



# RF TEST REPORT

**Report No.:** SET2022-1425

**Product Name:** CPE

**Model No.:** RT2

**FCC ID:** 2AZYA-RT2

**Applicant:** Senwa Global International, S.A. de C.V.

**Address:** Carretera Mexico-Toluca No. 5324 PB, Colonia El Yaqui Del.  
Cuajimalpa de Morelos, C.P. 05320 Ciudad de Mexico, Mexico

**Dates of Testing:** 10/11/2022 - 10/31/2022

**Issued by:** CCIC Southern Testing Co., Ltd.

**Lab Location:** Electronic Testing Building, No. 43 Shahe Road, Xili Street,  
Nanshan District, Shenzhen, Guangdong, China.

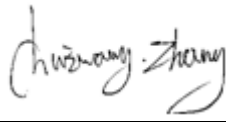
**Tel:** 86 755 26627338      **Fax:** 86 755 26627238

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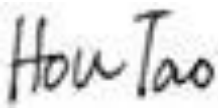


## Test Report

**Product** .....: CPE  
**Trade Name** .....: SENWA  
**Applicant**.....: Senwa Global International, S.A. de C.V.  
**Applicant Address** .....: Carretera Mexico-Toluca No. 5324 PB, Colonia El Yaqui  
Del. Cuajimalpa de Morelos, C.P. 05320 Ciudad de  
Mexico, Mexico  
**Manufacturer** .....: Senwa Global International, S.A. de C.V.  
**Manufacturer Address** .....: Carretera Mexico-Toluca No. 5324 PB, Colonia El Yaqui  
Del. Cuajimalpa de Morelos, C.P. 05320 Ciudad de  
Mexico, Mexico  
**Test Standards** .....: 47 CFR Part 2/22/27  
**Test Result**.....: Pass

**Tested by** .....:  2022.10.31  
Chuiwang Zhang, Test Engineer

**Reviewed by** .....:  2022.10.31  
Chris You, Senior Engineer

**Approved by** .....:  2022.10.31  
Tao Hou, Manager

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| Change History |            |                   |
|----------------|------------|-------------------|
| Issue          | Date       | Reason for change |
| 1.0            | 2022.10.31 | First edition     |
|                |            |                   |

## 1. GENERAL INFORMATION

### 1.1. EUT Description

|                                 |                                                                                                                                                                               |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product Name                    | CPE                                                                                                                                                                           |
| Model No.                       | RT2                                                                                                                                                                           |
| Hardware Version                | RT2_TELCEL_Ver 1.0                                                                                                                                                            |
| Software Version                | RT2_TELCEL_Ver 1.0                                                                                                                                                            |
| EUT supports Radios application | LTE Band 4/5/7/66                                                                                                                                                             |
| Frequency Range(Tx)             | LTE Band 4: 1710MHz~1755MHz<br>LTE Band 5: 824MHz~849MHz<br>LTE Band 7: 2500MHz~2570MHz<br>LTE Band 66: 1710MHz~1780MHz                                                       |
| Channel Bandwidth               | LTE Band 4: 1.4MHz/3MHz/5MHz/10MHz/15MHz/20MHz<br>LTE Band 5: 1.4MHz/3MHz/5MHz/10MHz<br>LTE Band 7: 5MHz/10MHz/15MHz/20MHz<br>LTE Band 66: 1.4MHz/3MHz/5MHz/10MHz/15MHz/20MHz |
| Modulation Type                 | QPSK/16QAM/64QAM(downlink only)                                                                                                                                               |
| Maximum ERP/EIRP                | LTE Band 4: 26.59dBm<br>LTE Band 5: 22.90dBm<br>LTE Band 7: 25.98dBm<br>LTE Band 66: 26.59dBm                                                                                 |
| Antenna Type                    | External Antenna                                                                                                                                                              |
| Antenna gain                    | LTE Band 4: 3.52 dBi<br>LTE Band 5: 1.53 dBi<br>LTE Band 7: 3.61 dBi,<br>LTE Band 66: 3.55 dBi                                                                                |
| Power supply                    | DC 12V from Adapter                                                                                                                                                           |

## 1.2. Maximum ERP/EIRP, Frequency Tolerance and Emission Designator

| Band        | Type of Modulation | BW (MHz) | Emission Designator | Frequency Tolerance (ppm) | Maximum EIRP(W) |
|-------------|--------------------|----------|---------------------|---------------------------|-----------------|
| LTE Band 4  | QPSK               | 1.4      | 1M85G7D             | —                         | 0.428           |
| LTE Band 4  | 16QAM              | 1.4      | 1M85W7D             | —                         | 0.379           |
| LTE Band 4  | QPSK               | 3        | 2M72G7D             | —                         | 0.432           |
| LTE Band 4  | 16QAM              | 3        | 2M72W7D             | —                         | 0.379           |
| LTE Band 4  | QPSK               | 5        | 4M49G7D             | —                         | 0.453           |
| LTE Band 4  | 16QAM              | 5        | 4M49W7D             | —                         | 0.365           |
| LTE Band 4  | QPSK               | 10       | 8M91G7D             | 0.003                     | 0.442           |
| LTE Band 4  | 16QAM              | 10       | 8M91W7D             | —                         | 0.450           |
| LTE Band 4  | QPSK               | 15       | 13M4G7D             | —                         | 0.447           |
| LTE Band 4  | 16QAM              | 15       | 13M5W7D             | —                         | 0.439           |
| LTE Band 4  | QPSK               | 20       | 17M8G7D             | —                         | 0.456           |
| LTE Band 4  | 16QAM              | 20       | 17M8W7D             | —                         | 0.447           |
| LTE Band 7  | QPSK               | 5        | 4M54G7D             | —                         | 0.377           |
| LTE Band 7  | 16QAM              | 5        | 4M57W7D             | —                         | 0.262           |
| LTE Band 7  | QPSK               | 10       | 9M00G7D             | 0.005                     | 0.396           |
| LTE Band 7  | 16QAM              | 10       | 9M02W7D             | —                         | 0.321           |
| LTE Band 7  | QPSK               | 15       | 13M6G7D             | —                         | 0.378           |
| LTE Band 7  | 16QAM              | 15       | 13M7W7D             | —                         | 0.309           |
| LTE Band 7  | QPSK               | 20       | 18M0G7D             | —                         | 0.393           |
| LTE Band 7  | 16QAM              | 20       | 18M1W7D             | —                         | 0.312           |
| LTE Band 66 | QPSK               | 1.4      | 1M09G7D             | —                         | 0.437           |
| LTE Band 66 | 16QAM              | 1.4      | 1M09W7D             | —                         | 0.389           |
| LTE Band 66 | QPSK               | 3        | 2M72G7D             | —                         | 0.428           |
| LTE Band 66 | 16QAM              | 3        | 2M72W7D             | —                         | 0.367           |
| LTE Band 66 | QPSK               | 5        | 4M49G7D             | —                         | 0.419           |
| LTE Band 66 | 16QAM              | 5        | 4M49W7D             | —                         | 0.378           |
| LTE Band 66 | QPSK               | 10       | 8M91G7D             | 0.005                     | 0.437           |
| LTE Band 66 | 16QAM              | 10       | 8M90W7D             | —                         | 0.406           |
| LTE Band 66 | QPSK               | 15       | 13M4G7D             | —                         | 0.430           |

|             |       |    |         |   |       |
|-------------|-------|----|---------|---|-------|
| LTE Band 66 | 16QAM | 15 | 13M4W7D | — | 0.390 |
| LTE Band 66 | QPSK  | 20 | 17M8G7D | — | 0.456 |
| LTE Band 66 | 16QAM | 20 | 17M8W7D | — | 0.381 |

| Band       | Type of Modulation | BW (MHz) | Emission Designator | Frequency Tolerance (ppm) | Maximum ERP(W) |
|------------|--------------------|----------|---------------------|---------------------------|----------------|
| LTE Band 5 | QPSK               | 1.4      | 1M09G7D             | —                         | 0.188          |
| LTE Band 5 | 16QAM              | 1.4      | 1M09W7D             | —                         | 0.173          |
| LTE Band 5 | QPSK               | 3        | 2M72G7D             | —                         | 0.180          |
| LTE Band 5 | 16QAM              | 3        | 2M72W7D             | —                         | 0.161          |
| LTE Band 5 | QPSK               | 5        | 4M49G7D             | —                         | 0.179          |
| LTE Band 5 | 16QAM              | 5        | 4M49W7D             | —                         | 0.145          |
| LTE Band 5 | QPSK               | 10       | 8M93G7D             | 0.008                     | 0.195          |
| LTE Band 5 | 16QAM              | 10       | 8M92W7D             | —                         | 0.185          |

### 1.3. Test Standards and Results

The purpose of the report is to conduct testing according to the following FCC certification standards:

| No. | Identity                                                 | Document Title                                                                                                                             |
|-----|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | 47 CFR Part 2                                            | Frequency Allocations and Radio Treaty Matters; General Rules and Regulations                                                              |
| 2   | 47 CFR Part 22                                           | Public Mobile Services                                                                                                                     |
| 3   | 47 CFR Part 27                                           | Miscellaneous Wireless Communications Services                                                                                             |
| 4   | KDB 971168 D01 Power Meas License Digital Systems v03r01 | Measurement Guidance For Certification of Licensed Digital Transmitters                                                                    |
| 5   | KDB 412172 D01 Determining ERP and EIRP v01r01           | Guidelines for Determining the Effective Radiated Power (ERP) and Equivalent Isotropic Radiated Power (EIRP) of an RF Transmitting Systems |
| 6   | ANSI/TIA-603-E-2016                                      | Land Mobile FM or PM Communications Equipment Measurement and Performance Standards                                                        |
| 7   | ANSI C63.26-2015                                         | American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services                                          |

Test detailed items/section required by FCC rules and results are as below:

| No. | FCC Rule                   | Description                                                          | Limit                               | Result |
|-----|----------------------------|----------------------------------------------------------------------|-------------------------------------|--------|
| 1   | 2.1046                     | Conducted Output Power                                               | Reporting Only                      | PASS   |
| 2   | 24.232 (d)<br>27.50 (d)(5) | Peak to Average Ratio                                                | < 13dB                              | PASS   |
| 3   | 22.913 (a)(5)              | Effective Radiated Power<br>(Band 5)                                 | ERP < 7W                            | PASS   |
|     | 27.50 (d)(4)               | Equivalent Isotropic Radiated Power<br>(Band 4/66)                   | EIRP < 1W                           | PASS   |
|     | 27.50 (h)(2)               | Equivalent Isotropic Radiated Power<br>(Band 7)                      | EIRP < 2W                           | PASS   |
| 4   | 2.1049                     | Occupied Bandwidth                                                   | Reporting Only                      | PASS   |
| 5   | 2.1051<br>22.917 (a)       | Conducted Spurious Emission and<br>Conducted Band Edge (Band 4/5/66) | < 43+10log <sub>10</sub> (P[watt])  | PASS   |
|     | 27.53 (h)<br>27.53 (m)(4)  | Conducted Spurious Emission and<br>Conducted Band Edge (Band 7)      | Refer to 27.53(m)(4)                | PASS   |
| 6   | 2.1053<br>22.917 (a)       | Radiated Spurious Emission<br>(Band 4/5/66)                          | < 43+10log <sub>10</sub> (P[Watts]) | PASS   |
|     | 27.53 (h)<br>27.53 (m)(4)  | Radiated Spurious Emission<br>(Band 7)                               | < 55+10log <sub>10</sub> (P[watt])  | PASS   |
| 7   | 2.1055<br>22.335           | Frequency Stability<br>(Band 5)                                      | < ±2.5ppm                           | PASS   |
|     | 27.54                      | Frequency Stability<br>(Band 4/7/66)                                 | Within the Authorized<br>Band       | PASS   |

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

## 1.4. Test Configuration of Equipment Under Test

Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 Power Meas License Digital Systems v03r01 with maximum output power.

