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TEST REPORT

FCC Part 27/ RSS-199

Report Reference No. : CTL1907151031-WF03

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Ivan Xie

Product Name : Multifunctional intelligent cabinet

Model/Type reference : UC1901

List Model(s)..... : N/A

Trade Mark..... : N/A

FCC ID..... : 2AU8G-UC1901

IC..... : 25685-UC1901

Applicant's name : SUZHOU DUSIT TECHNOLOGY CO., LTD

Address of applicant : NO.289 SOUTH YINZHONG RD, WUZHONG ECONOMIC
DISTRICT, SUZHOU, CHINA

Test Firm..... : Shenzhen CTL Testing Technology Co., Ltd.

Address of Test Firm : Floor 1-A, Baisha Technology Park, No.3011, Shahexi Road,
Nanshan District, Shenzhen, China 518055

Test specification..... :

Standard : FCC CFR Title 47 Part 2, Part 27

EIA/TIA 603-D: 2010

KDB 971168 D01

RSS-199 Issue 3 December 2016

TRF Originator : Shenzhen CTL Testing Technology Co., Ltd.

Master TRF : Dated 2011-01

Date of receipt of test item : Jul. 20, 2019

Date of sampling..... : Jul. 20, 2019

Date of Test Date..... : Jul. 20, 2019-Sep. 28, 2019

Data of Issue..... : Sep. 29, 2019

Result..... : Pass

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TEST REPORT

| | |
|---|---|
| Test Report No. : CTL1907151031-WF03 | Sep. 29, 2019 ----- Date of issue |
|---|---|

Equipment under Test : Multifunctional intelligent cabinet

Model /Type : UC1901

Listed Models : N/A

Applicant : SUZHOU DUSIT TECHNOLOGY CO., LTD

Address : NO.289 SOUTH YINZHONG RD, WUZHONG ECONOMIC DISTRICT, SUZHOU, CHINA

Manufacturer : SUZHOU DUSIT TECHNOLOGY CO., LTD

Address : NO.289 SOUTH YINZHONG RD, WUZHONG ECONOMIC DISTRICT, SUZHOU, CHINA

| | |
|--------------------|---------------|
| Test result | Pass * |
|--------------------|---------------|

*In the configuration tested, the EUT complied with the standards specified page 5.

The test results presented in this report relate only to the object tested.

This report shall not be reproduced, except in full, without the written approval of the issuing testing laboratory.

** Modified History **

[illegible]

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1. SUMMARY

1.1. TEST STANDARDS

The tests were performed according to following standards:

[FCC Part 27](#) : MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES

[TIA/EIA 603 D June 2010](#):Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.

[FCC Part 2](#): FREQUENCY ALLOCA-TIONS AND RADIO TREATY MAT-TERS; GENERAL RULES AND REG-ULATIONS

[KDB971168 D01: v02r02](#) MEASUREMENT GUIDANCE FOR CERTIFICATION OF LICENSED DIGITAL TRANSMITTERS

[ANSI C63.10: 2013](#): American National Standard for Testing Unlicensed Wireless Devices

[ANSI C63.4: 2014](#): –American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40GHz
Range of 9 kHz to 40GHz

[RSS-Gen Issue 4](#): General Requirements for Compliance of Radio Apparatus

[RSS-199 Issue 3](#): Broadband Radio Service (BRS) Equipment Operating in the Band 2500–2690 MHz

[SRSP-517](#): Technical Requirements for Broadband Radio Service (BRS) in the Band 2500-2690 MHz

1.2. Test Description

| Test Item | Section in CFR 47 | Result |
|--|--|--------|
| RF Output Power | Part 2.1046 Part 27.50(d)(4) RSS-199 4.4 | Pass |
| Peak-to-Average Ratio | Part 27.50(d)(4) RSS-199 4.4 | Pass |
| 99% & -26 dB Occupied Bandwidth | Part 2.1049 Part 27.53(h) RSS-GEN 6.7 RSS-199 4.2 | Pass |
| Spurious Emissions at Antenna Terminal | Part 2.1051 Part 27.53(h) RSS-199 4.5 | Pass |
| Field Strength of Spurious Radiation | Part 2.1053 Part 27.53(h) RSS-199 4.5 | Pass |
| Out of band emission, Band Edge | Part 2.1051 Part 27.53(h) RSS-199 4.5 | Pass |
| Frequency stability | Part 2.1055 Part 27.54 RSS-199 4.3 | Pass |

1.3. Test Facility

1.3.1 Address of the test laboratory

Shenzhen CTL Testing Technology Co., Ltd.

Floor 1-A, Baisha Technology Park, No. 3011, Shahexi Road, Nanshan, Shenzhen 518055 China

There is one 3m semi-anechoic chamber and two line conducted labs for final test. The Test Sites meet the requirements in documents ANSI C63.4 and CISPR 32/EN 55032 requirements.

1.3.2 Laboratory accreditation

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L7497

Shenzhen CTL Testing Technology Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories.

A2LA-Lab Cert. No. 4343.01

Shenzhen CTL Testing Technology Co., Ltd, EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

IC Registration No.: 9618B

CAB identifier: CN0041

The 3m alternate test site of Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements with Registration No.: 9618B on Jan. 22, 2019.

FCC-Registration No.: 399832

Designation No.: CN1216

Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 399832, December 08, 2017.

1.4. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 "Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements" and is documented in the Shenzhen CTL Testing Technology Co., Ltd. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for CTL laboratory is reported:

| Test | Range | Measurement Uncertainty | Notes |
|-----------------------|------------|-------------------------|-------|
| Radiated Emission | 30~1000MHz | 4.10dB | (1) |
| Radiated Emission | Above 1GHz | 4.32dB | (1) |
| Conducted Disturbance | 0.15~30MHz | 3.20dB | (1) |

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

2. GENERAL INFORMATION

2.1. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

| | |
|---------------------|---------|
| Normal Temperature: | 25°C |
| Relative Humidity: | 55 % |
| Air Pressure: | 101 kPa |

2.2. General Description of EUT

| | |
|-----------------------|---|
| Product Name: | Multifunctional intelligent cabinet |
| Model/Type reference: | UC1901 |
| Power supply: | DC 12V From Adapter |
| Adapter information: | Model: EADP-30FB A Input: 100-240V~, 50/60Hz, 1A Output: 12V---3.0A |
| Hardware version: | V1.0 |
| Software version: | V1.0 |
| LTE | |
| Operation Band: | FDD-LTE: Band 2/4/7/12 |
| Modulation Type: | QPSK, 16QAM |
| Release Version: | Release 9 |
| Category: | Cat 4 |
| Antenna Type: | External antenna |
| Antenna Gain: | 0 dBi |

Note: For more details, please refer to the user's manual of the EUT.

2.3. Description of Test Modes

The EUT has been tested under typical operating condition. The CMW500 used to control the EUT staying in continuous transmitting and receiving mode for testing. Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.

2.4. Equipments Used during the Test

| Test Equipment | Manufacturer | Model No. | Serial No. | Calibration Date | Calibration Due Date |
|-------------------|----------------------|--------------------|------------|------------------|----------------------|
| Bilog Antenna | Sunol Sciences Corp. | JB1 | A061713 | 2019/05/20 | 2020/05/19 |
| Bilog Antenna | Sunol Sciences Corp. | JB1 | A061714 | 2019/05/20 | 2020/05/19 |
| EMI Test Receiver | R&S | ESCI | 103710 | 2019/05/20 | 2020/05/19 |
| Spectrum Analyzer | Agilent | E4407B | MY41440676 | 2019/05/20 | 2020/05/19 |
| Spectrum Analyzer | Agilent | N9020 | US46220290 | 2019/05/20 | 2020/05/19 |
| Controller | EM Electronics | Controller EM 1000 | N/A | 2019/05/20 | 2020/05/19 |
| Horn Antenna | Sunol Sciences Corp. | DRH-118 | A062013 | 2019/05/20 | 2020/05/19 |

| | | | | | |
|-------------------------------------|----------------------|---------------------------|------------|------------|------------|
| Horn Antenna | Sunol Sciences Corp. | DRH-118 | A062014 | 2019/05/20 | 2020/05/19 |
| Active Loop Antenna | SCHWARZBEC K | FMZB1519 | 1519-037 | 2019/05/20 | 2020/05/19 |
| Amplifier | Agilent | 8349B | 3008A02306 | 2019/05/20 | 2020/05/19 |
| Amplifier | Agilent | 8447D | 2944A10176 | 2019/05/20 | 2020/05/19 |
| Temperature/Humidity Meter | Gangxing | CTH-608 | 02 | 2019/05/20 | 2020/05/19 |
| Wideband Radio Communication Tester | R&S | CMW500 | 101814 | 2019/05/20 | 2020/05/19 |
| High-Pass Filter | K&L | 9SH10-2700/X1 2750-O/O | N/A | 2019/05/20 | 2020/05/19 |
| High-Pass Filter | K&L | 41H10-1375/U1 2750-O/O | N/A | 2019/05/20 | 2020/05/19 |
| RF Cable | HUBER+SUHNER | RG214 | N/A | 2019/05/20 | 2020/05/19 |
| Climate Chamber | ESPEC | EL-10KA | A20120523 | 2019/05/20 | 2020/05/19 |
| SIGNAL GENERATOR | Agilent | E4421B | US40051744 | 2019/05/20 | 2020/05/19 |
| Directional Coupler | Agilent | 87300B | 3116A03638 | 2019/05/20 | 2020/05/19 |

The calibration interval was one year

2.5. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended to comply with of the Part 27 and RSS-199 Rules.

2.6. Modifications

No modifications were implemented to meet testing criteria.

