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|  |    <p>CERTIFICATE 2518.08</p> <p>MS ISO/IEC 17025 TESTING SAMM NO. 0825</p> |
| <p>MOTOROLA PENANG ADV. COMM. LABORATORY Motorola Solutions Malaysia Sdn Bhd, Plot 2A, Medan Bayan Lepas, Mukim 12 S.W.D, 11900 Bayan Lepas, Penang, Malaysia.</p> | <p>FCC / ISED TEST REPORT Report Revision : Rev.A</p> |
| <p>Date/s Tested : 03-August-2022 - 17-August-2022 Manufacturer/Location : Motorola Solutions Malaysia Sdn Bhd Manufacturer Address : Plot 2A, Medan Bayan Lepas, Mukim 12 SWD, 11900 Bayan Lepas, Penang, Malaysia Requestor : CADOGAN SEAN Product Type : Hand-held Product Version (PMN) : APX N70 Model Number (HVIN) : H35UCT9PW8AN Frequency Band : Refer to section 1.4 Applicant Name : Motorola Solutions Inc Applicant Address : 8000 West Sunrise Boulevard, Fort Lauderdale, Florida 33322. FCC Registrations : 461337 ISED Registrations : MY0001 Firmware Version (FVIN) : D00.00.45</p> <p>The equipment was tested accordance to the requirement listed below:</p> <p>(LTE Band 4) FCC 47 CFR Part 2 / 27 ISED RSS GEN / 139 PASS</p> | |
| <p>This report shall not be reproduced without written approval from an officially designated representative of the Motorola Penang Adv. Comm. Laboratory. The results and statements contained in this report pertain only to the device(s) evaluated.</p> | |
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REVISION HISTORY

| Revision History | Description | Date | Originator |
|------------------|----------------|----------------|----------------|
| Rev A. | Initial Report | 23-August-2022 | Lim Khay Kwang |

1.0. Summary of Test Results

| FCC Clause | ISED Clause | Test Item | Results | Remarks | Serial Number Tested |
|--------------------------|-----------------------------|--|---------|-------------------------------|----------------------|
| 2.1046 27.50(d)(6) | RSS-Gen 6.12 RSS-139 4.1 | Conducted RF Output Power | Pass | Meet the requirement of limit | 022TYP0011 |
| 27.50(d)(5) | RSS-139 6.5 | Peak-to-Average Power Ratio | Pass | Meet the requirement of limit | 022TYP0011 |
| 2.1049 27.53(h)(3) | RSS-Gen 6.6 | Occupied Bandwidth (26dBc, 99%) | Pass | Meet the requirement of limit | 022TYP0011 |
| 2.1055 27.54 | RSS-139 6.4 | Frequency Stability | Pass | Meet the requirement of limit | 022TYP0011 |
| 2.1051 27.53(h)(1)(3) | RSS-Gen 6.13 RSS-139 6.6 | Band Edge Conducted Spurious Emission | Pass | Meet the requirement of limit | 022TYP0011 |
| 2.1051 27.53(h)(1) | RSS-Gen 6.13 RSS-139 6.6 | Conducted Spurious Emissions | Pass | Meet the requirement of limit | 022TYP0011 |
| 2.1053 27.53 (h) | RSS-139 6.6 | Radiated Spurious Emission: -29.8641 dBm (NF) | Pass | Meet the requirement of limit | 022TYP0004 |
| 2.1049 27.50(d)(4) | RSS-139 6.5 | Equivalent Isotropically Radiated Power (EIRP) | NA | NA | NA |

1.1. Measurement Uncertainty

| Measurement | Frequency | Expanded Uncertainty (k=1.96) (±dB) |
|--------------------------------|------------------|-------------------------------------|
| Radiated Emissions up to 1 GHz | 30MHz ~ 200MHz | 5.01 |
| | 200MHz ~ 1000MHz | 5.01 |
| Radiated Emissions above 1 GHz | 1GHz ~ 18GHz | 5.01 |
| | 18GHz ~ 25GHz | 5.01 |

1.2. Equipment List

| Description | Model | Serial Number | Calibration Date | Calibration Due Date |
|--|------------------------------|---------------|------------------|----------------------|
| Broadband ATE 1 (RF Conducted Tests); Test Software Version: CMWRun v1.9.8 | | | | |
| Signal Analyzer | FSV40 | 101431 | 02-Dec-21 | 02-Dec-23 |
| Chamber | SH-641 | 92003150 | 17-Sep-21 | 17-Sep-22 |
| Wideband Radio Communication Tester | CMW500 | 154550 | 07-Mar-21 | 07-Mar-23 |
| Power Supply | 6652A | 3541A02565 | 29-Jun-22 | 29-Jun-23 |
| Radiated Spurious Emission (EMC Chamber 1); Test Software Version: EMC_FCC_RE_v1.6.4 | | | | |
| Drg Horn Freq. | SAS-571 | 720 | 06-Apr-21 | 06-Apr-23 |
| Drg Horn Freq. | SAS-571 | 719 | 13-Sep-21 | 13-Sep-22 |
| Advanced Power System - Dynamic Dc Power Supply, 120v, 16.7a, 2000w | N7976A | MY53410110 | 30-Jun-22 | 30-Jun-23 |
| Signal Generator | SMB 100A | 182511 | 4-Jun-21 | 4-Jun-24 |
| Emi Test Receiver | ESW44 | 101731 | 5-Nov-21 | 5-Nov-22 |
| 5m SEMI-ANECHOIC CHAMBER | S800-HX | J2308 | No Cal. Req'd | No Cal. Req'd |
| Bilog Antenna | CBL6112B | 2863 | 22-Jun-22 | 22-Jun-23 |
| Bilog Antenna | CBL6112D | 30991 | 05-Oct-21 | 05-Oct-22 |
| Data Logger Thermohyrometer | SDL500 | A.016785 | 23-Jun-22 | 23-Jun-23 |
| System Controller | SC104V | 050806-1 | No Cal. Req'd | No Cal. Req'd |
| Turntable Flush Mount 2m | FM2011 | NA | No Cal. Req'd | No Cal. Req'd |
| Antenna Positioning Tower | TLT2 | NA | No Cal. Req'd | No Cal. Req'd |
| Broad-Band Horn Antenna | BBHA9170 | BBHA9170255 | 18-Feb-22 | 18-Feb-23 |
| Preamplifier 18-40ghz | BBV9721 | 9721-007 | No Cal. Req'd | No Cal. Req'd |
| Preamplifier | PAM-0118P | 361 | 11-Sep-20 | 11-Sep-23 |
| Loop Antenna | 6502 | 00208416 | 08-Oct-21 | 08-Oct-22 |
| Test Software | EMC_FCC_IC_BLUETOOTH_RE_TEST | | | |