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes to find the maximum emission.

| Test Items                          | Band | Bandwidth(MHz) |   |   |    |    |    | Modulation |       | RB Configuration |      |      | Test Channel |   |   |
|-------------------------------------|------|----------------|---|---|----|----|----|------------|-------|------------------|------|------|--------------|---|---|
|                                     |      | 1.4            | 3 | 5 | 10 | 15 | 20 | QPSK       | 16QAM | 1                | Half | Full | L            | M | H |
| Conducted Output Power and ERP/EIRP | 4    | ✓              | ✓ | ✓ | ✓  | ✓  | ✓  | ✓          | ✓     | ✓                | ✓    | ✓    | ✓            | ✓ | ✓ |
|                                     | 5    | ✓              | ✓ | ✓ | ✓  |    |    | ✓          | ✓     | ✓                | ✓    | ✓    | ✓            | ✓ | ✓ |
|                                     | 7    |                |   | ✓ | ✓  | ✓  | ✓  | ✓          | ✓     | ✓                | ✓    | ✓    | ✓            | ✓ | ✓ |
|                                     | 66   | ✓              | ✓ | ✓ | ✓  | ✓  | ✓  | ✓          | ✓     | ✓                | ✓    | ✓    | ✓            | ✓ | ✓ |
| Peak-to-Average Ratio               | 4    |                |   |   |    |    | ✓  |            | ✓     | ✓                |      | ✓    | ✓            | ✓ | ✓ |
|                                     | 5    |                |   |   | ✓  |    |    |            | ✓     | ✓                |      | ✓    | ✓            | ✓ | ✓ |
|                                     | 7    |                |   |   |    |    | ✓  |            | ✓     | ✓                |      | ✓    | ✓            | ✓ | ✓ |
|                                     | 66   |                |   |   |    |    | ✓  |            | ✓     | ✓                |      | ✓    | ✓            | ✓ | ✓ |
| 99% OBW and 26dB EBW                | 4    | ✓              | ✓ | ✓ | ✓  | ✓  | ✓  | ✓          | ✓     |                  |      | ✓    |              | ✓ |   |
|                                     | 5    | ✓              | ✓ | ✓ | ✓  |    |    | ✓          | ✓     |                  |      | ✓    |              | ✓ |   |
|                                     | 7    |                |   | ✓ | ✓  | ✓  | ✓  | ✓          | ✓     |                  |      | ✓    |              | ✓ |   |
|                                     | 66   | ✓              | ✓ | ✓ | ✓  | ✓  | ✓  | ✓          | ✓     |                  |      | ✓    |              | ✓ |   |
| Conducted Band Edge                 | 4    | ✓              | ✓ | ✓ | ✓  | ✓  | ✓  | ✓          | ✓     | ✓                |      | ✓    | ✓            |   | ✓ |
|                                     | 5    | ✓              | ✓ | ✓ | ✓  |    |    | ✓          | ✓     | ✓                |      | ✓    | ✓            |   | ✓ |
|                                     | 7    |                |   | ✓ | ✓  | ✓  | ✓  | ✓          | ✓     | ✓                |      | ✓    | ✓            |   | ✓ |
|                                     | 66   | ✓              | ✓ | ✓ | ✓  | ✓  | ✓  | ✓          | ✓     | ✓                |      | ✓    | ✓            |   | ✓ |
| Conducted Spurious Emission         | 4    |                |   |   |    |    | ✓  | ✓          |       | ✓                |      |      | ✓            | ✓ | ✓ |
|                                     | 5    |                |   |   | ✓  |    |    | ✓          |       | ✓                |      |      | ✓            | ✓ | ✓ |
|                                     | 7    |                |   |   |    |    | ✓  | ✓          |       | ✓                |      |      | ✓            | ✓ | ✓ |
|                                     | 66   |                |   |   |    |    | ✓  | ✓          |       | ✓                |      |      | ✓            | ✓ | ✓ |
| Frequency Stability                 | 4    |                |   |   | ✓  |    |    | ✓          |       |                  |      | ✓    |              | ✓ |   |
|                                     | 5    |                |   |   | ✓  |    |    | ✓          |       |                  |      | ✓    |              | ✓ |   |
|                                     | 7    |                |   |   | ✓  |    |    | ✓          |       |                  |      | ✓    |              | ✓ |   |
|                                     | 66   |                |   |   | ✓  |    |    | ✓          |       |                  |      | ✓    |              | ✓ |   |
| Radiated Spurious Emission          | 4    | Worst case     |   |   |    |    |    |            |       |                  |      |      |              | ✓ |   |
|                                     | 5    | Worst case     |   |   |    |    |    |            |       |                  |      |      |              | ✓ |   |
|                                     | 7    | Worst case     |   |   |    |    |    |            |       |                  |      |      |              | ✓ |   |
|                                     | 66   | Worst case     |   |   |    |    |    |            |       |                  |      |      |              | ✓ |   |

Note 1: The mark “✓” means that this configuration is chosen for testing.

Note 2: LTE Band 4/41 has two transmit antennas and reports peak-to-average ratio, occupied bandwidth, conducted band edge, conducted spurious emissions, and frequency stability for only the worst antenna data.

## 1.5. Measurement Results Explanation Example

### For all conduction test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + Power Splitter + attenuator factor.

Following shows an offset computation example with cable loss 1dB, 3dB Power Splitter, 10dB attenuator.

Example: Offset (dB) = RF cable loss(dB) + Power Splitter(dB) + attenuator factor(dB).  
$$= 1 + 3 + 10 = 14 \text{ (dB)}$$

## 1.6. Laboratory Facilities

### FCC-Registration No.: 406086

CCIC Southern Testing 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. Designation Number: CN1283, valid time is until April 19th, 2023.

### ISED Registration: 11185A-1

CCIC Southern Testing Co., Ltd. EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 11185A-1 on Aug. 04, 2016, valid time is until Jun. 30th, 2023.

### A2LA Code: 5721.01

CCIC-SET is a third party testing organization accredited by A2LA according to ISO/IEC 17025. The accreditation certificate number is 5721.01.

## 1.7. Test Environment Conditions

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

|                             |              |
|-----------------------------|--------------|
| Temperature ( °C):          | 15°C - 35°C  |
| Relative Humidity (%):      | 30% -60%     |
| Atmospheric Pressure (kPa): | 86KPa-106KPa |

## 2. 47 CFR Part 2 Requirements

### 2.1. Conducted Output Power and ERP/EIRP

#### 2.1.1. Requirement

According to FCC section 2.1046(a), for transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in FCC section 2.1033(c)(8).

The EIRP of mobile transmitters must not exceed 1 Watts for LTE Band 4/66.

The ERP of mobile transmitters must not exceed 7 Watts for LTE Band 5.

The EIRP of mobile transmitters must not exceed 2 Watts for LTE Band 7.

According to KDB 412172 D01 Determining ERP and EIRP v01r01.

$EIRP = P_T + G_T - L_C$ ,  $ERP = EIRP - 2.15$ , where

$P_T$  = transmitter output power in dBm;

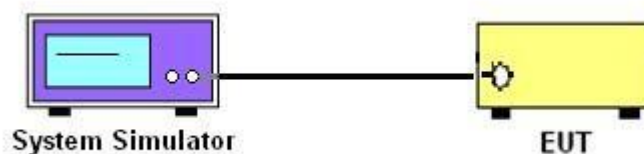
$G_T$  = gain of the transmitting antenna in dBi;

$L_C$  = signal attenuation in the connecting cable between the transmitter and antenna in dB.

#### 2.1.2. Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

#### 2.1.3. Test Setup



#### 2.1.4. Test Procedures

1. The transmitter output port was connected to the system simulator.
2. Set EUT at maximum power through system simulator.
3. Select lowest, middle, and highest channels for each band and different modulation.
4. Measure and record the power level from the system simulator.



#### **2.1.5. Test Results of Conducted Output Power and ERP/EIRP**

Please refer to Appendix A for detail

## 2.2. Peak-to-average power ratio (PAPR)

### 2.2.1. Requirement

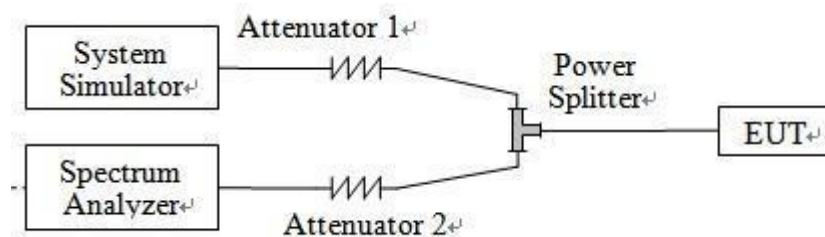
Power Complementary Cumulative Distribution Function (CCDF) curves provide a means for characterizing the power peaks of a digitally modulated signal on a statistical basis. A CCDF curve depicts the probability of the peak signal amplitude exceeding the average power level. Most contemporary measurement instrumentation include the capability to produce CCDF curves for an input signal provided that the instrument's resolution bandwidth can be set wide enough to accommodate the entire input signal bandwidth.

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

### 2.2.2. Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

### 2.2.3. Test Description



### 2.2.4. Test Procedures

1. The testing follows the of KDB 971168 D01 v03r01 Section 5.7.2 and ANSI C63.26-2015 Section 5.2.3.4.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider, Path loss compensation is then performed on the spectrum analyzer and the system simulator respectively.
3. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
4. Set resolution/measurement bandwidth  $\geq$  OBW or specified reference bandwidth.
5. Set the number of counts to a value that stabilizes the measured CCDF curve.
6. Set the EUT working in highest power level, measured and recorded the 0.1% as PAPR level.
7. Repeat step 3~6 at other frequency and modulations.

### **2.2.5. Test Results of Peak-to-average power ratio (PAPR)**

Please refer to Appendix A for detail

## 2.3. 99% Occupied Bandwidth and 26dB Emission Bandwidth

### 2.3.1. Requirement

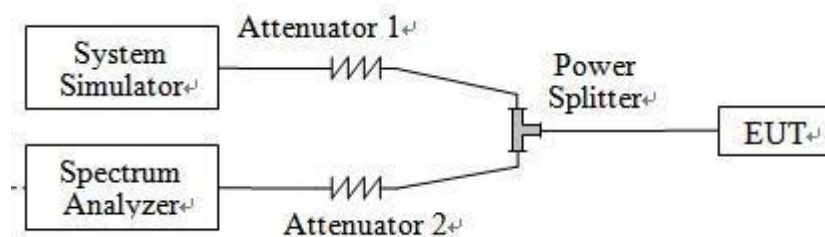
The Occupied Bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission.