3. TEST CONDITIONS AND RESULTS

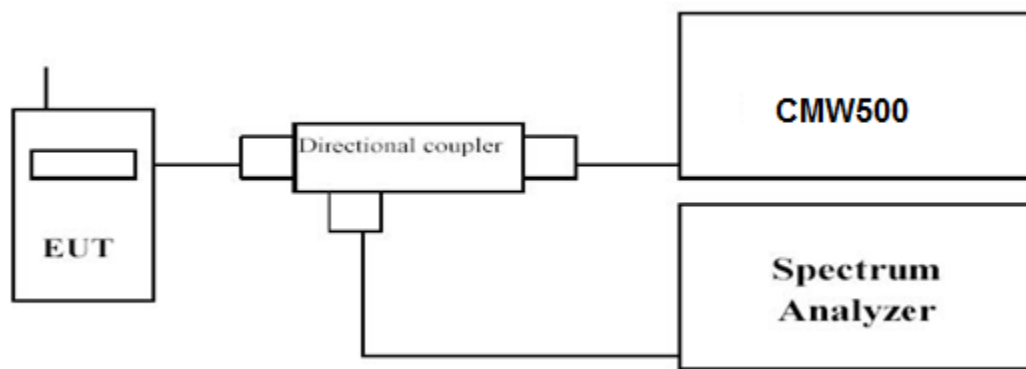
3.1. Output Power

LIMIT

≤ 2 watt EIRP

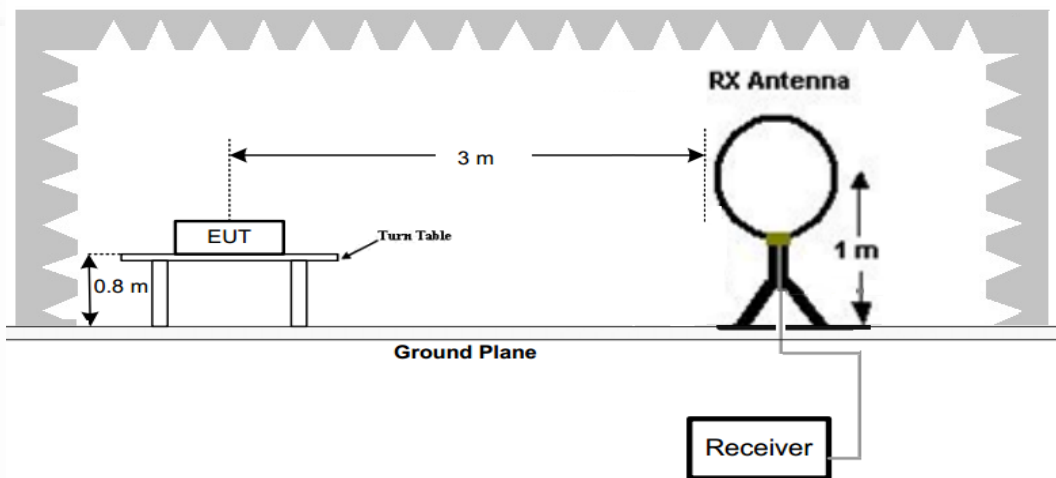
TEST CONFIGURATION

Conducted Power Measurement

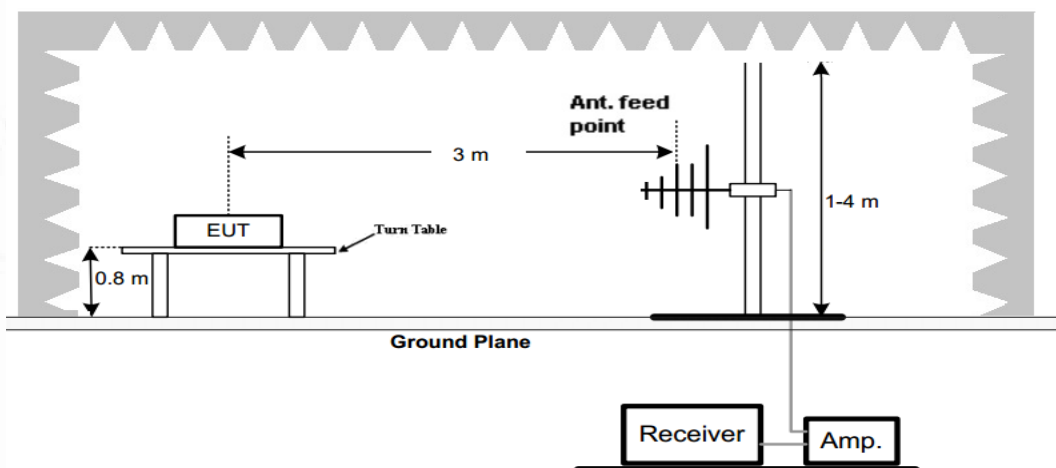


Radiated Power Measurement:

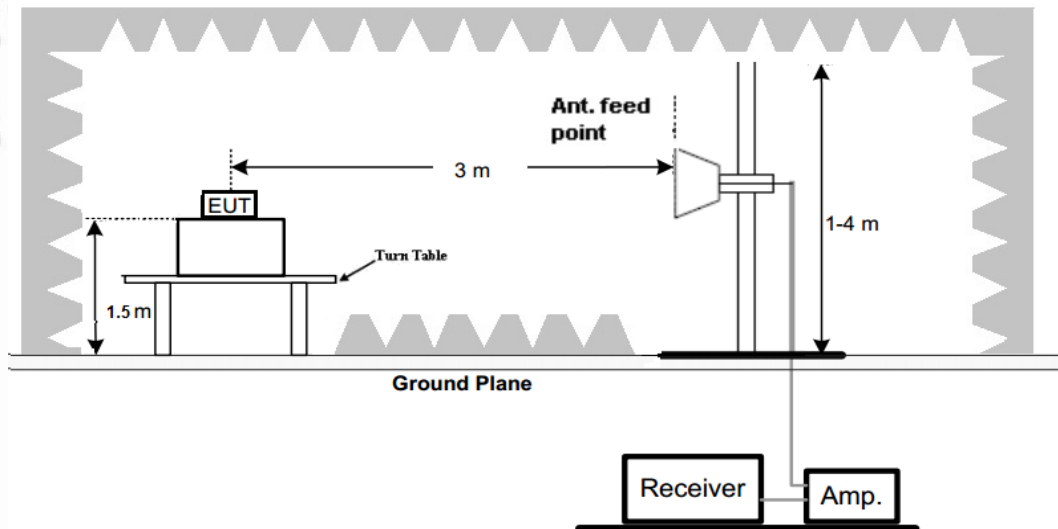
a) Radiated Emission Test Set-Up, Frequency Below 30MHz



b) Radiated Emission Test Set-Up, Frequency below 1000MHz



c) Radiated Emission Test Set-Up, Frequency above 1000MHz

**TEST PROCEDURE**

The EUT was setup according to EIA/TIA 603D

Conducted Power Measurement:

- Place the EUT on a bench and set it in transmitting mode.
- Connect a low loss RF cable from the antenna port to a spectrum analyzer and CMW500 by a Directional Couple.
- EUT Communicate with CMW500 then selects a channel for testing.
- Add a correction factor to the display of spectrum, and then test.

Radiated Power Measurement:

- The EUT shall be placed at the specified height on a support, and in the position closest to normal use as declared by provider.
- The test antenna shall be oriented initially for vertical polarization and shall be chosen to correspond to the frequency of the transmitter
- The output of the test antenna shall be connected to the measuring receiver.
- The transmitter shall be switched on and the measuring receiver shall be tuned to the frequency of the transmitter under test.
- The test antenna shall be raised and lowered through the specified range of height until a maximum signal level is detected by the measuring receiver.
- The transmitter shall then be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
- The test antenna shall be raised and lowered again through the specified range of height until a maximum signal level is detected by the measuring receiver.
- The maximum signal level detected by the measuring receiver shall be noted.
- The transmitter shall be replaced by a substitution antenna.
- The substitution antenna shall be orientated for vertical polarization and the length of the substitution antenna shall be adjusted to correspond to the frequency of the transmitter.
- The substitution antenna shall be connected to a calibrated signal generator.

- l) If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
- m) The test antenna shall be raised and lowered through the specified range of height to ensure that the maximum signal is received.
- n) The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuator setting of the measuring receiver.
- o) The measurement shall be repeated with the test antenna and the substitution antenna orientated for horizontal polarization.
- p) The measure of the effective radiated power is the larger of the two levels recorded at the input to the substitution antenna, corrected for gain of the substitution antenna if necessary.
- q) Test site anechoic chamber refer to ANSI C63.4.

TEST RESULTS**Conducted Measurement:**

| LTE FDD Band 7 | | | | |
|----------------------|-----------------|----------------|---------------------|-------|
| TX Channel Bandwidth | Frequency (MHz) | RB Size/Offset | Average Power [dBm] | |
| | | | QPSK | 16QAM |
| 5 MHz | 2502.5 | 1 RB low | 23.26 | 22.27 |
| | | 1 RB high | 23.08 | 22.16 |
| | | 50% RB mid | 22.46 | 21.35 |
| | | 100% RB | 22.32 | 21.37 |
| | 2535 | 1 RB low | 23.20 | 21.95 |
| | | 1 RB high | 23.25 | 21.89 |
| | | 50% RB mid | 22.03 | 21.29 |
| | | 100% RB | 22.12 | 21.24 |
| | 2567.5 | 1 RB low | 22.90 | 21.97 |
| | | 1 RB high | 22.80 | 21.77 |
| | | 50% RB mid | 21.86 | 21.01 |
| | | 100% RB | 21.97 | 21.02 |
| 10 MHz | 2505 | 1 RB low | 23.13 | 22.15 |
| | | 1 RB high | 23.29 | 22.06 |
| | | 50% RB mid | 22.18 | 21.16 |
| | | 100% RB | 22.25 | 21.37 |
| | 2535 | 1 RB low | 22.98 | 22.19 |
| | | 1 RB high | 23.16 | 22.15 |
| | | 50% RB mid | 22.38 | 21.14 |
| | | 100% RB | 22.21 | 21.18 |
| | 2565 | 1 RB low | 22.65 | 21.84 |
| | | 1 RB high | 22.69 | 21.84 |
| | | 50% RB mid | 21.85 | 20.97 |
| | | 100% RB | 21.82 | 21.01 |
| 15 MHz | 2507.5 | 1 RB low | 23.16 | 22.20 |
| | | 1 RB high | 23.13 | 22.10 |
| | | 50% RB mid | 22.13 | 21.43 |
| | | 100% RB | 22.09 | 21.32 |
| | 2535 | 1 RB low | 22.15 | 22.22 |
| | | 1 RB high | 23.07 | 22.02 |
| | | 50% RB mid | 22.19 | 21.11 |
| | | 100% RB | 22.13 | 21.23 |
| | 2562.5 | 1 RB low | 22.81 | 22.04 |
| | | 1 RB high | 22.86 | 21.90 |
| | | 50% RB mid | 21.89 | 20.79 |
| | | 100% RB | 21.93 | 20.97 |
| 20 MHz | 2510 | 1 RB low | 22.39 | 22.22 |
| | | 1 RB high | 23.27 | 22.07 |
| | | 50% RB mid | 22.25 | 21.23 |
| | | 100% RB | 22.17 | 21.18 |
| | 2535 | 1 RB low | 23.34 | 22.17 |
| | | 1 RB high | 23.29 | 22.06 |
| | | 50% RB mid | 22.09 | 21.16 |
| | | 100% RB | 22.05 | 21.15 |
| | 2560 | 1 RB low | 22.02 | 21.76 |
| | | 1 RB high | 23.01 | 21.55 |
| | | 50% RB mid | 22.02 | 20.94 |
| | | 100% RB | 21.84 | 21.00 |

Radiated Measurement:*Remark:*

1. We were tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE FDD Band 7; recorded worst case for each Channel Bandwidth of LTE FDD Band 7.
2. $EIRP = P_{Mea}(dBm) - P_{cl}(dB) + P_{Ag}(dB) + G_a(dBi)$

LTE FDD Band 7_Channel Bandwidth 5MHz_QPSK

| Frequency (MHz) | PMea (dBm) | Pcl (dB) | Ga Antenna Gain(dB) | PAg (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------|----------|---------------------|----------|------------|-------------|-------------|--------------|
| 2502.5 | -18.13 | 3.06 | 9.68 | 34.8 | 23.29 | 33.01 | 9.72 | V |
| 2535 | -18.49 | 3.17 | 9.68 | 34.8 | 22.82 | 33.01 | 10.19 | V |
| 2567.5 | -17.40 | 3.22 | 9.75 | 34.8 | 23.93 | 33.01 | 9.08 | V |

LTE FDD Band 7_Channel Bandwidth 10MHz_QPSK

| Frequency (MHz) | PMea (dBm) | Pcl (dB) | Ga Antenna Gain(dB) | PAg (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------|----------|---------------------|----------|------------|-------------|-------------|--------------|
| 2505 | -17.92 | 3.06 | 9.68 | 34.8 | 23.50 | 33.01 | 9.51 | V |
| 2535 | -18.12 | 3.17 | 9.68 | 34.8 | 23.19 | 33.01 | 9.82 | V |
| 2565 | -17.56 | 3.22 | 9.75 | 34.8 | 23.77 | 33.01 | 9.24 | V |