1.3. General Information

General Description of EUT

| | | | |
|----------------------------|--------------------|--------------------------|---------------------|
| Product | ALOHA | | |
| Brand | Motorola Solutions | | |
| Test Model | H35UCT9PW8AN | | |
| Power Supply Rating | 7.5Vdc | | |
| Mode of operation | LTE Band 4 | | |
| Modulation Type | QPSK, 16QAM | | |
| Operating Frequency | LTE Band 4 | Channel Bandwidth 1.4MHz | 1710.7MHz~1754.3MHz |
| | | Channel Bandwidth 3MHz | 1711.5MHz~1753.5MHz |
| | | Channel Bandwidth 5MHz | 1712.5MHz~1752.5MHz |
| | | Channel Bandwidth 10MHz | 1715.0MHz~1750.0MHz |
| | | Channel Bandwidth 15MHz | 1717.5MHz~1747.5MHz |
| | | Channel Bandwidth 20MHz | 1720.0MHz~1745.0MHz |

| | | | | |
|-----------------------------|---------------------|--------------------------|---------------------------|---|
| Max. Conducted Power | LTE Band 4 QPSK | Channel Bandwidth 1.4MHz | 23.013dBm (0.200W) | |
| | | Channel Bandwidth 3MHz | 23.059dBm (0.202W) | |
| | | Channel Bandwidth 5MHz | 23.135dBm (0.206W) | |
| | | Channel Bandwidth 10MHz | 23.479dBm (0.223W) | |
| | | Channel Bandwidth 15MHz | 23.111dBm (0.205W) | |
| | | Channel Bandwidth 20MHz | 22.874dBm (0.194W) | |
| | LTE Band 4 16QAM | Channel Bandwidth 1.4MHz | 22.129dBm (0.163W) | |
| | | Channel Bandwidth 3MHz | 22.521dBm (0.179W) | |
| | | Channel Bandwidth 5MHz | 22.269dBm (0.169W) | |
| | | Channel Bandwidth 10MHz | 22.73dBm (0.187W) | |
| | | Channel Bandwidth 15MHz | 22.283dBm (0.169W) | |
| | | Channel Bandwidth 20MHz | 22.379dBm (0.173W) | |
| Emission Designator | LTE Band 4 | | QPSK | 16QAM |
| | | Channel Bandwidth 1.4MHz | 1M07G7D | 1M08D7W |
| | | Channel Bandwidth 3MHz | 2M68G7D | 2M68D7W |
| | | Channel Bandwidth 5MHz | 4M48G7D | 4M47D7W |
| | | Channel Bandwidth 10MHz | 8M91G7D | 8M95D7W |
| | | Channel Bandwidth 15MHz | 13M4G7D | 13M4D7W |
| | | Channel Bandwidth 20MHz | 17M9G7D | 17M8D7W |
| | | Antenna Type | LTE Band 4 | LTE MID-HIGH BAND MAIN ANTENNA (1.9dBi) |
| SW Version | D00.00.45 | | | |
| HW Version | P1 | | | |

Note:

1. The EUT contains following accessory devices and data cable.

| Item | Brand | Model or P/N | Specification |
|--------|----------|--------------|---|
| Li-Ion | Motorola | PMNN4817A | Hi Cap 4400mAH (using RN 2170 Li-Ion cell) Non-UL battery |

Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| NO. | Product | Brand | Model No. | Serial No. | FCC ID |
|-----|-------------------------------------|-------|-----------|------------|--------|
| 1 | Wideband Radio Communication Tester | R&S | CMW500 | 154550 | NA |

| NO. | Signal Cable Description of The above Support Units |
|-----|---|
| 1 | NA |

Note:

1. All power cords of the above support units are non-shielded.
2. Item 1 acted as a communication partner to transfer data.

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.

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 v03r01

KDB 971168 D02 Misc OOB License Digital Systems v02r01

ANSI C63.26-2015

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

1.4. Channel number and frequency info.

| Band | Bandwidth supported | Available Channel Number | Test Channel Number | | | Test Channel Frequency (MHz) | | |
|------------|---------------------|--------------------------|---------------------|-------------|--------------|------------------------------|-------------|--------------|
| | | | Low Channel | Mid Channel | High Channel | Low Channel | Mid Channel | High Channel |
| LTE Band 4 | 1.4 MHz | 19957 ~ 20393 | 19957 | 20175 | 20393 | 1710.7 | 1732.5 | 1754.3 |
| | 3 MHz | 19965 ~ 20386 | 19965 | 20175 | 20385 | 1711.5 | 1732.5 | 1753.5 |
| | 5 MHz | 19975 ~ 20375 | 19975 | 20175 | 20375 | 1712.5 | 1732.5 | 1752.5 |
| | 10 MHz | 20000 ~ 20350 | 20000 | 20175 | 20350 | 1715.0 | 1732.5 | 1750.0 |
| | 15 MHz | 20025 ~ 20325 | 20025 | 20175 | 20325 | 1717.5 | 1732.5 | 1747.5 |
| | 20 MHz | 20050 ~ 20300 | 20050 | 20175 | 20300 | 1720.0 | 1732.5 | 1745.0 |

1.5. Test Mode Applicability and Tested Channel Detail.

LTE Band 4

| Test Item | Available Channel | Tested Channel | Channel Bandwidth | Modulation | Mode |
|--|-------------------|---------------------|-------------------|-------------|--|
| Conducted RF Output Power | 19957 ~ 20393 | 19957, 20175, 20393 | 1.4 MHz | QPSK, 16QAM | As per table 1.6.3 |
| | 19965 ~ 20386 | 19965, 20175, 20385 | 3 MHz | | |
| | 19975 ~ 20375 | 19975, 20175, 20375 | 5 MHz | | |
| | 20000 ~ 20350 | 20000, 20175, 20350 | 10 MHz | | |
| | 20025 ~ 20325 | 20025, 20175, 20325 | 15 MHz | | |
| | 20050 ~ 20300 | 20050, 20175, 20300 | 20 MHz | | |
| Peak to Average Power Ratio | 19957 ~ 20393 | 19957, 20175, 20393 | 1.4 MHz | QPSK, 16QAM | 6 RB / 0 RB Offset |
| | 19965 ~ 20386 | 19965, 20175, 20385 | 3 MHz | | 15 RB / 0 RB Offset |
| | 19975 ~ 20375 | 19975, 20175, 20375 | 5 MHz | | 25 RB / 0 RB Offset |
| | 20000 ~ 20350 | 20000, 20175, 20350 | 10 MHz | | 50 RB / 0 RB Offset |
| | 20025 ~ 20325 | 20025, 20175, 20325 | 15 MHz | | 75 RB / 0 RB Offset |
| | 20050 ~ 20300 | 20050, 20175, 20300 | 20 MHz | | 100 RB / 0 RB Offset |
| Occupied Bandwidth | 19957 ~ 20393 | 19957, 20175, 20393 | 1.4 MHz | QPSK, 16QAM | 6 RB / 0 RB Offset |
| | 19965 ~ 20386 | 19965, 20175, 20385 | 3 MHz | | 15 RB / 0 RB Offset |
| | 19975 ~ 20375 | 19975, 20175, 20375 | 5 MHz | | 25 RB / 0 RB Offset |
| | 20000 ~ 20350 | 20000, 20175, 20350 | 10 MHz | | 50 RB / 0 RB Offset |
| | 20025 ~ 20325 | 20025, 20175, 20325 | 15 MHz | | 75 RB / 0 RB Offset |
| | 20050 ~ 20300 | 20050, 20175, 20300 | 20 MHz | | 100 RB / 0 RB Offset |
| Frequency Stability | 19957 ~ 20393 | 20175 | 1.4 MHz | QPSK | 6 RB / 0 RB Offset |
| | 19965 ~ 20386 | 20175 | 3 MHz | | 15 RB / 0 RB Offset |
| | 19975 ~ 20375 | 20175 | 5 MHz | | 25 RB / 0 RB Offset |
| | 20000 ~ 20350 | 20175 | 10 MHz | | 50 RB / 0 RB Offset |
| | 20025 ~ 20325 | 20175 | 15 MHz | | 75 RB / 0 RB Offset |
| | 20050 ~ 20300 | 20175 | 20 MHz | | 100 RB / 0 RB Offset |
| Band Edge Conducted Spurious Emission | 19957 ~ 20393 | 19957, 20393 | 1.4 MHz | QPSK, 16QAM | 1 RB / 0 RB Offset 1 RB / 5 RB Offset 6 RB / 0 RB Offset |
| | 19965 ~ 20386 | 19965, 20385 | 3 MHz | | 1 RB / 0 RB Offset 1 RB / 14 RB Offset 15 RB / 0 RB Offset |

