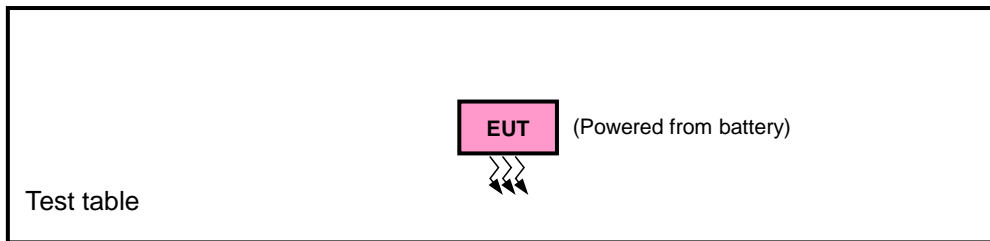
1. The EUT's accessories list refers to Ext. Pho.
2. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 Configuration of System under Test

<Radiated Emission Test>



<E.R.P. / E.I.R.P. Test>



3.2.1 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units.

3.3 Test Mode Applicability and Tested Channel Detail

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis, and antenna ports

The worst case was found when positioned as the table below. Following channel(s) was (were) selected for the final test as listed below:

| Band | ERP / EIRP | Radiated Emission |
|-------------|------------|-------------------|
| WCDMA | Y-plane | Y-axis |
| LTE Band 4 | Z-plane | Z-axis |
| LTE Band 12 | X-plane | X-axis |
| LTE Band 13 | X-plane | X-axis |

WCDMA

| EUT Configure Mode | Test Item | Available Channel | Tested Channel | Mode |
|--------------------|-----------------------|-------------------|------------------|-------|
| - | EIRP | 1312 to 1513 | 1312, 1413, 1513 | WCDMA |
| - | Frequency Stability | 1312 to 1513 | 1413 | WCDMA |
| - | Occupied Bandwidth | 1312 to 1513 | 1312, 1413, 1513 | WCDMA |
| - | Band Edge | 1312 to 1513 | 1312, 1513 | WCDMA |
| - | Peak to Average Ratio | 1312 to 1513 | 1312, 1413, 1513 | WCDMA |
| - | Conducuted Emission | 1312 to 1513 | 1413 | WCDMA |
| - | Radiated Emission | 1312 to 1513 | 1413 | WCDMA |

LTE Band 4

| EUT Configure Mode | Test Item | Available Channel | Tested Channel | Channel Bandwidth | Modulation | Mode |
|--------------------|-----------------------|-------------------|---------------------|-------------------|-------------|----------------------|
| - | EIRP | 19957 to 20393 | 19957, 20175, 20393 | 1.4 MHz | QPSK, 16QAM | 1 RB / 0 RB Offset |
| | | 19965 to 20385 | 19965, 20175, 20385 | 3 MHz | QPSK, 16QAM | 1 RB / 0 RB Offset |
| | | 19975 to 20375 | 19975, 20175, 20375 | 5 MHz | QPSK, 16QAM | 1 RB / 0 RB Offset |
| | | 20000 to 20350 | 20000, 20175, 20350 | 10 MHz | QPSK, 16QAM | 1 RB / 0 RB Offset |
| | | 20025 to 20325 | 20025, 20175, 20325 | 15 MHz | QPSK, 16QAM | 1 RB / 0 RB Offset |
| | | 20050 to 20300 | 20050, 20175, 20300 | 20 MHz | QPSK, 16QAM | 1 RB / 0 RB Offset |
| - | Frequency Stability | 19957 to 20393 | 20175 | 1.4 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 19965 to 20385 | 20175 | 3 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 19975 to 20375 | 20175 | 5 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 20000 to 20350 | 20175 | 10 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 20025 to 20325 | 20175 | 15 MHz | QPSK | 1 RB / 0 RB Offset |
| | | 20050 to 20300 | 20175 | 20 MHz | QPSK | 1 RB / 0 RB Offset |
| - | Occupied Bandwidth | 19957 to 20393 | 19957, 20175, 20393 | 1.4 MHz | QPSK, 16QAM | 6 RB / 0 RB Offset |
| | | 19965 to 20385 | 19965, 20175, 20385 | 3 MHz | QPSK, 16QAM | 15 RB / 0 RB Offset |
| | | 19975 to 20375 | 19975, 20175, 20375 | 5 MHz | QPSK, 16QAM | 25 RB / 0 RB Offset |
| | | 20000 to 20350 | 20000, 20175, 20350 | 10 MHz | QPSK, 16QAM | 50 RB / 0 RB Offset |
| | | 20025 to 20325 | 20025, 20175, 20325 | 15 MHz | QPSK, 16QAM | 75 RB / 0 RB Offset |
| | | 20050 to 20300 | 20050, 20175, 20300 | 20 MHz | QPSK, 16QAM | 100 RB / 0 RB Offset |
| - | Peak to Average Ratio | 19957 to 20393 | 19957, 20175, 20393 | 1.4 MHz | QPSK, 16QAM | 1 RB / 0 RB Offset |
| | | 19965 to 20385 | 19965, 20175, 20385 | 3 MHz | QPSK, 16QAM | 1 RB / 0 RB Offset |
| | | 19975 to 20375 | 19975, 20175, 20375 | 5 MHz | QPSK, 16QAM | 1 RB / 0 RB Offset |
| | | 20000 to 20350 | 20000, 20175, 20350 | 10 MHz | QPSK, 16QAM | 1 RB / 0 RB Offset |
| | | 20025 to 20325 | 20025, 20175, 20325 | 15 MHz | QPSK, 16QAM | 1 RB / 0 RB Offset |
| | | 20050 to 20300 | 20050, 20175, 20300 | 20 MHz | QPSK, 16QAM | 1 RB / 0 RB Offset |

| EUT Configure Mode | Test Item | Available Channel | Tested Channel | Channel Bandwidth | Modulation | Mode | | |
|--------------------|-------------------|-------------------|--------------------|-------------------|------------|---|------|--------------------|
| - | Band Edge | 19957 to 20393 | 19957 | 1.4 MHz | QPSK | 1 RB / 0 RB Offset 6 RB / 0 RB Offset | | |
| | | | 20393 | 1.4 MHz | QPSK | 1 RB / 5 RB Offset 6 RB / 0 RB Offset | | |
| | | 19965 to 20385 | 19965 | 3 MHz | QPSK | 1 RB / 0 RB Offset 15 RB / 0 RB Offset | | |
| | | | 20385 | 3 MHz | QPSK | 1 RB / 14 RB Offset 15 RB / 0 RB Offset | | |
| | | 19975 to 20375 | 19975 | 5 MHz | QPSK | 1 RB / 0 RB Offset 25 RB / 0 RB Offset | | |
| | | | 20375 | 5 MHz | QPSK | 1 RB / 24 RB Offset 25 RB / 0 RB Offset | | |
| | | 20000 to 20350 | 20000 | 10 MHz | QPSK | 1 RB / 0 RB Offset 50 RB / 0 RB Offset | | |
| | | | 20350 | 10 MHz | QPSK | 1 RB / 49 RB Offset 50 RB / 0 RB Offset | | |
| | | 20025 to 20325 | 20025 | 15 MHz | QPSK | 1 RB / 0 RB Offset 75 RB / 0 RB Offset | | |
| | | | 20325 | 15 MHz | QPSK | 1 RB / 74 RB Offset 75 RB / 0 RB Offset | | |
| | | 20050 to 20300 | 20050 | 20 MHz | QPSK | 1 RB / 0 RB Offset 100 RB / 0 RB Offset | | |
| | | | 20300 | 20 MHz | QPSK | 1 RB / 99 RB Offset 100 RB / 0 RB Offset | | |
| | | - | Conducted Emission | 19957 to 20393 | 20175 | 1.4 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | 19965 to 20385 | 20175 | 3 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | 19975 to 20375 | 20175 | 5 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | 20000 to 20350 | 20175 | 10 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | 20025 to 20325 | 20175 | 15 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | | 20050 to 20300 | 20175 | 20 MHz | QPSK | 1 RB / 0 RB Offset |
| - | Radiated Emission | 20050 to 20300 | 20175 | 20 MHz | QPSK | 1 RB / 0 RB Offset | | |

Note: This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

LTE Band 12

| EUT Configure Mode | Test Item | Available Channel | Tested Channel | Channel Bandwidth | Modulation | Mode | | |
|--------------------|-----------------------|-------------------|---------------------|-------------------|-------------|--|------|---------------------|
| - | ERP | 23017 to 23173 | 23017, 23095, 23173 | 1.4 MHz | QPSK, 16QAM | 1 RB / 2 RB Offset | | |
| | | 23025 to 23165 | 23025, 23095, 23165 | 3 MHz | QPSK, 16QAM | 1 RB / 7 RB Offset | | |
| | | 23035 to 23155 | 23035, 23095, 23155 | 5 MHz | QPSK, 16QAM | 1 RB / 12 RB Offset | | |
| | | 23060 to 23130 | 23060, 23095, 23130 | 10 MHz | QPSK, 16QAM | 1 RB / 24 RB Offset | | |
| - | Frequency Stability | 23017 to 23173 | 23095 | 1.4 MHz | QPSK | 1 RB / 2 RB Offset | | |
| | | 23025 to 23165 | 23095 | 3 MHz | QPSK | 1 RB / 7 RB Offset | | |
| | | 23035 to 23155 | 23095 | 5 MHz | QPSK | 1 RB / 12 RB Offset | | |
| | | 23060 to 23130 | 23095 | 10 MHz | QPSK | 1 RB / 24 RB Offset | | |
| - | Occupied Bandwidth | 23017 to 23173 | 23017, 23095, 23173 | 1.4 MHz | QPSK, 16QAM | 6 RB / 0 RB Offset | | |
| | | 23025 to 23165 | 23025, 23095, 23165 | 3 MHz | QPSK, 16QAM | 15 RB / 0 RB Offset | | |
| | | 23035 to 23155 | 23035, 23095, 23155 | 5 MHz | QPSK, 16QAM | 25 RB / 0 RB Offset | | |
| | | 23060 to 23130 | 23060, 23095, 23130 | 10 MHz | QPSK, 16QAM | 50 RB / 0 RB Offset | | |
| - | Peak to Average Ratio | 23017 to 23173 | 23017, 23095, 23173 | 1.4 MHz | QPSK, 16QAM | 1 RB / 2 RB Offset | | |
| | | 23025 to 23165 | 23025, 23095, 23165 | 3 MHz | QPSK, 16QAM | 1 RB / 7 RB Offset | | |
| | | 23035 to 23155 | 23035, 23095, 23155 | 5 MHz | QPSK, 16QAM | 1 RB / 12 RB Offset | | |
| | | 23060 to 23130 | 23060, 23095, 23130 | 10 MHz | QPSK, 16QAM | 1 RB / 24 RB Offset | | |
| - | Band Edge | 23017 to 23173 | 23017 | 1.4 MHz | QPSK | 1 RB / 0 RB Offset 6 RB / 0 RB Offset | | |
| | | | 23173 | 1.4 MHz | QPSK | 1 RB / 5 RB Offset 6 RB / 0 RB Offset | | |
| | | 23025 to 23165 | 23025 | 3 MHz | QPSK | 1 RB / 0 RB Offset 15 RB / 0 RB Offset | | |
| | | | 23165 | 3 MHz | QPSK | 1 RB / 14 RB Offset 15 RB / 0 RB Offset | | |
| | | 23035 to 23155 | 23035 | 5 MHz | QPSK | 1 RB / 0 RB Offset 25 RB / 0 RB Offset | | |
| | | | 23155 | 5 MHz | QPSK | 1 RB / 24 RB Offset 25 RB / 0 RB Offset | | |
| | | 23060 to 23130 | 23060 | 10 MHz | QPSK | 1 RB / 0 RB Offset 50 RB / 0 RB Offset | | |
| | | | 23130 | 10 MHz | QPSK | 1 RB / 49 RB Offset 50 RB / 0 RB Offset | | |
| | | - | Conducted Emission | 23017 to 23173 | 23095 | 1.4 MHz | QPSK | 1 RB / 2 RB Offset |
| | | | | 23025 to 23165 | 23095 | 3 MHz | QPSK | 1 RB / 7 RB Offset |
| | | | | 23035 to 23155 | 23095 | 5 MHz | QPSK | 1 RB / 12 RB Offset |
| | | | | 23060 to 23130 | 23095 | 10 MHz | QPSK | 1 RB / 24 RB Offset |
| - | Radiated Emission | 23060 to 23130 | 23095 | 10 MHz | QPSK | 1 RB / 24 RB Offset | | |

Note: This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

LTE Band 13

| EUT Configure Mode | Test Item | Available Channel | Tested Channel | Channel Bandwidth | Modulation | Mode |
|--------------------|-----------------------|-------------------|---------------------|-------------------|-------------|---------------------|
| - | ERP | 23205 to 23255 | 23205, 23230, 23255 | 5 MHz | QPSK, 16QAM | 1 RB / 12 RB Offset |
| | | 23230 | 23230 | 10 MHz | QPSK, 16QAM | 1 RB / 24 RB Offset |
| - | Frequency Stability | 23205 to 23255 | 23230 | 5 MHz | QPSK | 1 RB / 12 RB Offset |
| | | 23230 | 23230 | 10 MHz | QPSK | 1 RB / 24 RB Offset |
| - | Occupied Bandwidth | 23205 to 23255 | 23205, 23230, 23255 | 5 MHz | QPSK, 16QAM | 25 RB / 0 RB Offset |
| | | 23230 | 23230 | 10 MHz | QPSK, 16QAM | 50 RB / 0 RB Offset |
| - | Peak to Average Ratio | 23205 to 23255 | 23205, 23230, 23255 | 5 MHz | QPSK, 16QAM | 1 RB / 12 RB Offset |
| | | 23230 | 23230 | 10 MHz | QPSK, 16QAM | 1 RB / 24 RB Offset |
| - | Band Edge | 23205 to 23255 | 23205 | 5 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | 23255 | 5 MHz | QPSK | 25 RB / 0 RB Offset |
| | | 23230 | 23230 | 10 MHz | QPSK | 1 RB / 24 RB Offset |
| | | | 23230 | 10 MHz | QPSK | 25 RB / 0 RB Offset |
| | | | 23230 | 10 MHz | QPSK | 1 RB / 0 RB Offset |
| | | | 23230 | 10 MHz | QPSK | 50 RB / 0 RB Offset |
| - | Conducted Emission | 23205 to 23255 | 23230 | 5 MHz | QPSK | 1 RB / 12 RB Offset |
| | | 23230 | 23230 | 10 MHz | QPSK | 1 RB / 24 RB Offset |
| - | Radiated Emission | 23230 | 23230 | 10 MHz | QPSK | 1 RB / 24 RB Offset |
| | | | | | | 50 RB / 0 RB Offset |

Note: This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

Test Condition:

| Test Item | Environmental Conditions | Input Power | Tested By |
|-----------------------|--------------------------|----------------|----------------------|
| ERP / EIRP | 25 deg. C, 65 % RH | 3.85 Vdc | Wayne Lin |
| Frequency Stability | 25 deg. C, 65 % RH | 3.85 Vdc | Wayne Lin |
| Occupied Bandwidth | 25 deg. C, 65 % RH | 3.85 Vdc | Wayne Lin |
| Band Edge | 25 deg. C, 65 % RH | 3.85 Vdc | Wayne Lin |
| Peak to Average Ratio | 25 deg. C, 65 % RH | 3.85 Vdc | Wayne Lin |
| Condcudeted Emission | 25 deg. C, 65 % RH | 3.85 Vdc | Wayne Lin |
| Radiated Emission | 25 deg. C, 65 % RH | 120 Vac, 60 Hz | Toby Tian / Gavin Wu |

3.4 EUT Operating Conditions

The EUT makes a call to the communication simulator. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency

3.5 General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC 47 CFR Part 2

FCC 47 CFR Part 27

KDB 971168 D01 Power Meas License Digital Systems v02r02

ANSI/TIA/EIA-603-D 2010

Note: All test items have been performed and recorded as per the above standards.

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

Fixed, mobile, and portable (hand-held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP.

Portable stations (hand-held devices) operating in the 698-787 MHz band are limited to 3 watts ERP

4.1.2 Test Procedures

EIRP / ERP Measurement:

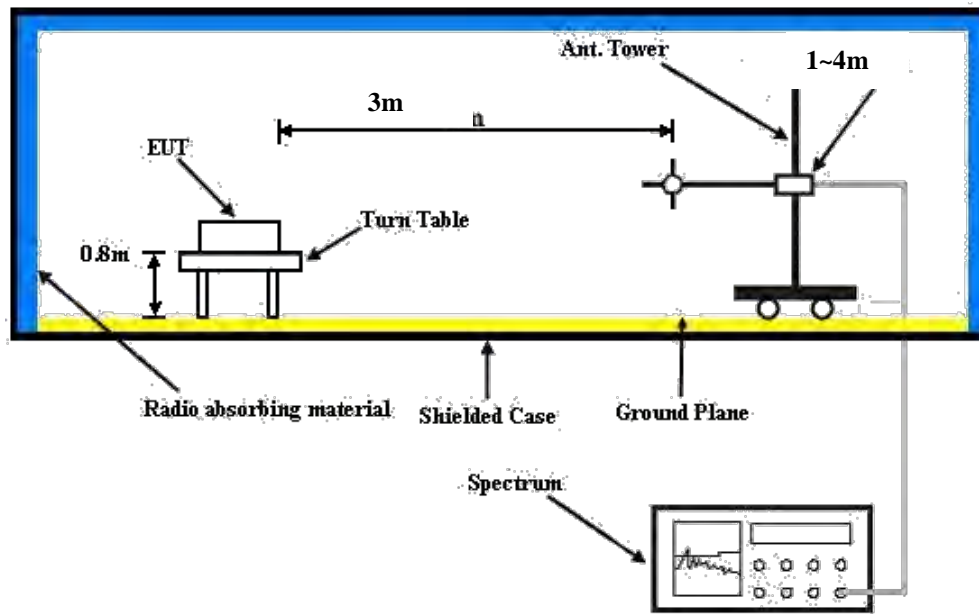
- a. All measurements were done at low, middle and high operational frequency range. RBW and VBW is 5 MHz for WCDMA and 10 MHz for LTE mode.
- b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
- c. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a tx cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value” of step b. Record the power level of S.G.
- d. $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, $E.R.P \text{ power} = E.I.P.R \text{ power} - 2.15 \text{ dBi}$.

Conducted Power Measurement:

- a. The EUT was set up for the maximum power with LTE link data modulation and link up with simulator.
- b. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

4.1.3 Test Setup

EIRP / ERP Measurement:



For the actual test configuration, please refer to the attached file (Test Setup Photo).

Conducted Power Measurement:



4.1.4 Test Results

Conducted Output Power (dBm)

| Band | WCDMA IV | | | |
|-----------------|----------|--------|--------|------|
| | Channel | 1312 | 1413 | 1513 |
| Frequency (MHz) | 1712.4 | 1732.6 | 1752.6 | |
| RMC 12.2K | 23.75 | 23.33 | 23.14 | |
| HSDPA Subtest-1 | 23.03 | 22.59 | 22.32 | |
| HSDPA Subtest-2 | 22.81 | 22.38 | 22.18 | |
| HSDPA Subtest-3 | 22.28 | 21.89 | 21.79 | |
| HSDPA Subtest-4 | 22.26 | 21.81 | 21.63 | |
| HSUPA Subtest-1 | 22.17 | 21.76 | 21.51 | |
| HSUPA Subtest-2 | 20.57 | 20.18 | 20.05 | |
| HSUPA Subtest-3 | 21.30 | 20.79 | 20.67 | |
| HSUPA Subtest-4 | 20.79 | 20.34 | 20.15 | |
| HSUPA Subtest-5 | 22.89 | 22.48 | 22.27 | |

| Band / BW | RB Size | RB Offset | QPSK | | | 3GPP MPR (dB) | 16QAM | | | 3GPP MPR (dB) |
|-----------|---------|-----------|--------------|--------------|---------------|---------------|--------------|--------------|---------------|---------------|
| | | | Low Ch 19957 | Mid Ch 20175 | High Ch 20393 | | Low Ch 19957 | Mid Ch 20175 | High Ch 20393 | |
| | | | 1710.7 MHz | 1732.5 MHz | 1754.3 MHz | | 1710.7 MHz | 1732.5 MHz | 1754.3 MHz | |
| 4 / 1.4M | 1 | 0 | 22.42 | 22.46 | 22.43 | 0 | 21.41 | 21.46 | 21.43 | 1 |
| | 1 | 2 | 22.40 | 22.45 | 22.44 | 0 | 21.43 | 21.43 | 21.42 | 1 |
| | 1 | 5 | 22.42 | 22.44 | 22.41 | 0 | 21.44 | 21.42 | 21.41 | 1 |
| | 3 | 0 | 22.44 | 22.41 | 22.42 | 0 | 21.42 | 21.42 | 21.42 | 1 |
| | 3 | 1 | 22.43 | 22.45 | 22.43 | 0 | 21.42 | 21.42 | 21.41 | 1 |
| | 3 | 3 | 22.43 | 22.45 | 22.44 | 0 | 21.42 | 21.43 | 21.42 | 1 |
| | 6 | 0 | 21.43 | 21.41 | 21.41 | 1 | 20.42 | 20.41 | 20.41 | 2 |

| Band / BW | RB Size | RB Offset | QPSK | | | 3GPP MPR (dB) | 16QAM | | | 3GPP MPR (dB) |
|-----------|---------|-----------|--------------|--------------|---------------|---------------|--------------|--------------|---------------|---------------|
| | | | Low Ch 19965 | Mid Ch 20175 | High Ch 20385 | | Low Ch 19965 | Mid Ch 20175 | High Ch 20385 | |
| | | | 1711.5 MHz | 1732.5 MHz | 1753.5 MHz | | 1711.5 MHz | 1732.5 MHz | 1753.5 MHz | |
| 4 / 3M | 1 | 0 | 22.46 | 22.50 | 22.43 | 0 | 21.45 | 21.49 | 21.42 | 1 |
| | 1 | 7 | 22.43 | 22.41 | 22.43 | 0 | 21.42 | 21.41 | 21.42 | 1 |
| | 1 | 14 | 22.42 | 22.49 | 22.41 | 0 | 21.41 | 21.43 | 21.49 | 1 |
| | 8 | 0 | 21.43 | 21.42 | 21.41 | 1 | 20.42 | 20.41 | 20.59 | 2 |
| | 8 | 3 | 21.48 | 21.49 | 21.41 | 1 | 20.47 | 20.48 | 20.45 | 2 |
| | 8 | 7 | 21.42 | 21.43 | 21.41 | 1 | 20.42 | 20.43 | 20.43 | 2 |
| | 15 | 0 | 21.43 | 21.43 | 21.42 | 1 | 20.42 | 20.41 | 20.44 | 2 |

| Band / BW | RB Size | RB Offset | QPSK | | | 3GPP MPR (dB) | 16QAM | | | 3GPP MPR (dB) |
|-----------|---------|-----------|--------------|--------------|---------------|---------------|--------------|--------------|---------------|---------------|
| | | | Low Ch 19975 | Mid Ch 20175 | High Ch 20375 | | Low Ch 19975 | Mid Ch 20175 | High Ch 20375 | |
| | | | 1712.5 MHz | 1732.5 MHz | 1752.5 MHz | | 1712.5 MHz | 1732.5 MHz | 1752.5 MHz | |
| 4 / 5M | 1 | 0 | 22.50 | 22.56 | 22.51 | 0 | 21.47 | 21.53 | 21.48 | 1 |
| | 1 | 12 | 22.43 | 22.52 | 22.47 | 0 | 21.41 | 21.49 | 21.44 | 1 |
| | 1 | 24 | 22.46 | 22.40 | 22.44 | 0 | 21.43 | 21.47 | 21.41 | 1 |
| | 12 | 0 | 21.46 | 21.44 | 21.42 | 1 | 20.43 | 20.41 | 20.43 | 2 |
| | 12 | 6 | 21.44 | 21.48 | 21.48 | 1 | 20.41 | 20.45 | 20.45 | 2 |
| | 12 | 13 | 21.44 | 21.49 | 21.42 | 1 | 20.41 | 20.46 | 20.42 | 2 |
| | 25 | 0 | 21.49 | 21.46 | 21.46 | 1 | 20.46 | 20.43 | 20.43 | 2 |

| Band / BW | RB Size | RB Offset | QPSK | | | 3GPP MPR (dB) | 16QAM | | | 3GPP MPR (dB) |
|-----------|---------|-----------|--------------|--------------|---------------|---------------|--------------|--------------|---------------|---------------|
| | | | Low Ch 20000 | Mid Ch 20175 | High Ch 20350 | | Low Ch 20000 | Mid Ch 20175 | High Ch 20350 | |
| | | | 1715.0 MHz | 1732.5 MHz | 1750.0 MHz | | 1715.0 MHz | 1732.5 MHz | 1750.0 MHz | |
| 4 / 10M | 1 | 0 | 22.55 | 22.67 | 22.60 | 0 | 21.60 | 21.76 | 21.67 | 1 |
| | 1 | 24 | 22.64 | 22.66 | 22.63 | 0 | 21.69 | 21.72 | 21.71 | 1 |
| | 1 | 49 | 22.55 | 22.62 | 22.57 | 0 | 21.56 | 21.67 | 21.62 | 1 |
| | 25 | 0 | 21.56 | 21.69 | 21.54 | 1 | 20.59 | 20.72 | 20.60 | 2 |
| | 25 | 12 | 21.58 | 21.63 | 21.63 | 1 | 20.57 | 20.65 | 20.67 | 2 |
| | 25 | 25 | 21.58 | 21.58 | 21.59 | 1 | 20.62 | 20.61 | 20.62 | 2 |
| | 50 | 0 | 21.54 | 21.63 | 21.56 | 1 | 20.55 | 20.65 | 20.54 | 2 |

| Band / BW | RB Size | RB Offset | QPSK | | | 3GPP MPR (dB) | 16QAM | | | 3GPP MPR (dB) |
|-----------|---------|-----------|--------------|--------------|---------------|---------------|--------------|--------------|---------------|---------------|
| | | | Low Ch 20025 | Mid Ch 20175 | High Ch 20325 | | Low Ch 20025 | Mid Ch 20175 | High Ch 20325 | |
| | | | 1717.5 MHz | 1732.5 MHz | 1747.5 MHz | | 1717.5 MHz | 1732.5 MHz | 1747.5 MHz | |
| 4 / 15M | 1 | 0 | 22.63 | 22.72 | 22.68 | 0 | 21.65 | 21.80 | 21.71 | 1 |
| | 1 | 37 | 22.70 | 22.69 | 22.64 | 0 | 21.66 | 21.76 | 21.76 | 1 |
| | 1 | 74 | 22.54 | 22.67 | 22.63 | 0 | 21.55 | 21.71 | 21.63 | 1 |
| | 36 | 0 | 21.60 | 21.73 | 21.62 | 1 | 20.54 | 20.74 | 20.61 | 2 |
| | 36 | 19 | 21.62 | 21.68 | 21.68 | 1 | 20.59 | 20.68 | 20.70 | 2 |
| | 36 | 39 | 21.57 | 21.67 | 21.60 | 1 | 20.55 | 20.66 | 20.56 | 2 |
| | 75 | 0 | 21.58 | 21.68 | 21.63 | 1 | 20.54 | 20.68 | 20.63 | 2 |