The 26 dB emission bandwidth is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated 26 dB below the maximum in-band spectral density of the modulated signal Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth equal to approximately 1.0% of the emission bandwidth.

### 2.3.2. Measuring Instruments

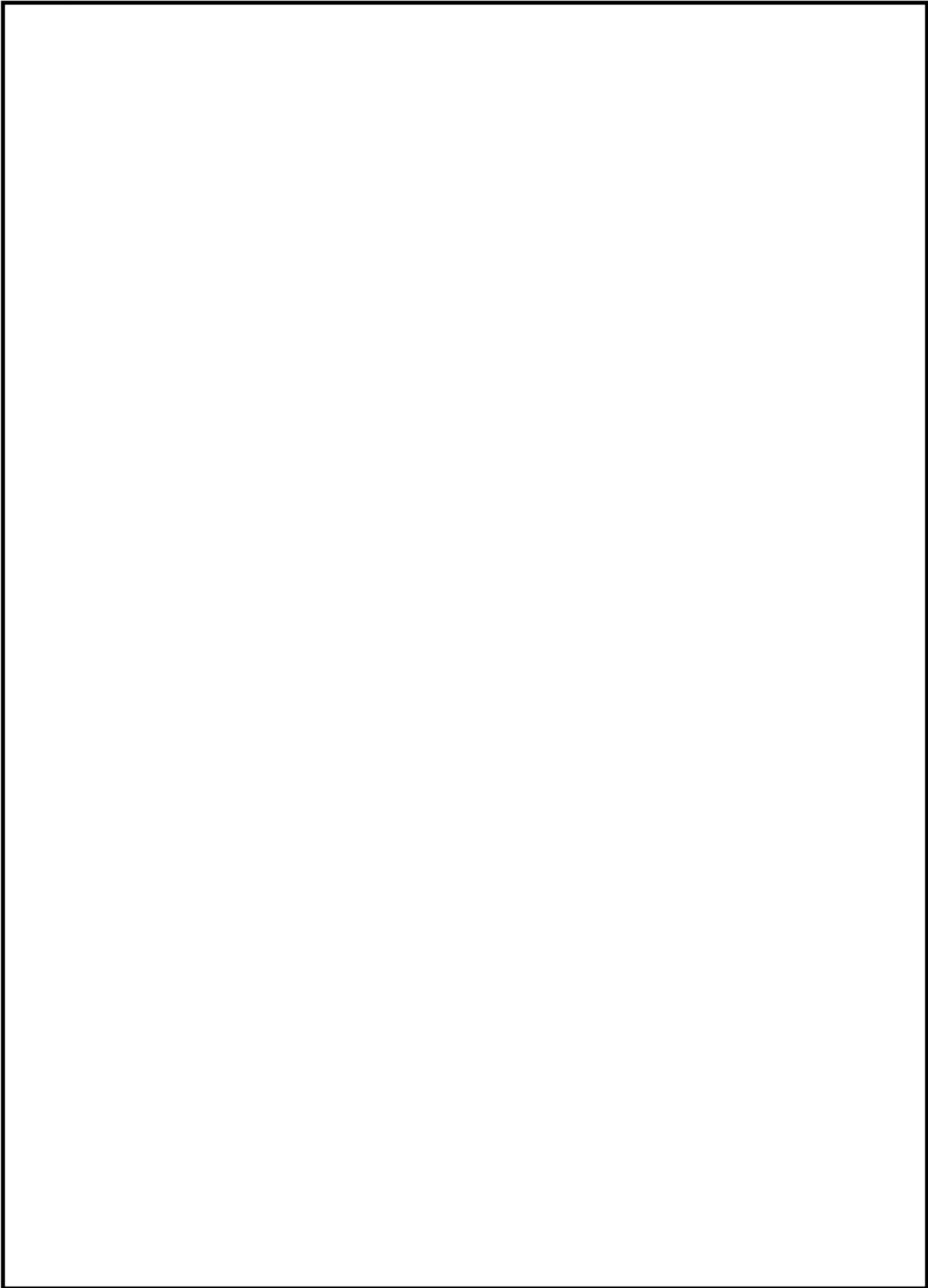
The measuring equipment is listed in the section 3 of this test report.

### 2.3.3. Test Setup



### 2.3.4. Test Procedures

1. The testing follows the of KDB 971168 D01 v03r01 Section 4 and ANSI C63.26-2015 Section 5.4.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider, Path loss compensation is then performed on the spectrum analyzer and the system simulator respectively.
3. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency.
4. Set span to be approximately 1.5 to 5 times the OBW.
5. The nominal RBW shall be in the range of 1% to 5% of the anticipated OBW.
6. Set  $VBW \geq 3 \times RBW$ .
7. Set Detection mode = peak.
8. Set Trace mode = max hold.
9. Allow trace to stabilize.
10. Repeat step 3~9 at other frequency and modulations.



### **2.3.5. Test Result of 99% Occupied Bandwidth and 26dB Emission Bandwidth**

Please refer to Appendix A for detail

## **2.4. Conducted Band Edge**

### **2.4.1. Requirement**

#### **For Band 4/66 [Part 27.53 (h)]:**

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least  $43 + 10 \log (P)$  dB.

#### **For Band 5 [Part 22.917(a)]:**

Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log (P)$  dB.

In the spectrum below 1 GHz, instrumentation should employ a reference bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy, provided that the measured power is integrated over the full required reference bandwidth (i.e., 100 kHz or 1 percent of emission bandwidth, as specified).

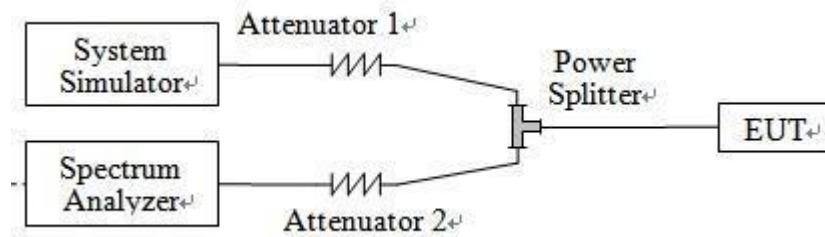
#### **For Band 7 [Part 27.53 (m)(4)]:**

For mobile digital stations, the attenuation factor shall be not less than  $40 + 10 \log (P)$  dB on all frequencies between the channel edge and 5 megahertz from the channel edge,  $43 + 10 \log (P)$  dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and  $55 + 10 \log (P)$  dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than  $43 + 10 \log (P)$  dB on all frequencies between 2490.5 MHz and 2496 MHz and  $55 + 10 \log (P)$  dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

### **2.4.2. Measuring Instruments**

The measuring equipment is listed in the section 3 of this test report.

### 2.4.3. Test Setup



### 2.4.4. Test Procedures

1. The testing follows the of KDB 971168 D01 v03r01 Section 6 and ANSI C63.26-2015 Section 5.7.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider, Path loss compensation is then performed on the spectrum analyzer and the system simulator respectively.
3. Span was set large enough so as to capture all out of band emissions near the Channel Edge.
4. Use  $RBW \geq 1\%$  EBW in the 1 megahertz bands immediately outside and adjacent to the licensee's authorized frequency channel, and use  $RBW = 1$  MHz outside 1 MHz of the authorized frequency channel.
5. Set  $VBW \geq 3 \times RBW$
6. Set Detector = power averaging (rms).
7. Set the number of points in sweep  $\geq 2 \times \text{span} / RBW$ .
8. Set sweep trigger to "free run."
9. Set the Sweep time  $> (\text{number of points in sweep}) \times (\text{transmitter period})$  (i.e., the transmit on-time + the off-time).
10. Perform a trace average of at least 100 traces.
11. Repeat step 3~10 at other frequency and modulations.



#### **2.4.5. Test Result of Conducted Band Edge**

Please refer to Appendix A for detail

## 2.5. Conducted Spurious Emission

### 2.5.1. Requirement

#### For Band 4 & 5 & 66:

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least  $43 + 10 \log (P)$  dB.

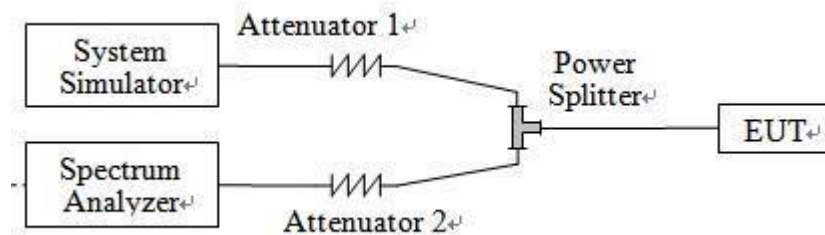
#### For Band 7:

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least  $55 + 10 \log (P)$  dB.

### 2.5.2. Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

### 2.5.3. Test Setup



### 2.5.4. Test Procedures

1. The testing follows the of KDB 971168 D01 v03r01 Section 6 and ANSI C63.26-2015 Section 5.7.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider, Path loss compensation is then performed on the spectrum analyzer and the system simulator respectively.
3. Set the spectrum analyzer start frequency to 9kHz and stop frequency to the tenth harmonic of the highest fundamental frequency.
4. Set  $RBW = 1\text{MHz}$ ,  $VBW \geq 3 \times RBW$
5. Set Detector = peak.
6. Set Trace mode = max hold.
7. Set Sweep time = auto-couple.
8. Identify and measure the highest spurious emission levels in each frequency range.
9. Compare the results with the corresponding limit in the applicable regulation.
10. Repeat step 3~9 at other frequency and modulations.



#### **2.5.5. Test Result of Conducted Spurious Emission**

Please refer to Appendix A for detail

## 2.6. Radiated Spurious Emission

### 2.6.1. Requirement

The radiated spurious emission was measured by substitution method according to ANSI/TIA-603-E-2016.

#### For Band 4 & 5 & 66:

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least  $43 + 10 \log (P)$  dB.