| | | | | | |
|---|---------------|---------------------|---------|----------------|---|
| | 19975 ~ 20375 | 19975, 20375 | 5 MHz | | 1 RB / 0 RB Offset 1 RB / 24 RB Offset 25 RB / 0 RB Offset |
| | 20000 ~ 20350 | 20000, 20350 | 10 MHz | | 1 RB / 0 RB Offset 1 RB / 49 RB Offset 50 RB / 0 RB Offset |
| | 20025 ~ 20325 | 20025, 20325 | 15 MHz | | 1 RB / 0 RB Offset 1 RB / 74 RB Offset 75 RB / 0 RB Offset |
| | 20050 ~ 20300 | 20050, 20300 | 20 MHz | | 1 RB / 0 RB Offset 1 RB / 99 RB Offset 100 RB / 0 RB Offset |
| Conducted Spurious Emission | 19957 ~ 20393 | 19957, 20175, 20393 | 1.4 MHz | QPSK | 3 RB / 2 RB Offset |
| | 19965 ~ 20386 | 19965, 20175, 20385 | 3 MHz | | 1 RB / 0 RB Offset |
| | 19975 ~ 20375 | 19975, 20175, 20375 | 5 MHz | | 1 RB / 0 RB Offset |
| | 20000 ~ 20350 | 20000, 20175, 20350 | 10 MHz | | 1 RB / 49 RB Offset |
| | 20025 ~ 20325 | 20025, 20175, 20325 | 15 MHz | | 1 RB / 0 RB Offset |
| | 20050 ~ 20300 | 20050, 20175, 20300 | 20 MHz | | 1 RB / 0 RB Offset |
| Radiated Emission | 20050 ~ 20300 | 20050 | 10 MHz | QPSK | 1 RB / 0 RB Offset |
| | 20050 ~ 20300 | 20175 | 10 MHz | | 1 RB / 49 RB Offset |
| | 19965 ~ 20386 | 20385 | 10 MHz | | 1 RB / 49 RB Offset |
| Equivalent Isotropically Radiated Power (EIRP) | 19957 ~ 20393 | 19957, 20175, 20393 | 1.4 MHz | QPSK, 16QAM | As per table 1.6.4 |
| | 19965 ~ 20386 | 19965, 20175, 20385 | 3 MHz | | |
| | 19975 ~ 20375 | 19975, 20175, 20375 | 5 MHz | | |
| | 20000 ~ 20350 | 20000, 20175, 20350 | 10 MHz | | |
| | 20025 ~ 20325 | 20025, 20175, 20325 | 15 MHz | | |
| | 20050 ~ 20300 | 20050, 20175, 20300 | 20 MHz | | |

NOTE:

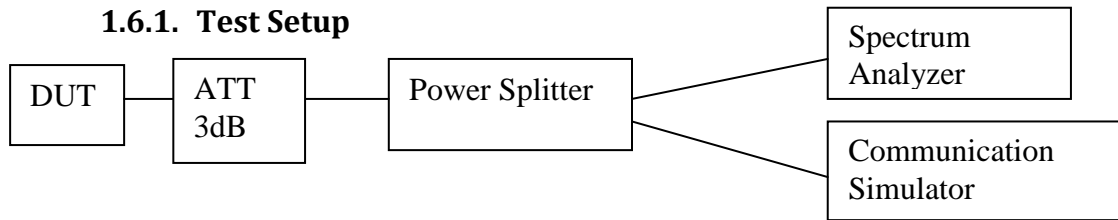
1. The Conducted RF Output Power for QPSK and 16QAM, measured value of QPSK mode is higher than 16QAM mode. Therefore, only Conducted Spurious Emission and Radiated Emission had been tested under QPSK modes.
2. Band Edge was performed with 1 and full Resource Block at the lowest and highest operating frequency band.
3. The Equivalent Isotropically Radiated Power (EIRP) was calculated from Conducted RF Output Power results in QPSK and 16QAM modulation.
4. Peak to Average and Occupied Bandwidth were performed with full Resource Block which is the worst case.
5. Frequency stability was performed with full Resource Block in QPSK modulation.

Test Condition:

| Test Item | Environmental Conditions | Input Power | Tested By |
|--|---------------------------------|--------------------|------------------|
| Conducted RF Output Power | 25°C, 50% RH | 7.5V DC | Khay Kwang |
| Peak-to-Average Power Ratio | 25°C, 50% RH | 7.5V DC | Khay Kwang |
| Occupied Bandwidth | 25°C, 50% RH | 7.5V DC | Khay Kwang |
| Frequency Stability | -30°C ~ 60°C | 7.5V DC | Khay Kwang |
| Band Edge Conducted Spurious Emission | 25°C, 50% RH | 7.5V DC | Khay Kwang |
| Conducted Spurious Emission | 25°C, 50% RH | 7.5V DC | Khay Kwang |
| Radiated Spurious Emission | 25°C, 63.7% RH | 7.5V DC | Qawiman&Nazrin |
| Equivalent Isotropically Radiated Power (EIRP) | 25°C, 50% RH | 7.5V DC | Khay Kwang |

1.6. Conducted RF Output Power

1.6.1. Test Setup



1. The DUT transmitter output port was connected to communication simulator with above setup.
2. Path loss for the measurement included.
3. Set DUT to transmit maximum power through communication simulator
4. All the measurement was done at low, mid, high channel for each band and different modulation.
5. Record the average power into the test report.

1.6.2. Limits

FCC: Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.
 ISSED: The equivalent isotropically radiated power (e.i.r.p.) for mobile and portable transmitters shall not exceed one watt.

1.6.3. Conducted RF Output Power – LTE Band 4(1710-1755MHz)

| Conducted Output Power (dBm) | | | | | | | | |
|------------------------------|---------|-----------|-----------------|------------|------------|------------------|------------|------------|
| LTE Band/BW | RB Size | RB Offset | QPSK Modulation | | | 16QAM Modulation | | |
| | | | Low CH | Mid CH | High CH | Low CH | Mid CH | High CH |
| | | | 19957 | 20175 | 20393 | 19957 | 20175 | 20393 |
| | | | 1710.7 MHz | 1732.5 MHz | 1754.3 MHz | 1710.7 MHz | 1732.5 MHz | 1754.3 MHz |
| Band 4 / 1.4 MHz | 1 | 0 | 22.935 | 22.962 | 22.905 | 21.896 | 22.053 | 22.092 |
| | 1 | 3 | 22.988 | 23.004 | 22.922 | 21.937 | 22.054 | 22.129 |
| | 1 | 5 | 22.902 | 22.952 | 22.91 | 21.914 | 22.064 | 22.092 |
| | 3 | 0 | 22.784 | 22.969 | 22.992 | 21.969 | 22.106 | 21.941 |
| | 3 | 2 | 22.884 | 23.004 | 23.013 | 22.068 | 22.125 | 21.973 |
| | 3 | 3 | 22.848 | 22.972 | 22.964 | 22.038 | 22.107 | 21.949 |
| | 6 | 0 | 21.797 | 21.922 | 21.971 | 20.891 | 20.99 | 20.98 |