LTE FDD Band 7_Channel Bandwidth 15MHz_QPSK

| Frequency (MHz) | PMea (dBm) | Pcl (dB) | Ga Antenna Gain(dB) | PAg (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------|----------|---------------------|----------|------------|-------------|-------------|--------------|
| 2507.5 | -18.08 | 3.06 | 9.68 | 34.8 | 23.34 | 33.01 | 9.67 | V |
| 2535 | -18.08 | 3.17 | 9.68 | 34.8 | 23.23 | 33.01 | 9.78 | V |
| 2562.5 | -16.54 | 3.22 | 9.75 | 34.8 | 24.79 | 33.01 | 8.22 | V |

LTE FDD Band 7_Channel Bandwidth 20MHz_QPSK

| Frequency (MHz) | PMea (dBm) | Pcl (dB) | Ga Antenna Gain(dB) | PAg (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------|----------|---------------------|----------|------------|-------------|-------------|--------------|
| 2510 | -18.21 | 3.06 | 9.68 | 34.8 | 23.21 | 33.01 | 9.80 | V |
| 2535 | -17.95 | 3.17 | 9.68 | 34.8 | 23.36 | 33.01 | 9.65 | V |
| 2560 | -17.12 | 3.22 | 9.75 | 34.8 | 24.21 | 33.01 | 8.80 | V |

LTE FDD Band 7_Channel Bandwidth 5MHz_16QAM

| Frequency (MHz) | PMea (dBm) | Pcl (dB) | Ga Antenna Gain(dB) | PAg (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------|----------|---------------------|----------|------------|-------------|-------------|--------------|
| 2502.5 | -17.82 | 3.06 | 9.68 | 34.8 | 23.60 | 33.01 | 9.41 | V |
| 2535 | -17.45 | 3.17 | 9.68 | 34.8 | 23.86 | 33.01 | 9.15 | V |
| 2567.5 | -18.68 | 3.22 | 9.75 | 34.8 | 22.65 | 33.01 | 10.36 | V |

LTE FDD Band 7_Channel Bandwidth 10MHz_16QAM

| Frequency (MHz) | PMea (dBm) | Pcl (dB) | Ga Antenna Gain(dB) | PAg (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------|----------|---------------------|----------|------------|-------------|-------------|--------------|
| 2505 | -17.61 | 3.06 | 9.68 | 34.8 | 23.81 | 33.01 | 9.20 | V |
| 2535 | -17.52 | 3.17 | 9.68 | 34.8 | 23.79 | 33.01 | 9.22 | V |
| 2565 | -17.79 | 3.22 | 9.75 | 34.8 | 23.54 | 33.01 | 9.47 | V |

LTE FDD Band 7_Channel Bandwidth 15MHz_16QAM

| Frequency (MHz) | PMea (dBm) | Pcl (dB) | Ga Antenna Gain(dB) | PAg (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------|----------|---------------------|----------|------------|-------------|-------------|--------------|
| 2507.5 | -18.39 | 3.06 | 9.68 | 34.8 | 23.03 | 33.01 | 9.98 | V |
| 2535 | -18.36 | 3.17 | 9.68 | 34.8 | 22.95 | 33.01 | 10.06 | V |
| 2562.5 | -18.47 | 3.22 | 9.75 | 34.8 | 22.86 | 33.01 | 10.15 | V |

LTE FDD Band 7_Channel Bandwidth 20MHz_16QAM

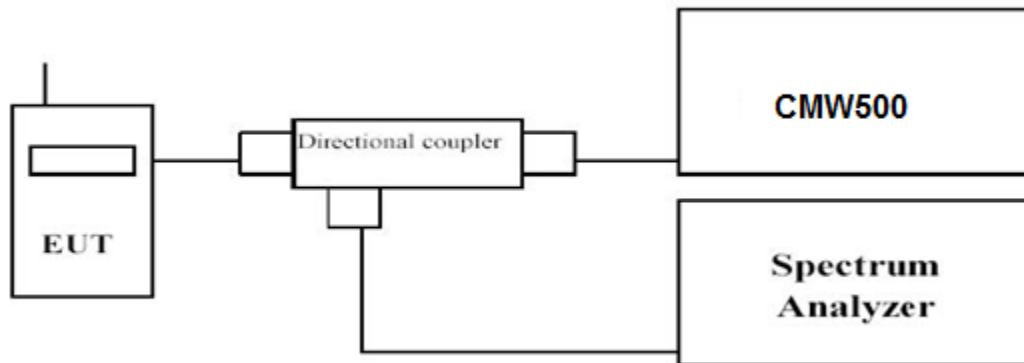
| Frequency (MHz) | PMea (dBm) | Pcl (dB) | Ga Antenna Gain(dB) | PAg (dB) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------|----------|---------------------|----------|------------|-------------|-------------|--------------|
| 2510 | -18.90 | 3.06 | 9.68 | 34.8 | 22.52 | 33.01 | 10.49 | V |
| 2535 | -18.51 | 3.17 | 9.68 | 34.8 | 22.80 | 33.01 | 10.21 | V |
| 2560 | -17.95 | 3.22 | 9.75 | 34.8 | 23.38 | 33.01 | 9.63 | V |

3.2. Peak-to-Average Ratio (PAR)

LIMIT

The Peak-to-Average Ratio (PAR) of the transmission may not exceed 13 dB.

TEST CONFIGURATION



TEST PROCEDURE

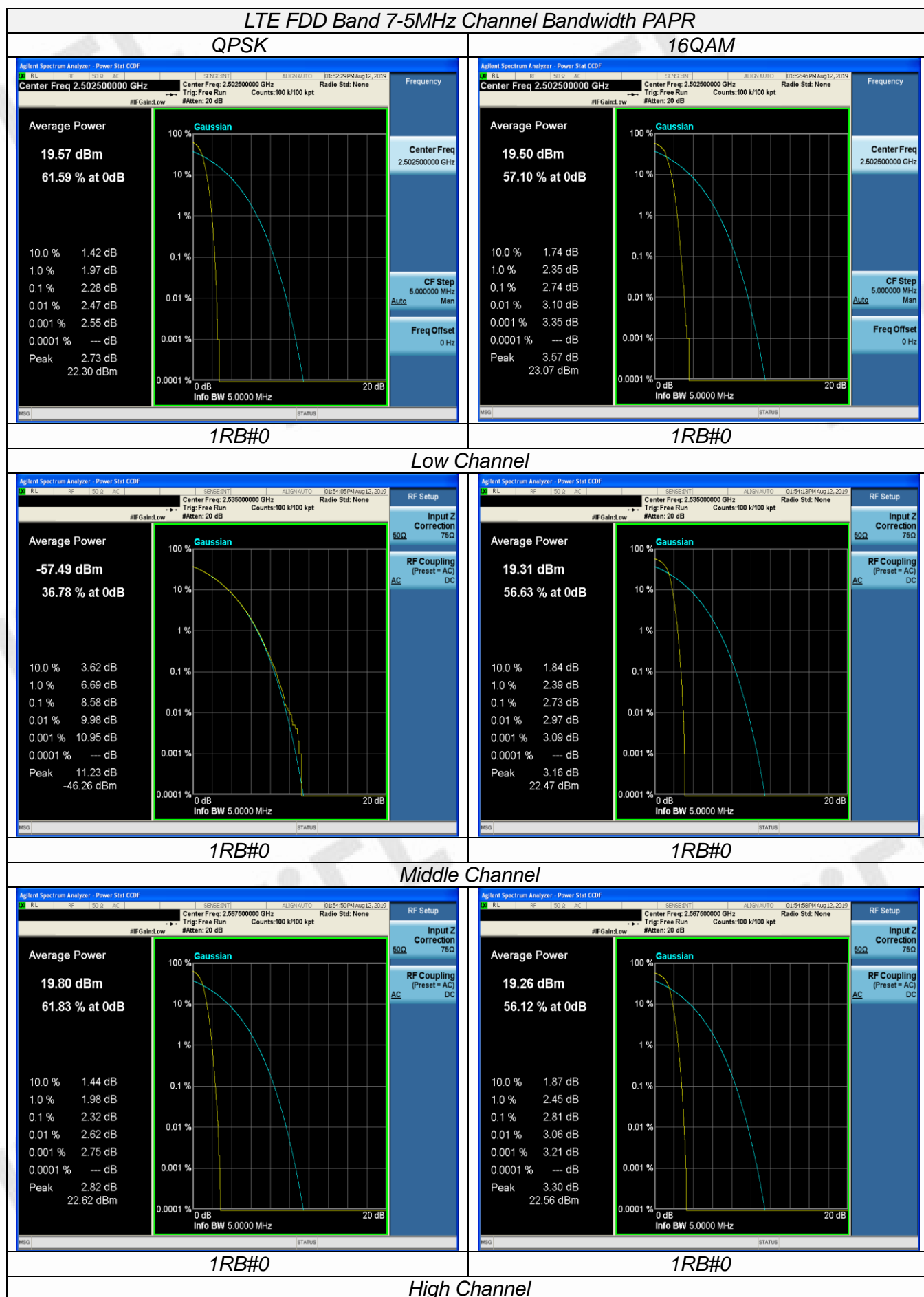
1. Refer to instrument's analyzer instruction manual for details on how to use the power statistics/CCDF function;
2. Set resolution/measurement bandwidth \geq signal's occupied bandwidth;
3. Set the number of counts to a value that stabilizes the measured CCDF curve;
4. Set the measurement interval as follows:
 - 1). for continuous transmissions, set to 1 ms,
 - 2). for burst transmissions, employ an external trigger that is synchronized with the EUT burst timing sequence, or use the internal burst trigger with a trigger level that allows the burst to stabilize and set the measurement interval to a time that is less than or equal to the burst duration.
5. Record the maximum PAPR level associated with a probability of 0.1%.

TEST RESULTS

Remark:

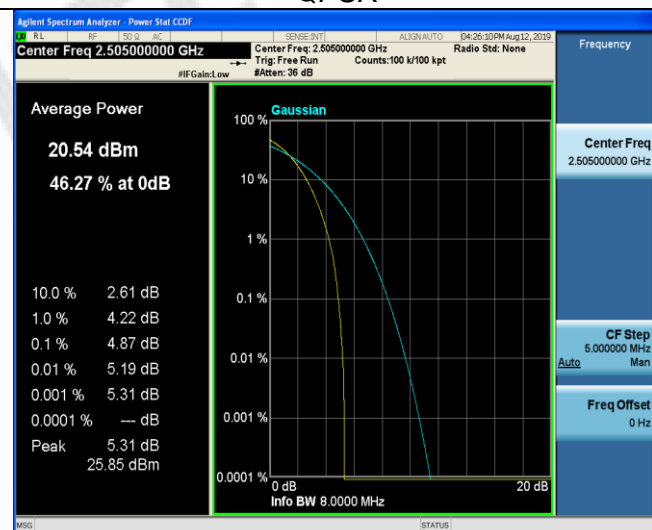
1. We were tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE FDD Band 7; recorded worst case for each Channel Bandwidth of LTE FDD Band 7.

| LTE FDD Band 7 | | | | |
|----------------------|-----------------|----------------|-----------|-------|
| TX Channel Bandwidth | Frequency (MHz) | RB Size/Offset | PAPR (dB) | |
| | | | QPSK | 16QAM |
| 5 MHz | 2502.5 | 1RB#0 | 2.28 | 2.74 |
| | 2535 | | 8.58 | 2.73 |
| | 2567.5 | | 2.32 | 2.81 |
| 10 MHz | 2505 | 1RB#0 | 4.87 | 5.97 |
| | 2535 | | 5.40 | 6.53 |
| | 2565 | | 5.63 | 6.69 |
| 15 MHz | 2507.5 | 1RB#0 | 5.26 | 1.95 |
| | 2535 | | 1.75 | 1.88 |
| | 2562.5 | | 1.57 | 1.68 |
| 20 MHz | 2510 | 1RB#0 | 5.63 | 1.91 |
| | 2535 | | 1.99 | 1.54 |
| | 2560 | | 6.62 | 1.43 |