#### For Band 7:

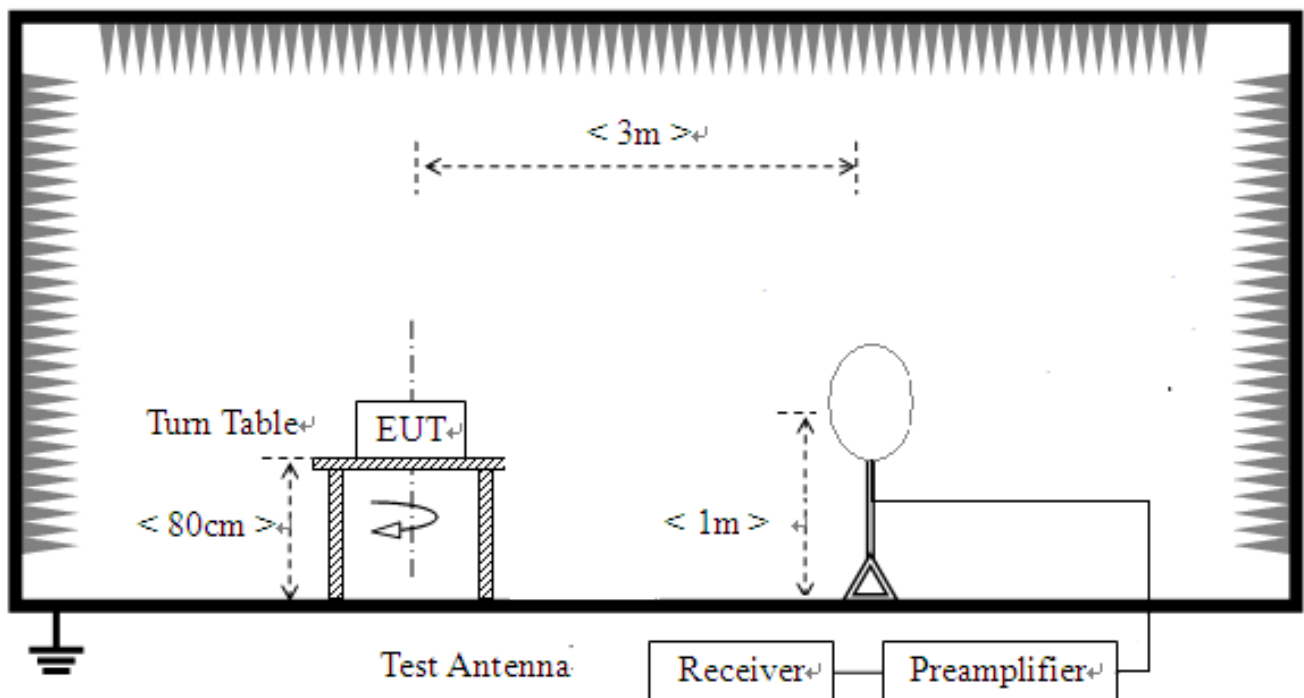
The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least  $55 + 10 \log (P)$  dB.

### 2.6.2. Measuring Instruments

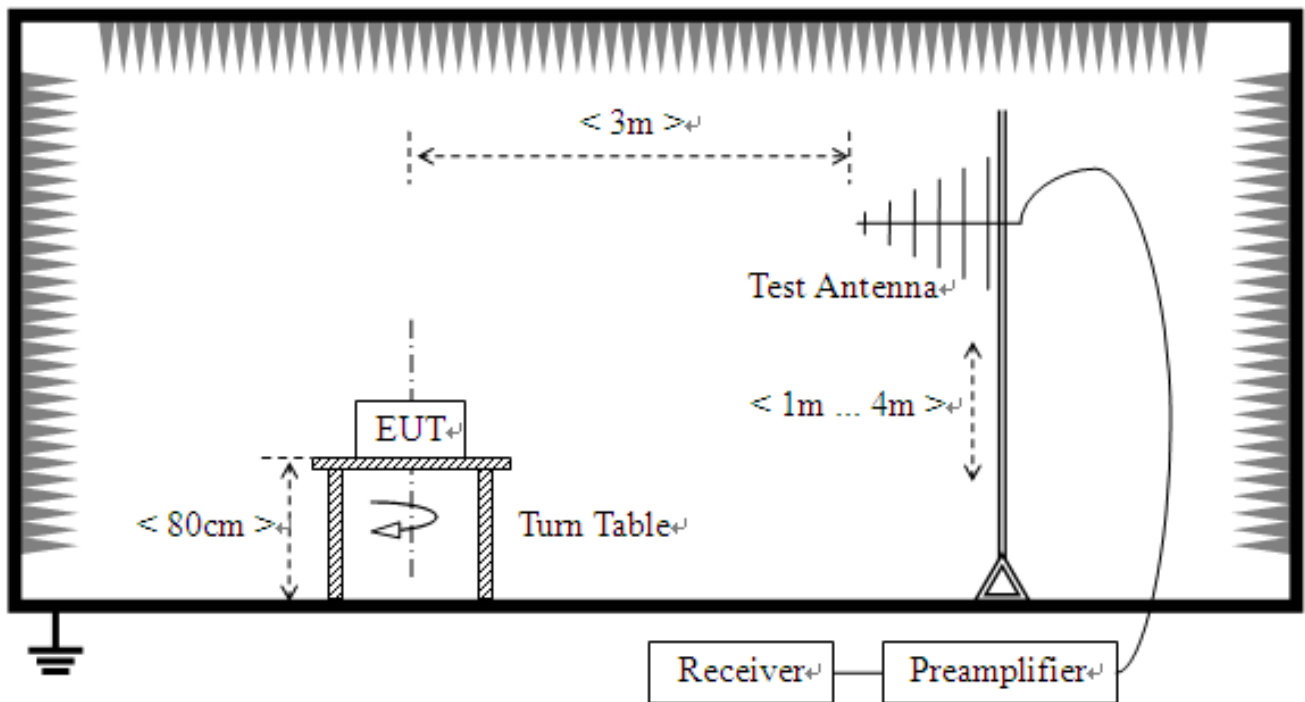
The measuring equipment is listed in the section 3 of this test report.

### 2.6.3. Test Setup

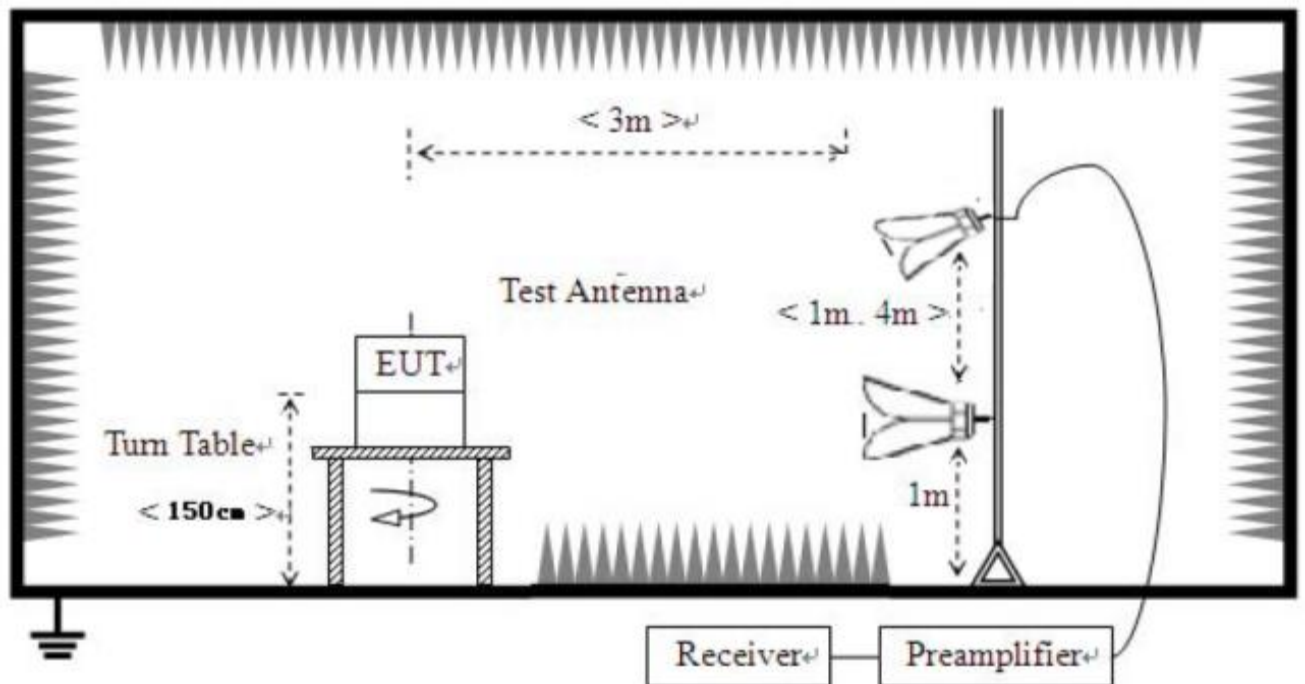
For radiated emissions from 9kHz to 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



#### **2.6.4. Test Procedures**

1. The EUT was placed on a rotatable wooden table with 0.8 meter (for below 1GHz) / 1.5 meters (for above 1GHz) above ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
6. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
8. Taking the record of output power at antenna port.
9. Repeat step 7 to step 8 for another polarization.
10. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
11. All Spurious Emission tests were performed in X, Y, Z axis direction and low, middle, high channel. And only the worst axis test condition was recorded in this test report.
12. The spectrum is measured from 9 kHz to the 10<sup>th</sup> harmonic of the fundamental frequency of the transmitter using CISPR quasi peak detector below 1GHz. The worst case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
13. The maximum RB configurations of the Radiated Spurious Emissions as RB Size full, RB Offset 0.

#### **2.6.5. Test Result of Radiated Spurious Emission**

Note: 1. The emission levels of above 18GHz are lower than the limit 20dB and not show in test report.

Note: 2. Absolute Level = Reading Level + Factor

| LTE Band 4 QPSK 20MHz BW Middle Channel |                |                  |                |                |                |                |            |
|-----------------------------------------|----------------|------------------|----------------|----------------|----------------|----------------|------------|
| NO.                                     | Freq.<br>[MHz] | Reading<br>[dBm] | Level<br>[dBm] | Limit<br>[dBm] | Margin<br>[dB] | Factor<br>[dB] | Polarity   |
| 1                                       | 68.8           | -87.23           | -67.87         | -13.00         | 54.87          | 19.36          | Horizontal |
| 2                                       | 104.205        | -87.04           | -67.69         | -13.00         | 54.69          | 19.35          | Horizontal |
| 3                                       | 365.62         | -84.46           | -56.04         | -13.00         | 43.04          | 28.42          | Horizontal |
| 4                                       | 1189.3         | -53.52           | -55.77         | -13.00         | 42.77          | -2.25          | Horizontal |
| 5                                       | 3050.4         | -52.82           | -45.55         | -13.00         | 32.55          | 7.27           | Horizontal |
| 6                                       | 5048.2         | -54.32           | -39.93         | -13.00         | 26.93          | 14.39          | Horizontal |
|                                         |                |                  |                |                |                |                |            |
| NO.                                     | Freq.<br>[MHz] | Reading<br>[dBm] | Level<br>[dBm] | Limit<br>[dBm] | Margin<br>[dB] | Factor<br>[dB] | Polarity   |
| 1                                       | 69.285         | -87.58           | -66.45         | -13.00         | 53.45          | 21.13          | Vertical   |
| 2                                       | 104.205        | -87.80           | -63.75         | -13.00         | 50.75          | 24.05          | Vertical   |
| 3                                       | 365.62         | -84.54           | -57.60         | -13.00         | 44.60          | 26.94          | Vertical   |
| 4                                       | 3068.4         | -52.51           | -45.27         | -13.00         | 32.27          | 7.24           | Vertical   |
| 5                                       | 5121           | -54.12           | -39.56         | -13.00         | 26.56          | 14.56          | Vertical   |
| 6                                       | 7752.1         | -53.39           | -34.84         | -13.00         | 21.84          | 18.55          | Vertical   |