| Band / BW | RB Size | RB Offset | QPSK | | | 3GPP MPR (dB) | 16QAM | | | 3GPP MPR (dB) |
|-----------|---------|-----------|--------------|--------------|---------------|---------------|--------------|--------------|---------------|---------------|
| | | | Low Ch 20050 | Mid Ch 20175 | High Ch 20300 | | Low Ch 20050 | Mid Ch 20175 | High Ch 20300 | |
| | | | 1720.0 MHz | 1732.5 MHz | 1745.0 MHz | | 1720.0 MHz | 1732.5 MHz | 1745.0 MHz | |
| 4 / 20M | 1 | 0 | 22.54 | 22.62 | 22.58 | 0 | 21.57 | 21.67 | 21.62 | 1 |
| | 1 | 50 | 22.41 | 22.50 | 22.45 | 0 | 21.46 | 21.53 | 21.47 | 1 |
| | 1 | 99 | 22.43 | 22.41 | 22.51 | 0 | 21.47 | 21.42 | 21.51 | 1 |
| | 50 | 0 | 21.43 | 21.51 | 21.41 | 1 | 20.46 | 20.50 | 20.44 | 2 |
| | 50 | 25 | 21.44 | 21.50 | 21.47 | 1 | 20.42 | 20.49 | 20.46 | 2 |
| | 50 | 50 | 21.45 | 21.44 | 21.42 | 1 | 20.44 | 20.42 | 20.48 | 2 |
| | 100 | 0 | 21.43 | 21.45 | 21.41 | 1 | 20.48 | 20.44 | 20.43 | 2 |

| Band / BW | RB Size | RB Offset | QPSK | | | 3GPP MPR (dB) | 16QAM | | | 3GPP MPR (dB) |
|-----------|---------|-----------|--------------|--------------|---------------|---------------|--------------|--------------|---------------|---------------|
| | | | Low Ch 23017 | Mid Ch 23095 | High Ch 23173 | | Low Ch 23017 | Mid Ch 23095 | High Ch 23173 | |
| | | | 699.7 MHz | 707.5 MHz | 715.3 MHz | | 699.7 MHz | 707.5 MHz | 715.3 MHz | |
| 12 / 1.4M | 1 | 0 | 22.11 | 22.14 | 23.21 | 0 | 21.11 | 21.15 | 22.26 | 1 |
| | 1 | 2 | 22.45 | 23.54 | 22.73 | 0 | 21.50 | 22.59 | 21.78 | 1 |
| | 1 | 5 | 23.30 | 22.43 | 22.53 | 0 | 22.35 | 21.48 | 21.58 | 1 |
| | 3 | 0 | 22.12 | 22.61 | 22.59 | 0 | 21.12 | 21.66 | 21.64 | 1 |
| | 3 | 1 | 22.55 | 22.54 | 22.42 | 0 | 21.60 | 21.59 | 21.47 | 1 |
| | 3 | 3 | 22.59 | 22.49 | 22.46 | 0 | 21.64 | 21.54 | 21.51 | 1 |
| | 6 | 0 | 22.49 | 22.46 | 22.50 | 1 | 21.54 | 21.51 | 21.55 | 2 |

| Band / BW | RB Size | RB Offset | QPSK | | | 3GPP MPR (dB) | 16QAM | | | 3GPP MPR (dB) |
|-----------|---------|-----------|--------------|--------------|---------------|---------------|--------------|--------------|---------------|---------------|
| | | | Low Ch 23025 | Mid Ch 23095 | High Ch 23165 | | Low Ch 23025 | Mid Ch 23095 | High Ch 23165 | |
| | | | 700.5 MHz | 707.5 MHz | 714.5 MHz | | 700.5 MHz | 707.5 MHz | 714.5 MHz | |
| 12 / 3M | 1 | 0 | 22.14 | 22.15 | 23.26 | 0 | 21.13 | 21.17 | 22.28 | 1 |
| | 1 | 7 | 22.50 | 23.59 | 22.78 | 0 | 21.52 | 22.61 | 21.80 | 1 |
| | 1 | 14 | 23.35 | 22.48 | 22.58 | 0 | 22.37 | 21.50 | 21.60 | 1 |
| | 8 | 0 | 22.07 | 22.66 | 22.64 | 1 | 21.09 | 21.68 | 21.66 | 2 |
| | 8 | 3 | 22.60 | 22.59 | 22.47 | 1 | 21.62 | 21.61 | 21.49 | 2 |
| | 8 | 7 | 22.64 | 22.54 | 22.51 | 1 | 21.66 | 21.56 | 21.53 | 2 |
| | 15 | 0 | 22.54 | 22.51 | 22.55 | 1 | 21.56 | 21.53 | 21.57 | 2 |

| Band / BW | RB Size | RB Offset | QPSK | | | 3GPP MPR (dB) | 16QAM | | | 3GPP MPR (dB) |
|-----------|---------|-----------|--------------|--------------|---------------|---------------|--------------|--------------|---------------|---------------|
| | | | Low Ch 23035 | Mid Ch 23095 | High Ch 23155 | | Low Ch 23035 | Mid Ch 23095 | High Ch 23155 | |
| | | | 701.5 MHz | 707.5 MHz | 713.5 MHz | | 701.5 MHz | 707.5 MHz | 713.5 MHz | |
| 12 / 5M | 1 | 0 | 22.17 | 22.23 | 23.34 | 0 | 21.17 | 21.21 | 22.32 | 1 |
| | 1 | 12 | 22.58 | 23.67 | 22.86 | 0 | 21.56 | 22.65 | 21.84 | 1 |
| | 1 | 24 | 23.43 | 22.56 | 22.66 | 0 | 22.41 | 21.54 | 21.64 | 1 |
| | 12 | 0 | 22.15 | 22.74 | 22.72 | 1 | 21.13 | 21.72 | 21.70 | 2 |
| | 12 | 6 | 22.68 | 22.67 | 22.55 | 1 | 21.66 | 21.65 | 21.53 | 2 |
| | 12 | 13 | 22.72 | 22.62 | 22.59 | 1 | 21.70 | 21.60 | 21.57 | 2 |
| | 25 | 0 | 22.62 | 22.59 | 22.63 | 1 | 21.60 | 21.57 | 21.61 | 2 |

| Band / BW | RB Size | RB Offset | QPSK | | | 3GPP MPR (dB) | 16QAM | | | 3GPP MPR (dB) |
|-----------|---------|-----------|--------------|--------------|---------------|---------------|--------------|--------------|---------------|---------------|
| | | | Low Ch 23060 | Mid Ch 23095 | High Ch 23130 | | Low Ch 23060 | Mid Ch 23095 | High Ch 23130 | |
| | | | 704.0 MHz | 707.5 MHz | 711.0 MHz | | 704.0 MHz | 707.5 MHz | 711.0 MHz | |
| 12 / 10M | 1 | 0 | 22.12 | 22.31 | 23.42 | 0 | 21.11 | 21.30 | 22.41 | 1 |
| | 1 | 24 | 22.66 | 23.75 | 22.94 | 0 | 21.65 | 22.74 | 21.93 | 1 |
| | 1 | 49 | 23.51 | 22.64 | 22.74 | 0 | 22.50 | 21.63 | 21.73 | 1 |
| | 25 | 0 | 22.23 | 22.82 | 22.80 | 1 | 21.22 | 21.81 | 21.79 | 2 |
| | 25 | 12 | 22.76 | 22.75 | 22.63 | 1 | 21.75 | 21.74 | 21.62 | 2 |
| | 25 | 25 | 22.80 | 22.70 | 22.67 | 1 | 21.79 | 21.69 | 21.66 | 2 |
| | 50 | 0 | 22.70 | 22.67 | 22.71 | 1 | 21.69 | 21.66 | 21.70 | 2 |

| Band / BW | RB Size | RB Offset | QPSK | | | 3GPP MPR (dB) | 16QAM | | | 3GPP MPR (dB) |
|-----------|---------|-----------|--------------|--------------|---------------|---------------|--------------|--------------|---------------|---------------|
| | | | Low Ch 23205 | Mid Ch 23230 | High Ch 23255 | | Low Ch 23205 | Mid Ch 23230 | High Ch 23255 | |
| | | | 779.5 MHz | 782.0 MHz | 784.5 MHz | | 779.5 MHz | 782.0 MHz | 784.5 MHz | |
| 13 / 5M | 1 | 0 | 23.01 | 23.14 | 23.05 | 0 | 21.95 | 22.08 | 21.99 | 1 |
| | 1 | 12 | 23.11 | 23.24 | 23.15 | 0 | 22.05 | 22.18 | 22.09 | 1 |
| | 1 | 24 | 22.88 | 23.01 | 22.92 | 0 | 21.82 | 21.95 | 21.86 | 1 |
| | 12 | 0 | 22.15 | 22.28 | 22.19 | 1 | 21.09 | 21.22 | 21.13 | 2 |
| | 12 | 6 | 22.23 | 22.36 | 22.27 | 1 | 21.17 | 21.30 | 21.21 | 2 |
| | 12 | 13 | 22.13 | 22.26 | 22.17 | 1 | 21.07 | 21.20 | 21.11 | 2 |
| | 25 | 0 | 22.20 | 22.33 | 22.24 | 1 | 21.14 | 21.27 | 21.18 | 2 |

| Band / BW | RB Size | RB Offset | QPSK | | 3GPP MPR (dB) | 16QAM | | 3GPP MPR (dB) |
|-----------|---------|-----------|--------------|--|---------------|--------------|--|---------------|
| | | | Mid Ch 23230 | | | Mid Ch 23230 | | |
| | | | 782.0 MHz | | | 782.0 MHz | | |
| 13 / 10M | 1 | 0 | 22.54 | | 0 | 21.48 | | 1 |
| | 1 | 24 | 23.52 | | 0 | 22.46 | | 1 |
| | 1 | 49 | 23.45 | | 0 | 22.39 | | 1 |
| | 25 | 0 | 22.28 | | 1 | 21.22 | | 2 |
| | 25 | 12 | 22.31 | | 1 | 21.25 | | 2 |
| | 25 | 25 | 22.43 | | 1 | 21.37 | | 2 |
| | 50 | 0 | 22.32 | | 1 | 21.26 | | 2 |

ERP Power (dBm)

| LTE Band 12 | | | | | | | |
|------------------------------------|---------|-----------------|-----------|------------------------|-----------|----------|--------------------|
| Channel Bandwidth: 1.4 MHz / QPSK | | | | | | | |
| Plane | Channel | Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | ERP (dBm) | ERP (mW) | Polarization (H/V) |
| X | 23017 | 699.7 | -12.89 | 30.36 | 15.32 | 34.04 | H |
| | 23095 | 707.5 | -12.56 | 30.17 | 15.46 | 35.16 | |
| | 23173 | 715.3 | -12.87 | 30.17 | 15.15 | 32.73 | |
| | 23017 | 699.7 | -20.62 | 32.03 | 9.26 | 8.43 | V |
| | 23095 | 707.5 | -20.40 | 31.98 | 9.43 | 8.77 | |
| | 23173 | 715.3 | -20.77 | 32.06 | 9.14 | 8.20 | |
| Channel Bandwidth: 1.4 MHz / 16QAM | | | | | | | |
| X | 23017 | 699.7 | -13.87 | 30.36 | 14.34 | 27.16 | H |
| | 23095 | 707.5 | -13.63 | 30.17 | 14.39 | 27.48 | |
| | 23173 | 715.3 | -13.73 | 30.17 | 14.29 | 26.85 | |
| | 23017 | 699.7 | -21.43 | 32.03 | 8.45 | 7.00 | V |
| | 23095 | 707.5 | -21.28 | 31.98 | 8.55 | 7.16 | |
| | 23173 | 715.3 | -21.58 | 32.06 | 8.33 | 6.81 | |

| LTE Band 12 | | | | | | | |
|----------------------------------|---------|-----------------|-----------|------------------------|-----------|----------|--------------------|
| Channel Bandwidth: 3 MHz / QPSK | | | | | | | |
| Plane | Channel | Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | ERP (dBm) | ERP (mW) | Polarization (H/V) |
| X | 23025 | 700.5 | -12.61 | 30.17 | 15.41 | 34.75 | H |
| | 23095 | 707.5 | -12.50 | 30.17 | 15.52 | 35.65 | |
| | 23165 | 714.5 | -12.75 | 30.18 | 15.28 | 33.73 | |
| | 23025 | 700.5 | -20.48 | 31.96 | 9.33 | 8.57 | V |
| | 23095 | 707.5 | -20.20 | 31.98 | 9.63 | 9.18 | |
| | 23165 | 714.5 | -20.58 | 32.03 | 9.30 | 8.51 | |
| Channel Bandwidth: 3 MHz / 16QAM | | | | | | | |
| X | 23025 | 700.5 | -13.61 | 30.17 | 14.41 | 27.61 | H |
| | 23095 | 707.5 | -13.52 | 30.17 | 14.50 | 28.18 | |
| | 23165 | 714.5 | -13.68 | 30.18 | 14.35 | 27.23 | |
| | 23025 | 700.5 | -21.31 | 31.96 | 8.50 | 7.08 | V |
| | 23095 | 707.5 | -21.17 | 31.98 | 8.66 | 7.35 | |
| | 23165 | 714.5 | -21.48 | 32.03 | 8.40 | 6.92 | |

| LTE Band 12 | | | | | | | |
|----------------------------------|---------|-----------------|-----------|------------------------|-----------|----------|--------------------|
| Channel Bandwidth: 5 MHz / QPSK | | | | | | | |
| Plane | Channel | Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | ERP (dBm) | ERP (mW) | Polarization (H/V) |
| X | 23035 | 701.5 | -12.54 | 30.17 | 15.48 | 35.32 | H |
| | 23095 | 707.5 | -12.39 | 30.17 | 15.63 | 36.56 | |
| | 23155 | 713.5 | -12.61 | 30.18 | 15.42 | 34.83 | |
| | 23035 | 701.5 | -20.35 | 31.96 | 9.46 | 8.83 | V |
| | 23095 | 707.5 | -20.16 | 31.98 | 9.67 | 9.27 | |
| | 23155 | 713.5 | -20.51 | 32.03 | 9.37 | 8.65 | |
| Channel Bandwidth: 5 MHz / 16QAM | | | | | | | |
| X | 23035 | 701.5 | -13.53 | 30.17 | 14.49 | 28.12 | H |
| | 23095 | 707.5 | -13.44 | 30.17 | 14.58 | 28.71 | |
| | 23155 | 713.5 | -16.57 | 30.18 | 11.46 | 14.00 | |
| | 23035 | 701.5 | -21.27 | 31.96 | 8.54 | 7.14 | V |
| | 23095 | 707.5 | -21.09 | 31.98 | 8.74 | 7.48 | |
| | 23155 | 713.5 | -21.35 | 32.03 | 8.53 | 7.13 | |

| LTE Band 12 | | | | | | | |
|-----------------------------------|---------|-----------------|-----------|------------------------|-----------|----------|--------------------|
| Channel Bandwidth: 10 MHz / QPSK | | | | | | | |
| Plane | Channel | Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | ERP (dBm) | ERP (mW) | Polarization (H/V) |
| X | 23060 | 704.0 | -12.35 | 30.17 | 15.67 | 36.90 | H |
| | 23095 | 707.5 | -12.27 | 30.17 | 15.75 | 37.58 | |
| | 23130 | 711.0 | -12.57 | 30.18 | 15.46 | 35.16 | |
| | 23060 | 704.0 | -20.27 | 31.96 | 9.54 | 8.99 | V |
| | 23095 | 707.5 | -20.09 | 31.98 | 9.74 | 9.42 | |
| | 23130 | 711.0 | -20.43 | 32.03 | 9.45 | 8.81 | |
| Channel Bandwidth: 10 MHz / 16QAM | | | | | | | |
| X | 23060 | 704.0 | -13.42 | 30.17 | 14.60 | 28.84 | H |
| | 23095 | 707.5 | -13.37 | 30.17 | 14.65 | 29.17 | |
| | 23130 | 711.0 | -13.46 | 30.18 | 14.57 | 28.64 | |
| | 23060 | 704.0 | -21.19 | 31.96 | 8.62 | 7.28 | V |
| | 23095 | 707.5 | -21.03 | 31.98 | 8.80 | 7.59 | |
| | 23130 | 711.0 | -21.28 | 32.03 | 8.60 | 7.24 | |

| LTE Band 13 | | | | | | | |
|----------------------------------|---------|-----------------|-----------|------------------------|-----------|----------|--------------------|
| Channel Bandwidth: 5 MHz / QPSK | | | | | | | |
| Plane | Channel | Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | ERP (dBm) | ERP (mW) | Polarization (H/V) |
| X | 23205 | 779.5 | -10.62 | 32.24 | 19.47 | 88.51 | H |
| | 23230 | 782.0 | -10.34 | 32.17 | 19.68 | 92.90 | |
| | 23255 | 784.5 | -10.52 | 32.11 | 19.44 | 87.90 | |
| | V | 23205 | 779.5 | -18.21 | 32.43 | 12.07 | 16.11 |
| | | 23230 | 782.0 | -17.95 | 32.42 | 12.32 | 17.06 |
| | | 23255 | 784.5 | -18.25 | 32.46 | 12.06 | 16.07 |
| Channel Bandwidth: 5 MHz / 16QAM | | | | | | | |
| X | 23205 | 779.5 | -11.35 | 32.24 | 18.74 | 74.82 | H |
| | 23230 | 782.0 | -11.21 | 32.17 | 18.81 | 76.03 | |
| | 23255 | 784.5 | -11.43 | 32.11 | 18.53 | 71.29 | |
| | V | 23205 | 779.5 | -19.34 | 32.43 | 10.94 | 12.42 |
| | | 23230 | 782.0 | -19.19 | 32.42 | 11.08 | 12.82 |
| | | 23255 | 784.5 | -19.39 | 32.46 | 10.92 | 12.36 |

| LTE Band 13 | | | | | | | |
|-----------------------------------|---------|-----------------|-----------|------------------------|-----------|----------|--------------------|
| Channel Bandwidth: 10 MHz / QPSK | | | | | | | |
| Plane | Channel | Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | ERP (dBm) | ERP (mW) | Polarization (H/V) |
| X | 23230 | 782.0 | -10.30 | 32.17 | 19.72 | 93.76 | H |
| | 23230 | 782.0 | -17.85 | 32.42 | 12.42 | 17.46 | V |
| Channel Bandwidth: 10 MHz / 16QAM | | | | | | | |
| X | 23230 | 782.0 | -10.87 | 32.17 | 19.15 | 82.22 | H |
| | 23230 | 782.0 | -18.91 | 32.42 | 11.36 | 13.68 | V |

EIRP Power (dBm)

| WCDMA | | | | | | | |
|-------|---------|-----------------|-----------|------------------------|------------|-----------|--------------------|
| Plane | Channel | Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (mW) | Polarization (H/V) |
| Y | 1312 | 1712.4 | -20.65 | 36.29 | 15.64 | 36.64 | H |
| | 1413 | 1732.6 | -20.95 | 36.69 | 15.74 | 37.49 | |
| | 1513 | 1752.6 | -21.54 | 36.98 | 15.44 | 34.99 | |
| | 1312 | 1712.4 | -14.92 | 37.11 | 22.19 | 165.50 | V |
| | 1413 | 1732.6 | -14.85 | 37.60 | 22.75 | 188.36 | |
| | 1513 | 1752.6 | -15.29 | 37.65 | 22.36 | 172.15 | |

| LTE Band 4 | | | | | | | |
|------------------------------------|---------|-----------------|-----------|------------------------|------------|-----------|--------------------|
| Channel Bandwidth: 1.4 MHz / QPSK | | | | | | | |
| Plane | Channel | Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (mW) | Polarization (H/V) |
| Z | 19957 | 1710.7 | -22.19 | 36.45 | 14.26 | 26.67 | H |
| | 20175 | 1732.5 | -22.37 | 36.80 | 14.43 | 27.73 | |
| | 20393 | 1754.3 | -22.82 | 36.94 | 14.12 | 25.84 | |
| | 19957 | 1710.7 | -15.92 | 37.28 | 21.36 | 136.68 | V |
| | 20175 | 1732.5 | -16.08 | 37.63 | 21.55 | 142.89 | |
| | 20393 | 1754.3 | -16.42 | 37.64 | 21.22 | 132.43 | |
| Channel Bandwidth: 1.4 MHz / 16QAM | | | | | | | |
| Z | 19957 | 1710.7 | -23.39 | 36.45 | 13.06 | 20.23 | H |
| | 20175 | 1732.5 | -23.69 | 36.80 | 13.11 | 20.46 | |
| | 20393 | 1754.3 | -23.89 | 36.94 | 13.05 | 20.20 | |
| | 19957 | 1710.7 | -16.36 | 37.28 | 20.92 | 123.51 | V |
| | 20175 | 1732.5 | -16.61 | 37.63 | 21.02 | 126.47 | |
| | 20393 | 1754.3 | -16.92 | 37.64 | 20.72 | 118.03 | |

| LTE Band 4 | | | | | | | |
|----------------------------------|---------|-----------------|-----------|------------------------|------------|-----------|--------------------|
| Channel Bandwidth: 3 MHz / QPSK | | | | | | | |
| Plane | Channel | Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (mW) | Polarization (H/V) |
| Z | 19965 | 1711.5 | -22.10 | 36.45 | 14.35 | 27.23 | H |
| | 20175 | 1732.5 | -22.21 | 36.80 | 14.59 | 28.77 | |
| | 20385 | 1753.5 | -22.73 | 36.94 | 14.21 | 26.38 | |
| | 19965 | 1711.5 | -15.85 | 37.28 | 21.43 | 138.90 | V |
| | 20175 | 1732.5 | -16.00 | 37.63 | 21.63 | 145.55 | |
| | 20385 | 1753.5 | -16.36 | 37.64 | 21.28 | 134.28 | |
| Channel Bandwidth: 3 MHz / 16QAM | | | | | | | |
| Z | 19965 | 1711.5 | -23.31 | 36.45 | 13.14 | 20.61 | H |
| | 20175 | 1732.5 | -23.59 | 36.80 | 13.21 | 20.94 | |
| | 20385 | 1753.5 | -23.81 | 36.94 | 13.13 | 20.57 | |
| | 19965 | 1711.5 | -16.30 | 37.28 | 20.98 | 125.23 | V |
| | 20175 | 1732.5 | -16.55 | 37.63 | 21.08 | 128.23 | |
| | 20385 | 1753.5 | -16.85 | 37.64 | 20.79 | 119.95 | |

| LTE Band 4 | | | | | | | |
|----------------------------------|---------|-----------------|-----------|------------------------|------------|-----------|--------------------|
| Channel Bandwidth: 5 MHz / QPSK | | | | | | | |
| Plane | Channel | Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (mW) | Polarization (H/V) |
| Z | 19975 | 1712.5 | -22.01 | 36.45 | 14.44 | 27.80 | H |
| | 20175 | 1732.5 | -22.12 | 36.80 | 14.68 | 29.37 | |
| | 20375 | 1752.5 | -22.63 | 36.94 | 14.31 | 27.00 | |
| | 19975 | 1712.5 | -15.80 | 37.28 | 21.48 | 140.51 | V |
| | 20175 | 1732.5 | -15.94 | 37.63 | 21.69 | 147.57 | |
| | 20375 | 1752.5 | -16.29 | 37.64 | 21.35 | 136.46 | |
| Channel Bandwidth: 5 MHz / 16QAM | | | | | | | |
| Z | 19975 | 1712.5 | -23.27 | 36.45 | 13.18 | 20.80 | H |
| | 20175 | 1732.5 | -23.52 | 36.80 | 13.28 | 21.28 | |
| | 20375 | 1752.5 | -23.79 | 36.94 | 13.15 | 20.67 | |
| | 19975 | 1712.5 | -16.24 | 37.28 | 21.04 | 126.97 | V |
| | 20175 | 1732.5 | -16.50 | 37.63 | 21.13 | 129.72 | |
| | 20375 | 1752.5 | -16.79 | 37.64 | 20.85 | 121.62 | |

| LTE Band 4 | | | | | | | |
|-----------------------------------|---------|-----------------|-----------|------------------------|------------|-----------|--------------------|
| Channel Bandwidth: 10 MHz / QPSK | | | | | | | |
| Plane | Channel | Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (mW) | Polarization (H/V) |
| Z | 20000 | 1715.0 | -21.96 | 36.64 | 14.68 | 29.38 | H |
| | 20175 | 1732.5 | -22.08 | 36.80 | 14.72 | 29.61 | |
| | 20350 | 1750.0 | -22.41 | 36.80 | 14.39 | 27.48 | |
| | 20000 | 1715.0 | -15.72 | 37.44 | 21.72 | 148.56 | V |
| | 20175 | 1732.5 | -15.84 | 37.63 | 21.79 | 150.97 | |
| | 20350 | 1750.0 | -16.21 | 37.64 | 21.43 | 138.84 | |
| Channel Bandwidth: 10 MHz / 16QAM | | | | | | | |
| Z | 20000 | 1715.0 | -23.40 | 36.64 | 13.24 | 21.09 | H |
| | 20175 | 1732.5 | -23.48 | 36.80 | 13.32 | 21.45 | |
| | 20350 | 1750.0 | -23.62 | 36.80 | 13.18 | 20.80 | |
| | 20000 | 1715.0 | -16.26 | 37.44 | 21.18 | 131.19 | V |
| | 20175 | 1732.5 | -16.43 | 37.63 | 21.20 | 131.80 | |
| | 20350 | 1750.0 | -16.70 | 37.64 | 20.94 | 124.02 | |

| LTE Band 4 | | | | | | | |
|-----------------------------------|---------|-----------------|-----------|------------------------|------------|-----------|--------------------|
| Channel Bandwidth: 15 MHz / QPSK | | | | | | | |
| Plane | Channel | Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (mW) | Polarization (H/V) |
| Z | 20025 | 1717.5 | -21.71 | 36.45 | 14.74 | 29.79 | H |
| | 20175 | 1732.5 | -22.02 | 36.80 | 14.78 | 30.05 | |
| | 20325 | 1747.5 | -22.32 | 36.94 | 14.62 | 28.99 | |
| | 20025 | 1717.5 | -15.68 | 37.28 | 21.60 | 144.44 | V |
| | 20175 | 1732.5 | -15.73 | 37.63 | 21.90 | 154.88 | |
| | 20325 | 1747.5 | -16.14 | 37.64 | 21.50 | 141.25 | |
| Channel Bandwidth: 15 MHz / 16QAM | | | | | | | |
| Z | 20025 | 1717.5 | -23.17 | 36.45 | 13.28 | 21.28 | H |
| | 20175 | 1732.5 | -23.41 | 36.80 | 13.39 | 21.82 | |
| | 20325 | 1747.5 | -23.68 | 36.94 | 13.26 | 21.20 | |
| | 20025 | 1717.5 | -16.05 | 37.28 | 21.23 | 132.65 | V |
| | 20175 | 1732.5 | -16.35 | 37.63 | 21.28 | 134.28 | |
| | 20325 | 1747.5 | -16.62 | 37.64 | 21.02 | 126.47 | |

| LTE Band 4 | | | | | | | |
|-----------------------------------|---------|-----------------|-----------|------------------------|------------|-----------|--------------------|
| Channel Bandwidth: 20 MHz / QPSK | | | | | | | |
| Plane | Channel | Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (mW) | Polarization (H/V) |
| Z | 20050 | 1720.0 | -21.63 | 36.45 | 14.82 | 30.34 | H |
| | 20175 | 1732.5 | -21.93 | 36.80 | 14.87 | 30.68 | |
| | 20300 | 1745.0 | -22.13 | 36.94 | 14.81 | 30.29 | |
| | 20050 | 1720.0 | -15.63 | 37.28 | 21.65 | 146.12 | V |
| | 20175 | 1732.5 | -15.70 | 37.63 | 21.93 | 155.96 | |
| | 20300 | 1745.0 | -16.10 | 37.64 | 21.54 | 142.56 | |
| Channel Bandwidth: 20 MHz / 16QAM | | | | | | | |
| Z | 20050 | 1720.0 | -23.11 | 36.45 | 13.34 | 21.58 | H |
| | 20175 | 1732.5 | -23.32 | 36.80 | 13.48 | 22.28 | |
| | 20300 | 1745.0 | -23.52 | 36.94 | 13.42 | 21.99 | |
| | 20050 | 1720.0 | -15.98 | 37.28 | 21.30 | 134.80 | V |
| | 20175 | 1732.5 | -16.29 | 37.63 | 21.34 | 136.14 | |
| | 20300 | 1745.0 | -16.56 | 37.64 | 21.08 | 128.23 | |

4.2 Frequency Stability Measurement

4.2.1 Limits of Frequency Stability Measurement

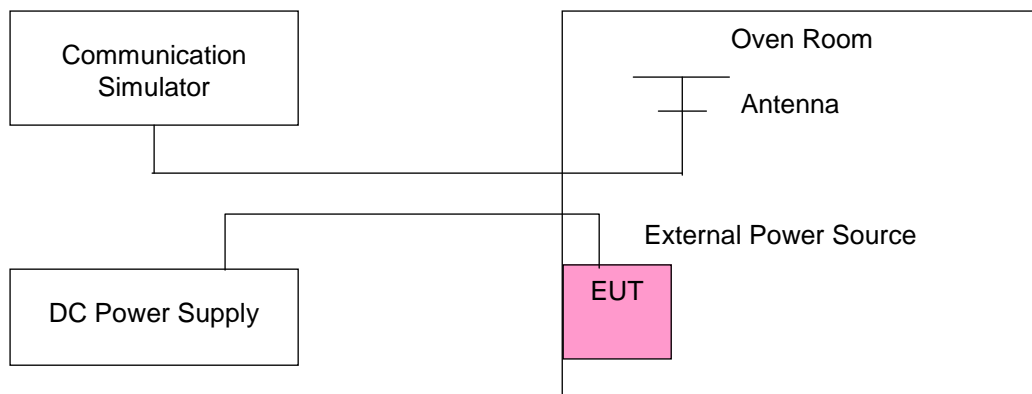
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

4.2.2 Test Procedure

- a. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
- b. EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
- c. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the ± 0.5 °C during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

Note: The frequency error was recorded frequency error from the communication simulator.