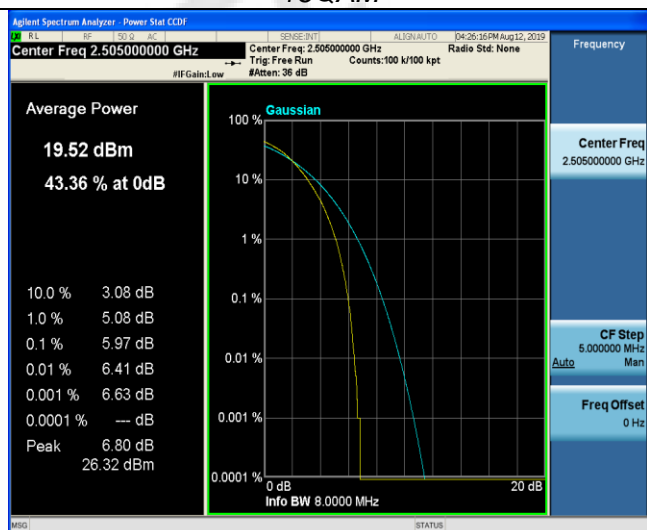


LTE FDD Band 7-10MHz Channel Bandwidth PAPR

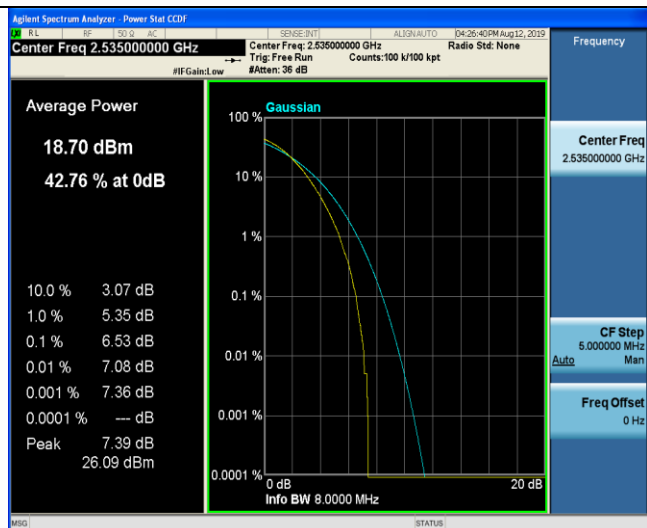
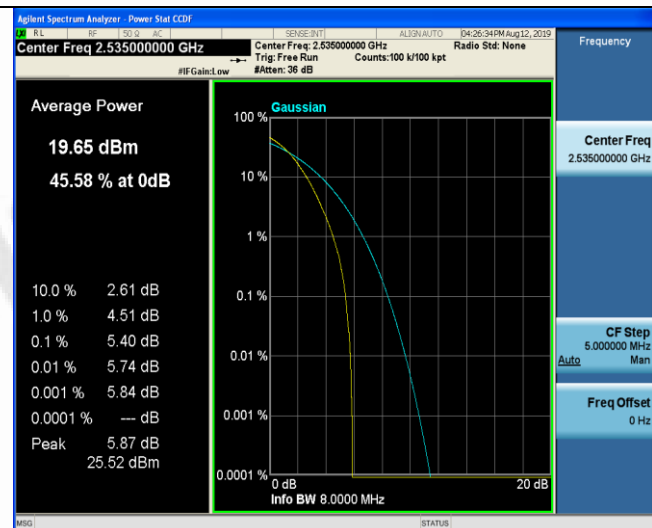
QPSK



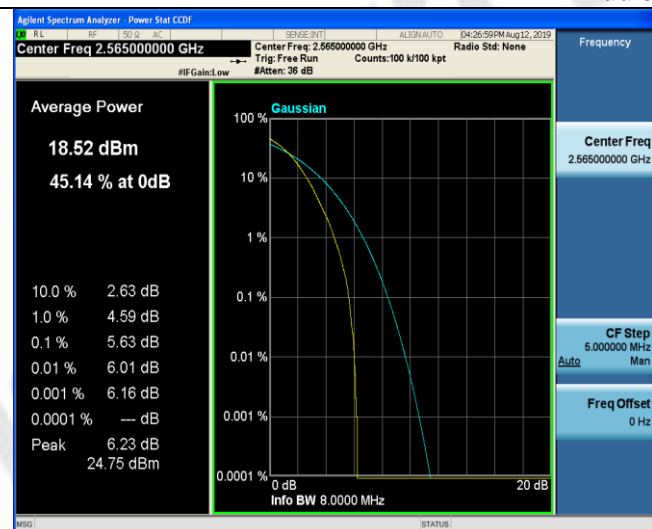
16QAM



Low Channel



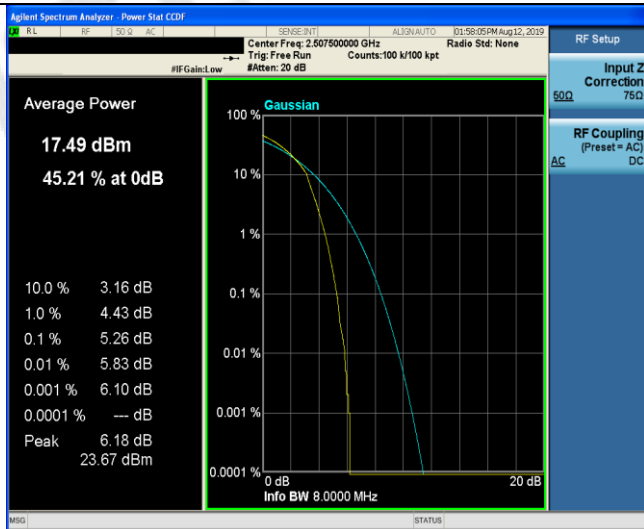
Middle Channel



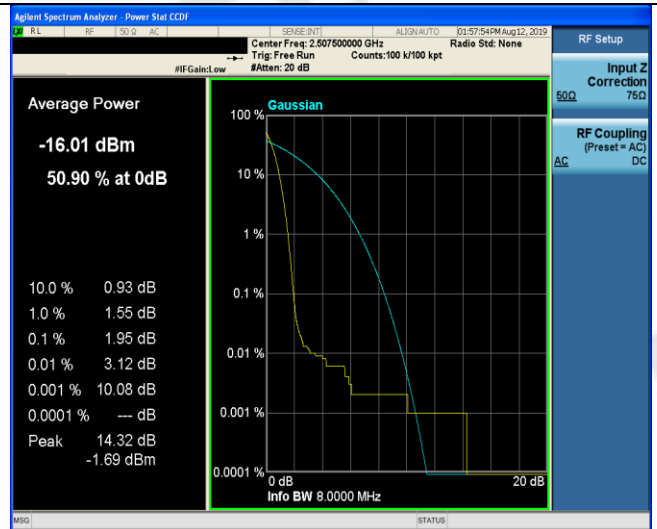
High Channel

LTE FDD Band 7-15MHz Channel Bandwidth PAPR

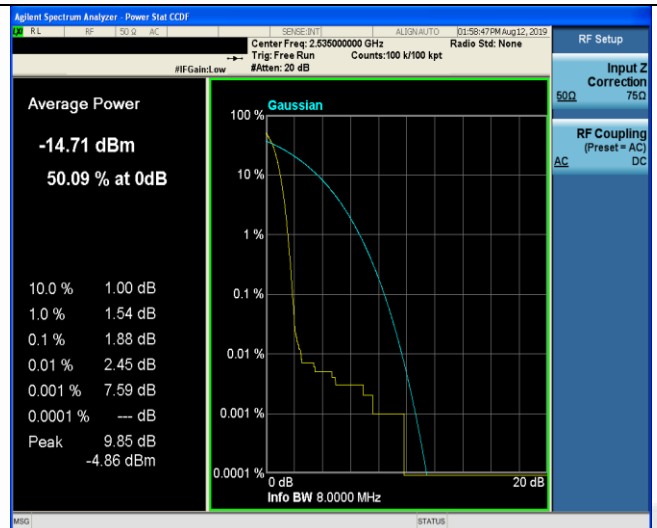
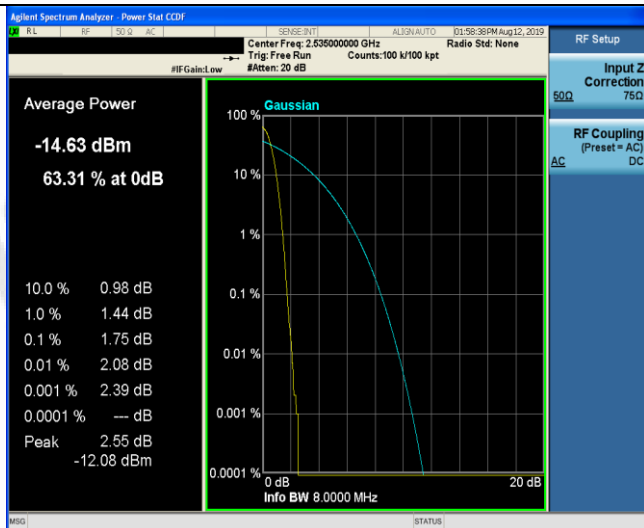
QPSK



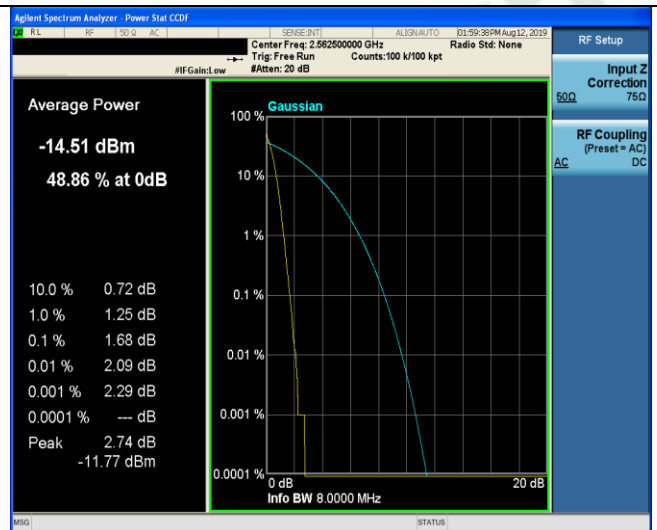
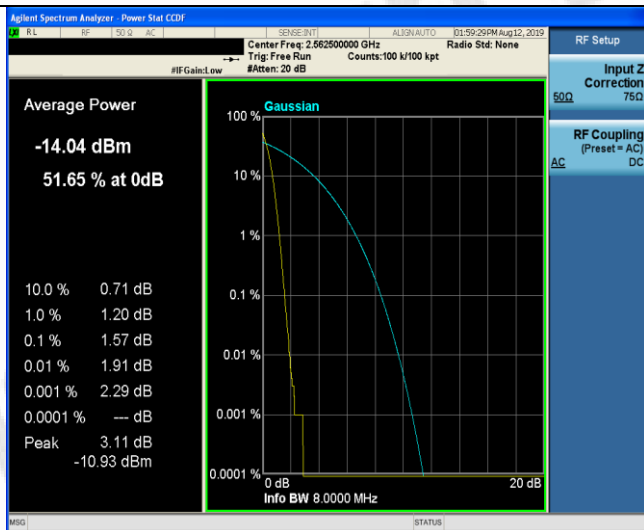
16QAM