| LTE Band 5 QPSK 10MHz BW Middle Channel |                |                  |                |                |                |                |            |
|-----------------------------------------|----------------|------------------|----------------|----------------|----------------|----------------|------------|
| NO.                                     | Freq.<br>[MHz] | Reading<br>[dBm] | Level<br>[dBm] | Limit<br>[dBm] | Margin<br>[dB] | Factor<br>[dB] | Polarity   |
| 1                                       | 42.125         | -94.21           | -73.13         | -13.00         | 60.13          | 21.08          | Horizontal |
| 2                                       | 69.285         | -86.28           | -66.92         | -13.00         | 53.92          | 19.36          | Horizontal |
| 3                                       | 104.205        | -86.94           | -67.59         | -13.00         | 54.59          | 19.35          | Horizontal |
| 4                                       | 365.62         | -83.69           | -55.27         | -13.00         | 42.27          | 28.42          | Horizontal |
| 5                                       | 949.075        | -83.69           | -46.25         | -13.00         | 33.25          | 37.44          | Horizontal |
| 6                                       | 1874.1         | -42.27           | -41.72         | -13.00         | 28.72          | 0.55           | Horizontal |
|                                         |                |                  |                |                |                |                |            |
| NO.                                     | Freq.<br>[MHz] | Reading<br>[dBm] | Level<br>[dBm] | Limit<br>[dBm] | Margin<br>[dB] | Factor<br>[dB] | Polarity   |
| 1                                       | 68.315         | -84.77           | -63.75         | -13.00         | 50.75          | 21.02          | Vertical   |
| 2                                       | 90.625         | -92.22           | -68.84         | -13.00         | 55.84          | 23.38          | Vertical   |
| 3                                       | 104.205        | -86.80           | -62.75         | -13.00         | 49.75          | 24.05          | Vertical   |
| 4                                       | 365.62         | -83.18           | -56.24         | -13.00         | 43.24          | 26.94          | Vertical   |
| 5                                       | 1001.2         | -54.26           | -55.44         | -13.00         | 42.44          | -1.18          | Vertical   |
| 6                                       | 1874.5         | -44.92           | -44.37         | -13.00         | 31.37          | 0.55           | Vertical   |

| LTE Band 7 QPSK 20MHz BW Middle Channel |                |                  |                |                |                |                |            |
|-----------------------------------------|----------------|------------------|----------------|----------------|----------------|----------------|------------|
| NO.                                     | Freq.<br>[MHz] | Reading<br>[dBm] | Level<br>[dBm] | Limit<br>[dBm] | Margin<br>[dB] | Factor<br>[dB] | Polarity   |
| 1                                       | 41.64          | -93.20           | -72.01         | -25.00         | 47.01          | 21.19          | Horizontal |
| 2                                       | 104.205        | -87.15           | -67.80         | -25.00         | 42.80          | 19.35          | Horizontal |
| 3                                       | 365.62         | -83.37           | -54.95         | -25.00         | 29.95          | 28.42          | Horizontal |
| 4                                       | 945.195        | -87.39           | -50.00         | -25.00         | 25.00          | 37.39          | Horizontal |
| 5                                       | 5167.4         | -54.53           | -40.10         | -25.00         | 15.10          | 14.43          | Horizontal |
| 6                                       | 7053.47        | -53.63           | -36.52         | -25.00         | 11.52          | 17.11          | Horizontal |
|                                         |                |                  |                |                |                |                |            |
| NO.                                     | Freq.<br>[MHz] | Reading<br>[dBm] | Level<br>[dBm] | Limit<br>[dBm] | Margin<br>[dB] | Factor<br>[dB] | Polarity   |
| 1                                       | 68.8           | -86.06           | -64.98         | -25.00         | 39.98          | 21.08          | Vertical   |
| 2                                       | 104.205        | -86.76           | -62.71         | -25.00         | 37.71          | 24.05          | Vertical   |
| 3                                       | 365.62         | -85.70           | -58.76         | -25.00         | 33.76          | 26.94          | Vertical   |
| 4                                       | 1818.9         | -47.02           | -46.81         | -25.00         | 21.81          | 0.21           | Vertical   |
| 5                                       | 3007.6         | -53.41           | -46.06         | -25.00         | 21.06          | 7.35           | Vertical   |
| 6                                       | 7859.33        | -53.15           | -34.85         | -25.00         | 9.85           | 18.30          | Vertical   |

| LTE Band 66 QPSK 20MHz BW Middle Channel |                |                  |                |                |                |                |            |
|------------------------------------------|----------------|------------------|----------------|----------------|----------------|----------------|------------|
| NO.                                      | Freq.<br>[MHz] | Reading<br>[dBm] | Level<br>[dBm] | Limit<br>[dBm] | Margin<br>[dB] | Factor<br>[dB] | Polarity   |
| 1                                        | 68.315         | -95.80           | -76.45         | -13.00         | 63.45          | 19.35          | Horizontal |
| 2                                        | 182.775        | -100.00          | -77.34         | -13.00         | 64.34          | 22.66          | Horizontal |
| 3                                        | 319.06         | -100.32          | -73.22         | -13.00         | 60.22          | 27.10          | Horizontal |
| 4                                        | 659.53         | -98.99           | -64.17         | -13.00         | 51.17          | 34.82          | Horizontal |
| 5                                        | 4718.4         | -52.62           | -39.03         | -13.00         | 26.03          | 13.59          | Horizontal |
| 6                                        | 7499.1         | -53.54           | -34.27         | -13.00         | 21.27          | 19.27          | Horizontal |
|                                          |                |                  |                |                |                |                |            |
| NO.                                      | Freq.<br>[MHz] | Reading<br>[dBm] | Level<br>[dBm] | Limit<br>[dBm] | Margin<br>[dB] | Factor<br>[dB] | Polarity   |
| 1                                        | 56.19          | -90.70           | -71.11         | -13.00         | 58.11          | 19.59          | Vertical   |
| 2                                        | 99.355         | -97.89           | -73.53         | -13.00         | 60.53          | 24.36          | Vertical   |
| 3                                        | 649.83         | -97.28           | -64.32         | -13.00         | 51.32          | 32.96          | Vertical   |
| 4                                        | 1073.6         | -53.82           | -55.68         | -13.00         | 42.68          | -1.86          | Vertical   |
| 5                                        | 3894.4         | -53.23           | -44.67         | -13.00         | 31.67          | 8.56           | Vertical   |
| 6                                        | 7279.73        | -53.05           | -34.70         | -13.00         | 21.70          | 18.35          | Vertical   |

## 2.7. Frequency Stability

### 2.7.1. Requirement

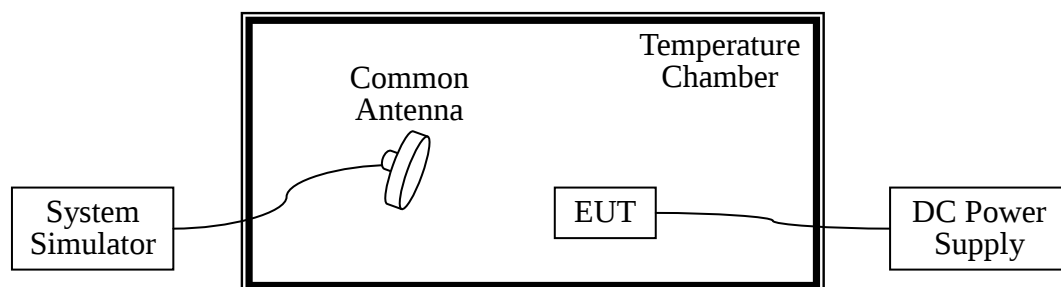
According to FCC requirement, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within  $\pm 0.00025\%$  ( $\pm 2.5\text{ppm}$ ) of the center frequency. According to FCC section 2.1055, the test conditions are:

- (1) The temperature is varied from  $-30^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$  at intervals of not more than  $10^{\circ}\text{C}$ .
- (2) For hand carried battery powered equipment, the primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacture. The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided.

### 2.7.2. Measuring Instruments

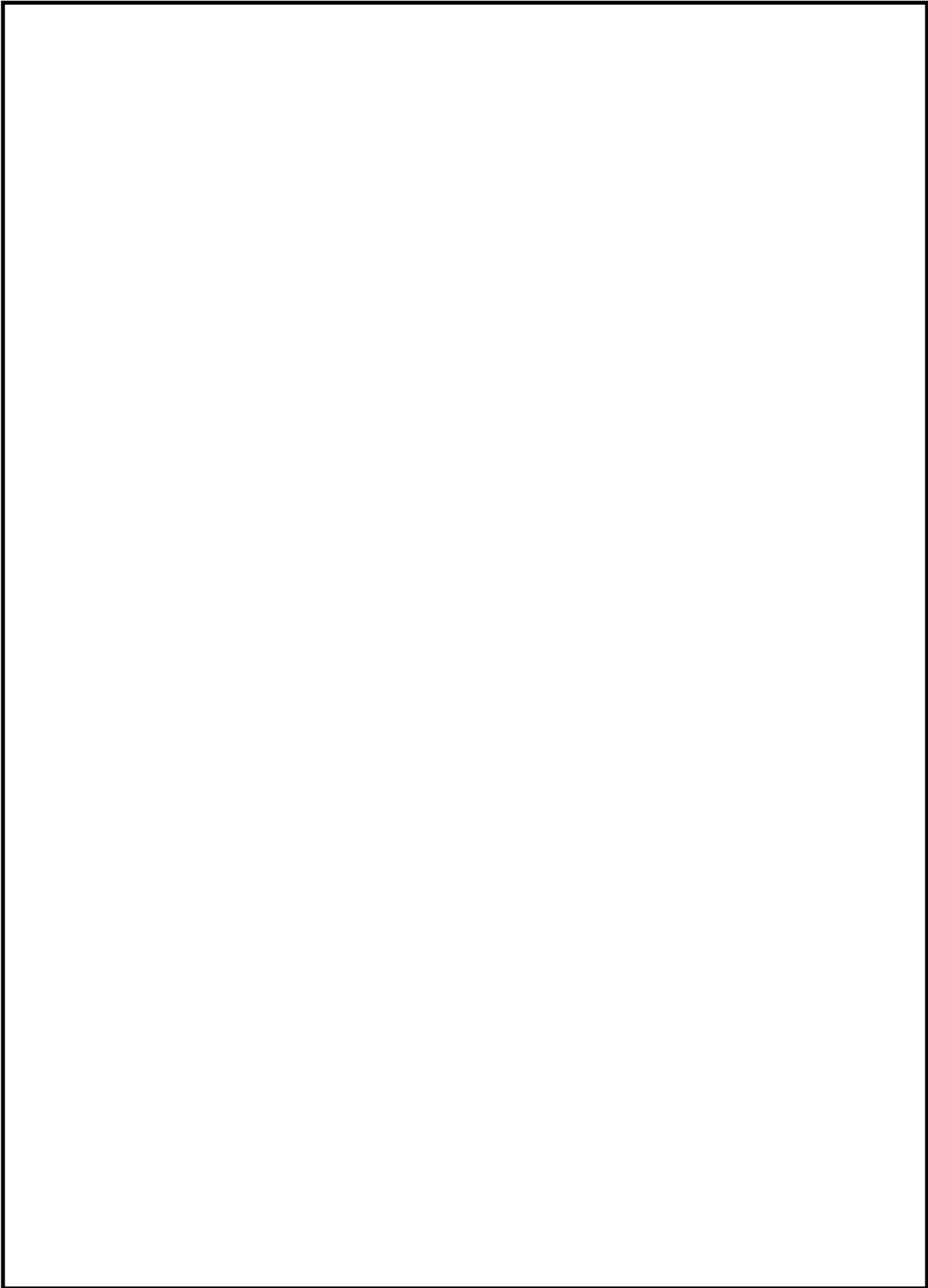
The measuring equipment is listed in the section 3 of this test report.