| Conducted Output Power (dBm) | | | | | | | | |
|------------------------------|---------|-----------|-----------------|------------|------------|------------------|------------|------------|
| LTE Band/BW | RB Size | RB Offset | QPSK Modulation | | | 16QAM Modulation | | |
| | | | Low CH | Mid CH | High CH | Low CH | Mid CH | High CH |
| | | | 19965 | 20175 | 20385 | 19965 | 20175 | 20385 |
| | | | 1711.5 MHz | 1732.5 MHz | 1753.5 MHz | 1711.5 MHz | 1732.5 MHz | 1753.5 MHz |
| Band 4 / 3MHz | 1 | 0 | 23.059 | 23.043 | 23.024 | 22.061 | 21.991 | 22.425 |
| | 1 | 7 | 22.968 | 22.88 | 23.054 | 22.062 | 21.848 | 22.521 |
| | 1 | 14 | 22.94 | 22.907 | 22.991 | 21.968 | 21.86 | 22.34 |
| | 8 | 0 | 21.96 | 21.903 | 22.093 | 20.912 | 20.881 | 21.182 |
| | 8 | 4 | 21.947 | 21.893 | 22.087 | 20.872 | 20.893 | 21.177 |
| | 8 | 7 | 21.972 | 21.874 | 22.066 | 20.911 | 20.834 | 21.143 |
| | 15 | 0 | 21.895 | 21.859 | 22.07 | 20.857 | 20.867 | 21.107 |

| Conducted Output Power (dBm) | | | | | | | | |
|------------------------------|---------|-----------|-----------------|-----------|-----------|------------------|-----------|-----------|
| LTE Band/BW | RB Size | RB Offset | QPSK Modulation | | | 16QAM Modulation | | |
| | | | Low CH | Mid CH | High CH | Low CH | Mid CH | High CH |
| | | | 19975 | 20175 | 20375 | 19975 | 20175 | 20375 |
| | | | 1712.5MHz | 1732.5MHz | 1752.5MHz | 1712.5MHz | 1732.5MHz | 1752.5MHz |
| Band 4 / 5MHz | 1 | 0 | 23.135 | 23.121 | 23.054 | 22.122 | 22.269 | 22.2 |
| | 1 | 13 | 23.012 | 22.99 | 22.962 | 21.992 | 22.102 | 22.105 |
| | 1 | 25 | 22.893 | 22.926 | 22.929 | 21.903 | 22 | 22.085 |
| | 12 | 0 | 22.04 | 22.051 | 21.908 | 20.999 | 20.945 | 20.887 |
| | 12 | 6 | 22.016 | 21.991 | 21.88 | 20.983 | 20.887 | 20.858 |
| | 12 | 13 | 22.008 | 21.955 | 21.864 | 21.019 | 20.856 | 20.827 |
| | 25 | 0 | 22.04 | 22.004 | 21.916 | 20.971 | 20.979 | 20.889 |

| Conducted Output Power (dBm) | | | | | | | | |
|------------------------------|---------|-----------|-----------------|-----------|---------|------------------|-----------|---------|
| LTE Band/BW | RB Size | RB Offset | QPSK Modulation | | | 16QAM Modulation | | |
| | | | Low CH | Mid CH | High CH | Low CH | Mid CH | High CH |
| | | | 20000 | 20175 | 20350 | 20000 | 20175 | 20350 |
| | | | 1715MHz | 1732.5MHz | 1750MHz | 1715MHz | 1732.5MHz | 1750MHz |
| Band 4 / 10MHz | 1 | 0 | 23.32 | 23.406 | 23.211 | 22.385 | 22.265 | 22.552 |
| | 1 | 25 | 22.953 | 23.03 | 22.917 | 22.082 | 21.952 | 22.258 |
| | 1 | 49 | 23.299 | 23.479 | 23.386 | 22.493 | 22.468 | 22.73 |
| | 25 | 0 | 21.919 | 22.014 | 21.999 | 21.045 | 21.086 | 21.017 |
| | 25 | 13 | 21.982 | 21.966 | 21.996 | 21.077 | 21.041 | 20.97 |
| | 25 | 25 | 22.129 | 22.04 | 22.082 | 21.154 | 21.084 | 21.081 |
| | 50 | 0 | 22.084 | 22.062 | 22.037 | 21.049 | 21.018 | 20.995 |

| Conducted Output Power (dBm) | | | | | | | | |
|------------------------------|---------|-----------|-----------------|-----------|-----------|------------------|-----------|-----------|
| LTE Band/BW | RB Size | RB Offset | QPSK Modulation | | | 16QAM Modulation | | |
| | | | Low CH | Mid CH | High CH | Low CH | Mid CH | High CH |
| | | | 20025 | 20175 | 20325 | 20025 | 20175 | 20325 |
| | | | 1717.5MHz | 1732.5MHz | 1747.5MHz | 1717.5MHz | 1732.5MHz | 1747.5MHz |
| Band 4 / 15MHz | 1 | 0 | 23.104 | 23.111 | 22.763 | 22.283 | 22.059 | 21.827 |
| | 1 | 38 | 22.893 | 22.873 | 22.695 | 22.151 | 21.826 | 21.673 |
| | 1 | 74 | 22.796 | 22.805 | 22.635 | 22.048 | 21.826 | 21.584 |
| | 36 | 0 | 21.921 | 21.885 | 21.723 | 20.922 | 20.898 | 20.722 |
| | 36 | 19 | 21.91 | 21.83 | 21.715 | 20.912 | 20.858 | 20.706 |
| | 36 | 39 | 21.797 | 21.83 | 21.652 | 20.801 | 20.861 | 20.633 |
| | 75 | 0 | 21.897 | 21.809 | 21.687 | 20.908 | 20.789 | 20.681 |

| Conducted Output Power (dBm) | | | | | | | | |
|------------------------------|---------|-----------|-----------------|-----------|---------|------------------|-----------|---------|
| LTE Band/BW | RB Size | RB Offset | QPSK Modulation | | | 16QAM Modulation | | |
| | | | Low CH | Mid CH | High CH | Low CH | Mid CH | High CH |
| | | | 20050 | 20175 | 20300 | 20050 | 20175 | 20300 |
| | | | 1720MHz | 1732.5MHz | 1745MHz | 1720MHz | 1732.5MHz | 1745MHz |
| Band 4 / 20MHz | 1 | 0 | 22.874 | 22.781 | 22.577 | 21.855 | 22.379 | 22.079 |
| | 1 | 49 | 22.854 | 22.753 | 22.603 | 21.788 | 22.313 | 22.021 |
| | 1 | 99 | 22.718 | 22.674 | 22.573 | 21.671 | 22.133 | 21.994 |
| | 50 | 0 | 21.958 | 21.843 | 21.732 | 20.927 | 20.781 | 20.725 |
| | 50 | 25 | 21.864 | 21.769 | 21.704 | 20.831 | 20.749 | 20.686 |
| | 50 | 50 | 21.733 | 21.772 | 21.611 | 20.696 | 20.757 | 20.603 |
| | 100 | 0 | 21.801 | 21.77 | 21.674 | 20.821 | 20.772 | 20.7 |