4.2.3 Test Setup



4.2.4 Test Results

Frequency Error vs. Voltage

| Voltage (Volts) | Frequency Error (ppm) | | | | | | | Limit (ppm) |
|-----------------|-----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | WCDMA | LTE Band 4 | | | | | | |
| | | 1.4 MHz | 3 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz | |
| 3.85 | 0.001 | 0.00017316 | 0.000981241 | 0.001038961 | 0.00034632 | 0.00023088 | 0.001038961 | 2.5 |
| 3.6 | 0.002 | 0.001558442 | 0.000692641 | 0.000519481 | 0.000750361 | 0.000577201 | 0.000865801 | 2.5 |
| 4.4 | 0.001 | 0.001558442 | 0.001212121 | 0.001673882 | 0.001038961 | 0.001443001 | 0.000519481 | 2.5 |

Note: The applicant defined the normal working voltage of the battery is from 3.6 Vdc to 4.4 Vdc.

Frequency Error vs. Temperature

| Temp. (°C) | Frequency Error (ppm) | | | | | | | Limit (ppm) |
|------------|-----------------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|
| | WCDMA | LTE Band 4 | | | | | | |
| | | 1.4 MHz | 3 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz | |
| -30 | 0.0014 | 0.001904762 | 0.002251082 | 0.001904762 | 0.001558442 | 0.002193362 | 0.000577201 | 2.5 |
| -20 | 0.0020 | 0.000923521 | 0.001789322 | 0.000981241 | 0.001847042 | 0.00023088 | 0.000865801 | 2.5 |
| -10 | 0.0020 | 0.000923521 | 0.001096681 | 0.00034632 | 0.001327561 | 0.001616162 | 0.000634921 | 2.5 |
| 0 | 0.0003 | 0.000577201 | 0.001616162 | 0.00017316 | 0.002193362 | 0.000519481 | 0.002251082 | 2.5 |
| 10 | 0.0002 | 0.001038961 | 0.001731602 | 0.00040404 | 0.002193362 | 0.001616162 | 0.000634921 | 2.5 |
| 20 | -0.0023 | -0.001500722 | -0.000692641 | -0.002308802 | -0.001443001 | -0.001789322 | -0.000692641 | 2.5 |
| 30 | -0.0018 | -0.000519481 | -0.00034632 | -0.000865801 | -0.001962482 | -0.002077922 | -0.000808081 | 2.5 |
| 40 | -0.0017 | -0.000519481 | -0.00023088 | -0.002077922 | -0.002077922 | -0.001731602 | -0.000634921 | 2.5 |
| 50 | -0.0004 | -0.000750361 | -0.00017316 | -0.001558442 | -0.001269841 | -0.000519481 | -0.000692641 | 2.5 |
| 60 | -0.0012 | -0.000981241 | -0.001962482 | -0.000634921 | -0.002251082 | -0.00023088 | -0.002020202 | 2.5 |

Frequency Error vs. Voltage

| Voltage (Volts) | Frequency Error (ppm) | | | | | | Limit (ppm) |
|-----------------|-----------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | LTE Band 12 | | | | LTE Band 13 | | |
| | 1.4 MHz | 3 MHz | 5 MHz | 10 MHz | 5 MHz | 10 MHz | |
| 3.85 | 0.000989399 | 0.003533569 | 0.000141343 | 0.000848057 | 0.003196931 | 0.000511509 | 2.5 |
| 3.6 | 0.002402827 | 0.000989399 | 0.00155477 | 0.001130742 | 0.003324808 | 0.003069054 | 2.5 |
| 4.4 | 0.000282686 | 0.000424028 | 0.000848057 | 0.002120141 | 0.00140665 | 0.002685422 | 2.5 |

Note: The applicant defined the normal working voltage of the battery is from 3.6 Vdc to 4.4 Vdc.

Frequency Error vs. Temperature

| Temp. (°C) | Frequency Error (ppm) | | | | | | Limit (ppm) |
|------------|-----------------------|--------------|--------------|--------------|--------------|--------------|-------------|
| | LTE Band 12 | | | | LTE Band 13 | | |
| | 1.4 MHz | 3 MHz | 5 MHz | 10 MHz | 5 MHz | 10 MHz | |
| -30 | 0.002826855 | 0.004381625 | 0.001696113 | 0.000565371 | 0.000127877 | 0.002685422 | 2.5 |
| -20 | 0.003392226 | 0.002685512 | 0.005229682 | 0.003533569 | 0.000383632 | 0.000383632 | 2.5 |
| -10 | 0.004240283 | 0.004522968 | 0.001130742 | 0.003109541 | 0.002046036 | 0.003580563 | 2.5 |
| 0 | 0.00254417 | 0.002685512 | 0.001413428 | 0.00155477 | 0.002173913 | 0.001023018 | 2.5 |
| 10 | 0.004522968 | 0.003957597 | 0.002261484 | 0.003957597 | 0.003196931 | 0.002173913 | 2.5 |
| 20 | -0.00155477 | -0.003109541 | -0.001837456 | -0.000424028 | -0.003196931 | -0.00140665 | 2.5 |
| 30 | -0.003674912 | -0.003674912 | -0.003250883 | -0.003674912 | -0.004603581 | -0.002173913 | 2.5 |
| 40 | -0.001413428 | -0.00155477 | -0.005371025 | -0.003533569 | -0.000895141 | -0.000383632 | 2.5 |
| 50 | -0.001413428 | -0.005088339 | -0.002968198 | -0.003957597 | -0.000383632 | -0.004092072 | 2.5 |
| 60 | -0.003816254 | -0.00155477 | -0.000141343 | -0.00254417 | -0.002557545 | -0.004987212 | 2.5 |

4.3 Occupied Bandwidth Measurement

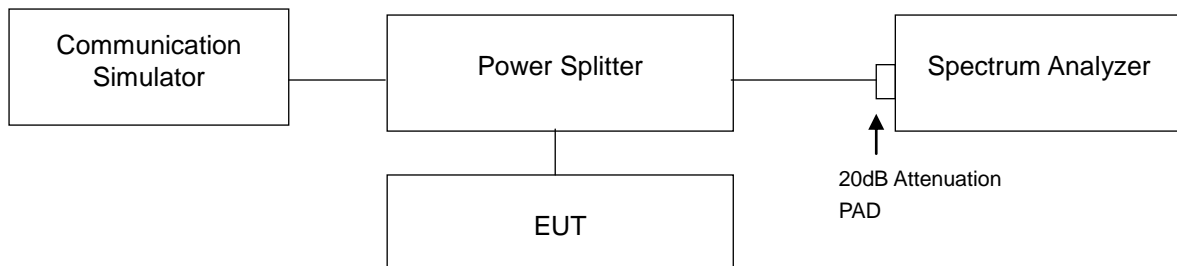
4.3.1 Limits of Occupied Bandwidth Measurement

The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 % of the total mean power of a given emission.

4.3.2 Test Procedure

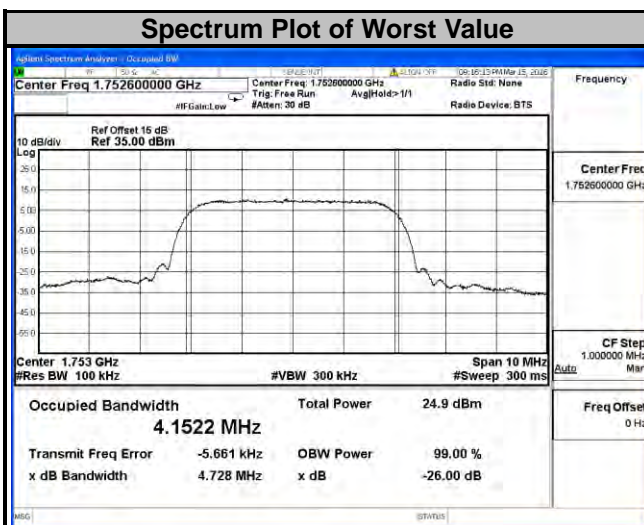
- The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
- Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

4.3.3 Test Setup



4.3.4 Test Result

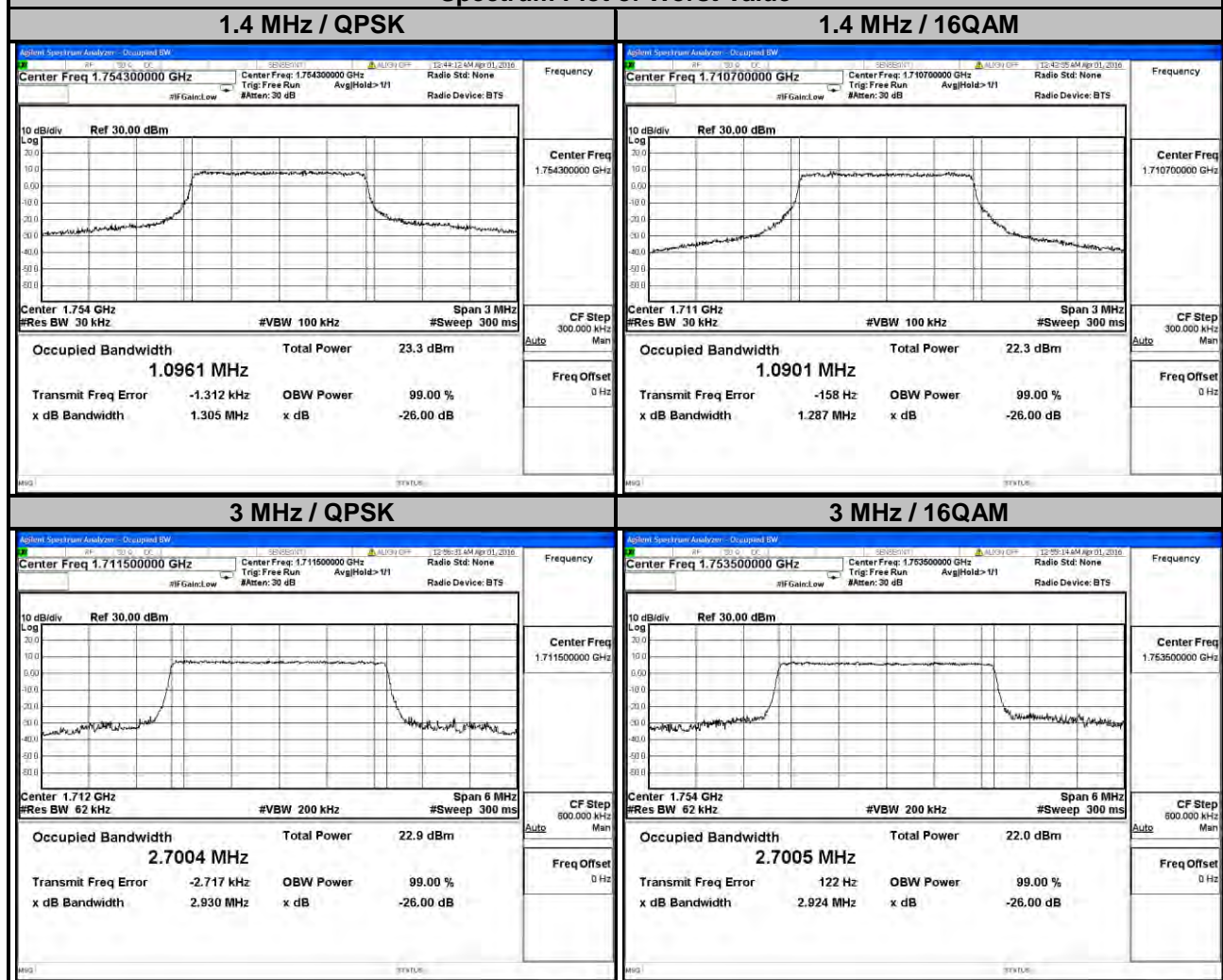
| WCDMA | | |
|---------|-----------------|-------------------------------|
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) |
| 1312 | 1712.4 | 4.1487 |
| 1413 | 1732.6 | 4.1490 |
| 1513 | 1752.6 | 4.1522 |



LTE Band 4

| Channel Bandwidth: 1.4 MHz | | | | Channel Bandwidth: 3 MHz | | | |
|----------------------------|-----------------|-------------------------------|--------|--------------------------|-----------------|-------------------------------|--------|
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | |
| | | QPSK | 16QAM | | | QPSK | 16QAM |
| 19957 | 1710.7 | 1.0911 | 1.0901 | 19965 | 1711.5 | 2.7004 | 2.6961 |
| 20175 | 1732.5 | 1.0910 | 1.0895 | 20175 | 1732.5 | 2.6970 | 2.6952 |
| 20393 | 1754.3 | 1.0961 | 1.0872 | 20385 | 1753.5 | 2.6995 | 2.7005 |

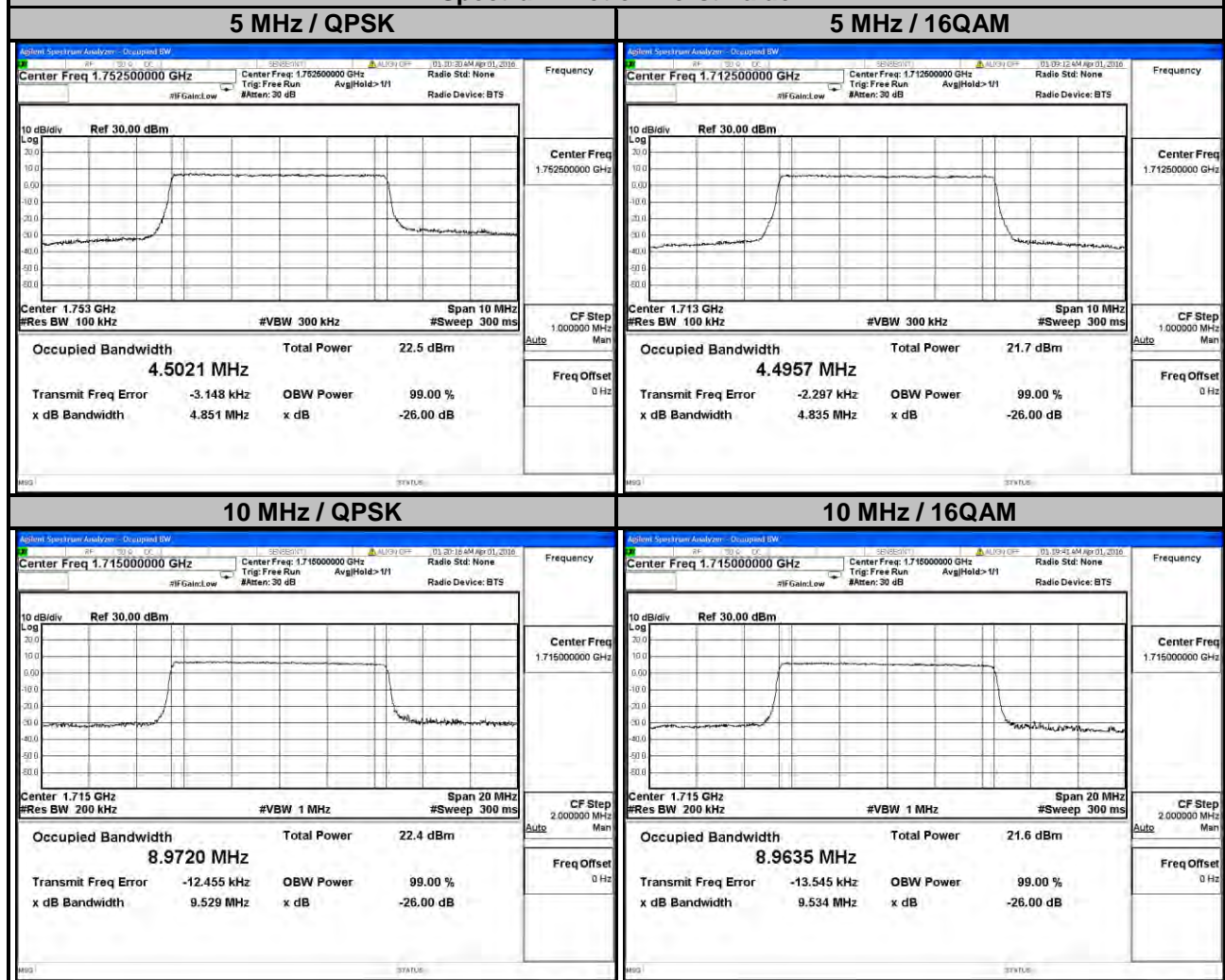
Spectrum Plot of Worst Value



LTE Band 4

| Channel Bandwidth: 5 MHz | | | | Channel Bandwidth: 10 MHz | | | |
|--------------------------|-----------------|-------------------------------|--------|---------------------------|-----------------|-------------------------------|--------|
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | |
| | | QPSK | 16QAM | | | QPSK | 16QAM |
| 19975 | 1712.5 | 4.4976 | 4.4957 | 20000 | 1715.0 | 8.9720 | 8.9635 |
| 20175 | 1732.5 | 4.4968 | 4.4949 | 20175 | 1732.5 | 8.9617 | 8.9554 |
| 20375 | 1752.5 | 4.5021 | 4.4955 | 20350 | 1750.0 | 8.9616 | 8.9588 |

Spectrum Plot of Worst Value



LTE Band 4

| Channel Bandwidth: 15 MHz | | | | Channel Bandwidth: 20 MHz | | | |
|---------------------------|-----------------|-------------------------------|--------|---------------------------|-----------------|-------------------------------|--------|
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | |
| | | QPSK | 16QAM | | | QPSK | 16QAM |
| 20025 | 1717.5 | 13.477 | 13.466 | 20050 | 1720.0 | 17.976 | 17.989 |
| 20175 | 1732.5 | 13.446 | 13.443 | 20175 | 1732.5 | 17.938 | 17.950 |
| 20325 | 1747.5 | 13.457 | 13.437 | 20300 | 1745.0 | 17.896 | 17.906 |

Spectrum Plot of Worst Value

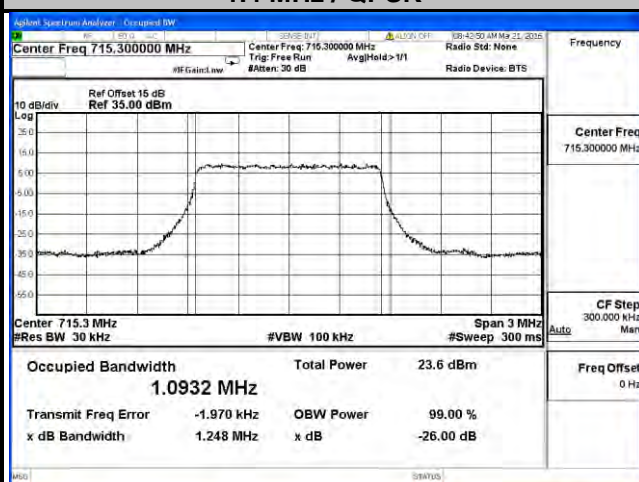


LTE Band 12

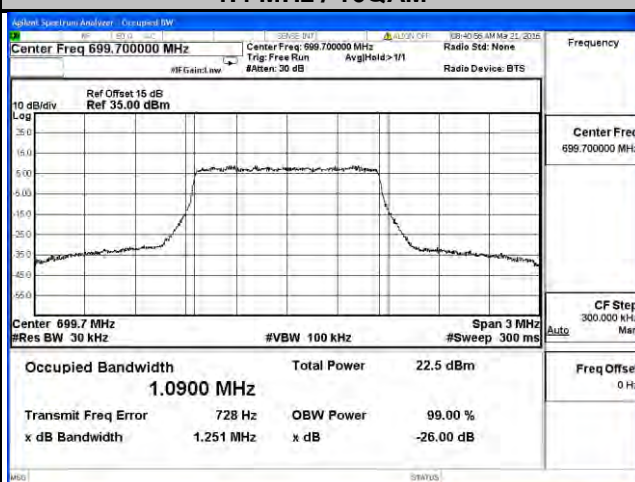
| Channel Bandwidth: 1.4 MHz | | | | Channel Bandwidth: 3 MHz | | | |
|----------------------------|-----------------|-------------------------------|--------|--------------------------|-----------------|-------------------------------|--------|
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | |
| | | QPSK | 16QAM | | | QPSK | 16QAM |
| 23017 | 699.7 | 1.0909 | 1.0900 | 23025 | 700.5 | 2.6983 | 2.6985 |
| 23095 | 707.5 | 1.0917 | 1.0886 | 23095 | 707.5 | 2.6956 | 2.6952 |
| 23173 | 715.3 | 1.0932 | 1.0887 | 23165 | 714.5 | 2.6953 | 2.6938 |