### 2.7.3. Test Setup



### 2.7.4. Test Procedures

1. The EUT was set up in the thermal chamber and connected with the system simulator.
2. With power OFF, the temperature was decreased to  $-30^{\circ}\text{C}$  and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
3. With power OFF, the temperature was raised in  $10^{\circ}\text{C}$  step up to  $50^{\circ}\text{C}$ . The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.
4. The nominal, highest and lowest extreme voltages were tested, which are specified by the applicant; the normal temperature here used is  $20^{\circ}\text{C}$ .
5. The variation in frequency was measured for the worst case.





#### **2.7.5. Test Result of Frequency Stability**

Please refer to Appendix A for detail

### 3. List of measuring equipment

| Item | Test Equipment                         | Manufacturer  | Model No.                 | Serial No. | Cal Date   | Due Date   |
|------|----------------------------------------|---------------|---------------------------|------------|------------|------------|
| 1    | EMI Test Receiver                      | ROHDE&SCHWARZ | ESW26                     | A180502935 | 2022.07.21 | 2023.07.20 |
| 2    | 5M Anechoic Chamber                    | Albatross     | SAC-5MAC<br>12.8x6.8x6.4m | A0304210   | 2019.03.25 | 2023.03.24 |
| 3    | Loop Antenna                           | Schwarz beck  | HFH2-Z2                   | A0304220   | 2022.05.02 | 2025.05.01 |
| 4    | Broadband antenna<br>(30MHz~1GHz)      | R&S           | HL562                     | A0304224   | 2020.06.19 | 2023.06.18 |
| 5    | EMI Horn Ant.<br>(1-18G)               | ETC           | 1209                      | A150402241 | 2021.01.02 | 2024.01.01 |
| 6    | Horn antenna<br>(18GHz~26.5GHz)        | AR            | AT4510                    | A0804450   | 2020.06.19 | 2023.06.18 |
| 7    | Amplifier 30M~1GHz                     | MILMEGA       | 80RF1000-10004            | A140101634 | 2020.09.22 | 2023.09.21 |
| 8    | Amplifier 1G~18GHz                     | MILMEGA       | AS0104R-800/400           | A160302517 | 2021.12.23 | 2022.12.22 |
| 9    | Spectrum Analyzer                      | KEYSIGHT      | N9030A                    | A160702554 | 2022.03.25 | 2023.03.24 |
| 10   | Test Receiver                          | R&S           | ESIB7                     | A0501375   | 2022.04.18 | 2023.04.17 |
| 11   | Broadband Ant.                         | 2786          | ETC                       | A150402240 | 2021.09.16 | 2024.03.03 |
| 12   | 3M Anechoic Chamber                    | Albatross     | SAC-3MAC<br>9*6*6m        | A0412375   | 2019.03.26 | 2023.03.25 |
| 13   | Temperature<br>chamber                 | TABAI         | PS-232                    | A8708054   | 2022.08.18 | 2023.08.17 |
| 14   | Wideband Radio<br>Communication tester | R&S           | CMW500                    | A130101034 | 2022.06.23 | 2023.06.22 |
| 15   | Wideband Radio<br>Communication tester | R&S           | CMW500                    | A150802214 | 2022.06.17 | 2023.06.16 |
| 16   | Test Receiver                          | KEYSIGHT      | N9038A                    | A141202036 | 2022.07.21 | 2023.07.20 |
| 17   | LISN                                   | ROHDE&SCHWARZ | ENV216                    | A140701847 | 2022.07.21 | 2023.07.20 |
| 18   | Cable                                  | MATCHING PAD  | W7                        | /          | 2022.07.21 | 2023.07.20 |

## 4. Uncertainty of Evaluation

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.10-2013. All the measurement uncertainty value were shown with a coverage  $K=2$  to indicate 95% level of confidence . The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

### Uncertainty of Conducted Emission Measurement (150kHz~30MHz)

|                                                                          |       |
|--------------------------------------------------------------------------|-------|
| Measuring Uncertainty for a level of confidence<br>of 95%( $U=2U_c(y)$ ) | 2.8dB |
|--------------------------------------------------------------------------|-------|

### Uncertainty of Radiated Emission Measurement (9kHz~30MHz)

|                                                                          |       |
|--------------------------------------------------------------------------|-------|
| Measuring Uncertainty for a level of confidence<br>of 95%( $U=2U_c(y)$ ) | 3.5dB |
|--------------------------------------------------------------------------|-------|

### Uncertainty of Radiated Emission Measurement (30MHz~1GHz)

|                                                                          |        |
|--------------------------------------------------------------------------|--------|
| Measuring Uncertainty for a level of confidence<br>of 95%( $U=2U_c(y)$ ) | 3.91dB |
|--------------------------------------------------------------------------|--------|

### Uncertainty of Radiated Emission Measurement (1GHz~18GHz)

|                                                                          |       |
|--------------------------------------------------------------------------|-------|
| Measuring Uncertainty for a level of confidence<br>of 95%( $U=2U_c(y)$ ) | 4.5dB |
|--------------------------------------------------------------------------|-------|

### Uncertainty of Radiated Emission Measurement (18GHz~40GHz)

|                                                                          |       |
|--------------------------------------------------------------------------|-------|
| Measuring Uncertainty for a level of confidence<br>of 95%( $U=2U_c(y)$ ) | 4.9dB |
|--------------------------------------------------------------------------|-------|

### Uncertainty of RF Conducted Measurement (9kHz~40GHz)

|                                                                          |       |
|--------------------------------------------------------------------------|-------|
| Measuring Uncertainty for a level of confidence<br>of 95%( $U=2U_c(y)$ ) | 1.2dB |
|--------------------------------------------------------------------------|-------|

## APPENDIX A

### Conducted Output Power and ERP/EIRP

| LTE Band 4 - 1.4MHz Bandwidth |         |           |                     |           |           |                 |                 |                  |
|-------------------------------|---------|-----------|---------------------|-----------|-----------|-----------------|-----------------|------------------|
| Modulation                    | RB Size | RB Offset | Average Power (dBm) |           |           | Ant. Gain (dBi) | Max. EIRP (dBm) | EIRP Limit (dBm) |
|                               |         |           | 19957               | 20175     | 20393     |                 |                 |                  |
|                               |         |           | 1710.7MHz           | 1732.5MHz | 1754.3MHz |                 |                 |                  |
| QPSK                          | 1       | 0         | 22.69               | 22.65     | 22.65     | 3.52            | 26.31           | 30.00            |
|                               | 1       | 2         | 22.76               | 22.63     | 22.70     |                 |                 |                  |
|                               | 1       | 5         | 22.66               | 22.60     | 22.63     |                 |                 |                  |
|                               | 3       | 0         | 22.76               | 22.75     | 22.79     |                 |                 |                  |
|                               | 3       | 1         | 22.74               | 22.74     | 22.78     |                 |                 |                  |
|                               | 3       | 2         | 22.70               | 22.69     | 22.71     |                 |                 |                  |
|                               | 6       | 0         | 21.79               | 21.76     | 21.65     |                 |                 |                  |
| 16QAM                         | 1       | 0         | 21.98               | 21.56     | 21.67     | 3.52            | 25.79           | 30.00            |
|                               | 1       | 2         | 21.93               | 22.09     | 22.27     |                 |                 |                  |
|                               | 1       | 5         | 21.76               | 21.70     | 21.67     |                 |                 |                  |
|                               | 3       | 0         | 21.96               | 21.61     | 21.52     |                 |                 |                  |
|                               | 3       | 1         | 21.85               | 21.84     | 21.52     |                 |                 |                  |
|                               | 3       | 2         | 21.83               | 21.58     | 21.55     |                 |                 |                  |
|                               | 6       | 0         | 20.52               | 20.56     | 20.43     |                 |                 |                  |
| LTE Band 4 - 3MHz Bandwidth   |         |           |                     |           |           |                 |                 |                  |
| Modulation                    | RB Size | RB Offset | Average Power (dBm) |           |           | Ant. Gain (dBi) | Max. EIRP (dBm) | EIRP Limit (dBm) |
|                               |         |           | 19965               | 20175     | 20385     |                 |                 |                  |
|                               |         |           | 1711.5MHz           | 1732.5MHz | 1753.5MHz |                 |                 |                  |
| QPSK                          | 1       | 0         | 22.83               | 22.45     | 22.48     | 3.52            | 26.35           | 30.00            |
|                               | 1       | 7         | 22.66               | 22.57     | 22.51     |                 |                 |                  |
|                               | 1       | 14        | 22.70               | 22.61     | 22.67     |                 |                 |                  |
|                               | 8       | 0         | 21.80               | 21.65     | 21.48     |                 |                 |                  |
|                               | 8       | 4         | 21.79               | 21.76     | 21.58     |                 |                 |                  |
|                               | 8       | 7         | 21.58               | 21.82     | 21.64     |                 |                 |                  |
|                               | 15      | 0         | 21.83               | 21.86     | 21.65     |                 |                 |                  |
| 16QAM                         | 1       | 0         | 22.14               | 22.22     | 21.88     | 3.52            | 25.79           | 30.00            |
|                               | 1       | 7         | 21.74               | 22.27     | 21.96     |                 |                 |                  |
|                               | 1       | 14        | 21.69               | 22.25     | 21.89     |                 |                 |                  |
|                               | 8       | 0         | 20.71               | 20.74     | 20.32     |                 |                 |                  |
|                               | 8       | 4         | 20.80               | 20.42     | 20.23     |                 |                 |                  |
|                               | 8       | 7         | 20.72               | 20.49     | 20.33     |                 |                 |                  |
|                               | 15      | 0         | 20.80               | 20.59     | 20.15     |                 |                 |                  |