Low Channel



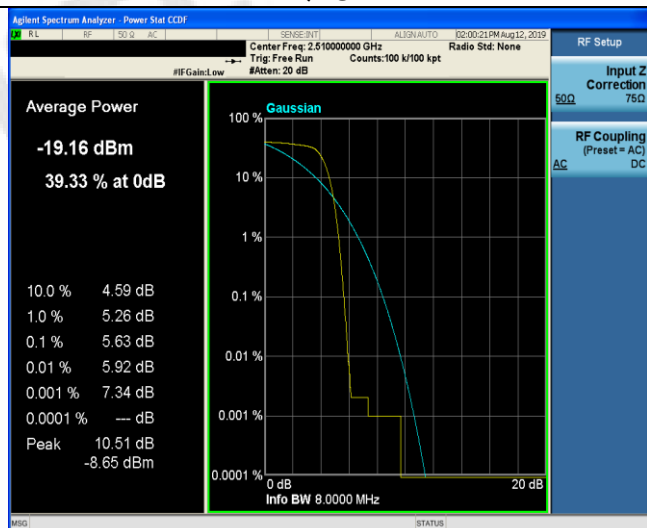
Middle Channel



High Channel

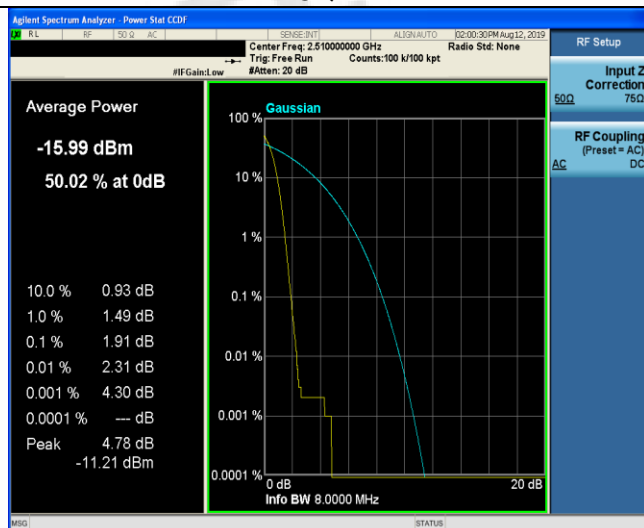
LTE FDD Band 7-20MHz Channel Bandwidth PAPR

QPSK



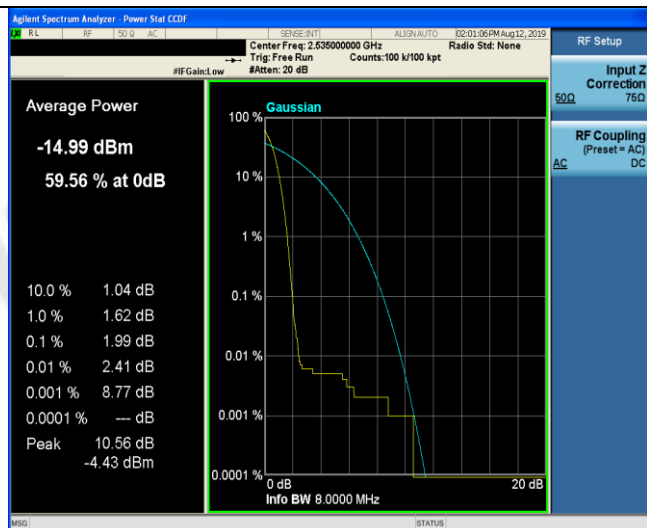
1RB#0

16QAM



1RB#0

Low Channel

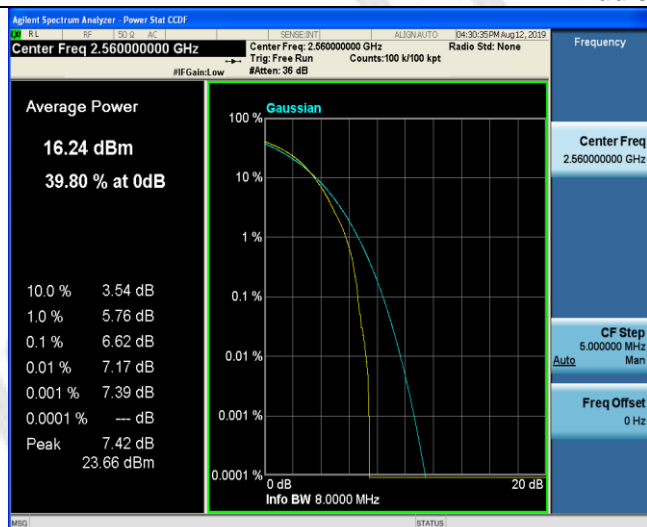


1RB#0

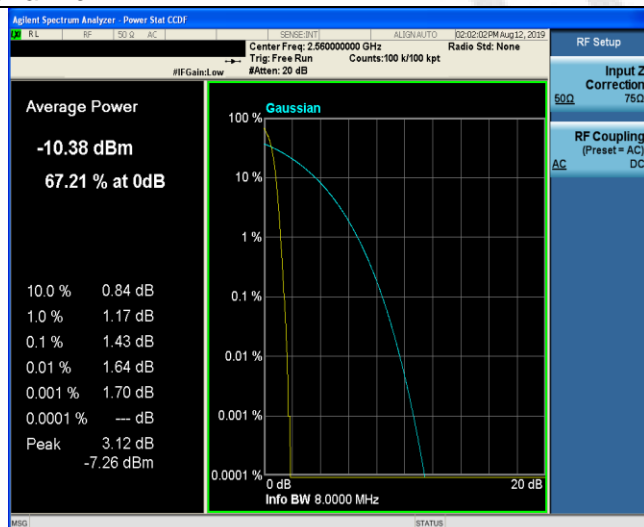


1RB#0

Middle Channel



1RB#0



1RB#0

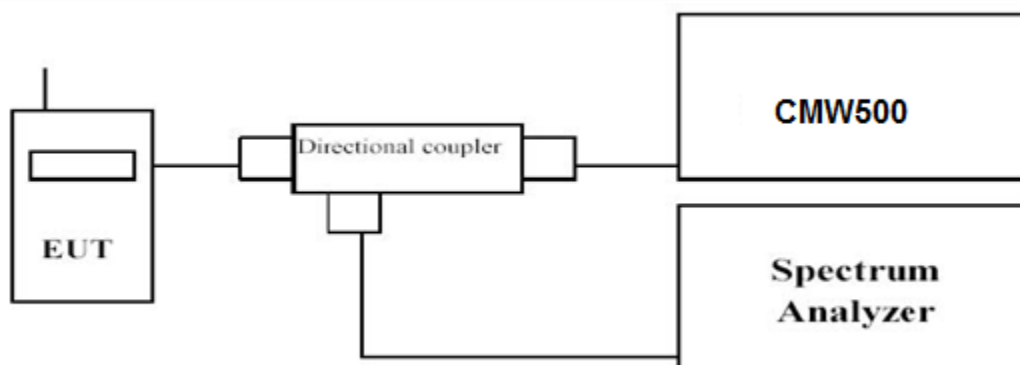
High Channel

3.3. Occupied Bandwidth and Emission Bandwidth

LIMIT

N/A

TEST CONFIGURATION



TEST PROCEDURE

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

Set RBW was set to about 1% of emission BW, VBW \geq 3 times RBW.

-26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.

TEST RESULTS

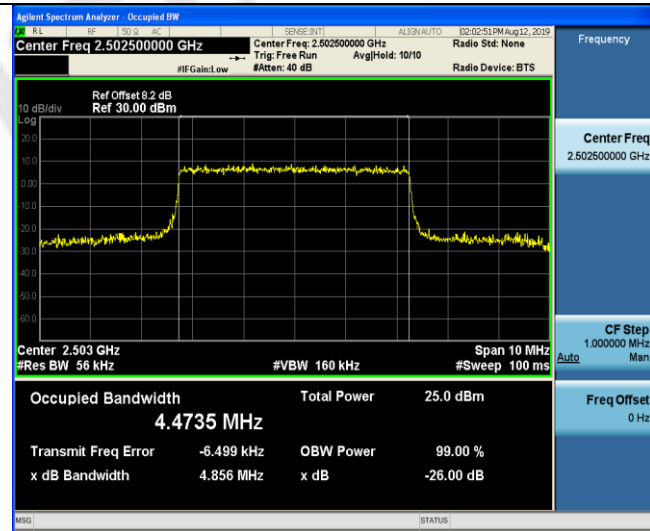
Remark:

1. We were tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE FDD Band 7; recorded worst case for each Channel Bandwidth of LTE FDD Band 7.

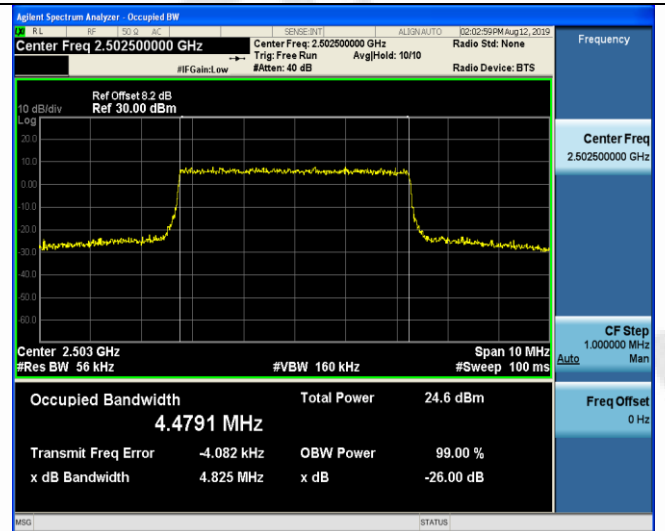
| LTE FDD Band 7 | | | | | | |
|----------------------|----------------|-----------------|---------------------------------|-------|------------------------------|--------|
| TX Channel Bandwidth | RB Size/Offset | Frequency (MHz) | -26dBc Emission bandwidth (MHz) | | 99% Occupied bandwidth (MHz) | |
| | | | QPSK | 16QAM | QPSK | 16QAM |
| 5 MHz | 25RB#0 | 2502.5 | 4.856 | 4.825 | 4.4735 | 4.4791 |
| | | 2535 | 4.801 | 4.792 | 4.4757 | 4.4714 |
| | | 2567.5 | 4.793 | 4.818 | 4.4733 | 4.4654 |
| 10 MHz | 50RB#0 | 2505 | 9.504 | 9.422 | 8.9435 | 8.9404 |
| | | 2535 | 9.438 | 9.450 | 8.9388 | 8.9266 |
| | | 2565 | 9.483 | 9.446 | 8.9166 | 8.9227 |
| 15 MHz | 75RB#0 | 2507.5 | 14.18 | 14.08 | 13.401 | 13.403 |
| | | 2535 | 14.04 | 13.97 | 13.385 | 13.378 |
| | | 2562.5 | 13.95 | 13.98 | 13.373 | 13.375 |
| 20 MHz | 100RB#0 | 2510 | 18.63 | 18.57 | 17.847 | 17.864 |
| | | 2535 | 18.53 | 18.56 | 17.794 | 17.795 |
| | | 2560 | 18.50 | 18.56 | 17.793 | 17.810 |