Spectrum Plot of Worst Value

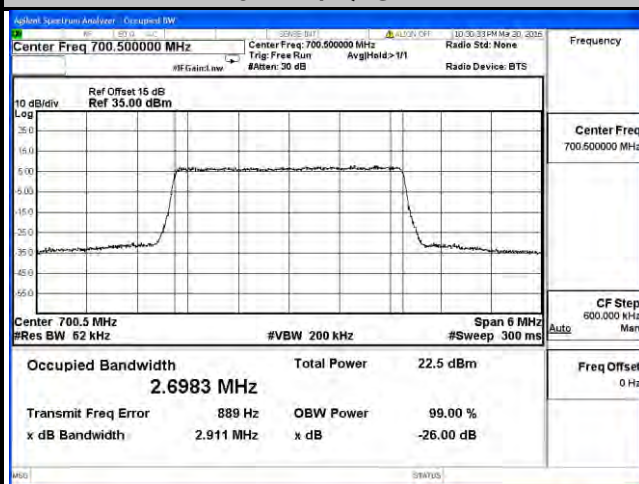
1.4 MHz / QPSK



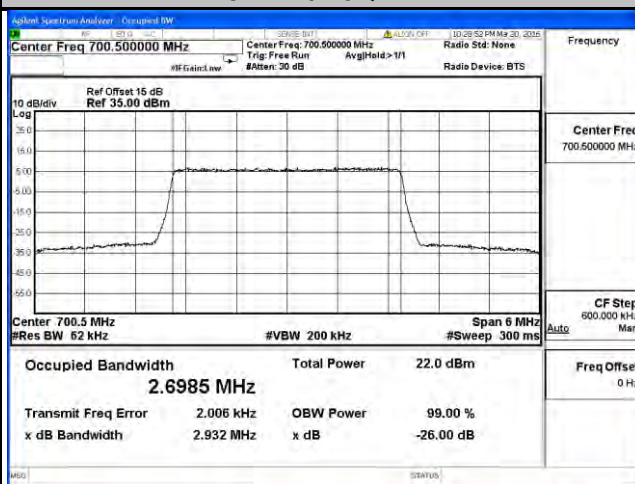
1.4 MHz / 16QAM



3 MHz / QPSK



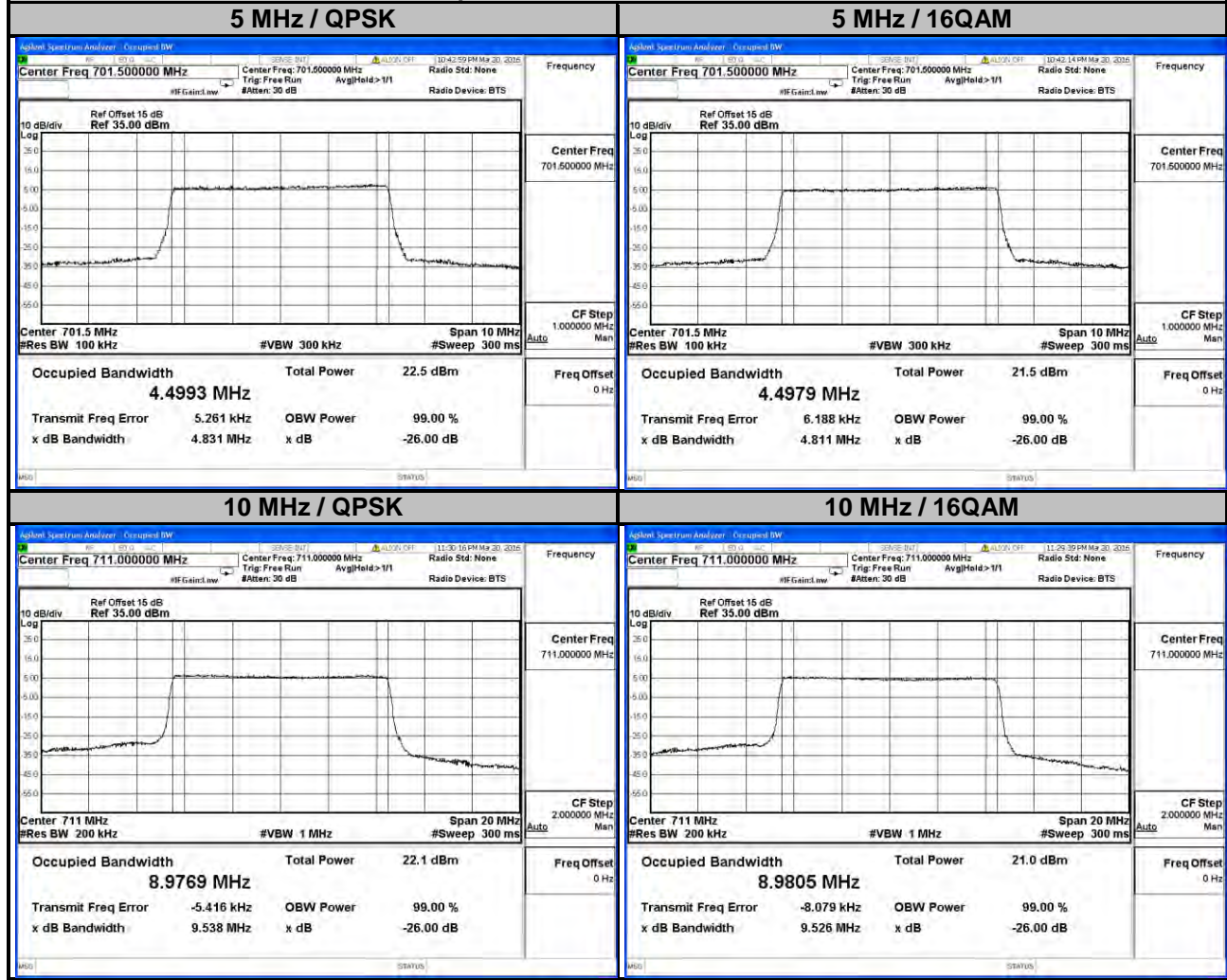
3 MHz / 16QAM



LTE Band 12

| Channel Bandwidth: 5 MHz | | | | Channel Bandwidth: 10 MHz | | | |
|--------------------------|-----------------|-------------------------------|--------|---------------------------|-----------------|-------------------------------|--------|
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | |
| | | QPSK | 16QAM | | | QPSK | 16QAM |
| 23035 | 701.5 | 4.4993 | 4.4979 | 23060 | 704.0 | 8.9465 | 8.9464 |
| 23095 | 707.5 | 4.4909 | 4.4923 | 23095 | 707.5 | 8.9492 | 8.9446 |
| 23155 | 713.5 | 4.4962 | 4.4935 | 23130 | 711.0 | 8.9769 | 8.9805 |

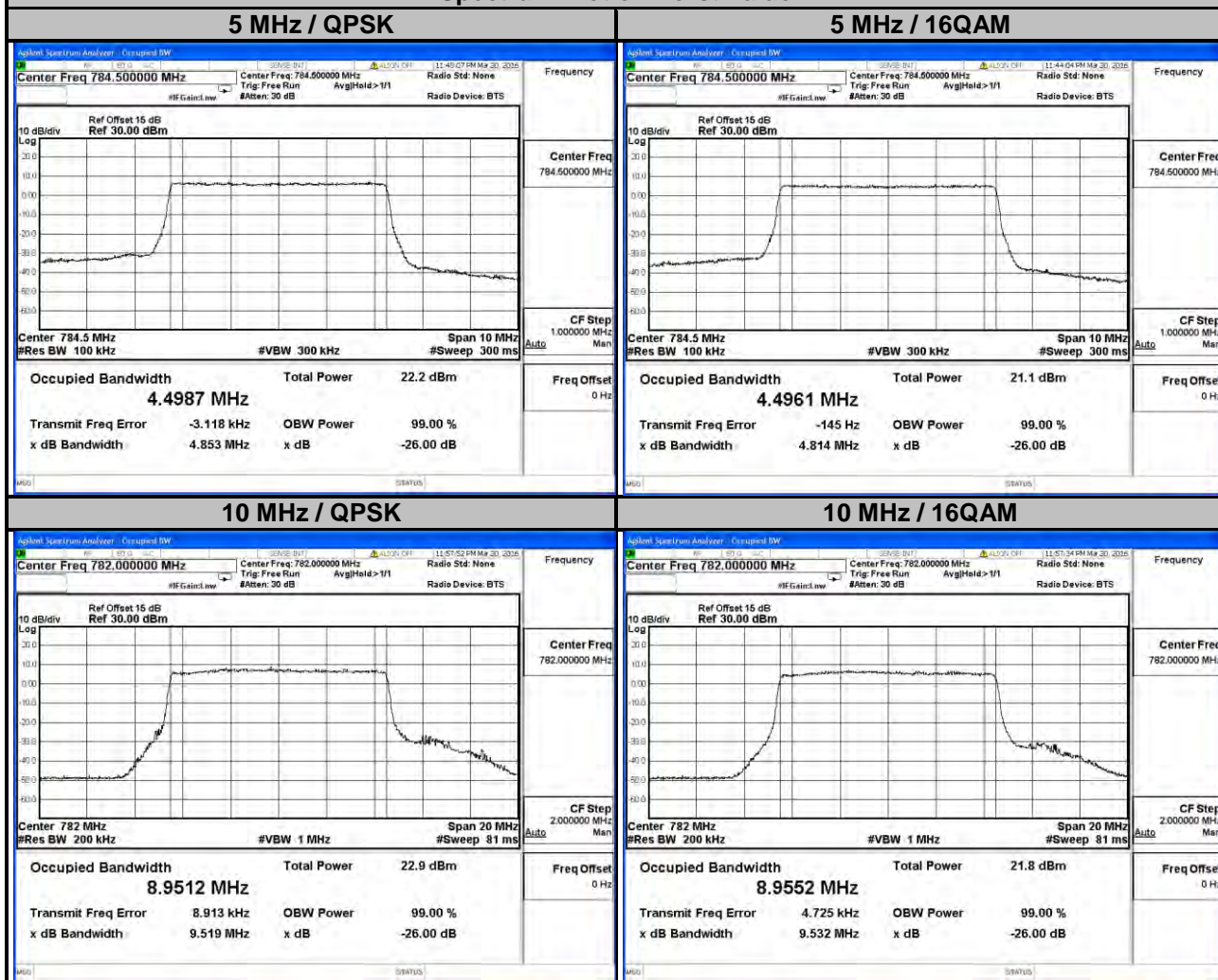
Spectrum Plot of Worst Value



LTE Band 13

| Channel Bandwidth: 5 MHz | | | | Channel Bandwidth: 10 MHz | | | |
|--------------------------|-----------------|-------------------------------|--------|---------------------------|-----------------|-------------------------------|--------|
| Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | | Channel | Frequency (MHz) | 99 % Occupied Bandwidth (MHz) | |
| | | QPSK | 16QAM | | | QPSK | 16QAM |
| 23205 | 779.5 | 4.4909 | 4.4897 | 23230 | 782.0 | 8.9512 | 8.9552 |
| 23230 | 782.0 | 4.4984 | 4.4933 | | | | |
| 23255 | 784.5 | 4.4987 | 4.4961 | | | | |

Spectrum Plot of Worst Value



4.4 Band Edge Measurement

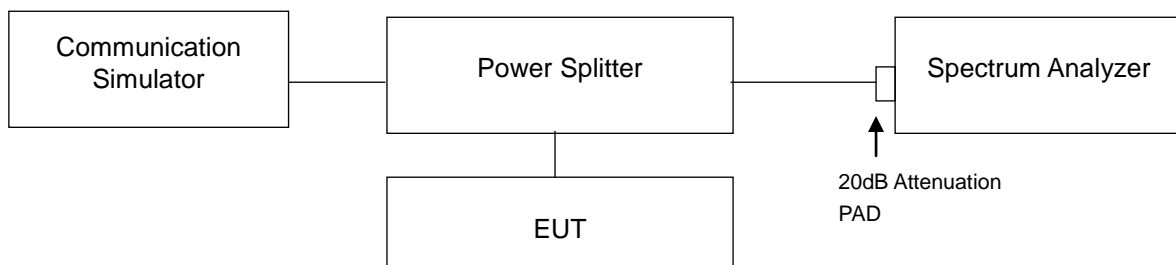
4.4.1 Limits of Band Edge Measurement

For operations in the 698-787 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log(P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater.

However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

For operations in the 1710–1755 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least $43 + 10 \log_{10}(P)$ dB.

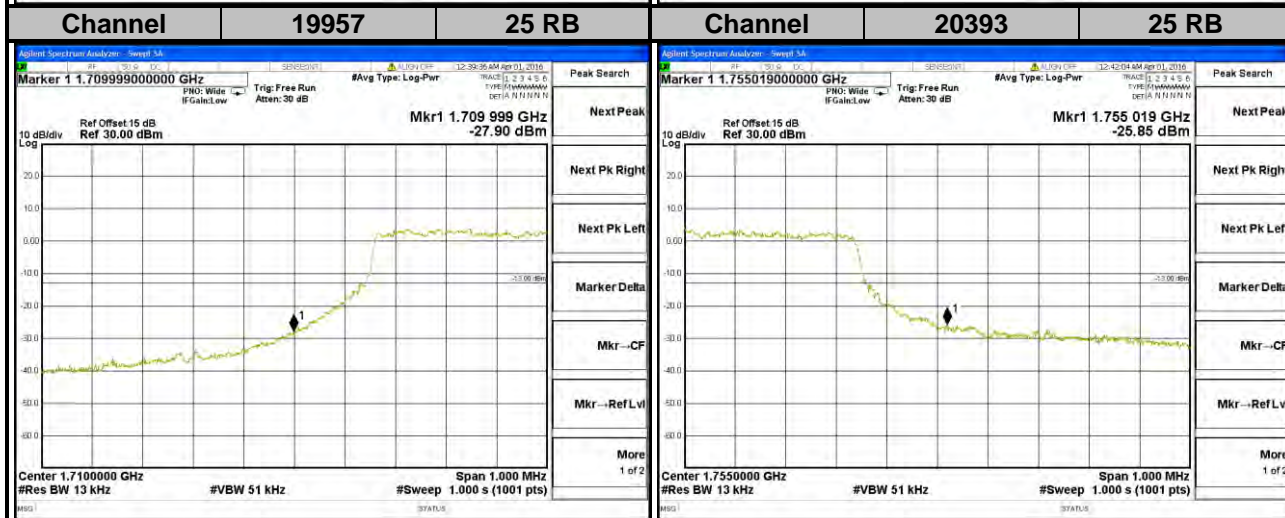
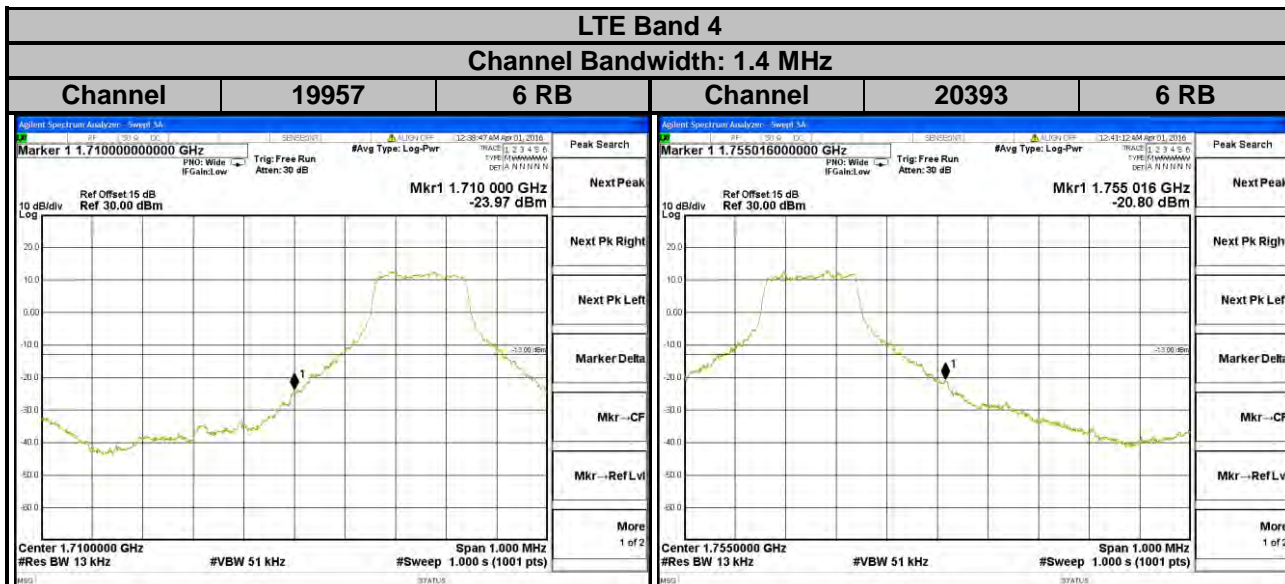
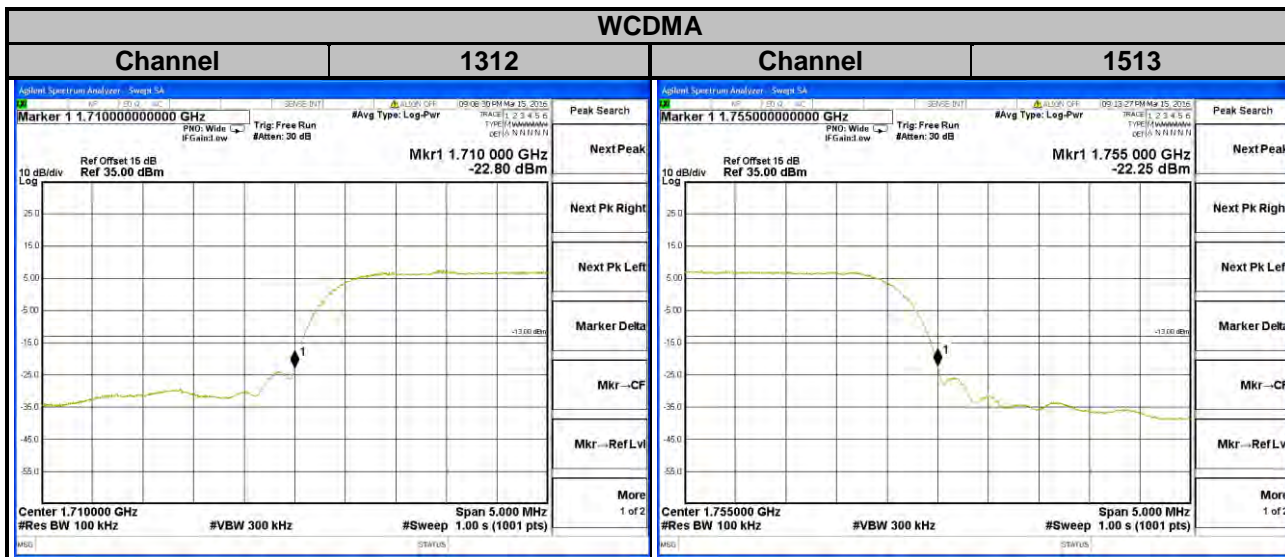
4.4.2 Test Setup



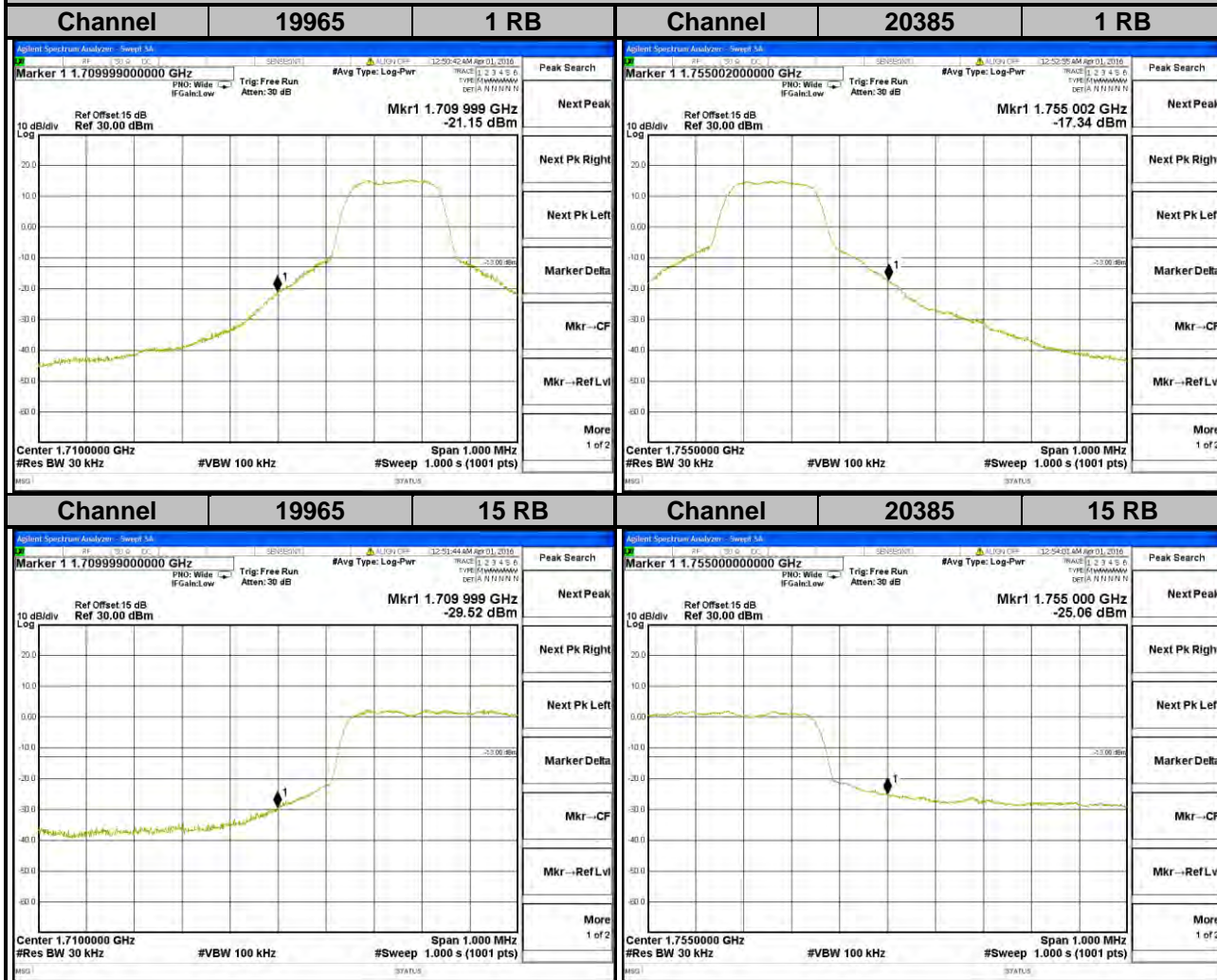
4.4.3 Test Procedures

- a. All measurements were done at low and high operational frequency range.
- b. The center frequency of spectrum is the band edge frequency and span is 5 MHz. RB of the spectrum is 100 kHz and VB of the spectrum is 300 kHz (WCDMA).
- c. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 13 kHz and VB of the spectrum is 51 kHz (LTE Bandwidth 1.4 MHz).
- d. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 30 kHz and VB of the spectrum is 100 kHz (LTE Bandwidth 3 MHz).
- e. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 100 kHz and VB of the spectrum is 300 kHz (LTE Bandwidth 5 MHz/10 MHz).
- f. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 150 kHz and VB of the spectrum is 470 kHz (LTE Bandwidth 15 MHz).
- g. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 180 kHz and VB of the spectrum is 560 kHz (LTE Bandwidth 20 MHz).
- h. Record the max trace plot into the test report.