| LTE Band 4 - 5MHz Bandwidth  |         |           |                     |           |           |                 |                 |                  |
|------------------------------|---------|-----------|---------------------|-----------|-----------|-----------------|-----------------|------------------|
| Modulation                   | RB Size | RB Offset | Average Power (dBm) |           |           | Ant. Gain (dBi) | Max. EIRP (dBm) | EIRP Limit (dBm) |
|                              |         |           | 19975               | 20175     | 20375     |                 |                 |                  |
|                              |         |           | 1712.5MHz           | 1732.5MHz | 1752.5MHz |                 |                 |                  |
| QPSK                         | 1       | 0         | 22.56               | 22.47     | 22.57     | 3.52            | 26.56           | 30.00            |
|                              | 1       | 12        | 22.83               | 22.53     | 22.94     |                 |                 |                  |
|                              | 1       | 24        | 22.44               | 22.46     | 23.04     |                 |                 |                  |
|                              | 12      | 0         | 21.84               | 21.70     | 21.84     |                 |                 |                  |
|                              | 12      | 6         | 21.90               | 21.69     | 21.85     |                 |                 |                  |
|                              | 12      | 11        | 21.79               | 21.68     | 21.90     |                 |                 |                  |
|                              | 25      | 0         | 21.86               | 21.73     | 21.88     |                 |                 |                  |
| 16QAM                        | 1       | 0         | 21.18               | 21.93     | 21.41     | 3.52            | 25.62           | 30.00            |
|                              | 1       | 12        | 21.14               | 22.10     | 21.11     |                 |                 |                  |
|                              | 1       | 24        | 20.99               | 22.01     | 21.10     |                 |                 |                  |
|                              | 12      | 0         | 20.75               | 20.65     | 20.30     |                 |                 |                  |
|                              | 12      | 6         | 20.74               | 20.54     | 20.63     |                 |                 |                  |
|                              | 12      | 11        | 20.73               | 20.65     | 20.67     |                 |                 |                  |
|                              | 25      | 0         | 20.91               | 20.64     | 20.71     |                 |                 |                  |
| LTE Band 4 - 10MHz Bandwidth |         |           |                     |           |           |                 |                 |                  |
| Modulation                   | RB Size | RB Offset | Average Power (dBm) |           |           | Ant. Gain (dBi) | Max. EIRP (dBm) | EIRP Limit (dBm) |
|                              |         |           | 20000               | 20175     | 20350     |                 |                 |                  |
|                              |         |           | 1715.0MHz           | 1732.5MHz | 1750.0MHz |                 |                 |                  |
| QPSK                         | 1       | 0         | 22.68               | 22.65     | 22.59     | 3.52            | 26.45           | 30.00            |
|                              | 1       | 24        | 22.66               | 22.90     | 22.93     |                 |                 |                  |
|                              | 1       | 49        | 22.59               | 22.90     | 22.82     |                 |                 |                  |
|                              | 25      | 0         | 21.85               | 21.71     | 21.83     |                 |                 |                  |
|                              | 25      | 12        | 21.82               | 21.69     | 21.84     |                 |                 |                  |
|                              | 25      | 24        | 21.74               | 21.82     | 21.81     |                 |                 |                  |
|                              | 50      | 0         | 21.77               | 21.85     | 21.87     |                 |                 |                  |
| 16QAM                        | 1       | 0         | 22.31               | 22.30     | 21.67     | 3.52            | 26.53           | 30.00            |
|                              | 1       | 24        | 22.86               | 23.01     | 22.23     |                 |                 |                  |
|                              | 1       | 49        | 22.36               | 22.12     | 21.71     |                 |                 |                  |
|                              | 25      | 0         | 20.84               | 20.67     | 21.00     |                 |                 |                  |
|                              | 25      | 12        | 20.83               | 20.67     | 20.90     |                 |                 |                  |
|                              | 25      | 24        | 20.84               | 20.80     | 20.87     |                 |                 |                  |
|                              | 50      | 0         | 20.71               | 20.66     | 20.66     |                 |                 |                  |

| LTE Band 4 - 15MHz Bandwidth |         |           |                     |           |           |                 |                 |                  |
|------------------------------|---------|-----------|---------------------|-----------|-----------|-----------------|-----------------|------------------|
| Modulation                   | RB Size | RB Offset | Average Power (dBm) |           |           | Ant. Gain (dBi) | Max. EIRP (dBm) | EIRP Limit (dBm) |
|                              |         |           | 20025               | 20175     | 20325     |                 |                 |                  |
|                              |         |           | 1717.5MHz           | 1732.5MHz | 1747.5MHz |                 |                 |                  |
| QPSK                         | 1       | 0         | 22.65               | 22.56     | 22.68     | 3.52            | 26.50           | 30.00            |
|                              | 1       | 37        | 22.65               | 22.63     | 22.83     |                 |                 |                  |
|                              | 1       | 74        | 22.51               | 22.82     | 22.98     |                 |                 |                  |
|                              | 36      | 0         | 21.75               | 21.62     | 21.66     |                 |                 |                  |
|                              | 36      | 16        | 21.73               | 21.61     | 21.77     |                 |                 |                  |
|                              | 36      | 35        | 21.86               | 21.80     | 21.67     |                 |                 |                  |
|                              | 75      | 0         | 21.86               | 21.71     | 21.84     |                 |                 |                  |
| 16QAM                        | 1       | 0         | 22.07               | 22.20     | 22.06     | 3.52            | 26.42           | 30.00            |
|                              | 1       | 37        | 22.00               | 22.90     | 22.33     |                 |                 |                  |
|                              | 1       | 74        | 22.19               | 22.28     | 22.45     |                 |                 |                  |
|                              | 36      | 0         | 20.72               | 20.37     | 20.54     |                 |                 |                  |
|                              | 36      | 16        | 20.71               | 20.36     | 20.55     |                 |                 |                  |
|                              | 36      | 35        | 20.75               | 20.57     | 20.42     |                 |                 |                  |
|                              | 75      | 0         | 20.73               | 20.48     | 20.61     |                 |                 |                  |
| LTE Band 4 - 20MHz Bandwidth |         |           |                     |           |           |                 |                 |                  |
| Modulation                   | RB Size | RB Offset | Average Power (dBm) |           |           | Ant. Gain (dBi) | Max. EIRP (dBm) | EIRP Limit (dBm) |
|                              |         |           | 20050               | 20175     | 20300     |                 |                 |                  |
|                              |         |           | 1720.0MHz           | 1732.5MHz | 1745.0MHz |                 |                 |                  |
| QPSK                         | 1       | 0         | 22.61               | 22.96     | 22.76     | 3.52            | 26.59           | 30.00            |
|                              | 1       | 49        | 23.07               | 22.79     | 22.91     |                 |                 |                  |
|                              | 1       | 99        | 22.68               | 22.89     | 22.81     |                 |                 |                  |
|                              | 50      | 0         | 21.72               | 21.66     | 21.77     |                 |                 |                  |
|                              | 50      | 24        | 21.79               | 21.65     | 21.88     |                 |                 |                  |
|                              | 50      | 49        | 21.80               | 21.77     | 21.76     |                 |                 |                  |
|                              | 100     | 0         | 21.72               | 21.59     | 21.88     |                 |                 |                  |
| 16QAM                        | 1       | 0         | 21.92               | 21.81     | 22.80     | 3.52            | 26.50           | 30.00            |
|                              | 1       | 49        | 22.41               | 21.78     | 22.98     |                 |                 |                  |
|                              | 1       | 99        | 22.23               | 21.80     | 22.77     |                 |                 |                  |
|                              | 50      | 0         | 20.79               | 20.44     | 20.60     |                 |                 |                  |
|                              | 50      | 24        | 20.78               | 20.44     | 20.60     |                 |                 |                  |
|                              | 50      | 49        | 20.66               | 20.58     | 20.50     |                 |                 |                  |
|                              | 100     | 0         | 20.58               | 20.58     | 20.59     |                 |                 |                  |

| LTE Band 5 - 1.4MHz Bandwidth |         |           |                     |          |          |                 |                |                 |
|-------------------------------|---------|-----------|---------------------|----------|----------|-----------------|----------------|-----------------|
| Modulation                    | RB Size | RB Offset | Average Power (dBm) |          |          | Ant. Gain (dBi) | Max. ERP (dBm) | ERP Limit (dBm) |
|                               |         |           | 20407               | 20525    | 20643    |                 |                |                 |
|                               |         |           | 824.7MHz            | 836.5MHz | 848.3MHz |                 |                |                 |
| QPSK                          | 1       | 0         | 23.08               | 23.05    | 23.36    | 1.53            | 22.74          | 38.45           |
|                               | 1       | 2         | 23.10               | 23.20    | 23.12    |                 |                |                 |
|                               | 1       | 5         | 23.01               | 23.11    | 22.95    |                 |                |                 |
|                               | 3       | 0         | 23.20               | 23.14    | 23.19    |                 |                |                 |
|                               | 3       | 1         | 23.27               | 23.12    | 23.18    |                 |                |                 |
|                               | 3       | 2         | 23.17               | 23.14    | 23.16    |                 |                |                 |
|                               | 6       | 0         | 22.21               | 22.25    | 22.27    |                 |                |                 |
| 16QAM                         | 1       | 0         | 22.99               | 22.16    | 22.30    | 1.53            | 22.37          | 38.45           |
|                               | 1       | 2         | 22.96               | 22.13    | 22.40    |                 |                |                 |
|                               | 1       | 5         | 22.74               | 22.11    | 22.34    |                 |                |                 |
|                               | 3       | 0         | 21.81               | 22.20    | 22.18    |                 |                |                 |
|                               | 3       | 1         | 22.01               | 22.19    | 22.38    |                 |                |                 |
|                               | 3       | 2         | 21.80               | 22.23    | 22.23    |                 |                |                 |
|                               | 6       | 0         | 21.23               | 20.73    | 21.09    |                 |                |                 |
| LTE Band 5 - 3MHz Bandwidth   |         |           |                     |          |          |                 |                |                 |
| Modulation                    | RB Size | RB Offset | Average Power (dBm) |          |          | Ant. Gain (dBi) | Max. ERP (dBm) | ERP Limit (dBm) |
|                               |         |           | 20415               | 20525    | 20635    |                 |                |                 |
|                               |         |           | 825.5MHz            | 836.5MHz | 847.5MHz |                 |                |                 |
| QPSK                          | 1       | 0         | 23.09               | 23.10    | 23.01    | 1.53            | 22.55          | 38.45           |
|                               | 1       | 7         | 22.94               | 23.17    | 23.05    |                 |                |                 |
|                               | 1       | 14        | 23.06               | 23.16    | 22.87    |                 |                |                 |
|                               | 8       | 0         | 22.30               | 22.18    | 22.09    |                 |                |                 |
|                               | 8       | 4         | 22.28               | 22.18    | 22.09    |                 |                |                 |
|                               | 8       | 7         | 22.03               | 22.23    | 22.18    |                 |                |                 |
|                               | 15      | 0         | 22.14               | 22.19    | 22.12    |                 |                |                 |
| 16QAM                         | 1       | 0         | 22.53               | 22.14    | 22.60    | 1.53            | 22.07          | 38.45           |
|                               | 1       | 7         | 22.44               | 22.31    | 22.69    |                 |                |                 |
|                               | 1       | 14        | 22.39               | 22.14    | 22.66    |                 |                |                 |
|                               | 8       | 0         | 21.17               | 21.32    | 21.40    |                 |                |                 |
|                               | 8       | 4         | 21.16               | 21.32    | 21.50    |                 |                |                 |
|                               | 8       | 7         | 20.91               | 21.28    | 21.63    |                 |                |                 |
|                               | 15      | 0         | 21.05               | 21.36    | 20.92    |                 |                |                 |