LTE FDD Band 7-5MHz Channel Bandwidth

QPSK



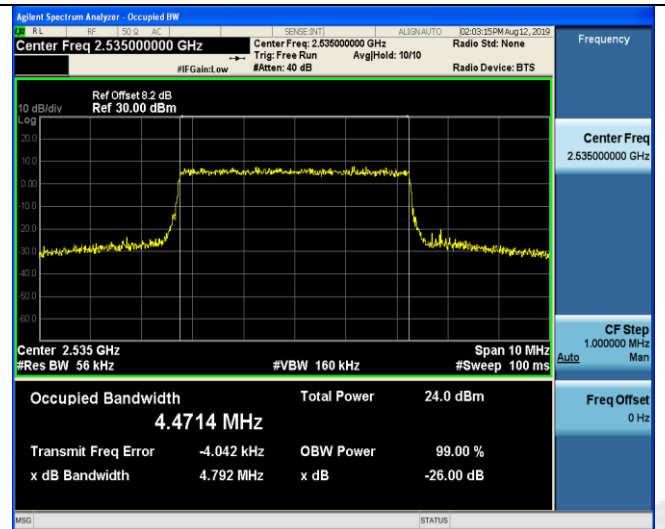
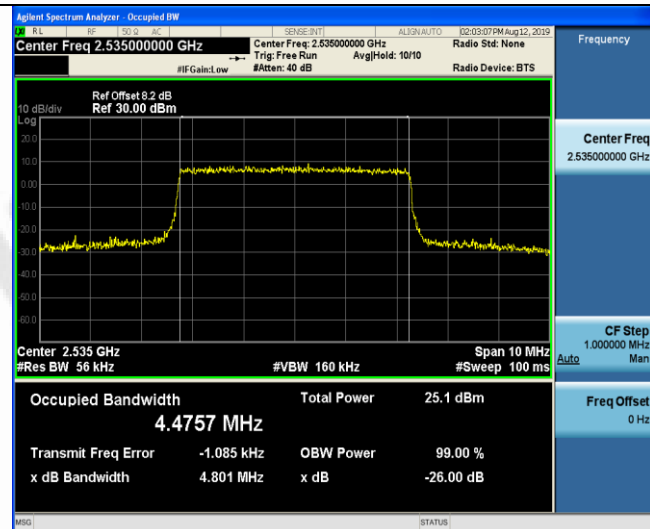
16QAM



25RB#0

25RB#0

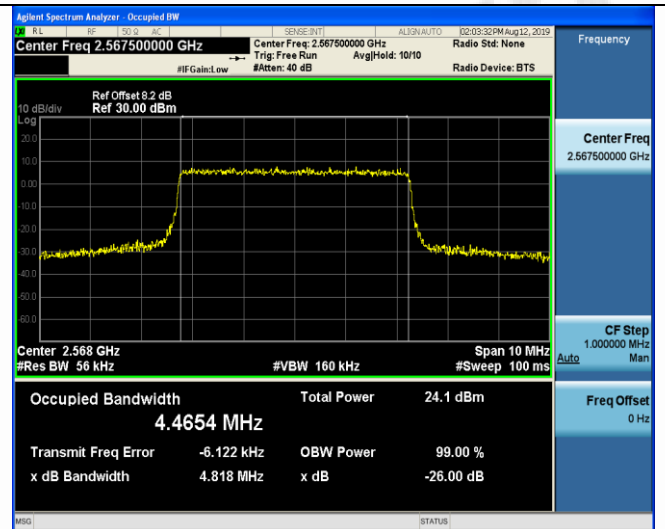
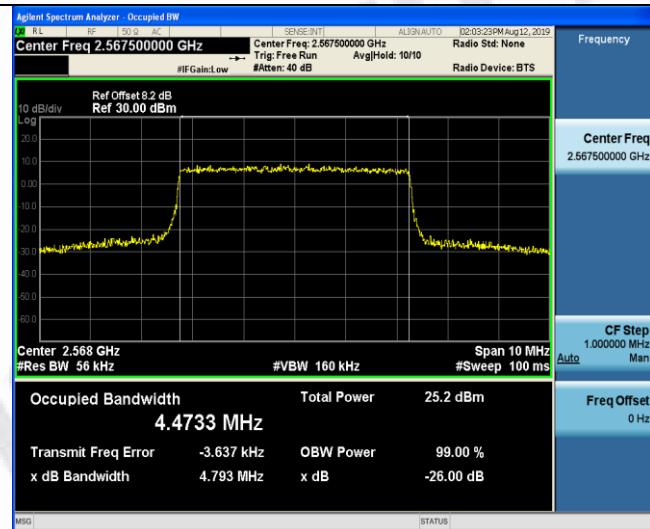
Low Channel



25RB#0

25RB#0

Middle Channel



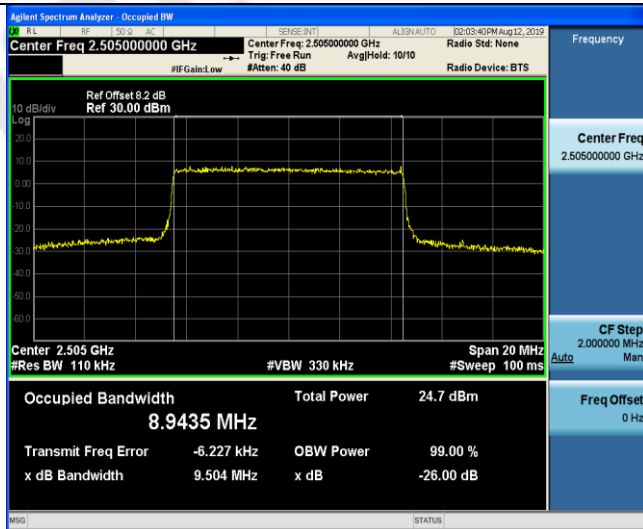
25RB#0

25RB#0

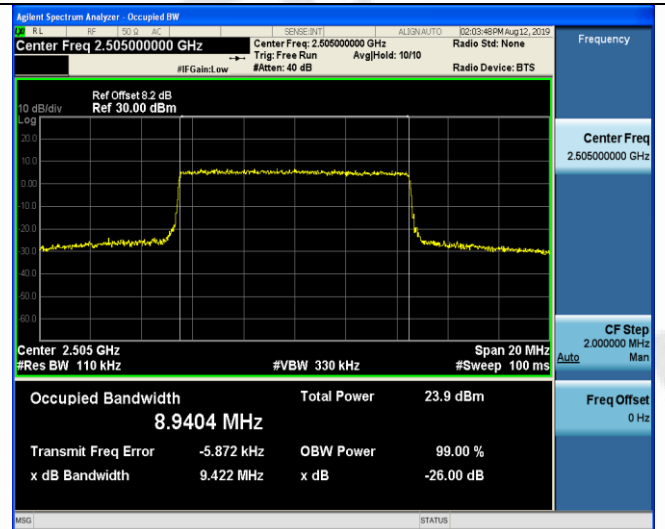
High Channel

LTE FDD Band 7-10MHz Channel Bandwidth

QPSK



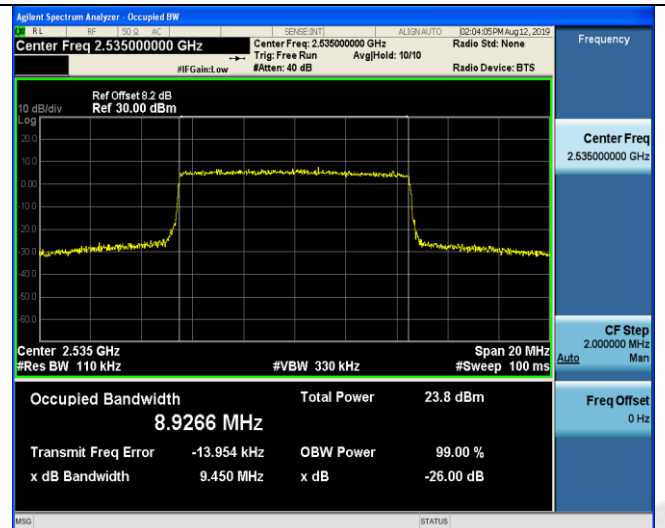
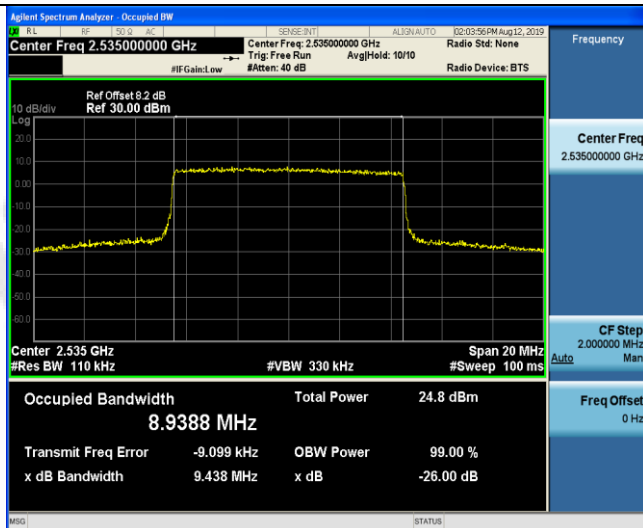
16QAM



50RB#0

50RB#0

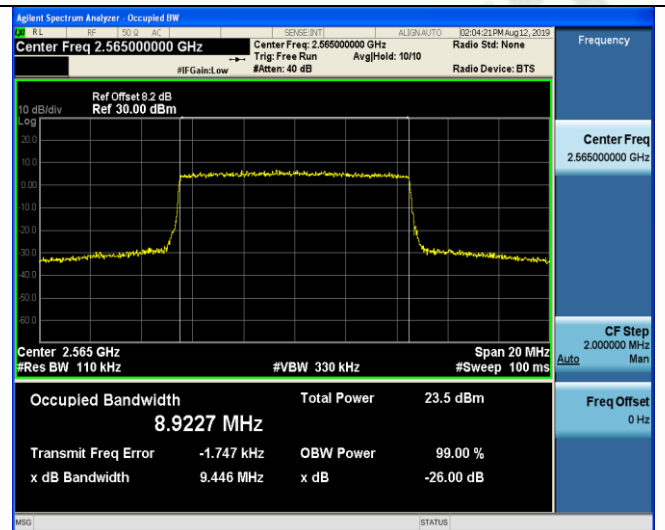
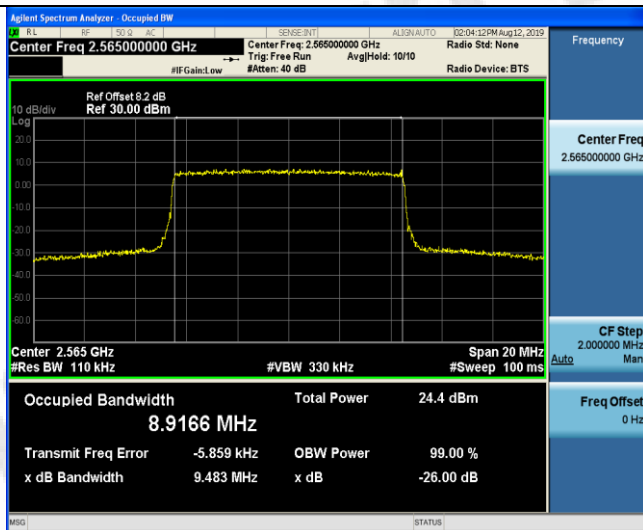
Low Channel