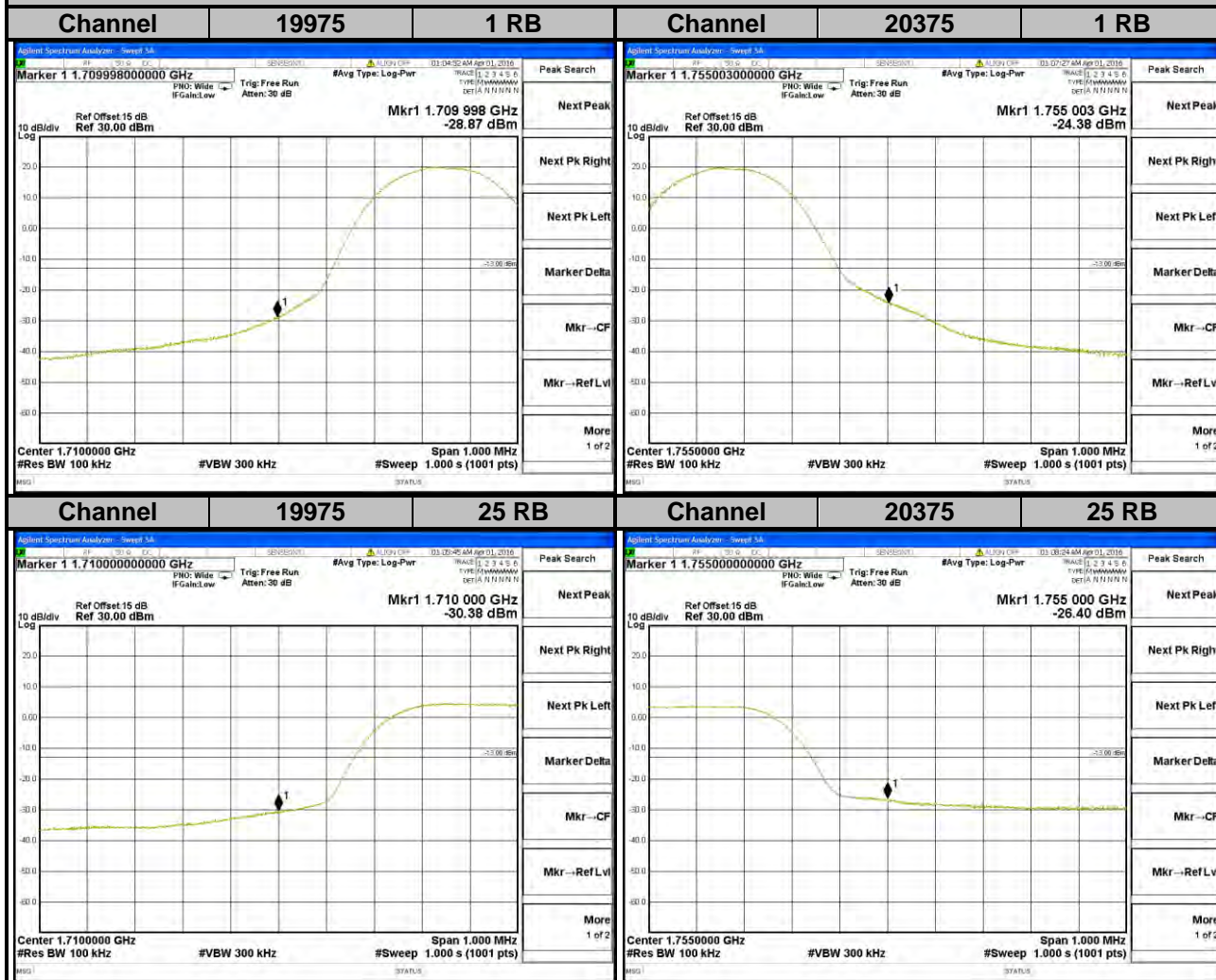
4.4.4 Test Results



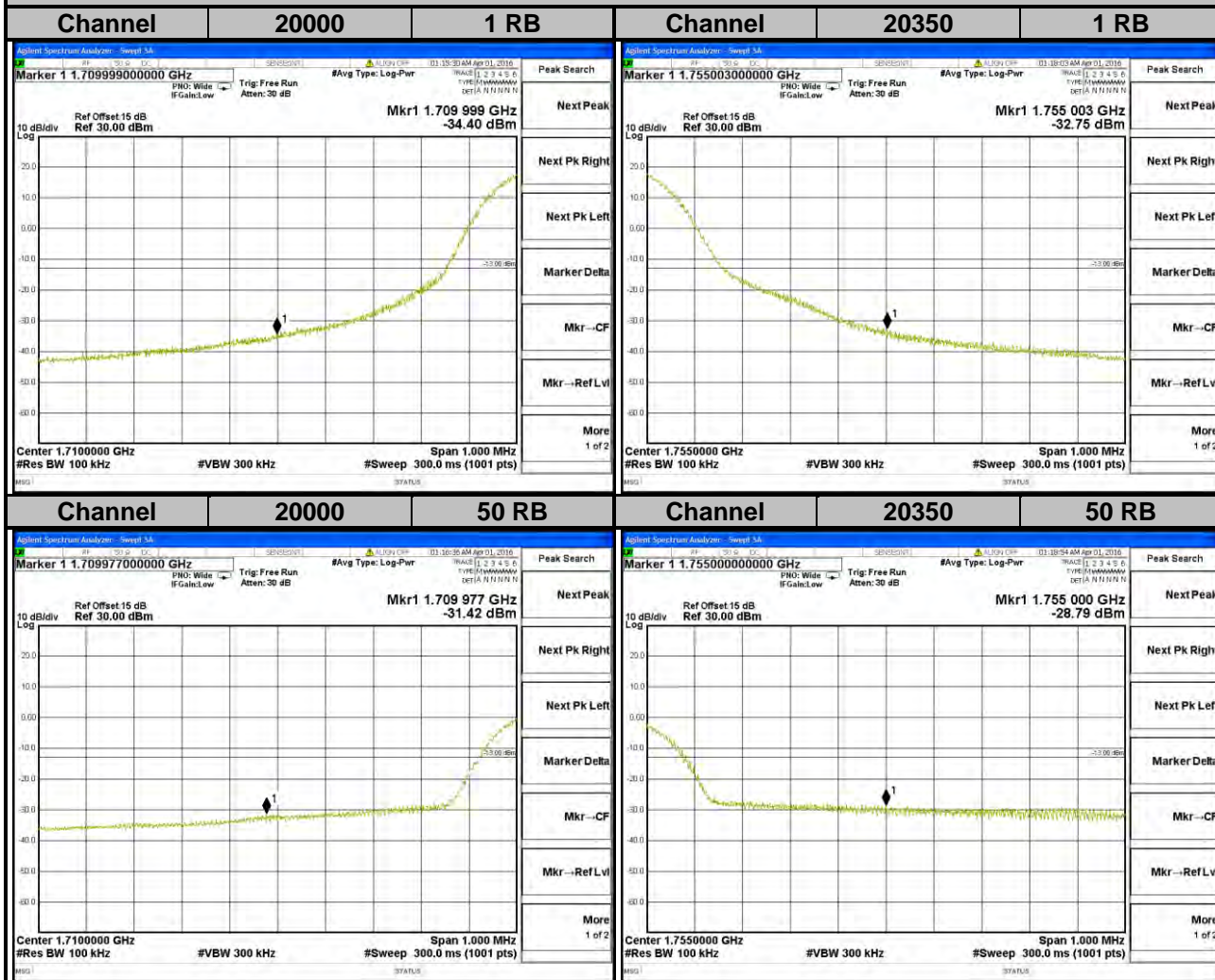
LTE Band 4
Channel Bandwidth: 3 MHz



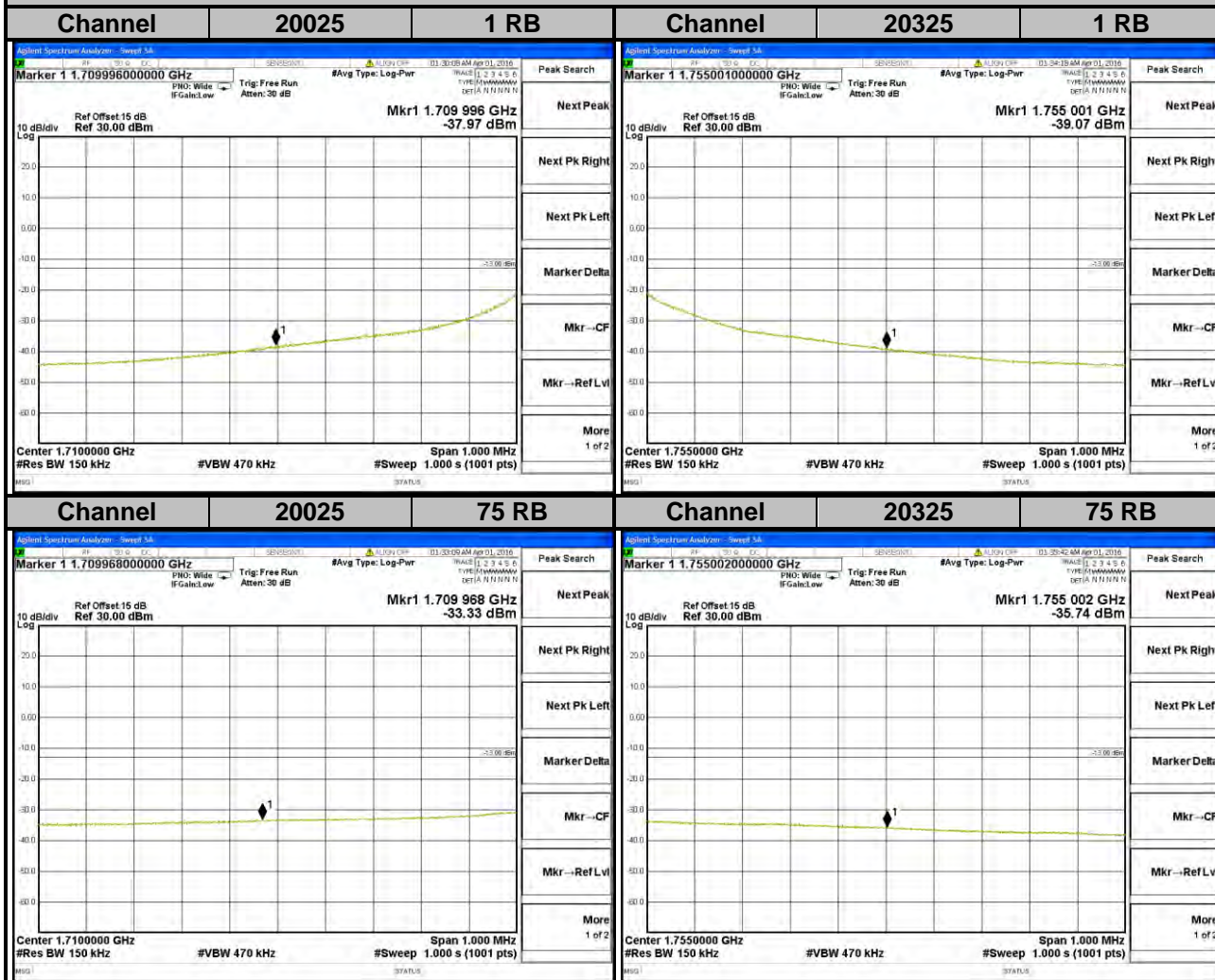
LTE Band 4
Channel Bandwidth: 5 MHz



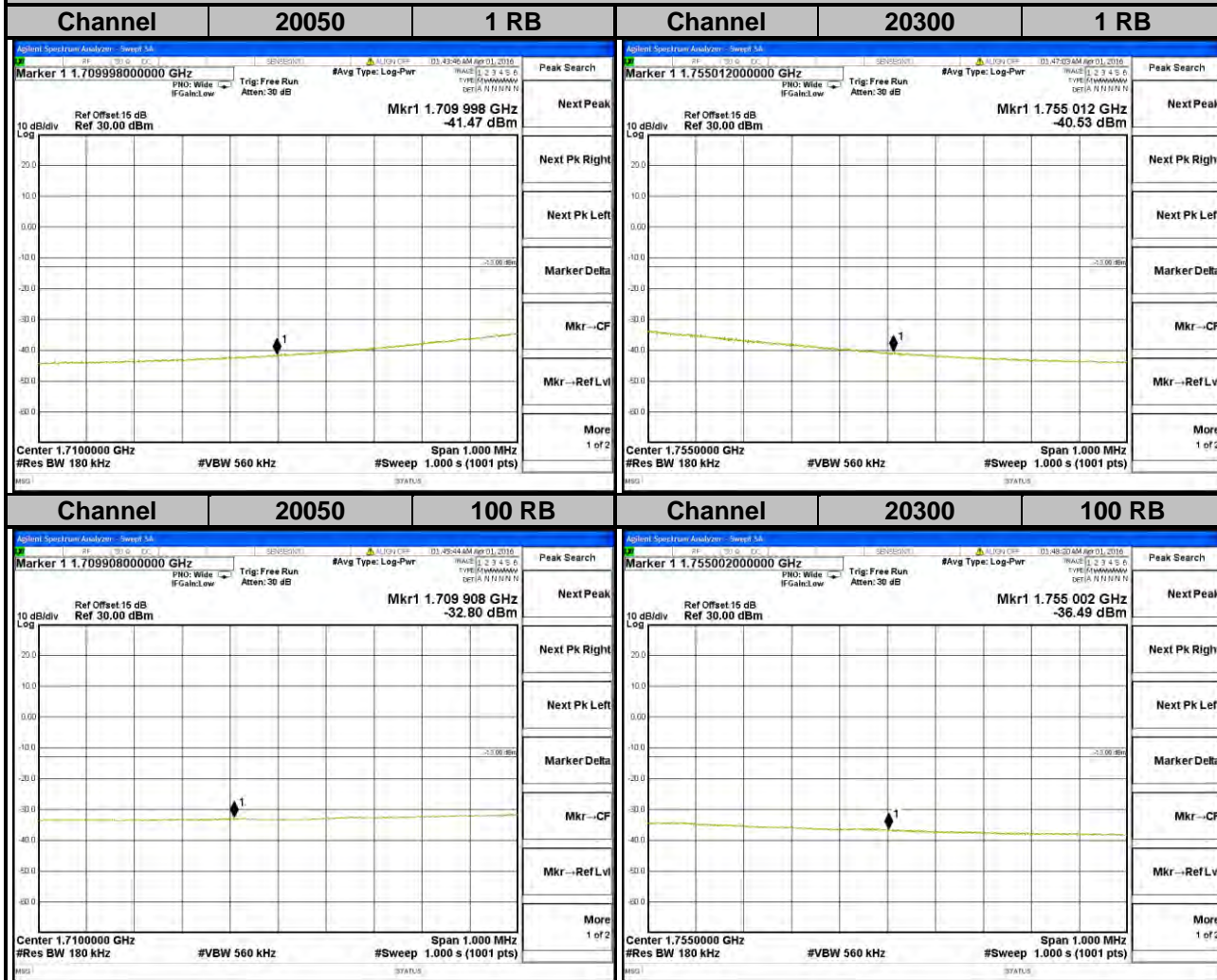
LTE Band 4
Channel Bandwidth: 10 MHz

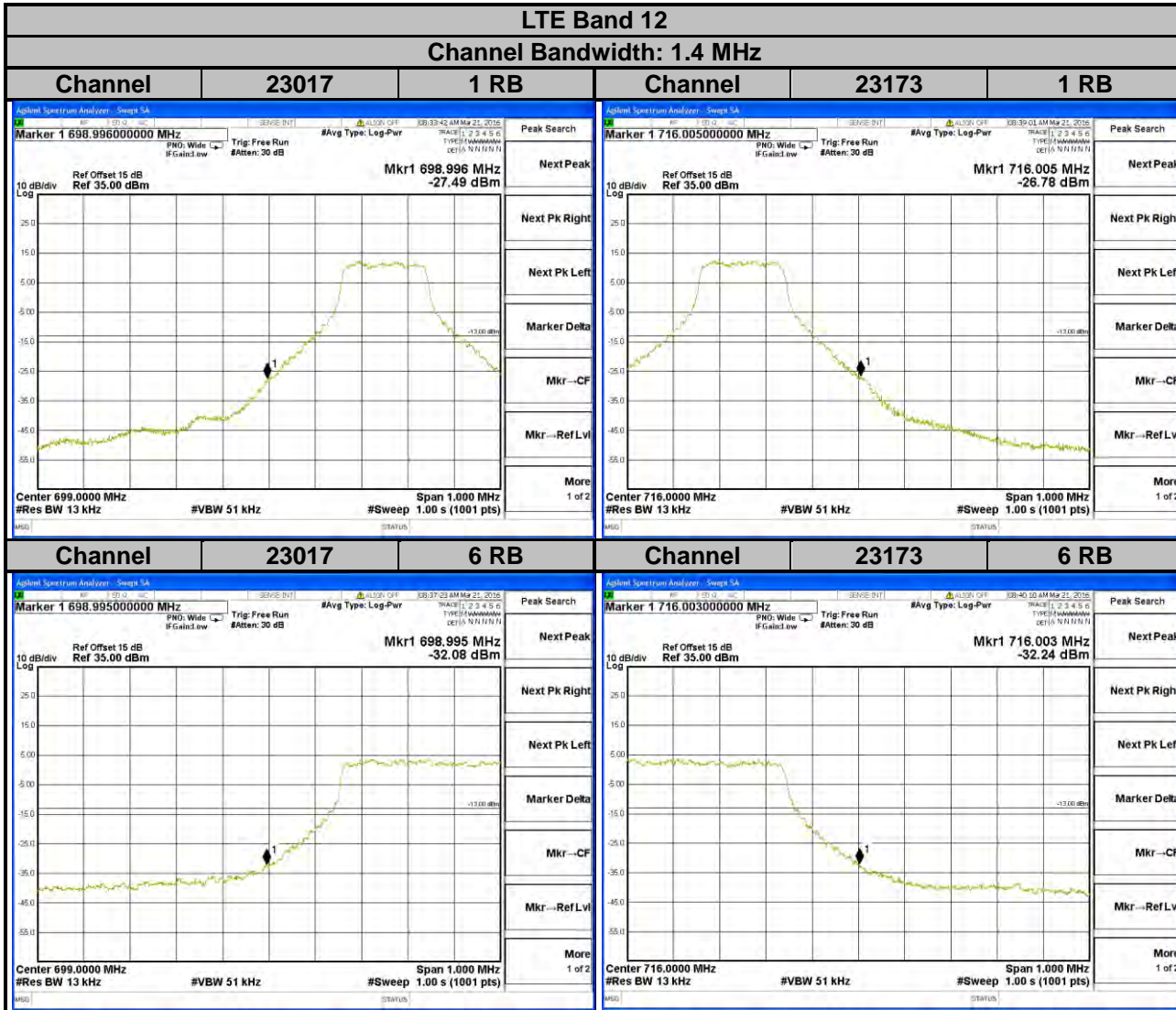


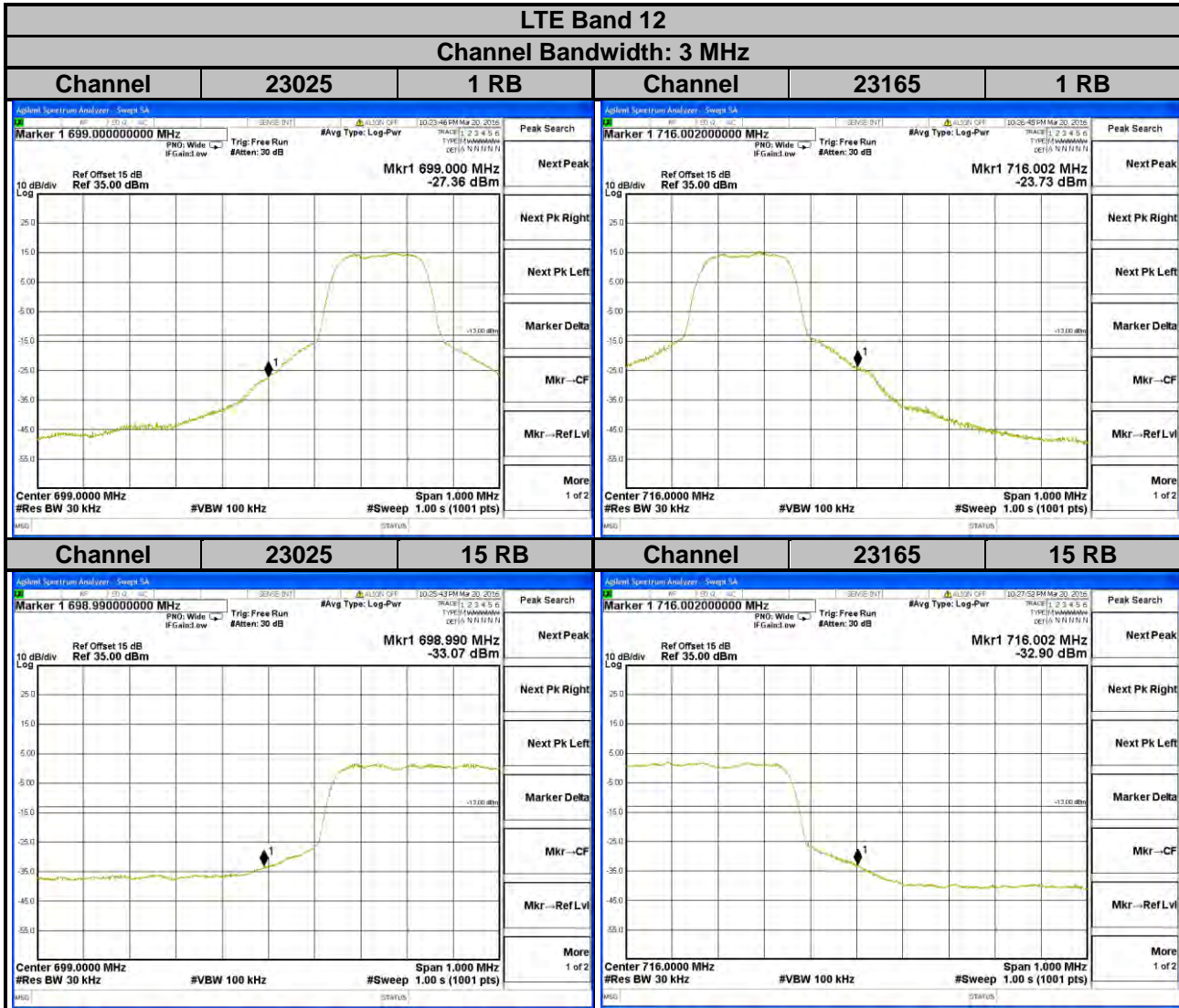
LTE Band 4
Channel Bandwidth: 15 MHz



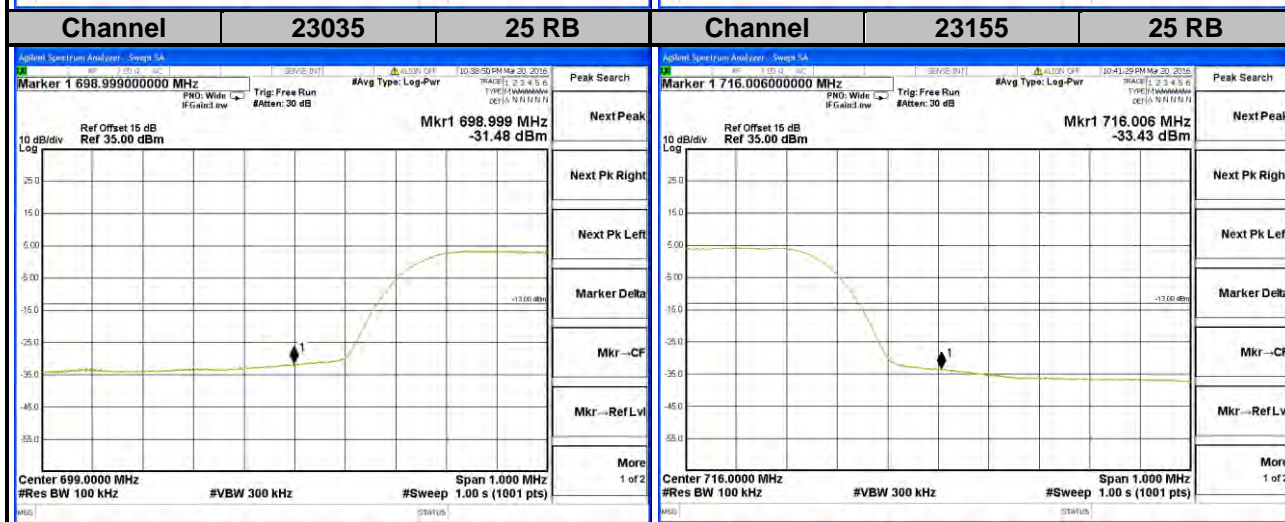
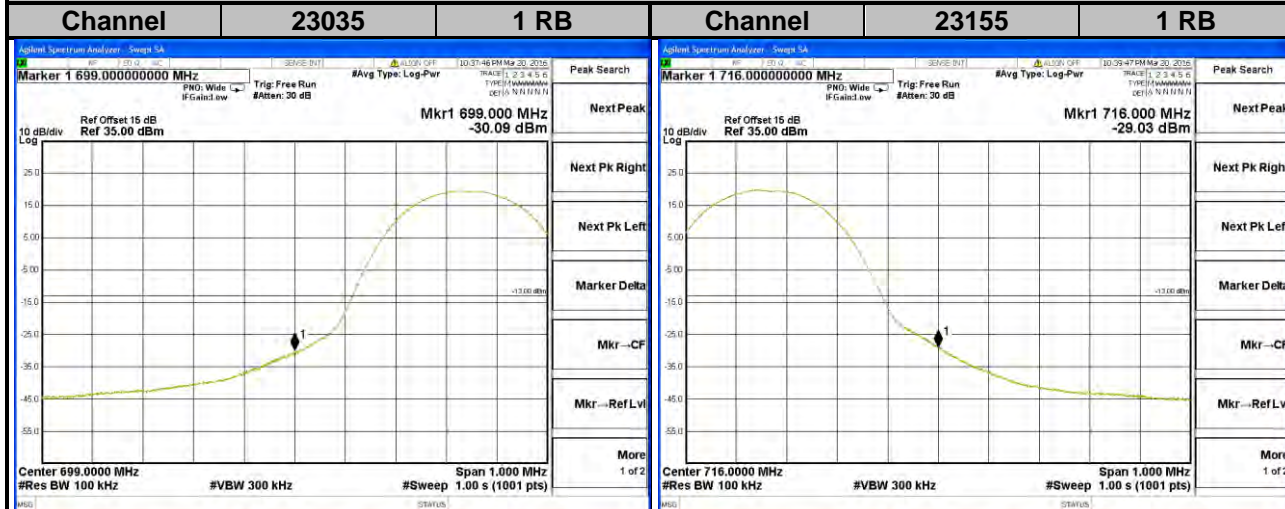
LTE Band 4
Channel Bandwidth: 20 MHz