1.6.4. Equivalent Isotropically Radiated Power (EIRP) - LTE Band 4 (1710-1755MHz)

| EIRP (dBm) | | | | | | | | |
|------------------|---------|-----------|-----------------|------------|------------|------------------|------------|------------|
| LTE Band/BW | RB Size | RB Offset | QPSK Modulation | | | 16QAM Modulation | | |
| | | | Low CH | Mid CH | High CH | Low CH | Mid CH | High CH |
| | | | 19957 | 20175 | 20393 | 19957 | 20175 | 20393 |
| | | | 1710.7 MHz | 1732.5 MHz | 1754.3 MHz | 1710.7 MHz | 1732.5 MHz | 1754.3 MHz |
| Band 4 / 1.4 MHz | 1 | 0 | 24.835 | 24.862 | 24.805 | 23.796 | 23.953 | 23.992 |
| | 1 | 3 | 24.888 | 24.904 | 24.822 | 23.837 | 23.954 | 24.029 |
| | 1 | 5 | 24.802 | 24.852 | 24.81 | 23.814 | 23.964 | 23.992 |
| | 3 | 0 | 24.684 | 24.869 | 24.892 | 23.869 | 24.006 | 23.841 |
| | 3 | 2 | 24.784 | 24.904 | 24.913 | 23.968 | 24.025 | 23.873 |
| | 3 | 3 | 24.748 | 24.872 | 24.864 | 23.938 | 24.007 | 23.849 |
| | 6 | 0 | 23.697 | 23.822 | 23.871 | 22.791 | 22.89 | 22.88 |

| EIRP (dBm) | | | | | | | | |
|---------------|---------|-----------|-----------------|------------|------------|------------------|------------|------------|
| LTE Band/BW | RB Size | RB Offset | QPSK Modulation | | | 16QAM Modulation | | |
| | | | Low CH | Mid CH | High CH | Low CH | Mid CH | High CH |
| | | | 19965 | 20175 | 20385 | 19965 | 20175 | 20385 |
| | | | 1711.5 MHz | 1732.5 MHz | 1753.5 MHz | 1711.5 MHz | 1732.5 MHz | 1753.5 MHz |
| Band 4 / 3MHz | 1 | 0 | 24.959 | 24.943 | 24.924 | 23.961 | 23.891 | 24.325 |
| | 1 | 7 | 24.868 | 24.78 | 24.954 | 23.962 | 23.748 | 24.421 |
| | 1 | 14 | 24.84 | 24.807 | 24.891 | 23.868 | 23.76 | 24.24 |
| | 8 | 0 | 23.86 | 23.803 | 23.993 | 22.812 | 22.781 | 23.082 |
| | 8 | 4 | 23.847 | 23.793 | 23.987 | 22.772 | 22.793 | 23.077 |
| | 8 | 7 | 23.872 | 23.774 | 23.966 | 22.811 | 22.734 | 23.043 |
| | 15 | 0 | 23.795 | 23.759 | 23.97 | 22.757 | 22.767 | 23.007 |

| EIRP (dBm) | | | | | | | | |
|---------------|---------|-----------|-----------------|-----------|-----------|------------------|-----------|-----------|
| LTE Band/BW | RB Size | RB Offset | QPSK Modulation | | | 16QAM Modulation | | |
| | | | Low CH | Mid CH | High CH | Low CH | Mid CH | High CH |
| | | | 19975 | 20175 | 20375 | 19975 | 20175 | 20375 |
| | | | 1712.5MHz | 1732.5MHz | 1752.5MHz | 1712.5MHz | 1732.5MHz | 1752.5MHz |
| Band 4 / 5MHz | 1 | 0 | 25.035 | 25.021 | 24.954 | 24.022 | 24.169 | 24.1 |
| | 1 | 13 | 24.912 | 24.89 | 24.862 | 23.892 | 24.002 | 24.005 |
| | 1 | 25 | 24.793 | 24.826 | 24.829 | 23.803 | 23.9 | 23.985 |
| | 12 | 0 | 23.94 | 23.951 | 23.808 | 22.899 | 22.845 | 22.787 |
| | 12 | 6 | 23.916 | 23.891 | 23.78 | 22.883 | 22.787 | 22.758 |
| | 12 | 13 | 23.908 | 23.855 | 23.764 | 22.919 | 22.756 | 22.727 |
| | 25 | 0 | 23.94 | 23.904 | 23.816 | 22.871 | 22.879 | 22.789 |

| EIRP (dBm) | | | | | | | | |
|----------------|---------|-----------|-----------------|-----------|---------|------------------|-----------|---------|
| LTE Band/BW | RB Size | RB Offset | QPSK Modulation | | | 16QAM Modulation | | |
| | | | Low CH | Mid CH | High CH | Low CH | Mid CH | High CH |
| | | | 20000 | 20175 | 20350 | 20000 | 20175 | 20350 |
| | | | 1715MHz | 1732.5MHz | 1750MHz | 1715MHz | 1732.5MHz | 1750MHz |
| Band 4 / 10MHz | 1 | 0 | 25.22 | 25.306 | 25.111 | 24.285 | 24.165 | 24.452 |
| | 1 | 25 | 24.853 | 24.93 | 24.817 | 23.982 | 23.852 | 24.158 |
| | 1 | 49 | 25.199 | 25.379 | 25.286 | 24.393 | 24.368 | 24.63 |
| | 25 | 0 | 23.819 | 23.914 | 23.899 | 22.945 | 22.986 | 22.917 |
| | 25 | 13 | 23.882 | 23.866 | 23.896 | 22.977 | 22.941 | 22.87 |
| | 25 | 25 | 24.029 | 23.94 | 23.982 | 23.054 | 22.984 | 22.981 |
| | 50 | 0 | 23.984 | 23.962 | 23.937 | 22.949 | 22.918 | 22.895 |

| EIRP (dBm) | | | | | | | | |
|----------------|---------|-----------|-----------------|-----------|-----------|------------------|-----------|-----------|
| LTE Band/BW | RB Size | RB Offset | QPSK Modulation | | | 16QAM Modulation | | |
| | | | Low CH | Mid CH | High CH | Low CH | Mid CH | High CH |
| | | | 20025 | 20175 | 20325 | 20025 | 20175 | 20325 |
| | | | 1717.5MHz | 1732.5MHz | 1747.5MHz | 1717.5MHz | 1732.5MHz | 1747.5MHz |
| Band 4 / 15MHz | 1 | 0 | 25.004 | 25.011 | 24.663 | 24.183 | 23.959 | 23.727 |
| | 1 | 38 | 24.793 | 24.773 | 24.595 | 24.051 | 23.726 | 23.573 |
| | 1 | 74 | 24.696 | 24.705 | 24.535 | 23.948 | 23.726 | 23.484 |
| | 36 | 0 | 23.821 | 23.785 | 23.623 | 22.822 | 22.798 | 22.622 |
| | 36 | 19 | 23.81 | 23.73 | 23.615 | 22.812 | 22.758 | 22.606 |
| | 36 | 39 | 23.697 | 23.73 | 23.552 | 22.701 | 22.761 | 22.533 |
| | 75 | 0 | 23.797 | 23.709 | 23.587 | 22.808 | 22.689 | 22.581 |

| EIRP (dBm) | | | | | | | | |
|----------------|---------|-----------|-----------------|-----------|---------|------------------|-----------|---------|
| LTE Band/BW | RB Size | RB Offset | QPSK Modulation | | | 16QAM Modulation | | |
| | | | Low CH | Mid CH | High CH | Low CH | Mid CH | High CH |
| | | | 20050 | 20175 | 20300 | 20050 | 20175 | 20300 |
| | | | 1720MHz | 1732.5MHz | 1745MHz | 1720MHz | 1732.5MHz | 1745MHz |
| Band 4 / 20MHz | 1 | 0 | 24.774 | 24.681 | 24.477 | 23.755 | 24.279 | 23.979 |
| | 1 | 49 | 24.754 | 24.653 | 24.503 | 23.688 | 24.213 | 23.921 |
| | 1 | 99 | 24.618 | 24.574 | 24.473 | 23.571 | 24.033 | 23.894 |
| | 50 | 0 | 23.858 | 23.743 | 23.632 | 22.827 | 22.681 | 22.625 |
| | 50 | 25 | 23.764 | 23.669 | 23.604 | 22.731 | 22.649 | 22.586 |
| | 50 | 50 | 23.633 | 23.672 | 23.511 | 22.596 | 22.657 | 22.503 |
| | 100 | 0 | 23.701 | 23.67 | 23.574 | 22.721 | 22.672 | 22.6 |