50RB#0

50RB#0

Middle Channel



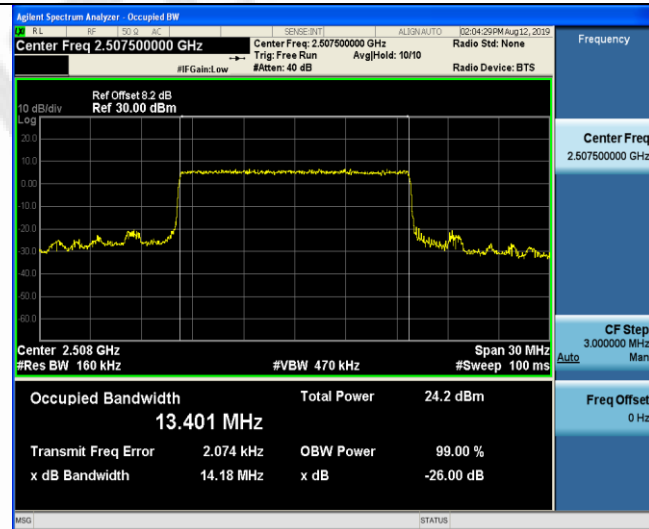
50RB#0

50RB#0

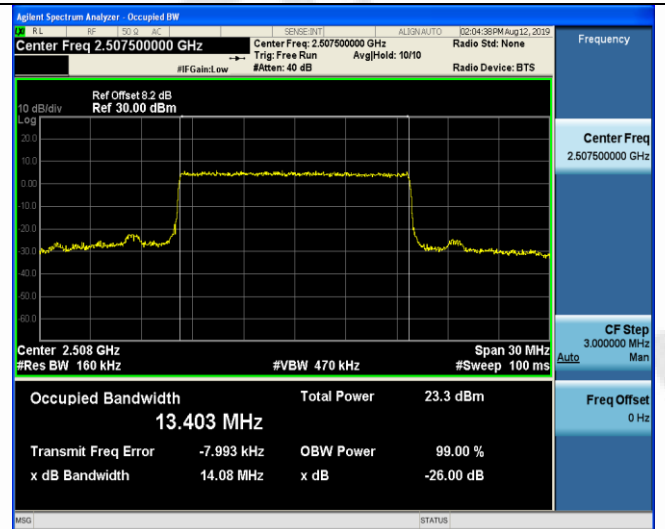
High Channel

LTE FDD Band 7-15MHz Channel Bandwidth

QPSK



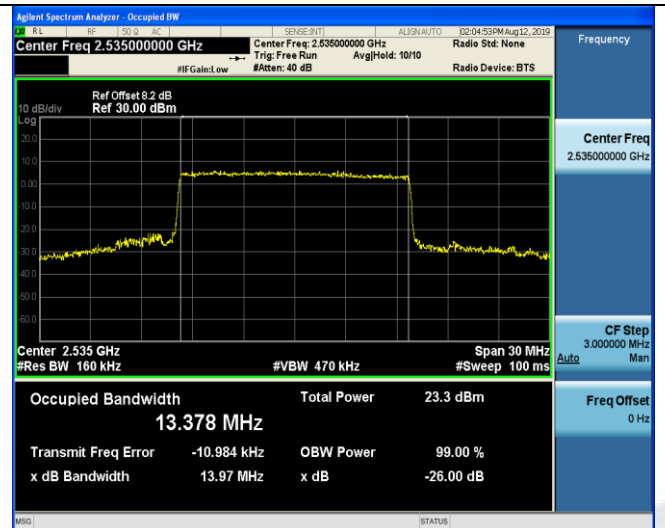
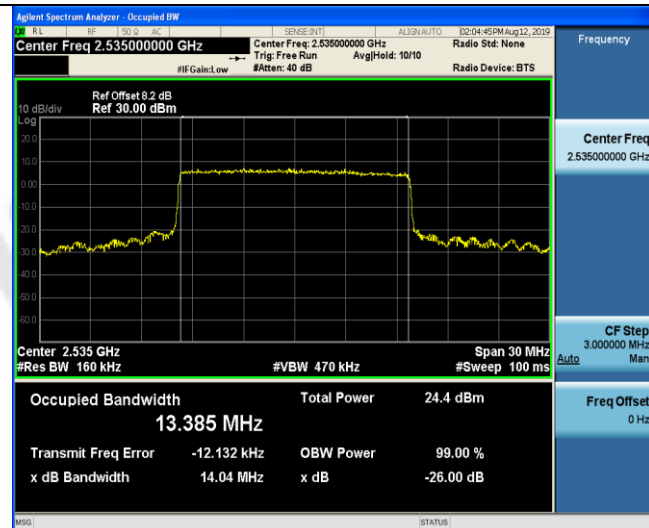
16QAM



75RB#0

75RB#0

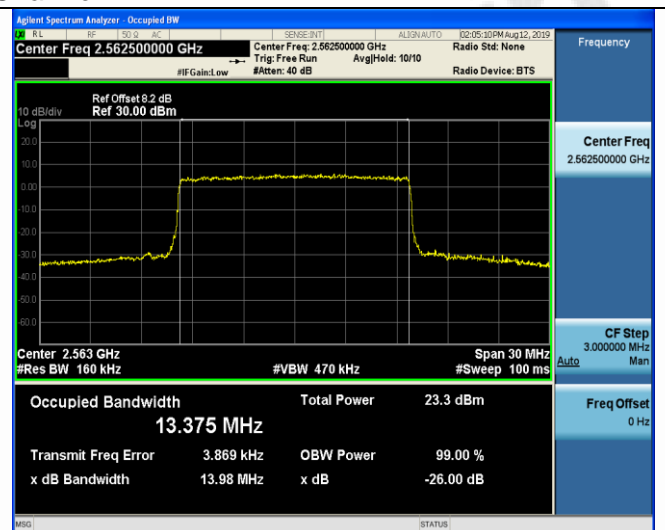
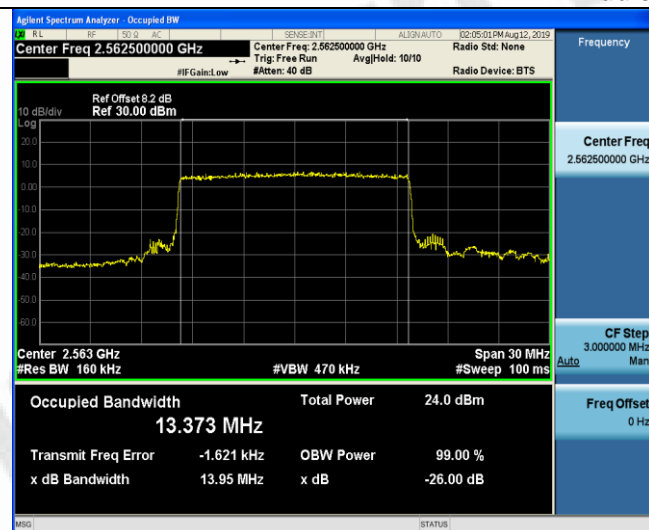
Low Channel



75RB#0

75RB#0

Middle Channel



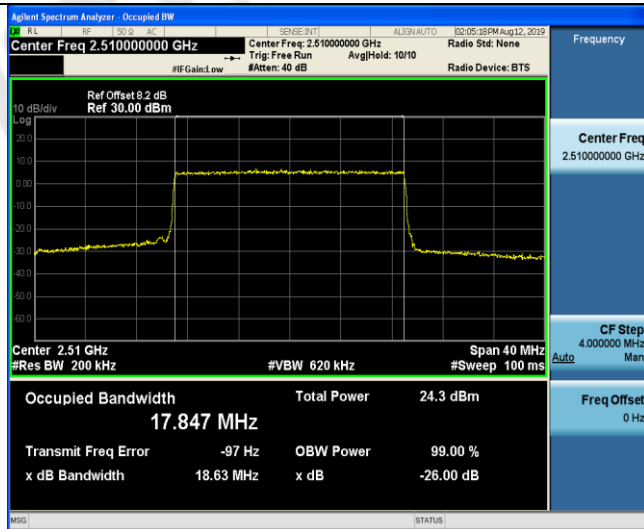
75RB#0

75RB#0

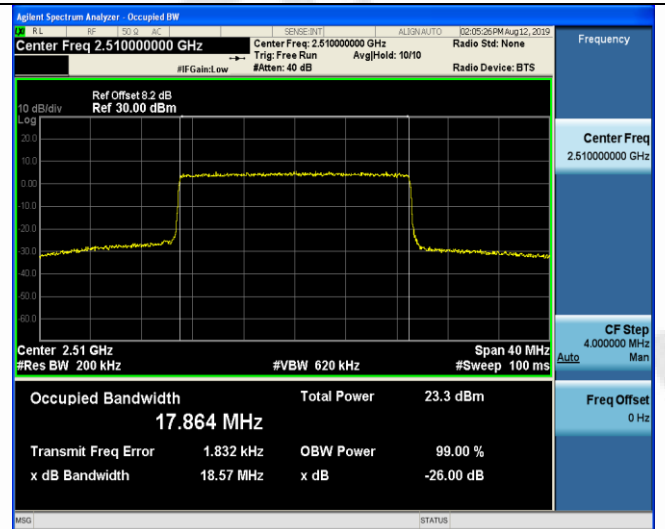
High Channel

LTE FDD Band 7-20MHz Channel Bandwidth

QPSK



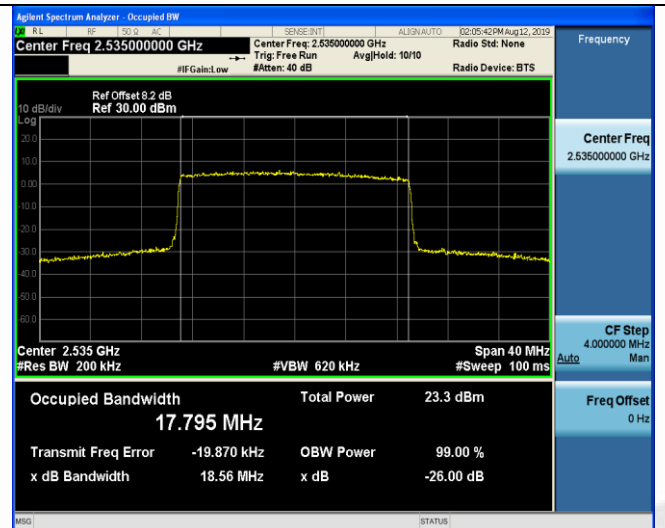
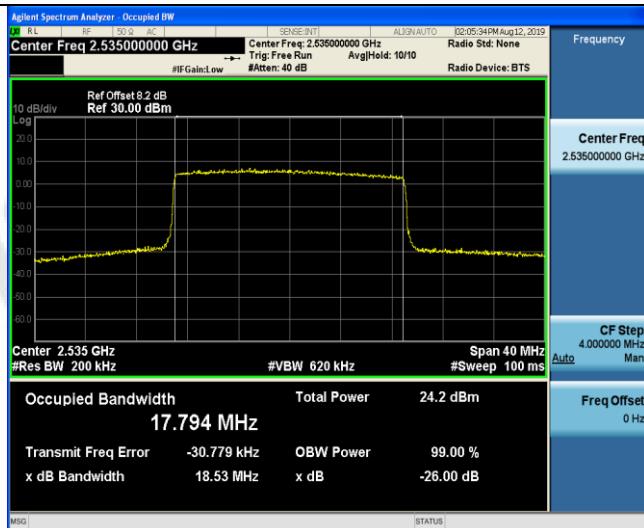
16QAM