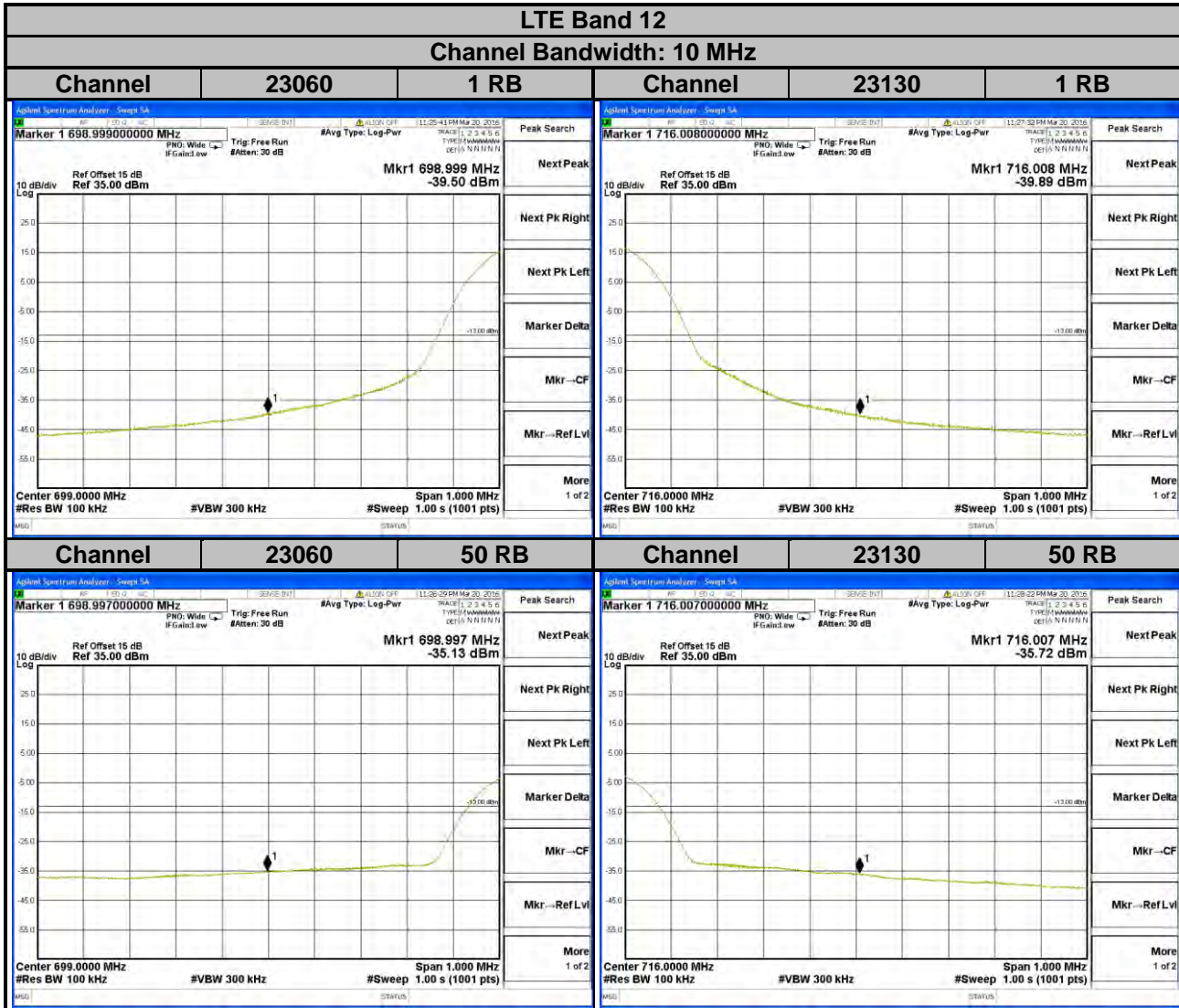




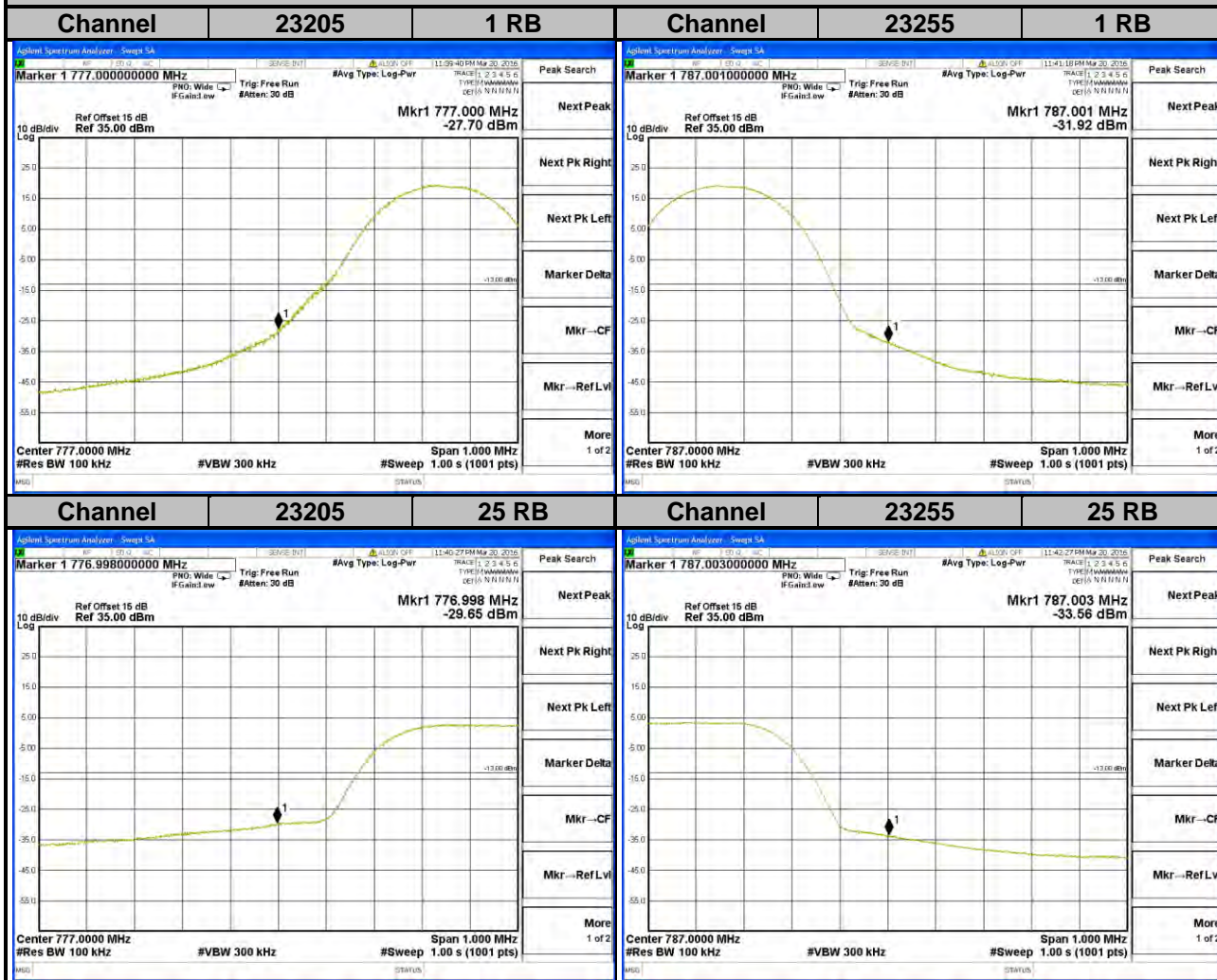


LTE Band 12
Channel Bandwidth: 5 MHz



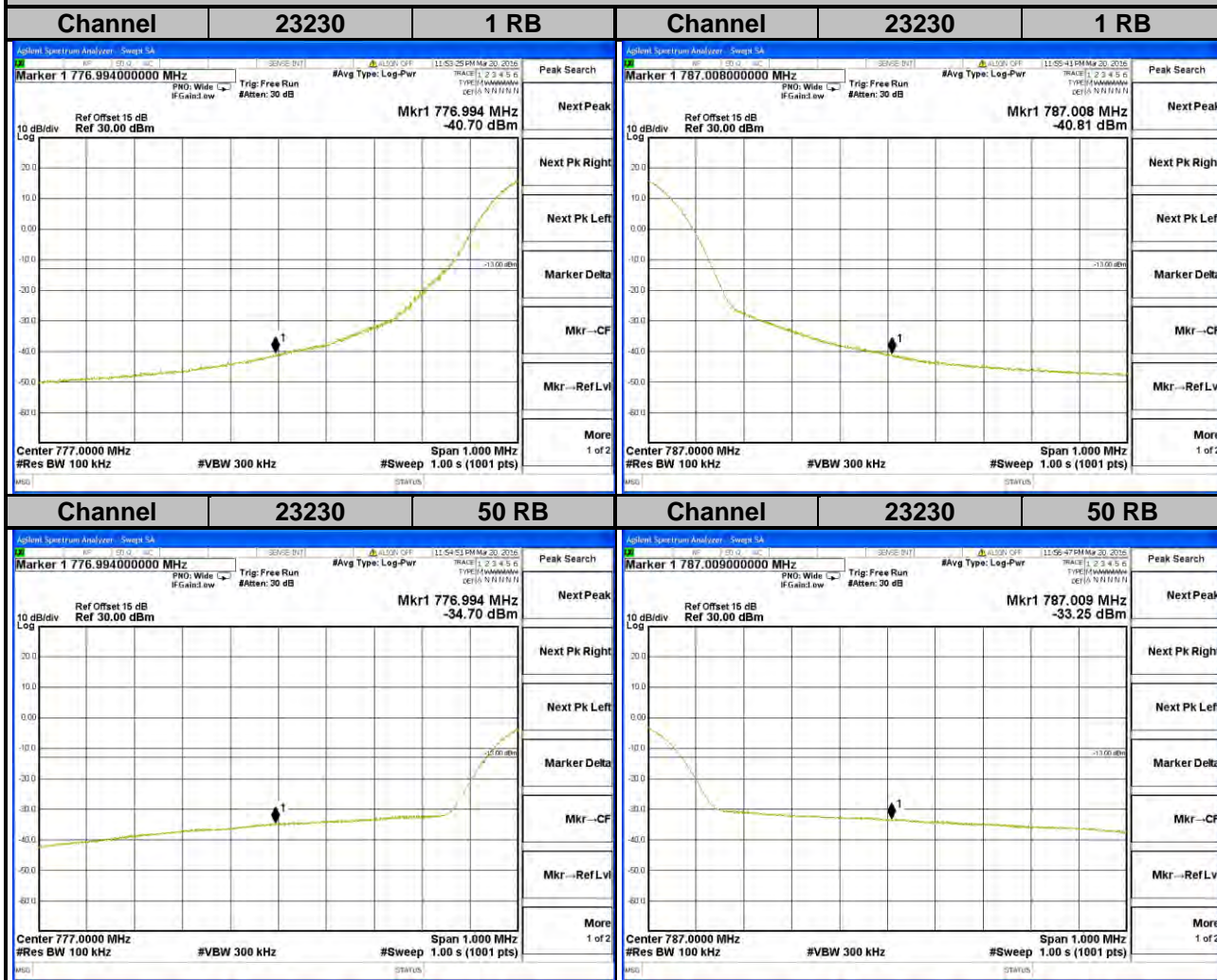


LTE Band 13
Channel Bandwidth: 5 MHz



LTE Band 13

Channel Bandwidth: 10 MHz

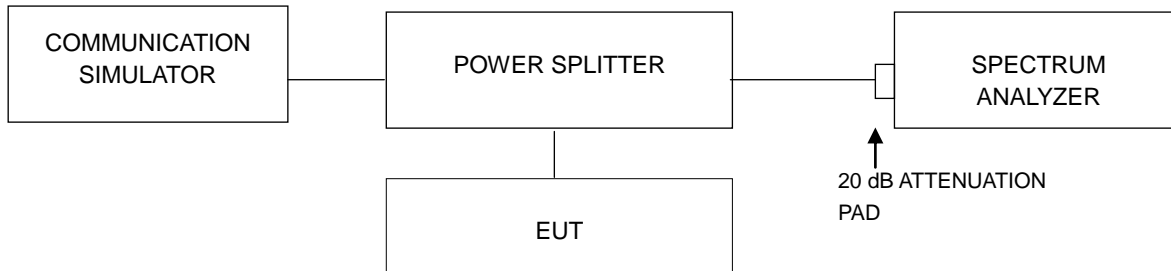


4.5 Peak to Average Ratio

4.5.1 Limits of Peak to Average Ratio Measurement

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB.

4.5.2 Test Setup

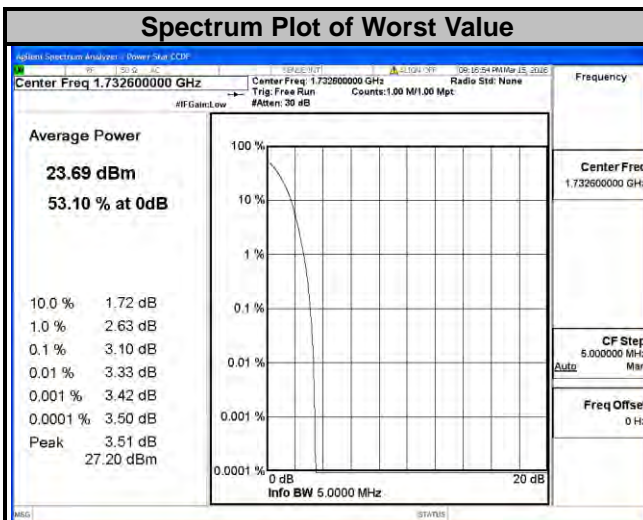


4.5.3 Test Procedures

1. Set resolution/measurement bandwidth \geq signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Record the maximum PAPR level associated with a probability of 0.1 %.

4.5.4 Test Results

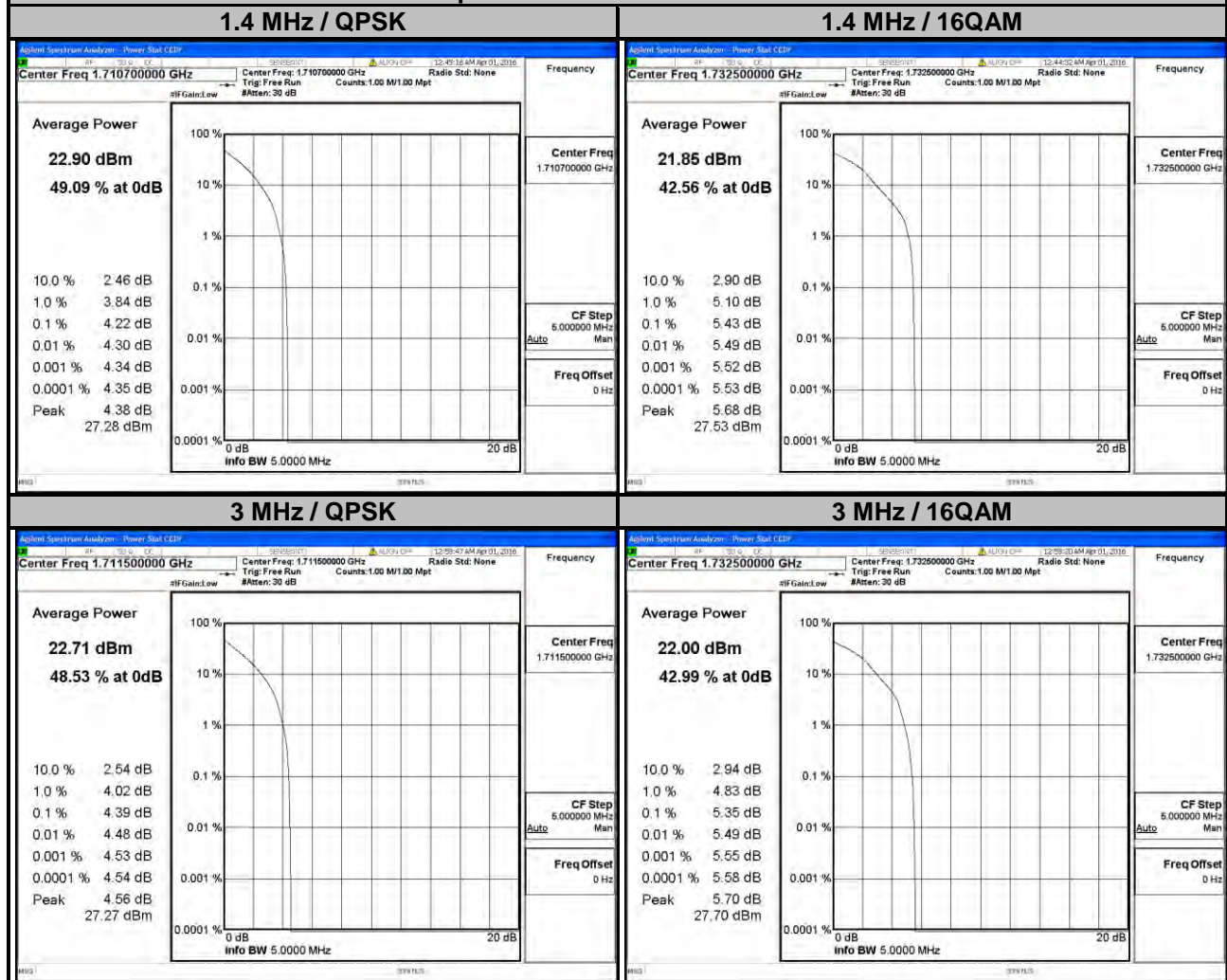
| WCDMA | | |
|---------|-----------------|----------------------------|
| Channel | Frequency (MHz) | Peak to Average Ratio (dB) |
| 1312 | 1712.4 | 3.07 |
| 1413 | 1732.6 | 3.10 |
| 1513 | 1752.6 | 2.89 |



LTE Band 4

| Channel Bandwidth: 1.4 MHz | | | | Channel Bandwidth: 3 MHz | | | |
|----------------------------|-----------------|----------------------------|-------|--------------------------|-----------------|----------------------------|-------|
| Channel | Frequency (MHz) | Peak to Average Ratio (dB) | | Channel | Frequency (MHz) | Peak to Average Ratio (dB) | |
| | | QPSK | 16QAM | | | QPSK | 16QAM |
| 19957 | 1710.7 | 4.22 | 5.09 | 19965 | 1711.5 | 4.39 | 5.11 |
| 20175 | 1732.5 | 4.19 | 5.43 | 20175 | 1732.5 | 4.03 | 5.35 |
| 20393 | 1754.3 | 3.54 | 4.83 | 20385 | 1753.5 | 3.28 | 3.20 |

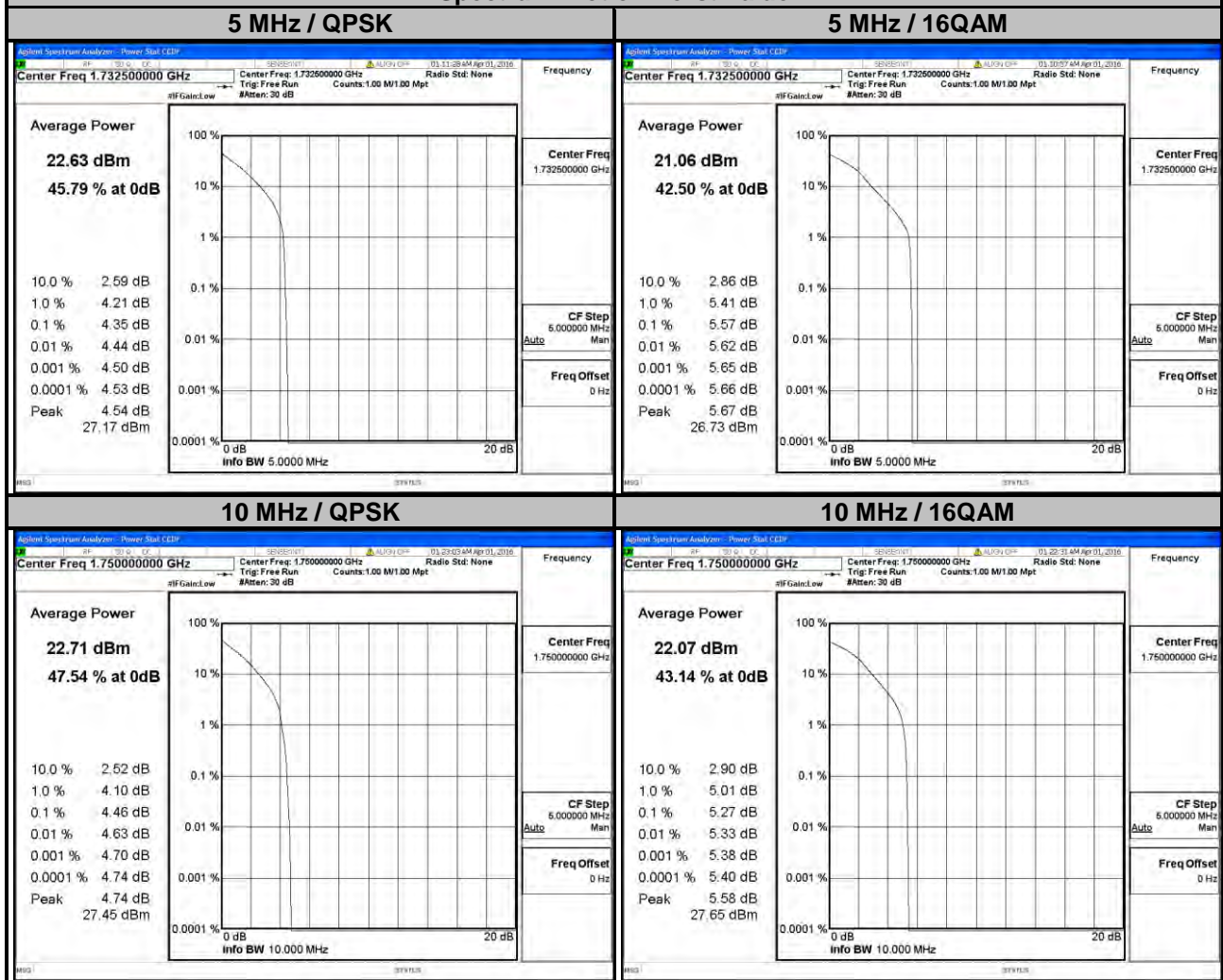
Spectrum Plot of Worst Value



LTE Band 4

| Channel Bandwidth: 5 MHz | | | | Channel Bandwidth: 10 MHz | | | |
|--------------------------|-----------------|----------------------------|-------|---------------------------|-----------------|----------------------------|-------|
| Channel | Frequency (MHz) | Peak to Average Ratio (dB) | | Channel | Frequency (MHz) | Peak to Average Ratio (dB) | |
| | | QPSK | 16QAM | | | QPSK | 16QAM |
| 19975 | 1712.5 | 4.24 | 5.07 | 20000 | 1715.0 | 3.69 | 4.99 |
| 20175 | 1732.5 | 4.35 | 5.57 | 20175 | 1732.5 | 3.72 | 5.18 |
| 20375 | 1752.5 | 3.98 | 5.21 | 20350 | 1750.0 | 4.46 | 5.27 |

Spectrum Plot of Worst Value



LTE Band 4

Channel Bandwidth: 15 MHz

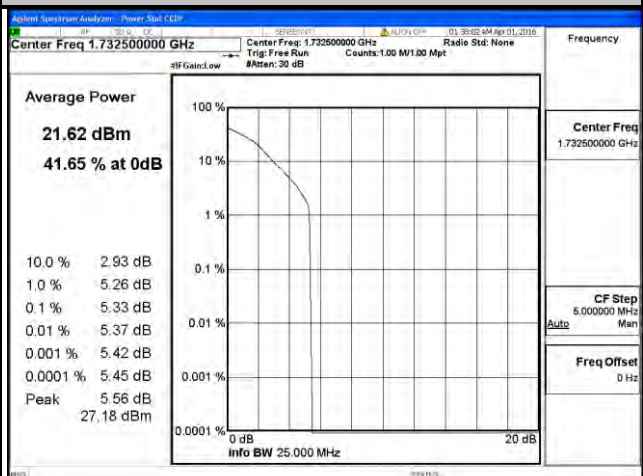
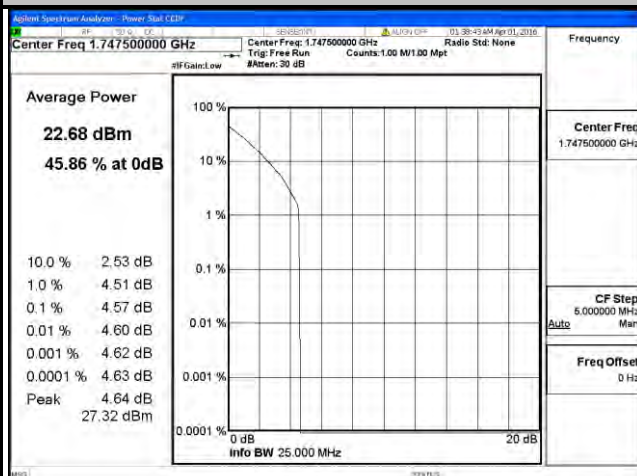
Channel Bandwidth: 20 MHz

| Channel | Frequency (MHz) | Peak to Average Ratio (dB) | | Channel | Frequency (MHz) | Peak to Average Ratio (dB) | |
|---------|-----------------|----------------------------|-------|---------|-----------------|----------------------------|-------|
| | | QPSK | 16QAM | | | QPSK | 16QAM |
| 20025 | 1717.5 | 4.23 | 4.89 | 20050 | 1720.0 | 4.23 | 4.84 |
| 20175 | 1732.5 | 4.34 | 5.33 | 20175 | 1732.5 | 4.41 | 5.13 |
| 20325 | 1747.5 | 4.57 | 5.25 | 20300 | 1745.0 | 4.61 | 5.37 |

Spectrum Plot of Worst Value

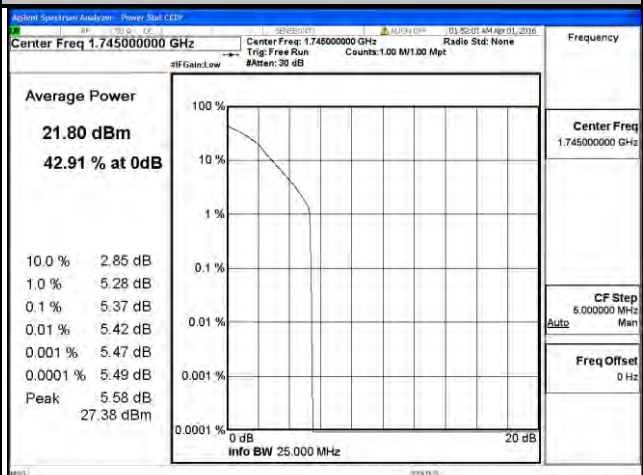
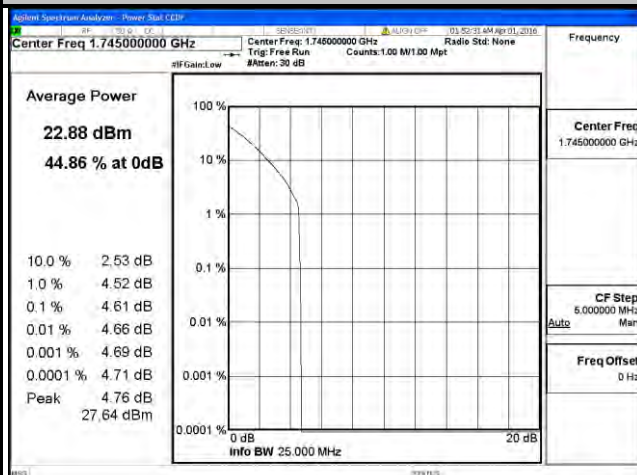
15 MHz / QPSK

15 MHz / 16QAM



20 MHz / QPSK

20 MHz / 16QAM

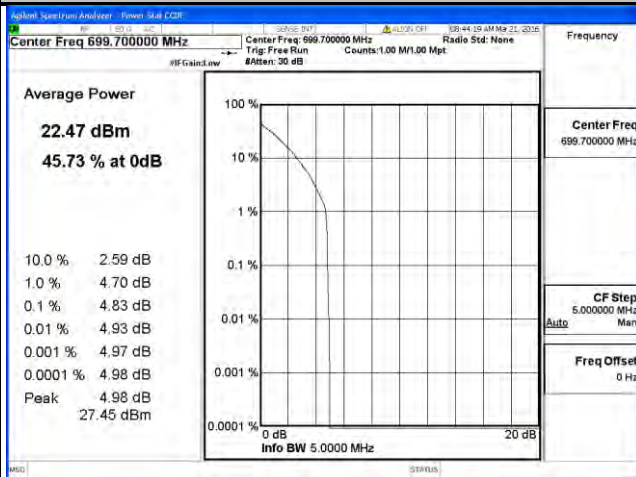


LTE Band 12

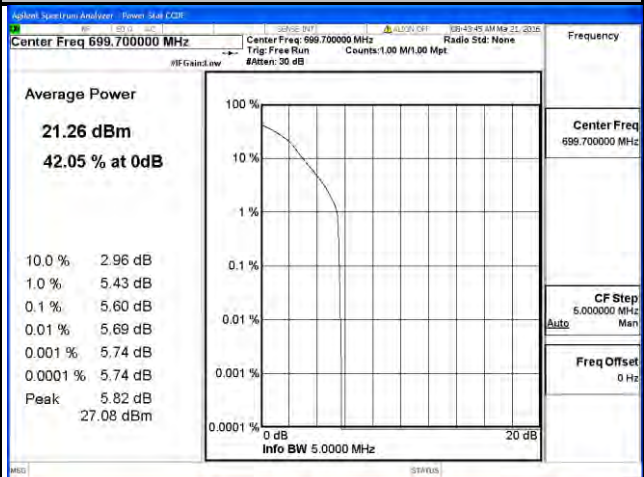
| Channel Bandwidth: 1.4 MHz | | | | Channel Bandwidth: 3 MHz | | | |
|----------------------------|-----------------|----------------------------|-------|--------------------------|-----------------|----------------------------|-------|
| Channel | Frequency (MHz) | Peak to Average Ratio (dB) | | Channel | Frequency (MHz) | Peak to Average Ratio (dB) | |
| | | QPSK | 16QAM | | | QPSK | 16QAM |
| 23017 | 699.7 | 4.83 | 5.60 | 23025 | 700.5 | 4.74 | 5.56 |
| 23095 | 707.5 | 4.54 | 5.30 | 23095 | 707.5 | 4.55 | 5.33 |
| 23173 | 715.3 | 4.67 | 5.17 | 23165 | 714.5 | 4.70 | 5.38 |