The maximum ERP/EIRP from the measured RF output power is given in Equation as follows:

$$\mathbf{EIRP = P_{Meas} + G_T}$$

$$\mathbf{ERP = EIRP - 2.15}$$

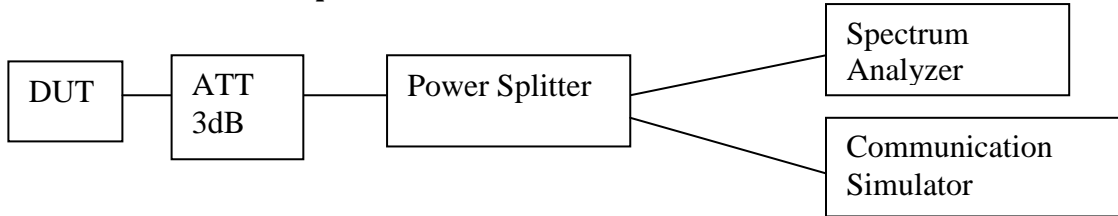
Where, ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively
(Expressed in the same units as P_{Meas}, e.g., dBm)

P_{Meas} measured transmitter output power, in dBm

G_T gain of the transmitting antenna, in dBi (EIRP)

1.1. Peak-to-Average Power Ratio

1.1.1. Test Setup



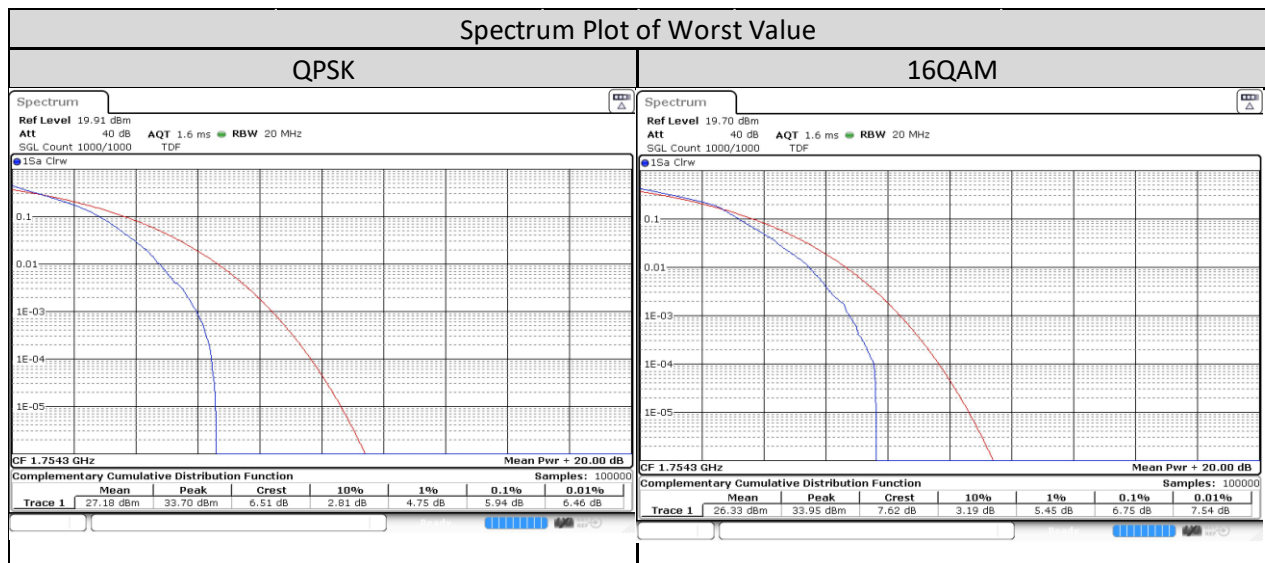
1. The DUT transmitter output port was connected to communication simulator with above setup.
2. Path loss for the measurement included.
3. Set DUT to transmit maximum power through communication simulator
4. Set the CCDF (Complementary Cumulative Distribution Function) option in the spectrum analyzer.
5. Spectrum Analyzer setting, RBW = 20MHz.
6. Recorded the maximum PAR level associated with a probability of 0.1% as Peak to Average Ratio.
7. All the measurement was done at low, mid, high channel for each band and different modulation.

1.1.2. Test Limit

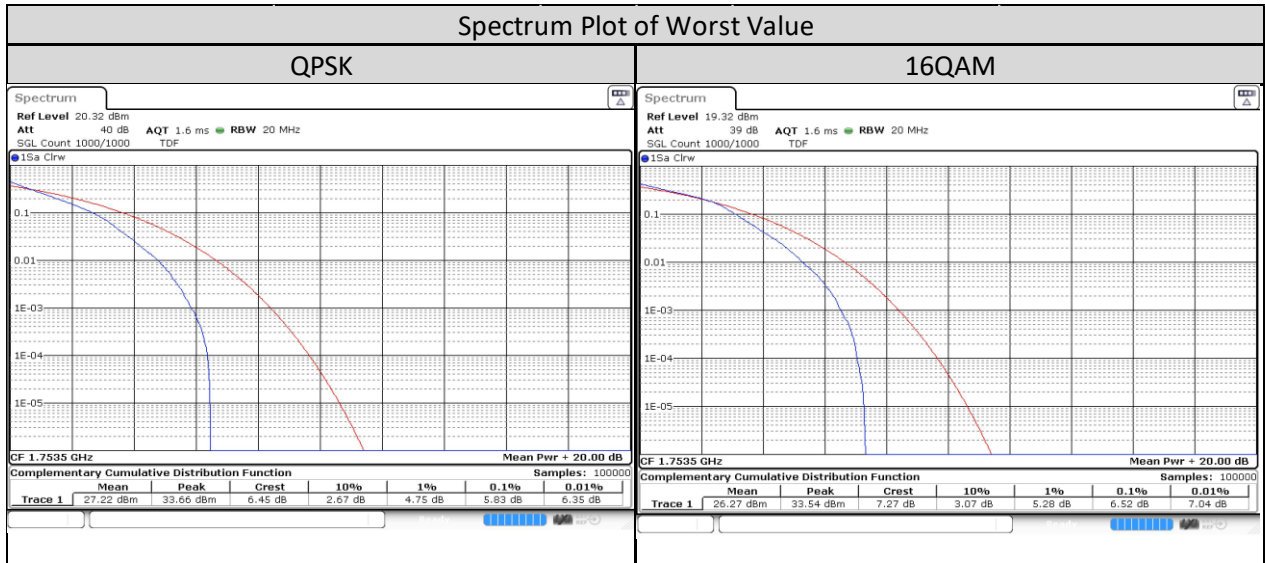
In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