100RB#0

100RB#0

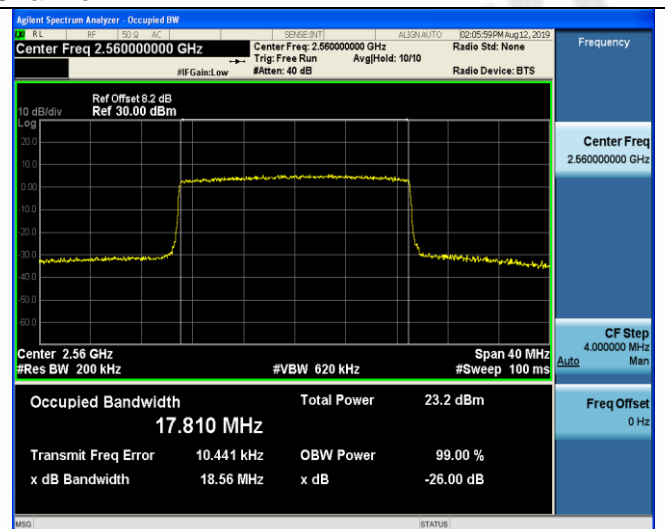
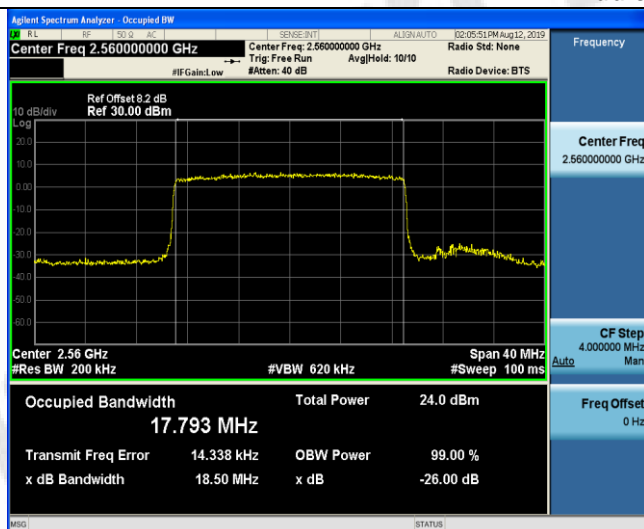
Low Channel



100RB#0

100RB#0

Middle Channel



100RB#0

100RB#0

High Channel

3.4. Band Edge compliance

LIMIT

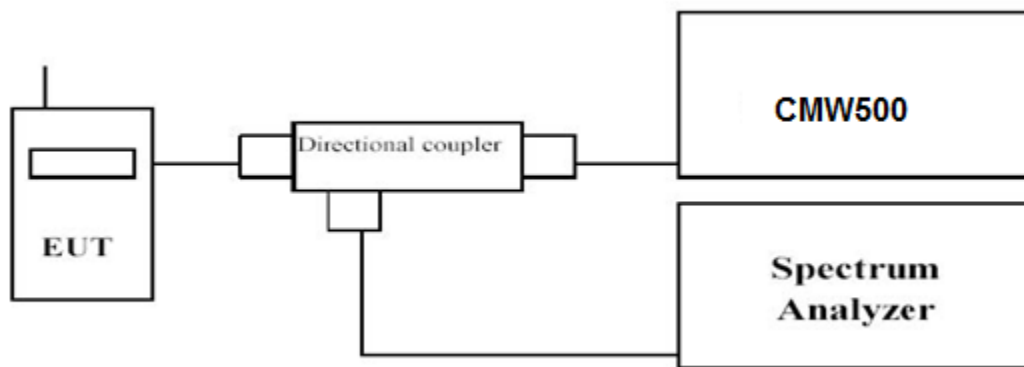
Equipment shall comply with the following unwanted emission limits:

- a) for base station and fixed subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power, P (dBW), by at least $43 + 10 \log_{10} p$
- b) for mobile subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power, P (dBW), by at least:
 - $40 + 10 \log_{10} p$ from the channel edges to 5 MHz away
 - $43 + 10 \log_{10} p$ between 5 MHz and X MHz from the channel edges, and
 - $55 + 10 \log_{10} p$ at X MHz and beyond from the channel edges

In addition, the attenuation shall not be less than $43 + 10 \log_{10} p$ on all frequencies between 2490.5 MHz and 2496 MHz, and $55 + 10 \log_{10} p$ at or below 2490.5 MHz.

In (a) and (b), p is the transmitter power measured in watts and X is 6 MHz or the equipment occupied bandwidth, whichever is greater.

TEST CONFIGURATION



TEST PROCEDURE

1. The transmitter output port was connected to base station.
2. The RF output of EUT was connected to the power meter by RF cable and attenuator, the path loss was compensated to the results for each measurement.
3. Set EUT at maximum power through base station.
4. Select lowest and highest channels for each band and different modulation.
5. Measure Band edge using RMS (Average) detector by spectrum

TEST RESULTS

Remark:

1. We were tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE FDD Band 7; recorded worst case for each Channel Bandwidth of LTE FDD Band 7.

LTE FDD Band 7-5MHz Channel Bandwidth Band Edge Compliance

QPSK



16QAM



25RB

25RB

Low Channel



25RB



25RB

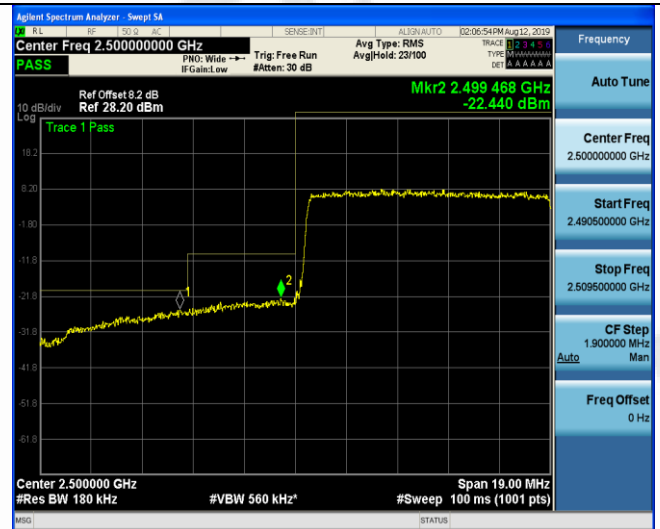
High Channel

LTE FDD Band 7-10MHz Channel Bandwidth Band Edge Compliance

QPSK



16QAM



50RB

50RB

Low Channel



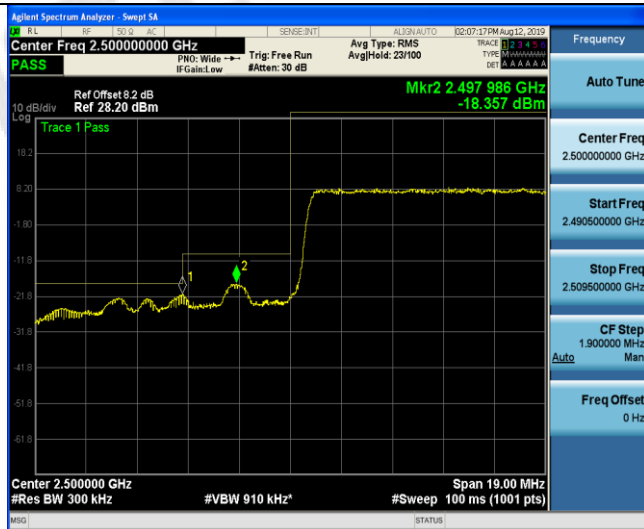
50RB

50RB

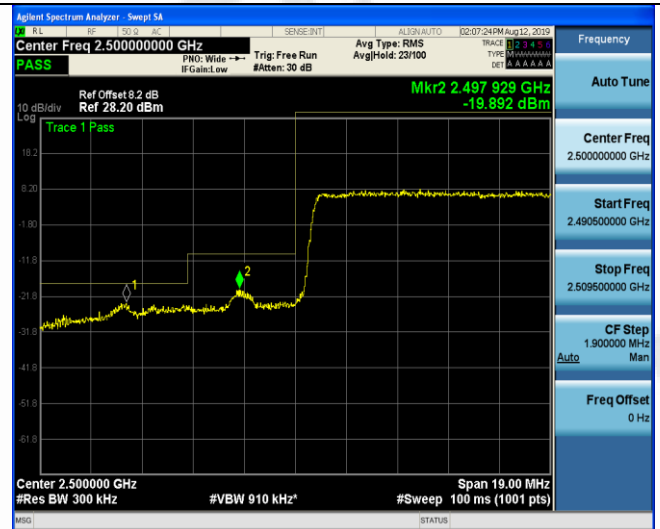
High Channel

LTE FDD Band 7-15MHz Channel Bandwidth Band Edge Compliance

QPSK



16QAM



75RB

75RB

Low Channel



75RB



75RB

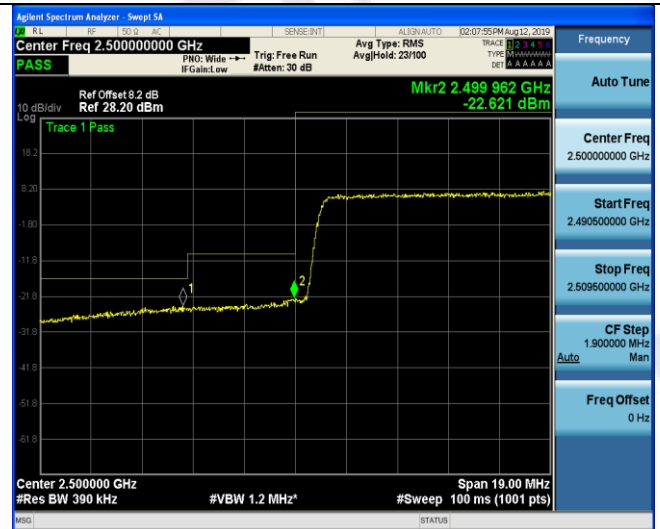
High Channel

LTE FDD Band 7-20MHz Channel Bandwidth Band Edge Compliance

QPSK



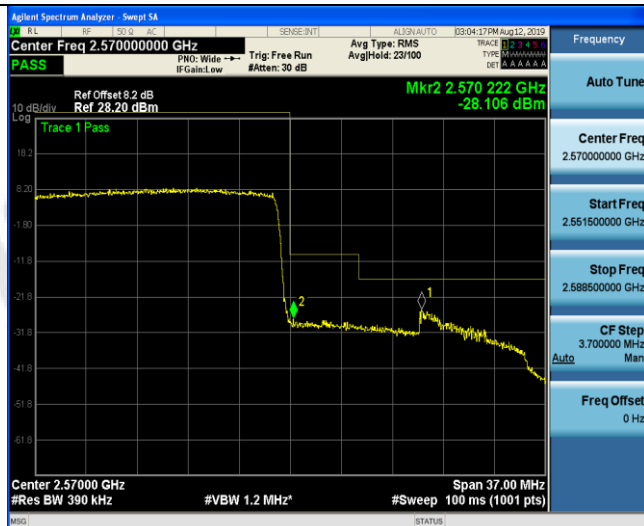
16QAM



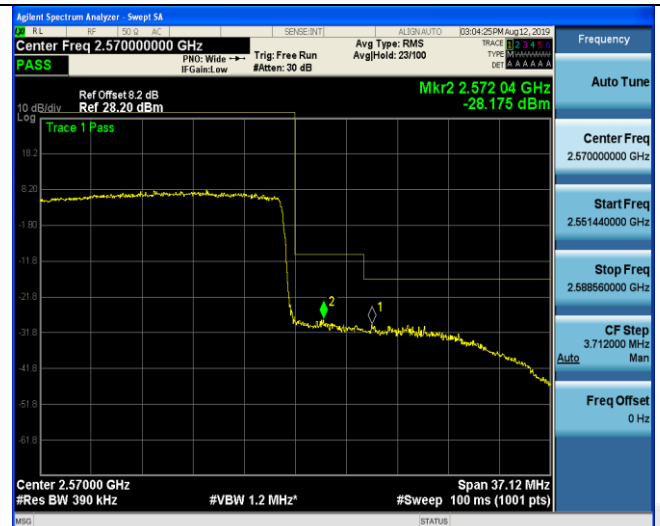
100RB

100RB

Low Channel



100RB



100RB

High Channel