Spectrum Plot of Worst Value

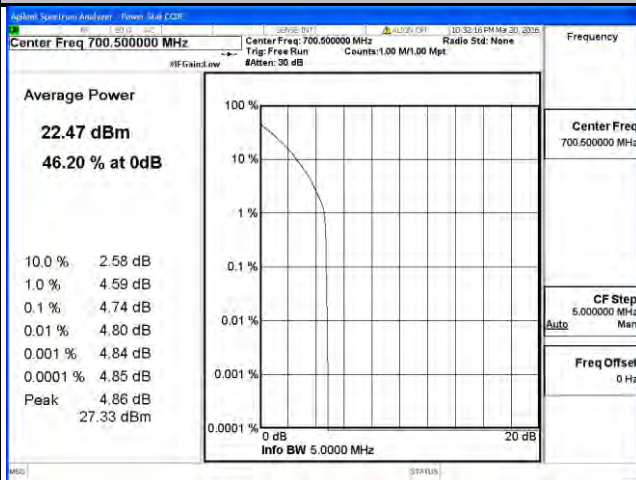
1.4 MHz / QPSK



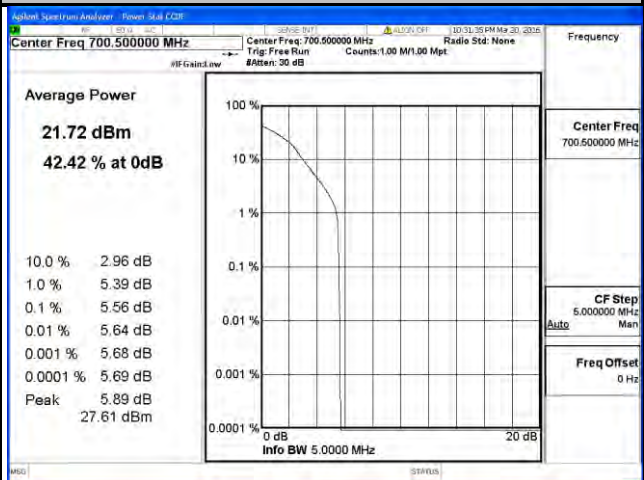
1.4 MHz / 16QAM



3 MHz / QPSK



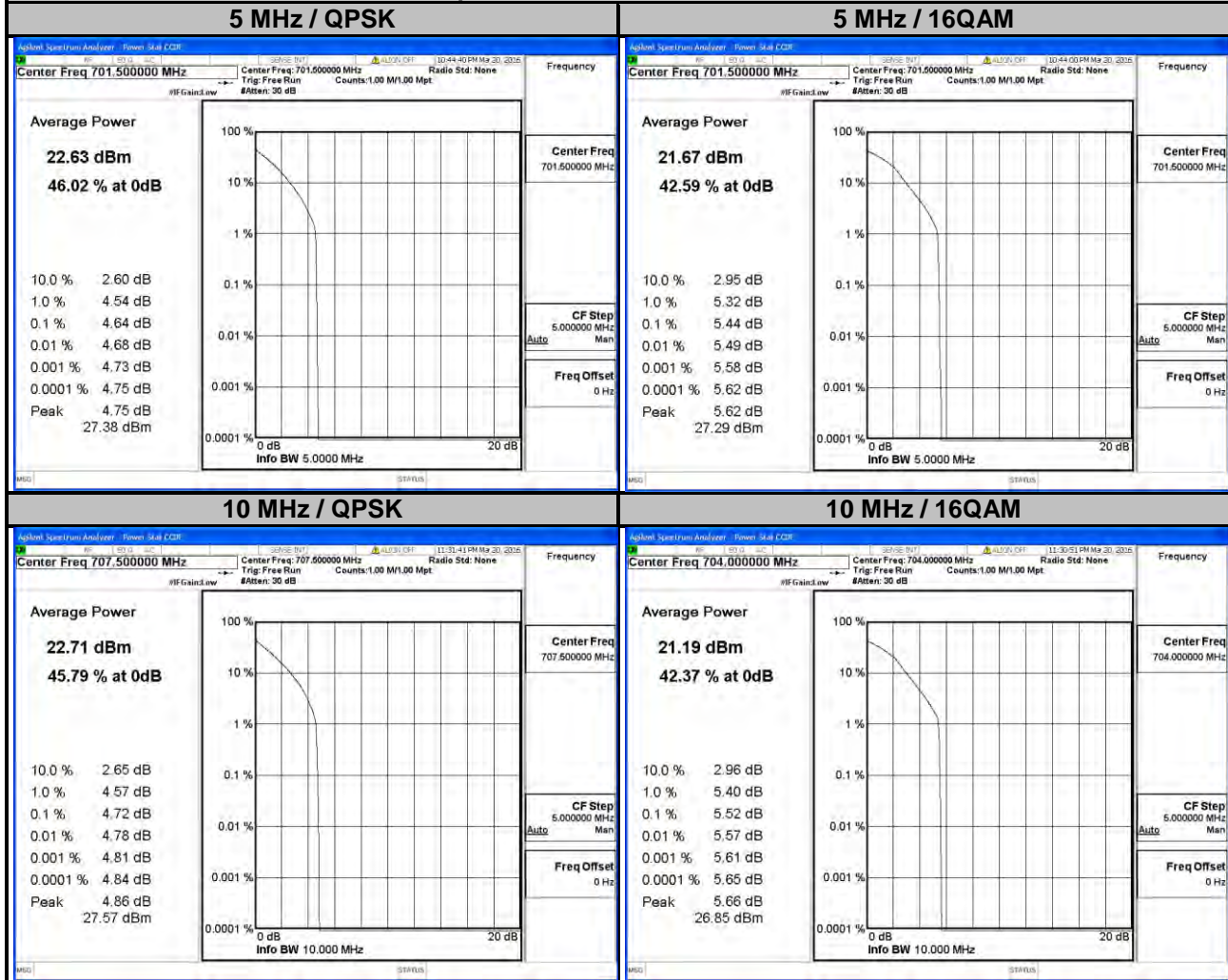
3 MHz / 16QAM



LTE Band 12

| Channel Bandwidth: 5 MHz | | | | Channel Bandwidth: 10 MHz | | | |
|--------------------------|-----------------|----------------------------|-------|---------------------------|-----------------|----------------------------|-------|
| Channel | Frequency (MHz) | Peak to Average Ratio (dB) | | Channel | Frequency (MHz) | Peak to Average Ratio (dB) | |
| | | QPSK | 16QAM | | | QPSK | 16QAM |
| 23035 | 701.5 | 4.64 | 5.44 | 23060 | 704.0 | 4.69 | 5.52 |
| 23095 | 707.5 | 4.45 | 5.35 | 23095 | 707.5 | 4.72 | 5.47 |
| 23155 | 713.5 | 4.61 | 5.35 | 23130 | 711.0 | 4.35 | 5.05 |

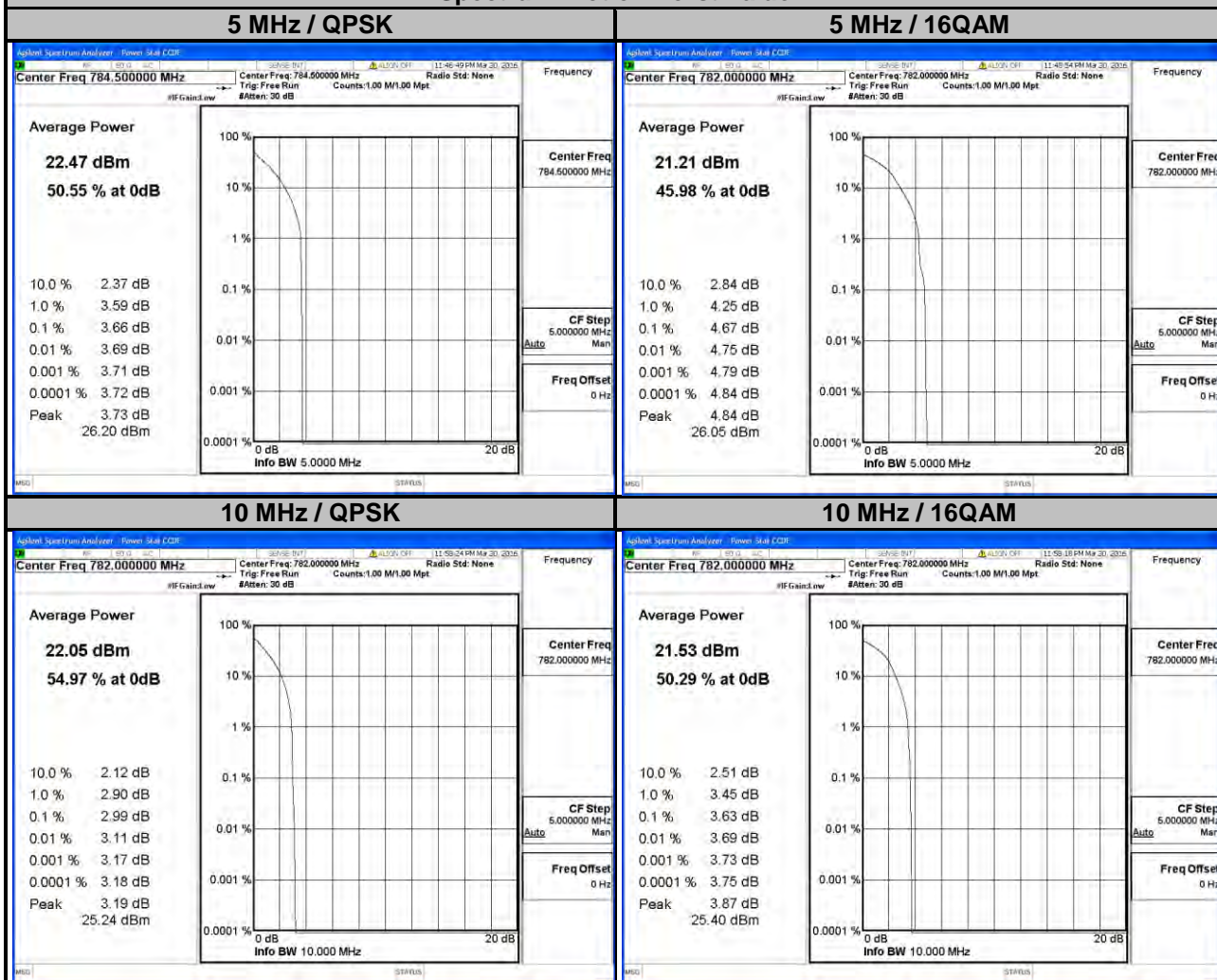
Spectrum Plot of Worst Value



LTE Band 13

| Channel Bandwidth: 5 MHz | | | | Channel Bandwidth: 10 MHz | | | |
|--------------------------|-----------------|----------------------------|-------|---------------------------|-----------------|----------------------------|-------|
| Channel | Frequency (MHz) | Peak to Average Ratio (dB) | | Channel | Frequency (MHz) | Peak to Average Ratio (dB) | |
| | | QPSK | 16QAM | | | QPSK | 16QAM |
| 23205 | 779.5 | 2.87 | 3.49 | 23230 | 782.0 | 2.99 | 3.63 |
| 23230 | 782.0 | 3.66 | 4.67 | | | | |
| 23255 | 784.5 | 3.66 | 4.52 | | | | |

Spectrum Plot of Worst Value

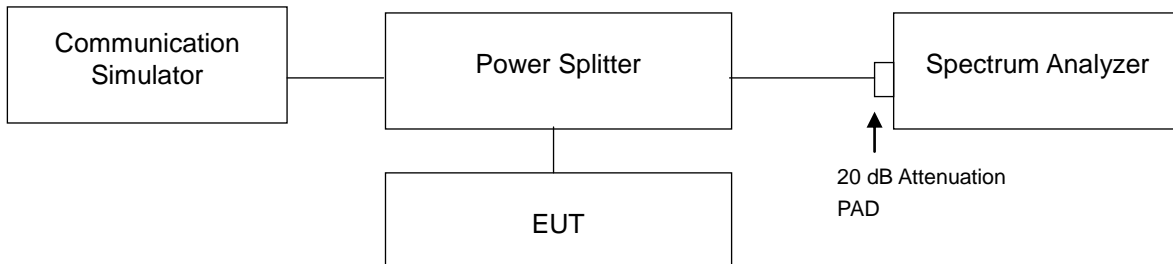


4.6 Conducted Spurious Emissions

4.6.1 Limits of Conducted Spurious Emissions Measurement

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least $43 + 10 \log_{10}(P)$ dB. The limit of emission is equal to -13 dBm.

4.6.2 Test Setup

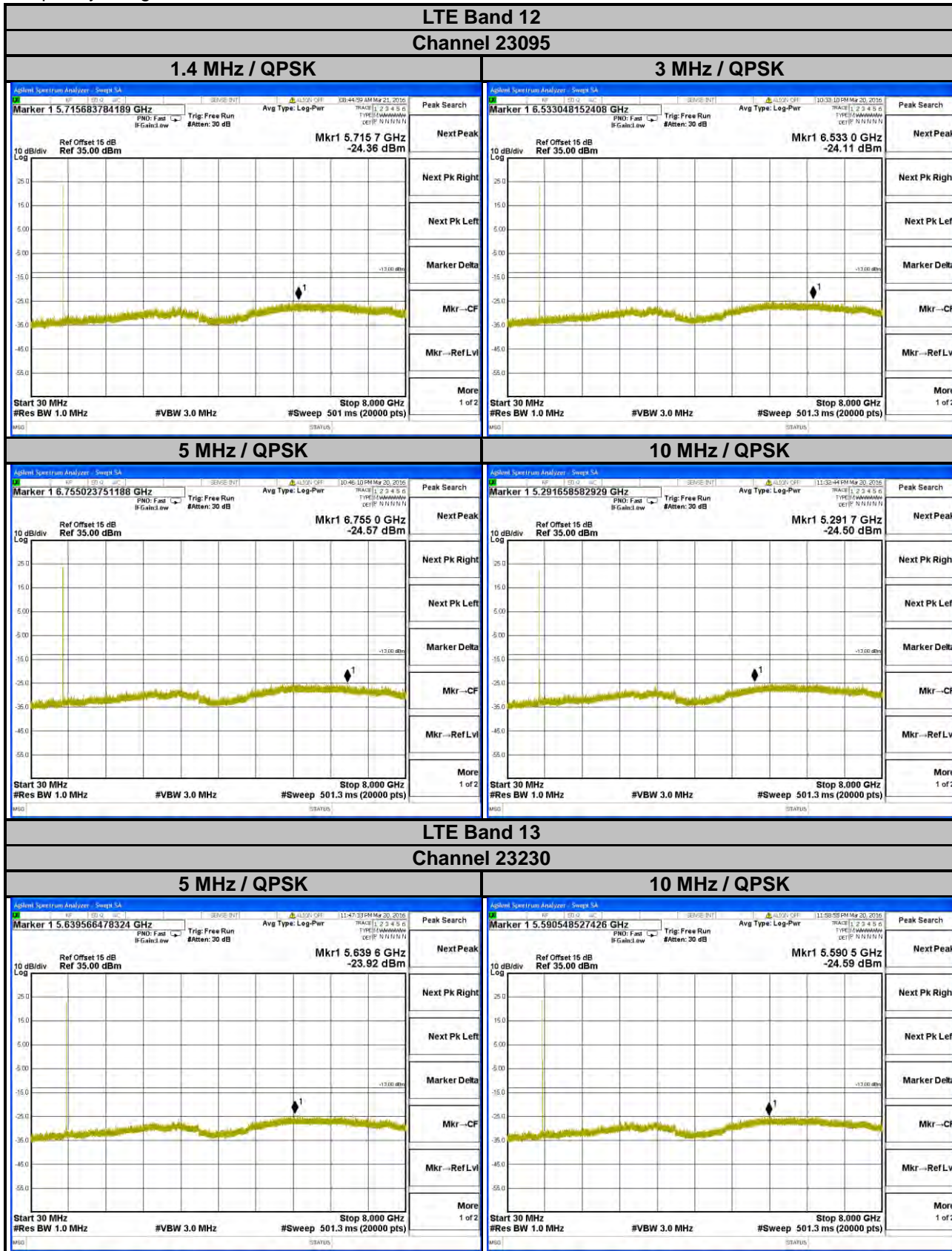


4.6.3 Test Procedure

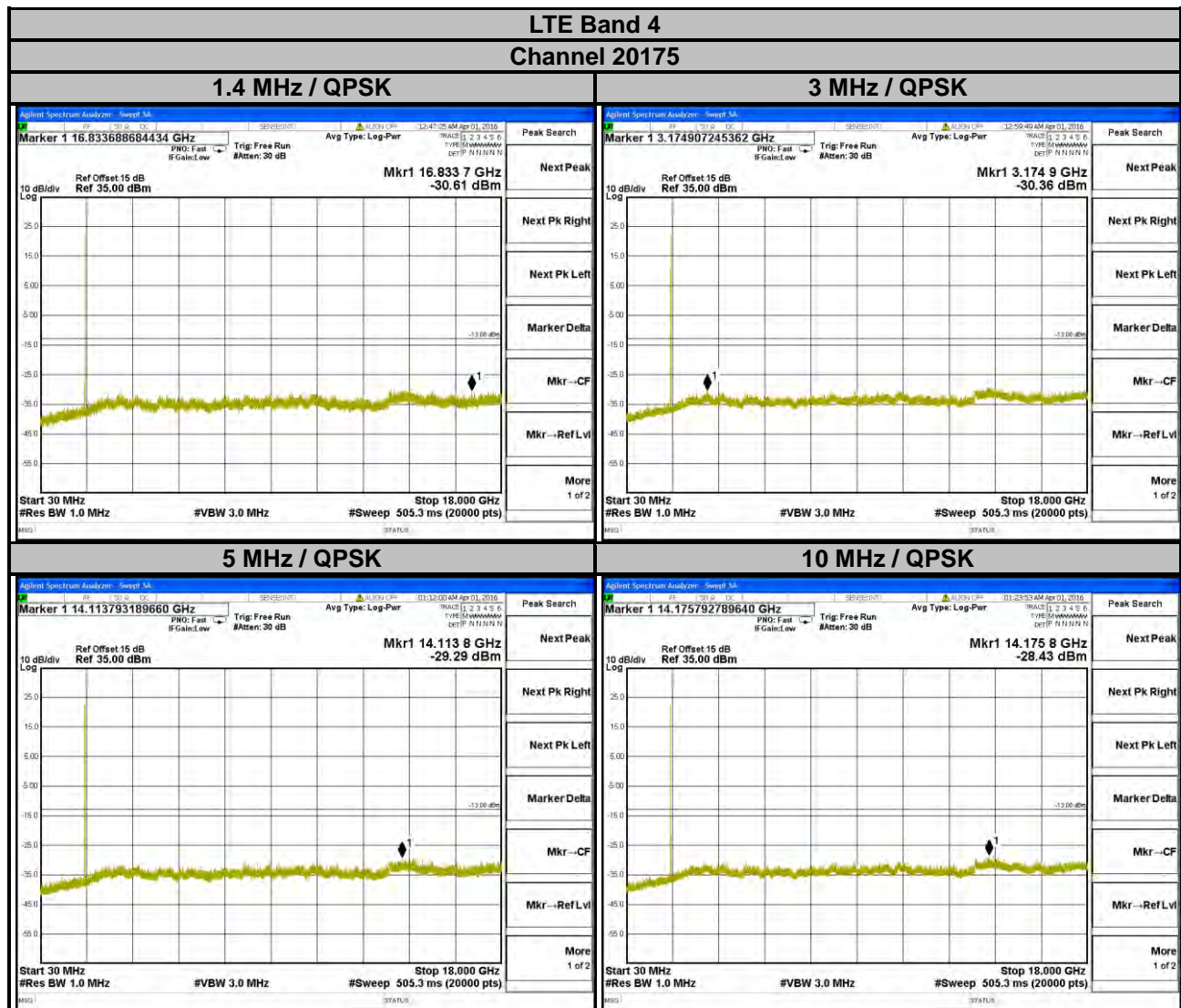
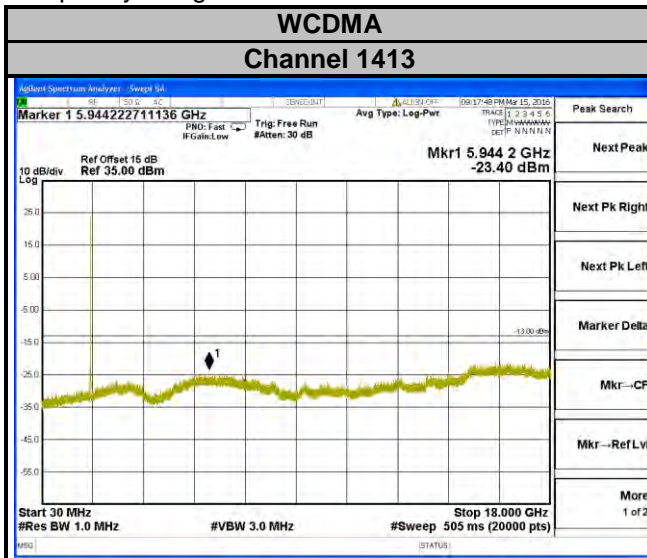
- The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- Measuring frequency range is from 30 MHz to 18 GHz for LTE Band 4. 10 dB attenuation pad is connected with spectrum. RBW=1 MHz and VBW=3 MHz are used for conducted emission measurement.

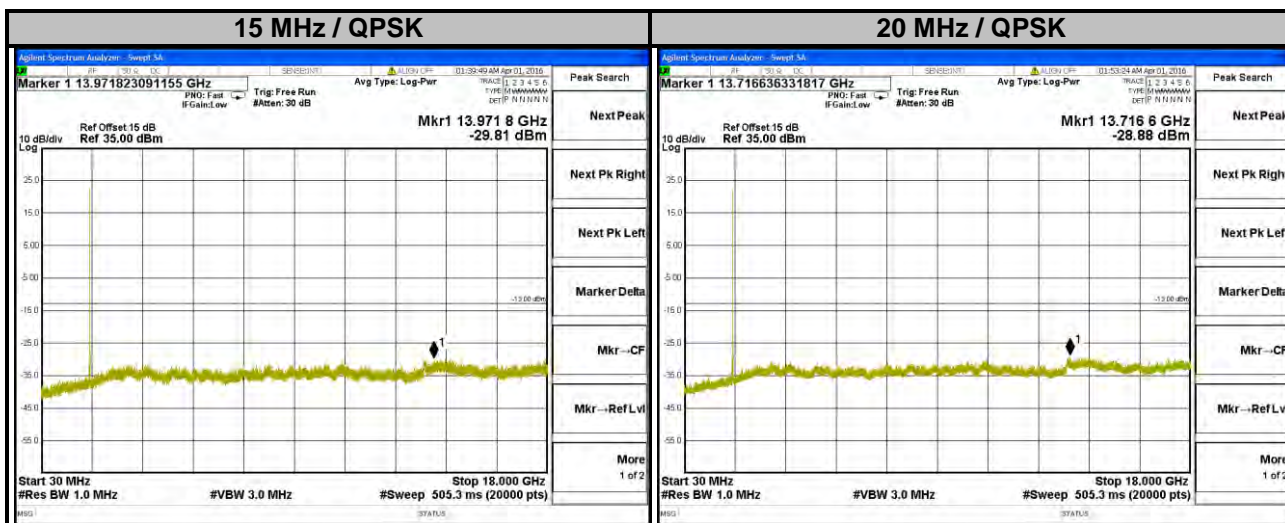
4.6.4 Test Results

Frequency Range: 30 MHz ~ 8 GHz



Frequency Range: 30 MHz ~ 18 GHz





4.7 Radiated Emission Measurement

4.7.1 Limits of Radiated Emission Measurement

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least $43 + 10 \log_{10}(P)$ dB. The limit of emission is equal to -13 dBm.

4.7.2 Test Procedure

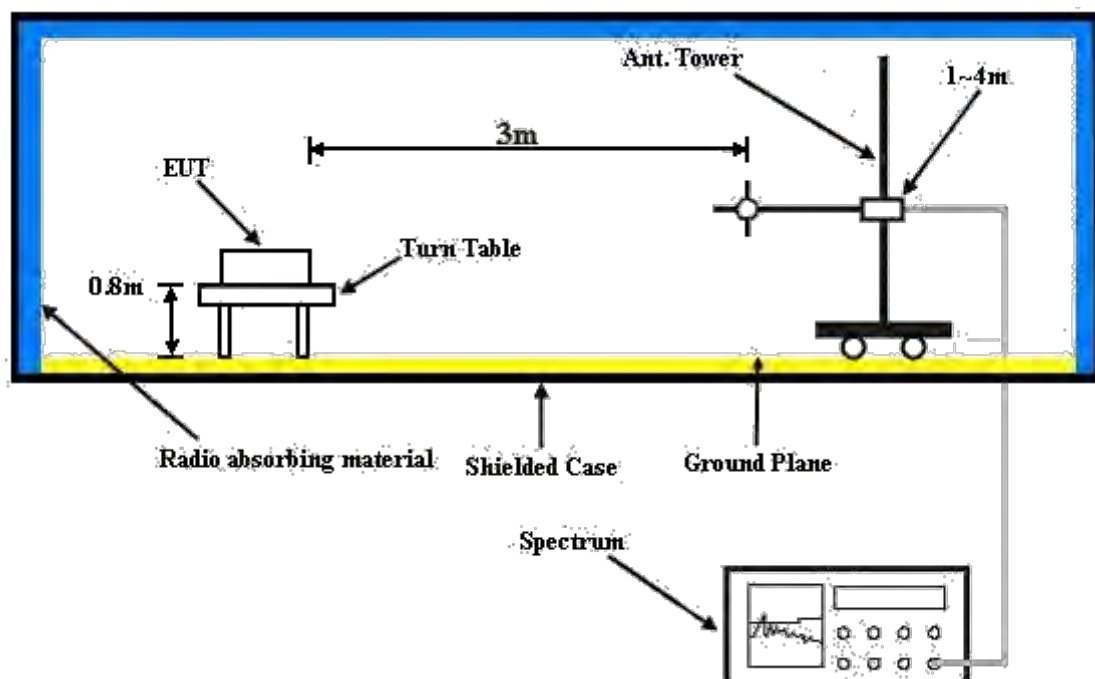
- Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step a. Record the power level of S.G.
- $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$.
- E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, $E.R.P \text{ power} = E.I.P.R \text{ power} - 2.15 \text{ dBi}$.

Note: The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

4.7.3 Deviation from Test Standard

No deviation.