1.1.3. Peak-to-Average Power Ratio - LTE Band 4 (1710-1755MHz)

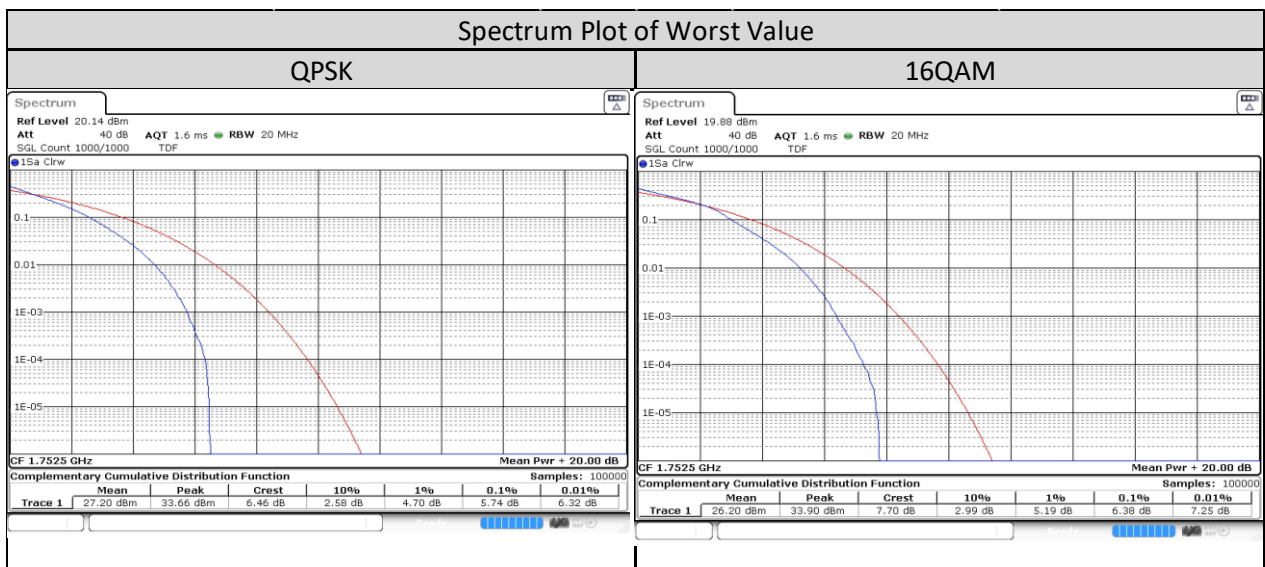
| LTE Band/BW/RB Size/RB Offset | Channel Number | Tx Frequency | Peak To Average (dB) | |
|-------------------------------|----------------|--------------|----------------------|------------------|
| | | | QPSK Modulation | 16QAM Modulation |
| Band 4/1.4MHz/6/0 | Low CH 19957 | 1710.7 MHz | 5.304 | 6.377 |
| | Mid CH 20175 | 1732.5 MHz | 5.507 | 6.058 |
| | High CH 20393 | 1754.3 MHz | 5.942 | 6.754 |



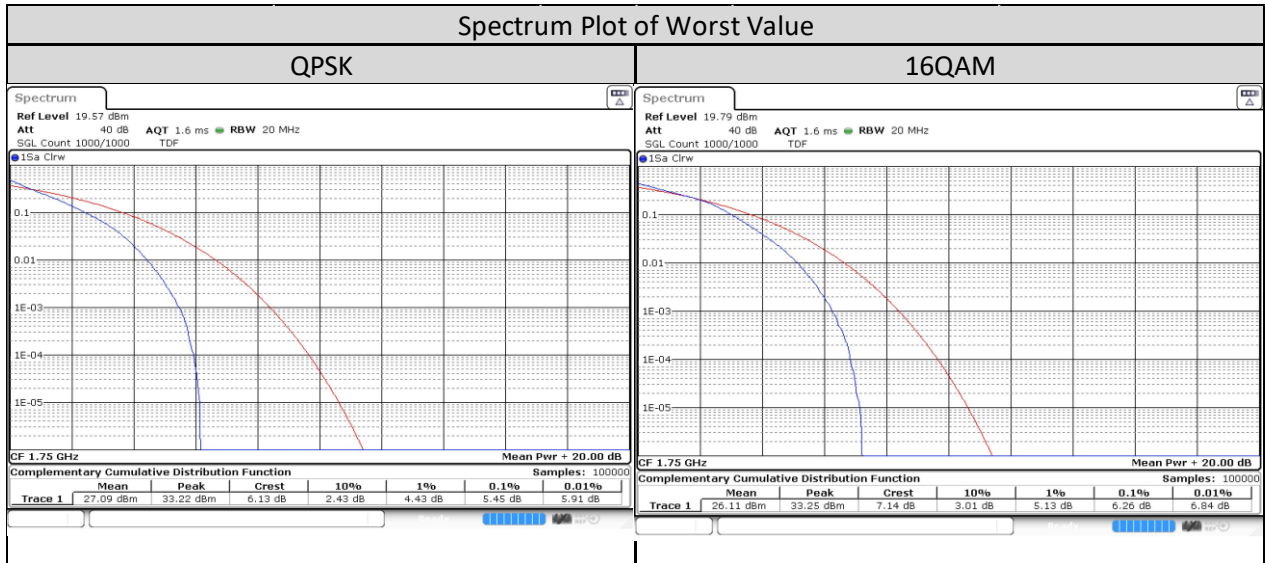
| LTE Band/BW/RB Size/RB Offset | Channel Number | Tx Frequency | Peak To Average (dB) | |
|-------------------------------|----------------|--------------|----------------------|------------------|
| | | | QPSK Modulation | 16QAM Modulation |
| Band 4/3MHz/15/0 | Low CH 19965 | 1711.5 MHz | 5.217 | 6.087 |
| | Mid CH 20175 | 1732.5 MHz | 5.536 | 6.29 |
| | High CH 20385 | 1753.5 MHz | 5.826 | 6.522 |



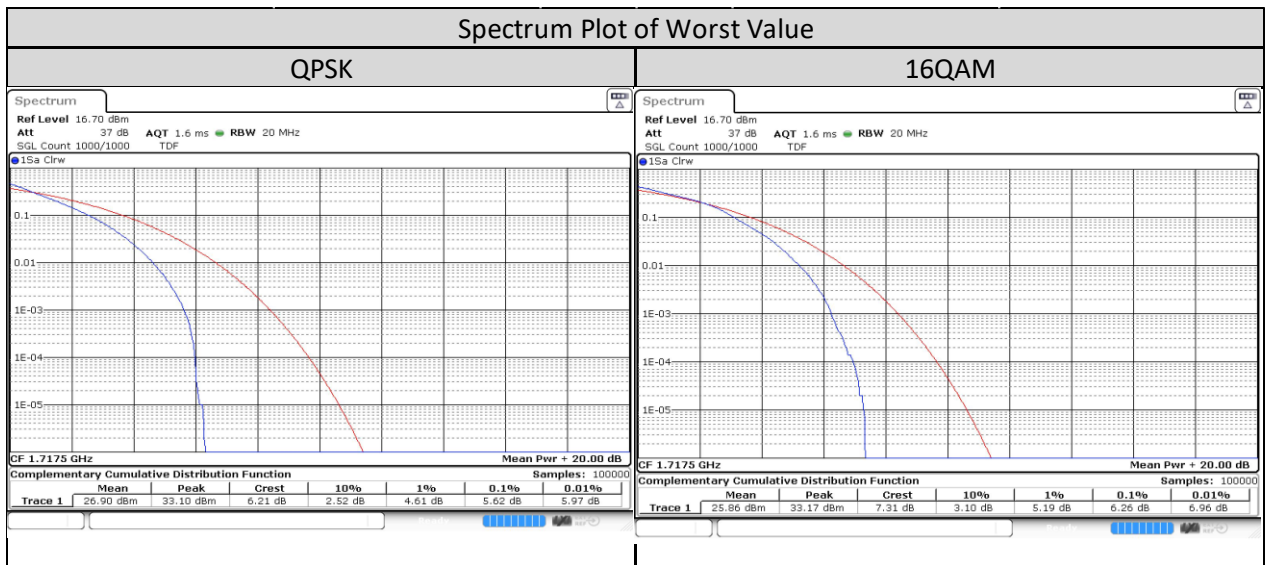
| LTE Band/BW/RB Size/RB Offset | Channel Number | Tx Frequency | Peak To Average (dB) | |
|-------------------------------|----------------|--------------|----------------------|------------------|
| | | | QPSK Modulation | 16QAM Modulation |
| Band 4/5MHz/25/0 | Low CH 19975 | 1712.5 MHz | 5.13 | 5.884 |
| | Mid CH 20175 | 1732.5 MHz | 5.333 | 6.203 |
| | High CH 20375 | 1752.5 MHz | 5.739 | 6.377 |