4.7.4 Test Setup



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.7.5 Test Results

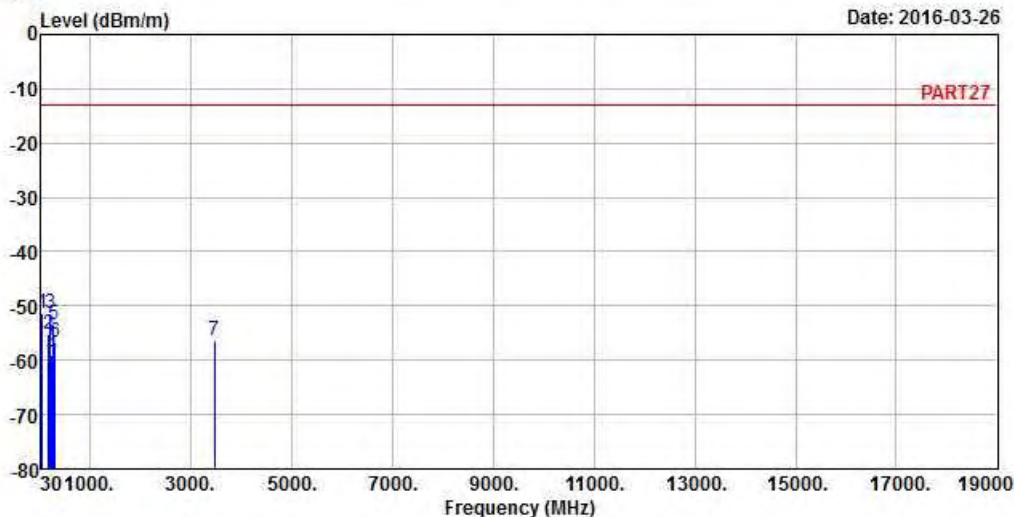
WCDMA:



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 7



Site : 966 Chamber 5
 Condition: PART27 3m HORIZONTAL
 Remak : WCDMA Band IV Link
 Tested by: Gavin Wu
 Plane :

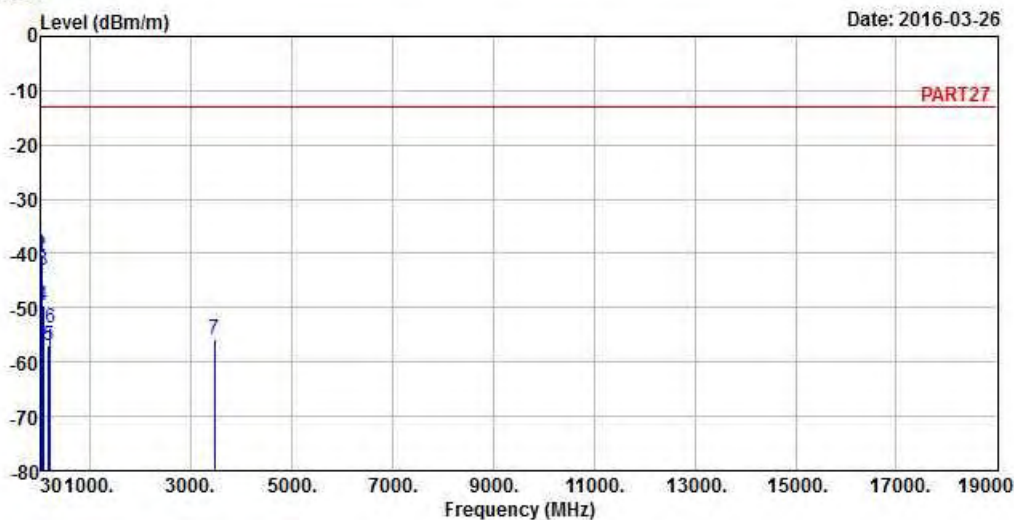
| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|------|---------|------------|------------|------------|--------|------------|
| | MHz | dBm/m | dBm | dBm/m | dB | dB/m | |
| 1 | pp | 53.28 | -51.36 | -45.55 | -13.00 | -38.36 | -5.81 Peak |
| 2 | | 179.38 | -55.16 | -47.93 | -13.00 | -42.16 | -7.23 Peak |
| 3 | | 213.33 | -51.50 | -44.03 | -13.00 | -38.50 | -7.47 Peak |
| 4 | | 235.64 | -58.98 | -52.40 | -13.00 | -45.98 | -6.58 Peak |
| 5 | | 268.62 | -53.50 | -47.13 | -13.00 | -40.50 | -6.37 Peak |
| 6 | | 306.45 | -56.54 | -49.63 | -13.00 | -43.54 | -6.91 Peak |
| 7 | | 3465.20 | -56.47 | -47.56 | -13.00 | -43.47 | -8.91 Peak |



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 8



Site : 966 Chamber 5
 Condition: PART27 3m VERTICAL
 Remak : WCDMA Band IV Link
 Tested by: Gavin Wu
 Plane :

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|------|---------|------------|------------|------------|--------|------------|
| | MHz | dBm/m | dBm | dBm/m | dB | dB/m | |
| 1 | pp | 30.00 | -40.14 | -40.52 | -13.00 | -27.14 | 0.38 Peak |
| 2 | | 39.70 | -40.54 | -41.18 | -13.00 | -27.54 | 0.64 Peak |
| 3 | | 54.25 | -43.01 | -36.94 | -13.00 | -30.01 | -6.07 Peak |
| 4 | | 70.74 | -49.63 | -41.01 | -13.00 | -36.63 | -8.62 Peak |
| 5 | | 175.50 | -57.12 | -50.57 | -13.00 | -44.12 | -6.55 Peak |
| 6 | | 208.48 | -53.79 | -46.12 | -13.00 | -40.79 | -7.67 Peak |
| 7 | | 3465.20 | -55.76 | -46.85 | -13.00 | -42.76 | -8.91 Peak |

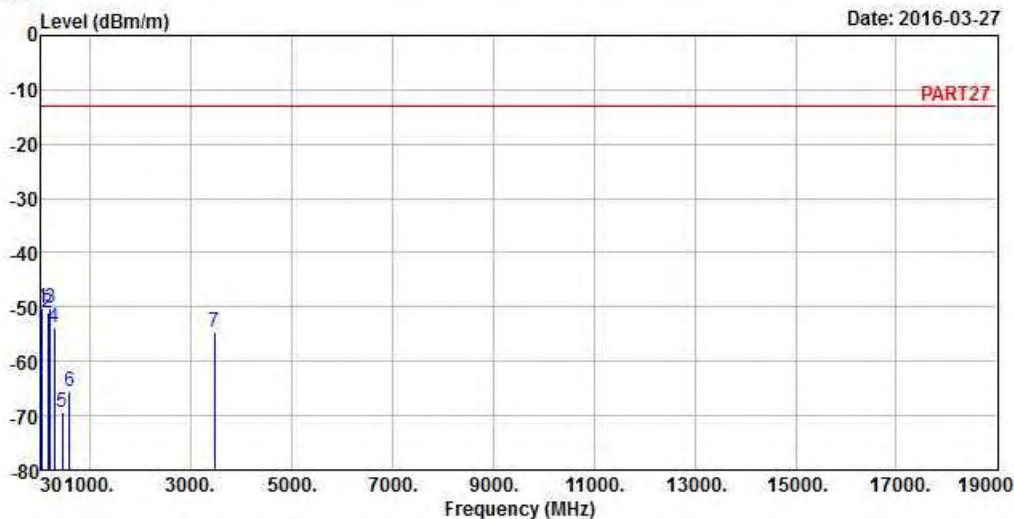
LTE Band 4
Channel Bandwidth: 20 MHz / QPSK



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 7



Site : 966 Chamber 5
Condition: PART27 3m HORIZONTAL
Remak : LTE Band 4_QPSK_20M Link
Tested by: Toby Tian

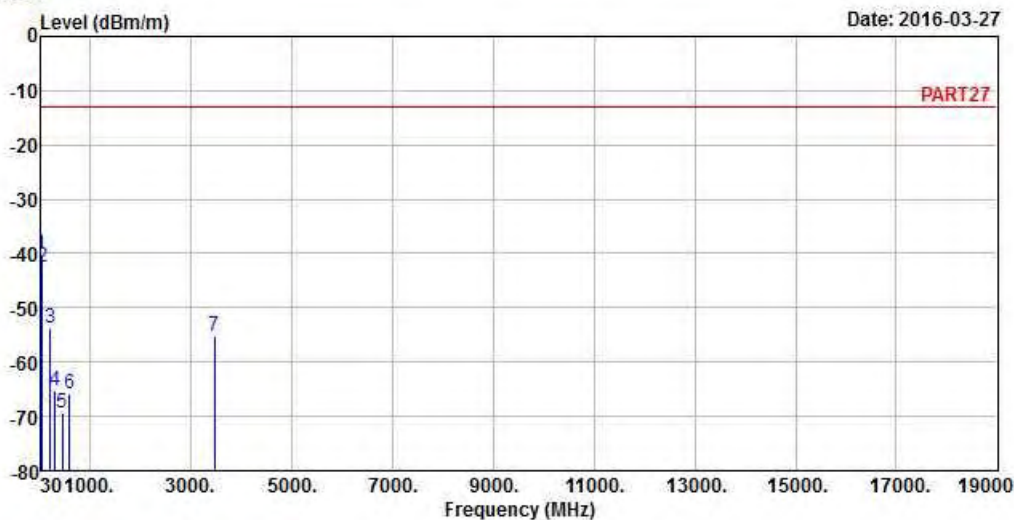
| | Read | Limit | Over | | | |
|------|---------|--------|--------|--------|--------|------------|
| Freq | Level | Level | Line | Limit | Factor | Remark |
| MHz | dBm/m | dBm | dBm/m | dB | dB/m | |
| 1 | 56.19 | -50.28 | -43.68 | -13.00 | -37.28 | -6.60 Peak |
| 2 | 159.98 | -51.05 | -46.21 | -13.00 | -38.05 | -4.84 Peak |
| 3 pp | 211.39 | -50.17 | -42.62 | -13.00 | -37.17 | -7.55 Peak |
| 4 | 288.99 | -53.61 | -46.82 | -13.00 | -40.61 | -6.79 Peak |
| 5 | 450.98 | -69.43 | -63.90 | -13.00 | -56.43 | -5.53 Peak |
| 6 | 598.42 | -65.48 | -64.65 | -13.00 | -52.48 | -0.83 Peak |
| 7 | 3465.00 | -54.50 | -45.59 | -13.00 | -41.50 | -8.91 Peak |



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 8



Site : 966 Chamber 5
 Condition: PART27 3m VERTICAL
 Remak : LTE Band 4_QPSK_20M Link
 Tested by: Toby Tian

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|---|------|---------|------------|------------|------------|--------|------------|
| | MHz | dBm/m | dBm | dBm/m | dB | dB/m | |
| 1 | pp | 30.00 | -40.14 | -40.52 | -13.00 | -27.14 | 0.38 Peak |
| 2 | | 55.22 | -42.56 | -36.22 | -13.00 | -29.56 | -6.34 Peak |
| 3 | | 209.45 | -53.59 | -45.96 | -13.00 | -40.59 | -7.63 Peak |
| 4 | | 307.42 | -65.16 | -58.27 | -13.00 | -52.16 | -6.89 Peak |
| 5 | | 444.19 | -69.27 | -63.67 | -13.00 | -56.27 | -5.60 Peak |
| 6 | | 585.81 | -65.93 | -64.57 | -13.00 | -52.93 | -1.36 Peak |
| 7 | | 3465.00 | -55.18 | -46.27 | -13.00 | -42.18 | -8.91 Peak |

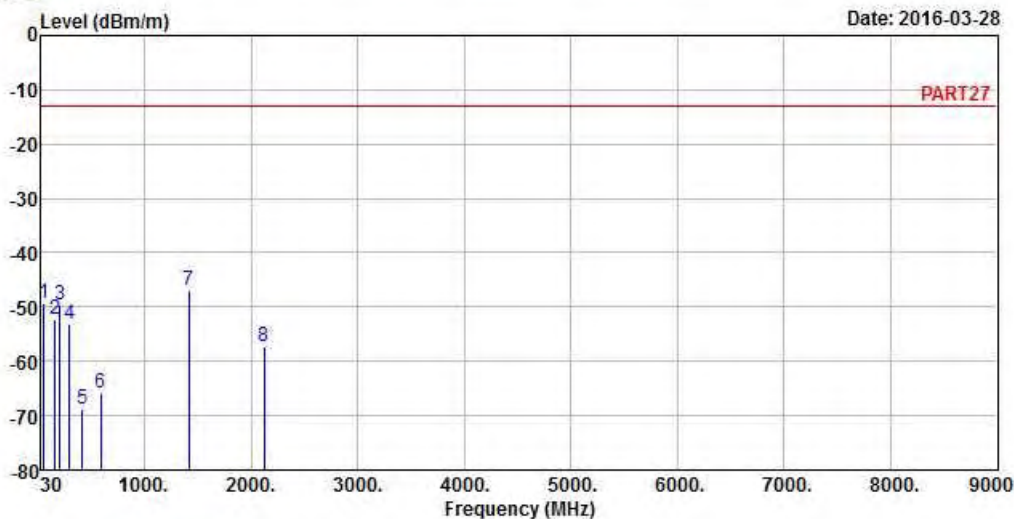
LTE Band 12
Channel Bandwidth: 10 MHz / QPSK



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 5



Site : 966 Chamber 5
Condition: PART27 3m HORIZONTAL
Remak : LTE Band 12_QPSK_10M Link
Tested by: Toby Tian

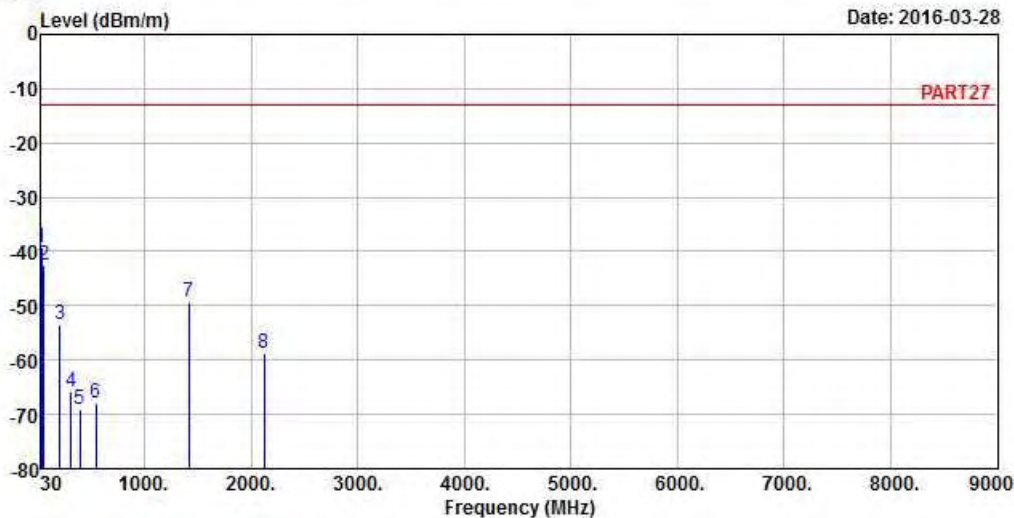
| | Read | Limit | Over | | | | |
|------|---------|--------|--------|--------|--------|--------|------|
| Freq | Level | Level | Line | Limit | Factor | Remark | |
| MHz | dBm/m | dBm | dBm/m | dB | dB/m | | |
| 1 | 55.22 | -49.35 | -43.01 | -13.00 | -36.35 | -6.34 | Peak |
| 2 | 160.95 | -52.31 | -47.40 | -13.00 | -39.31 | -4.91 | Peak |
| 3 | 207.51 | -49.49 | -41.78 | -13.00 | -36.49 | -7.71 | Peak |
| 4 | 293.84 | -53.17 | -46.28 | -13.00 | -40.17 | -6.89 | Peak |
| 5 | 414.12 | -68.69 | -62.86 | -13.00 | -55.69 | -5.83 | Peak |
| 6 | 588.72 | -65.94 | -64.70 | -13.00 | -52.94 | -1.24 | Peak |
| 7 pp | 1415.00 | -46.94 | -32.60 | -13.00 | -33.94 | -14.34 | Peak |
| 8 | 2122.50 | -57.37 | -45.13 | -13.00 | -44.37 | -12.24 | Peak |



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 6



Site : 966 Chamber 5
 Condition: PART27 3m VERTICAL
 Remak : LTE Band 12_QPSK_10M Link
 Tested by: Toby Tian

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|------|---------|--------|------------|------------|------------|--------|--------|
| | MHz | dBm/m | dBm | dBm/m | dB | dB/m | |
| 1 pp | 30.00 | -39.29 | -39.67 | -13.00 | -26.29 | 0.38 | Peak |
| 2 | 56.19 | -42.43 | -35.83 | -13.00 | -29.43 | -6.60 | Peak |
| 3 | 206.54 | -53.48 | -45.73 | -13.00 | -40.48 | -7.75 | Peak |
| 4 | 310.33 | -65.91 | -59.06 | -13.00 | -52.91 | -6.85 | Peak |
| 5 | 393.75 | -69.16 | -63.18 | -13.00 | -56.16 | -5.98 | Peak |
| 6 | 544.10 | -67.89 | -64.83 | -13.00 | -54.89 | -3.06 | Peak |
| 7 | 1415.00 | -49.32 | -34.98 | -13.00 | -36.32 | -14.34 | Peak |
| 8 | 2122.50 | -58.86 | -46.62 | -13.00 | -45.86 | -12.24 | Peak |

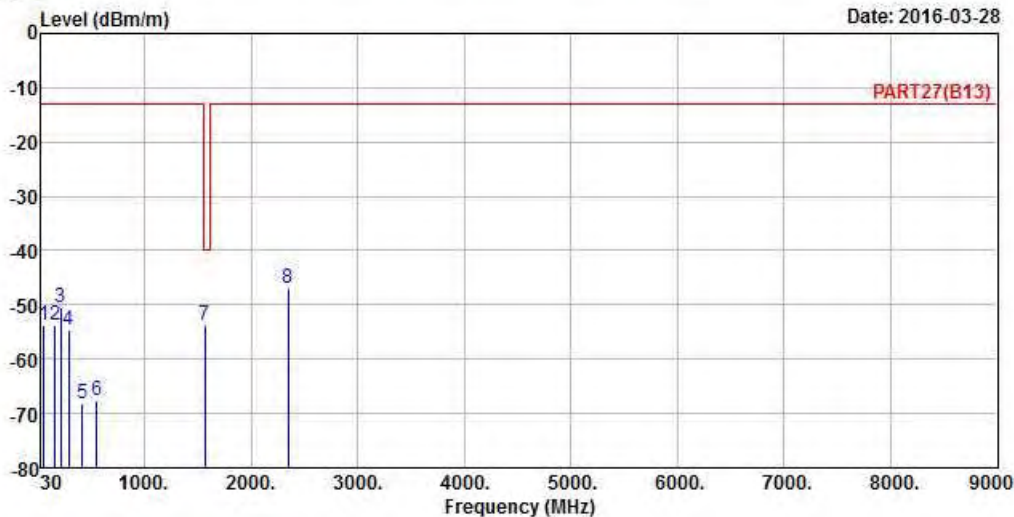
LTE Band 13
Channel Bandwidth: 10 MHz / QPSK (1 RB / 24 RB Offset)



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 5



Site : 966 Chamber 5
 Condition: PART27(B13) 3m HORIZONTAL
 Remak : LTE Band 13_QPSK_10M Link
 Tested by: Toby Tian

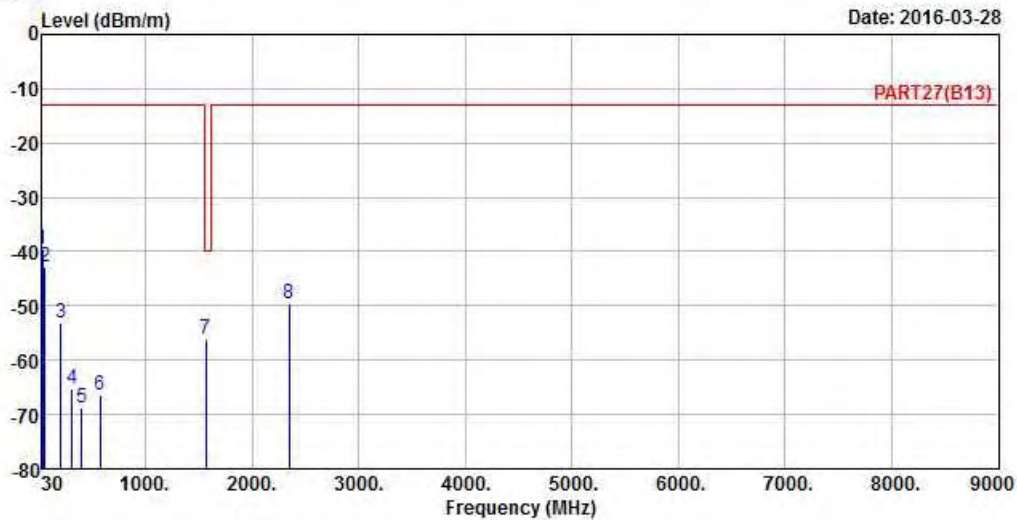
| | Read | Limit | Over | | | | |
|------|---------|--------|--------|--------|--------|--------|--------|
| | Freq | Level | Level | Line | Limit | Factor | Remark |
| | MHz | dBm/m | dBm | dBm/m | dB | dB/m | |
| 1 | 56.19 | -53.66 | -47.06 | -13.00 | -40.66 | -6.60 | Peak |
| 2 | 159.98 | -53.83 | -48.99 | -13.00 | -40.83 | -4.84 | Peak |
| 3 | 209.45 | -50.50 | -42.87 | -13.00 | -37.50 | -7.63 | Peak |
| 4 | 289.96 | -54.70 | -47.89 | -13.00 | -41.70 | -6.81 | Peak |
| 5 | 417.03 | -68.30 | -62.49 | -13.00 | -55.30 | -5.81 | Peak |
| 6 | 550.89 | -67.46 | -64.65 | -13.00 | -54.46 | -2.81 | Peak |
| 7 pp | 1564.00 | -53.86 | -38.84 | -40.00 | -13.86 | -15.02 | Peak |
| 8 | 2346.00 | -46.82 | -36.38 | -13.00 | -33.82 | -10.44 | Peak |



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 6



Site : 966 Chamber 5
 Condition: PART27(B13) 3m VERTICAL
 Remak : LTE Band 13_QPSK_10M Link
 Tested by: Toby Tian

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|------|---------|--------|------------|------------|------------|--------|--------|
| | MHz | dBm/m | dBm | dBm/m | dB | dB/m | |
| 1 | 30.00 | -39.46 | -39.84 | -13.00 | -26.46 | 0.38 | Peak |
| 2 | 56.19 | -42.75 | -36.15 | -13.00 | -29.75 | -6.60 | Peak |
| 3 | 207.51 | -53.17 | -45.46 | -13.00 | -40.17 | -7.71 | Peak |
| 4 | 310.33 | -65.15 | -58.30 | -13.00 | -52.15 | -6.85 | Peak |
| 5 | 400.54 | -68.68 | -62.74 | -13.00 | -55.68 | -5.94 | Peak |
| 6 | 575.14 | -66.50 | -64.70 | -13.00 | -53.50 | -1.80 | Peak |
| 7 pp | 1564.00 | -56.02 | -41.00 | -40.00 | -16.02 | -15.02 | Peak |
| 8 | 2346.00 | -49.47 | -39.03 | -13.00 | -36.47 | -10.44 | Peak |

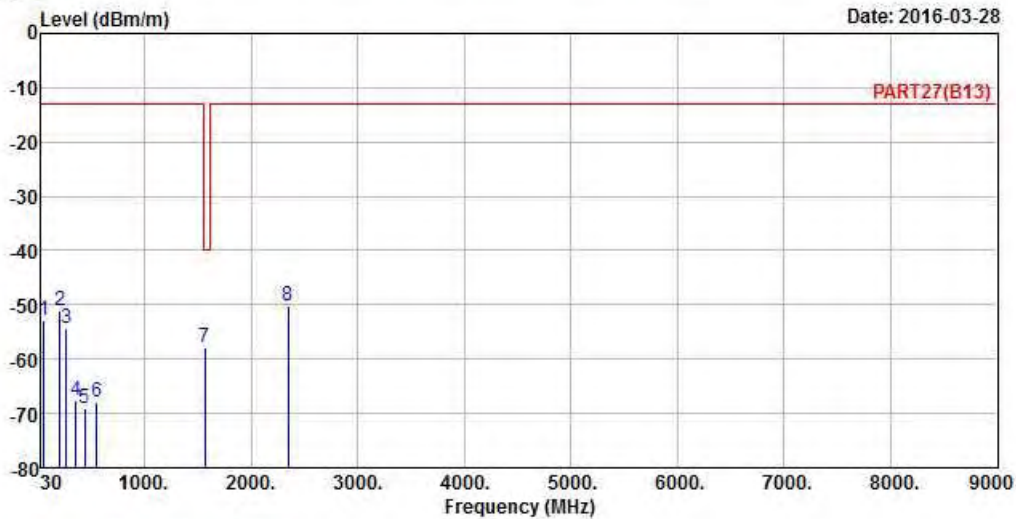
LTE Band 13
Channel Bandwidth: 10 MHz / QPSK (50 RB / 0 RB Offset)



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 5



Site : 966 Chamber 5
 Condition: PART27(B13) 3m HORIZONTAL
 Remak : LTE Band 13_QPSK_10M Link
 Tested by: Toby Tian

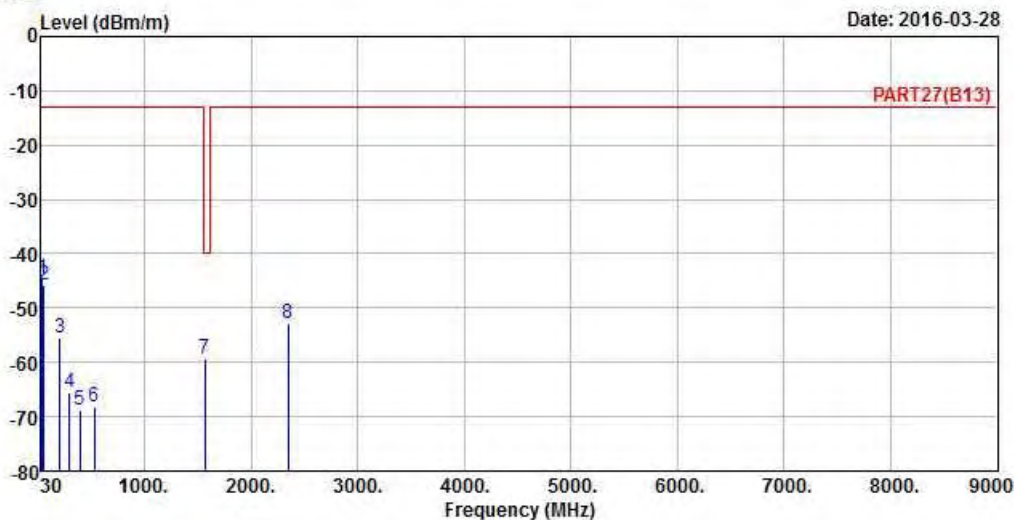
| | Read | Limit | Over | | | | |
|------|---------|--------|--------|--------|--------|--------|--------|
| | Freq | Level | Level | Line | Limit | Factor | Remark |
| | MHz | dBm/m | dBm | dBm/m | dB | dB/m | |
| 1 | 57.16 | -52.70 | -45.83 | -13.00 | -39.70 | -6.87 | Peak |
| 2 | 208.48 | -50.93 | -43.26 | -13.00 | -37.93 | -7.67 | Peak |
| 3 | 263.77 | -54.24 | -47.97 | -13.00 | -41.24 | -6.27 | Peak |
| 4 | 357.86 | -67.72 | -61.53 | -13.00 | -54.72 | -6.19 | Peak |
| 5 | 436.43 | -69.04 | -63.38 | -13.00 | -56.04 | -5.66 | Peak |
| 6 | 548.95 | -67.87 | -64.99 | -13.00 | -54.87 | -2.88 | Peak |
| 7 pp | 1564.00 | -57.93 | -42.91 | -40.00 | -17.93 | -15.02 | Peak |
| 8 | 2346.00 | -50.13 | -39.69 | -13.00 | -37.13 | -10.44 | Peak |



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 6



Site : 966 Chamber 5
 Condition: PART27(B13) 3m VERTICAL
 Remak : LTE Band 13_QPSK_10M Link
 Tested by: Toby Tian

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|------|---------|--------|------------|------------|------------|--------|--------|
| | MHz | dBm/m | dBm | dBm/m | dB | dB/m | |
| 1 | 40.67 | -44.56 | -44.68 | -13.00 | -31.56 | 0.12 | Peak |
| 2 | 57.16 | -45.79 | -38.92 | -13.00 | -32.79 | -6.87 | Peak |
| 3 | 208.48 | -55.55 | -47.88 | -13.00 | -42.55 | -7.67 | Peak |
| 4 | 293.84 | -65.53 | -58.64 | -13.00 | -52.53 | -6.89 | Peak |
| 5 | 394.72 | -68.68 | -62.70 | -13.00 | -55.68 | -5.98 | Peak |
| 6 | 531.49 | -68.13 | -64.62 | -13.00 | -55.13 | -3.51 | Peak |
| 7 pp | 1564.00 | -59.22 | -44.20 | -40.00 | -19.22 | -15.02 | Peak |
| 8 | 2346.00 | -52.77 | -42.33 | -13.00 | -39.77 | -10.44 | Peak |

5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

Appendix – Information on the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab

Tel: 886-3-6668565

Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety

Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

The address and road map of all our labs can be found in our web site also.

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