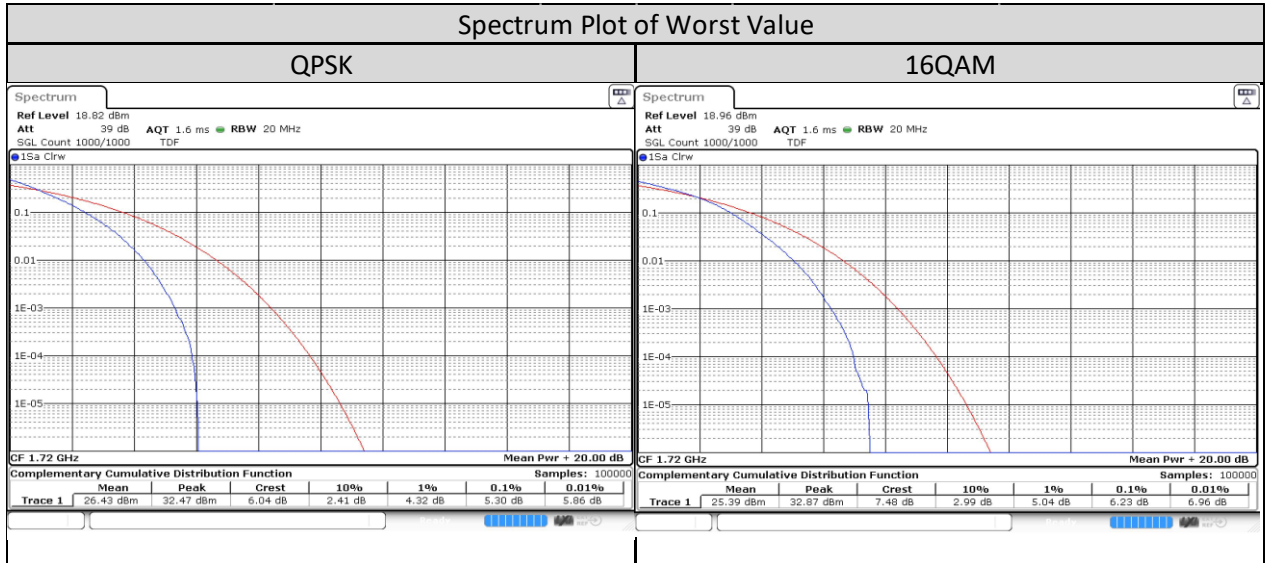
| LTE Band/BW/RB Size/RB Offset | Channel Number | Tx Frequency | Peak To Average (dB) | |
|-------------------------------|----------------|--------------|----------------------|------------------|
| | | | QPSK Modulation | 16QAM Modulation |
| Band 4/10MHz/50/0 | Low CH 20000 | 1715 MHz | 5.043 | 5.913 |
| | Mid CH 20175 | 1732.5 MHz | 5.275 | 6.145 |
| | High CH 20350 | 1750 MHz | 5.449 | 6.261 |



| LTE Band/BW/RB Size/RB Offset | Channel Number | Tx Frequency | Peak To Average (dB) | |
|-------------------------------|----------------|--------------|----------------------|------------------|
| | | | QPSK Modulation | 16QAM Modulation |
| Band 4/15MHz/75/0 | Low CH 20025 | 1717.5 MHz | 5.623 | 6.261 |
| | Mid CH 20175 | 1732.5 MHz | 5.565 | 6.174 |
| | High CH 20325 | 1747.5 MHz | 5.536 | 6.203 |

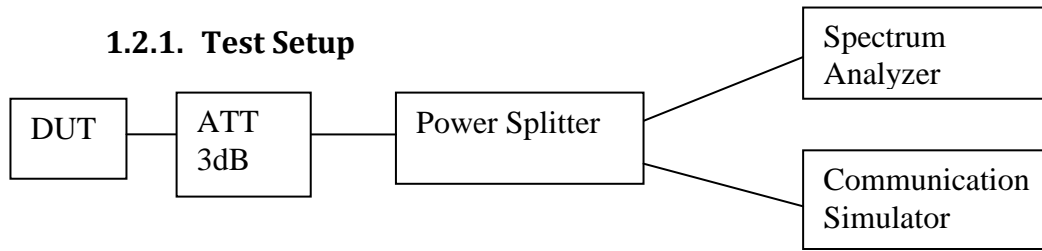


| LTE Band/BW/RB Size/RB Offset | Channel Number | Tx Frequency | Peak To Average (dB) | |
|--------------------------------|----------------|--------------|----------------------|------------------|
| | | | QPSK Modulation | 16QAM Modulation |
| Band 4/ 20MHz/100/0 | Low CH 20050 | 1720 MHz | 5.304 | 6.232 |
| | Mid CH 20175 | 1732.5 MHz | 5.188 | 6.145 |
| | High CH 20300 | 1745 MHz | 5.188 | 6.174 |



1.2. Occupied Bandwidth

1.2.1. Test Setup



- 1) The DUT transmitter output port was connected to communication simulator with above setup.
- 2) Path loss for the measurement included.
- 3) For LTE measurement, set DUT to transmit maximum power & full RB size through communication simulator.
- 4) For LTE measurement, set DUT to transmit maximum power through communication simulator.
- 5) Spectrum Analyzer setting, RBW is 1% of OBW and VBW is 3 times of RBW.
- 6) Measure & record -26dBc and 99% occupied bandwidth (BW).
- 7) All the measurement was done at low, mid, high channel for each band and different modulation.

1.2.2. Test Limit

The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

1.2.3. Occupied Bandwidth - LTE Band 4 (1710-1755MHz)

| LTE Band/BW/RB Size/RB Offset | Channel Number | Tx Frequency | -26 dBc Bandwidth (MHz) | |
|-------------------------------|----------------|--------------|-------------------------|------------------|
| | | | QPSK Modulation | 16QAM Modulation |
| Band 4/1.4MHz/6/0 | Low CH 19957 | 1710.7 MHz | 1.217 | 1.189 |
| | Mid CH 20175 | 1732.5 MHz | 1.206 | 1.208 |
| | High CH 20393 | 1754.3 MHz | 1.186 | 1.194 |