| LTE Band 5 - 5MHz Bandwidth  |         |           |                     |          |          |                 |                |                 |
|------------------------------|---------|-----------|---------------------|----------|----------|-----------------|----------------|-----------------|
| Modulation                   | RB Size | RB Offset | Average Power (dBm) |          |          | Ant. Gain (dBi) | Max. ERP (dBm) | ERP Limit (dBm) |
|                              |         |           | 20425               | 20525    | 20625    |                 |                |                 |
|                              |         |           | 826.5MHz            | 836.5MHz | 846.5MHz |                 |                |                 |
| QPSK                         | 1       | 0         | 23.16               | 22.86    | 22.91    | 1.53            | 22.54          | 38.45           |
|                              | 1       | 12        | 23.11               | 23.15    | 22.96    |                 |                |                 |
|                              | 1       | 24        | 22.88               | 23.02    | 22.90    |                 |                |                 |
|                              | 12      | 0         | 22.20               | 22.19    | 22.06    |                 |                |                 |
|                              | 12      | 6         | 22.18               | 22.17    | 22.06    |                 |                |                 |
|                              | 12      | 11        | 22.08               | 22.15    | 22.18    |                 |                |                 |
|                              | 25      | 0         | 22.06               | 22.19    | 22.07    |                 |                |                 |
| 16QAM                        | 1       | 0         | 22.24               | 21.35    | 21.64    | 1.53            | 21.62          | 38.45           |
|                              | 1       | 12        | 22.16               | 21.88    | 21.84    |                 |                |                 |
|                              | 1       | 24        | 22.06               | 21.76    | 21.45    |                 |                |                 |
|                              | 12      | 0         | 21.16               | 21.01    | 21.01    |                 |                |                 |
|                              | 12      | 6         | 21.15               | 21.01    | 20.91    |                 |                |                 |
|                              | 12      | 11        | 21.06               | 21.01    | 20.95    |                 |                |                 |
|                              | 25      | 0         | 21.10               | 21.16    | 21.15    |                 |                |                 |
| LTE Band 5 - 10MHz Bandwidth |         |           |                     |          |          |                 |                |                 |
| Modulation                   | RB Size | RB Offset | Average Power (dBm) |          |          | Ant. Gain (dBi) | Max. ERP (dBm) | ERP Limit (dBm) |
|                              |         |           | 20450               | 20525    | 20600    |                 |                |                 |
|                              |         |           | 829.0MHz            | 836.5MHz | 844.0MHz |                 |                |                 |
| QPSK                         | 1       | 0         | 23.07               | 22.93    | 22.86    | 1.53            | 22.90          | 38.45           |
|                              | 1       | 24        | 23.38               | 23.52    | 22.99    |                 |                |                 |
|                              | 1       | 49        | 23.12               | 23.02    | 23.07    |                 |                |                 |
|                              | 25      | 0         | 22.03               | 22.21    | 22.21    |                 |                |                 |
|                              | 25      | 12        | 22.01               | 22.20    | 22.21    |                 |                |                 |
|                              | 25      | 24        | 22.13               | 22.17    | 22.01    |                 |                |                 |
|                              | 50      | 0         | 22.06               | 22.12    | 22.22    |                 |                |                 |
| 16QAM                        | 1       | 0         | 22.55               | 22.02    | 22.62    | 1.53            | 22.68          | 38.45           |
|                              | 1       | 24        | 23.30               | 22.64    | 22.99    |                 |                |                 |
|                              | 1       | 49        | 22.73               | 22.07    | 22.65    |                 |                |                 |
|                              | 25      | 0         | 21.29               | 21.24    | 21.25    |                 |                |                 |
|                              | 25      | 12        | 21.18               | 21.23    | 21.25    |                 |                |                 |
|                              | 25      | 24        | 21.29               | 21.22    | 21.06    |                 |                |                 |
|                              | 50      | 0         | 21.24               | 21.21    | 21.09    |                 |                |                 |

| LTE Band 7 - 5MHz Bandwidth  |         |           |                     |           |           |                 |                 |                  |
|------------------------------|---------|-----------|---------------------|-----------|-----------|-----------------|-----------------|------------------|
| Modulation                   | RB Size | RB Offset | Average Power (dBm) |           |           | Ant. Gain (dBi) | Max. EIRP (dBm) | EIRP Limit (dBm) |
|                              |         |           | 20775               | 21100     | 21425     |                 |                 |                  |
|                              |         |           | 2502.5MHz           | 2535.0MHz | 2567.5MHz |                 |                 |                  |
| QPSK                         | 1       | 0         | 22.07               | 21.26     | 21.53     | 3.61            | 25.76           | 33.00            |
|                              | 1       | 12        | 22.15               | 21.48     | 21.66     |                 |                 |                  |
|                              | 1       | 24        | 21.68               | 21.31     | 21.64     |                 |                 |                  |
|                              | 12      | 0         | 20.80               | 20.47     | 20.38     |                 |                 |                  |
|                              | 12      | 6         | 20.90               | 20.46     | 20.38     |                 |                 |                  |
|                              | 12      | 11        | 20.75               | 20.33     | 20.44     |                 |                 |                  |
|                              | 25      | 0         | 20.85               | 20.44     | 20.48     |                 |                 |                  |
| 16QAM                        | 1       | 0         | 20.35               | 19.90     | 20.57     | 3.61            | 24.18           | 33.00            |
|                              | 1       | 12        | 20.14               | 20.04     | 20.50     |                 |                 |                  |
|                              | 1       | 24        | 19.23               | 19.62     | 20.42     |                 |                 |                  |
|                              | 12      | 0         | 19.34               | 19.19     | 19.48     |                 |                 |                  |
|                              | 12      | 6         | 19.32               | 19.19     | 19.29     |                 |                 |                  |
|                              | 12      | 11        | 19.23               | 19.23     | 19.21     |                 |                 |                  |
|                              | 25      | 0         | 19.48               | 19.31     | 19.30     |                 |                 |                  |
| LTE Band 7 - 10MHz Bandwidth |         |           |                     |           |           |                 |                 |                  |
| Modulation                   | RB Size | RB Offset | Average Power (dBm) |           |           | Ant. Gain (dBi) | Max. EIRP (dBm) | EIRP Limit (dBm) |
|                              |         |           | 20800               | 21100     | 21400     |                 |                 |                  |
|                              |         |           | 2505.0MHz           | 2535.0MHz | 2565.0MHz |                 |                 |                  |
| QPSK                         | 1       | 0         | 22.04               | 21.68     | 21.02     | 3.61            | 25.98           | 33.00            |
|                              | 1       | 24        | 22.37               | 21.54     | 21.81     |                 |                 |                  |
|                              | 1       | 49        | 21.57               | 21.52     | 21.77     |                 |                 |                  |
|                              | 25      | 0         | 21.02               | 20.47     | 20.43     |                 |                 |                  |
|                              | 25      | 12        | 20.98               | 20.47     | 20.43     |                 |                 |                  |
|                              | 25      | 24        | 20.91               | 20.49     | 20.52     |                 |                 |                  |
|                              | 50      | 0         | 21.05               | 20.47     | 20.45     |                 |                 |                  |
| 16QAM                        | 1       | 0         | 20.87               | 21.16     | 19.74     | 3.61            | 25.07           | 33.00            |
|                              | 1       | 24        | 21.01               | 21.46     | 21.38     |                 |                 |                  |
|                              | 1       | 49        | 20.37               | 20.90     | 20.41     |                 |                 |                  |
|                              | 25      | 0         | 20.08               | 19.22     | 19.41     |                 |                 |                  |
|                              | 25      | 12        | 19.92               | 19.21     | 19.42     |                 |                 |                  |
|                              | 25      | 24        | 19.76               | 19.42     | 19.79     |                 |                 |                  |
|                              | 50      | 0         | 19.67               | 19.30     | 19.32     |                 |                 |                  |

| LTE Band 7 - 15MHz Bandwidth |         |           |                     |           |           |                 |                 |                  |
|------------------------------|---------|-----------|---------------------|-----------|-----------|-----------------|-----------------|------------------|
| Modulation                   | RB Size | RB Offset | Average Power (dBm) |           |           | Ant. Gain (dBi) | Max. EIRP (dBm) | EIRP Limit (dBm) |
|                              |         |           | 20825               | 21100     | 21375     |                 |                 |                  |
|                              |         |           | 2507.5MHz           | 2535.0MHz | 2562.5MHz |                 |                 |                  |
| QPSK                         | 1       | 0         | 21.54               | 21.63     | 21.14     | 3.61            | 25.77           | 33.00            |
|                              | 1       | 37        | 21.82               | 21.47     | 22.16     |                 |                 |                  |
|                              | 1       | 74        | 21.41               | 21.53     | 21.96     |                 |                 |                  |
|                              | 36      | 0         | 20.94               | 20.52     | 20.53     |                 |                 |                  |
|                              | 36      | 16        | 20.91               | 20.50     | 20.64     |                 |                 |                  |
|                              | 36      | 35        | 20.73               | 20.50     | 20.63     |                 |                 |                  |
|                              | 75      | 0         | 20.83               | 20.51     | 20.40     |                 |                 |                  |
| 16QAM                        | 1       | 0         | 20.87               | 21.29     | 19.94     | 3.61            | 24.90           | 33.00            |
|                              | 1       | 37        | 21.29               | 21.25     | 21.05     |                 |                 |                  |
|                              | 1       | 74        | 20.73               | 20.87     | 20.66     |                 |                 |                  |
|                              | 36      | 0         | 19.82               | 19.33     | 19.51     |                 |                 |                  |
|                              | 36      | 16        | 19.55               | 19.33     | 19.64     |                 |                 |                  |
|                              | 36      | 35        | 19.43               | 19.40     | 19.63     |                 |                 |                  |
|                              | 75      | 0         | 19.38               | 19.20     | 19.59     |                 |                 |                  |
| LTE Band 7 - 20MHz Bandwidth |         |           |                     |           |           |                 |                 |                  |
| Modulation                   | RB Size | RB Offset | Average Power (dBm) |           |           | Ant. Gain (dBi) | Max. EIRP (dBm) | EIRP Limit (dBm) |
|                              |         |           | 20850               | 21100     | 21350     |                 |                 |                  |
|                              |         |           | 2510.0MHz           | 2535.0MHz | 2560.0MHz |                 |                 |                  |
| QPSK                         | 1       | 0         | 21.92               | 21.84     | 21.10     | 3.61            | 25.94           | 33.00            |
|                              | 1       | 49        | 21.85               | 22.33     | 21.90     |                 |                 |                  |
|                              | 1       | 99        | 21.54               | 21.71     | 21.47     |                 |                 |                  |
|                              | 50      | 0         | 20.82               | 20.38     | 20.64     |                 |                 |                  |
|                              | 50      | 24        | 20.93               | 20.37     | 20.64     |                 |                 |                  |
|                              | 50      | 49        | 20.76               | 20.53     | 20.54     |                 |                 |                  |
|                              | 100     | 0         | 20.82               | 20.53     | 20.44     |                 |                 |                  |
| 16QAM                        | 1       | 0         | 20.51               | 20.74     | 20.40     | 3.61            | 24.94           | 33.00            |
|                              | 1       | 49        | 21.12               | 20.80     | 21.33     |                 |                 |                  |
|                              | 1       | 99        | 20.54               | 20.20     | 20.77     |                 |                 |                  |
|                              | 50      | 0         | 19.76               | 19.36     | 19.53     |                 |                 |                  |
|                              | 50      | 24        | 19.74               | 19.21     | 19.42     |                 |                 |                  |
|                              | 50      | 49        | 19.63               | 19.30     | 19.52     |                 |                 |                  |
|                              | 100     | 0         | 19.59               | 19.19     | 19.42     |                 |                 |                  |

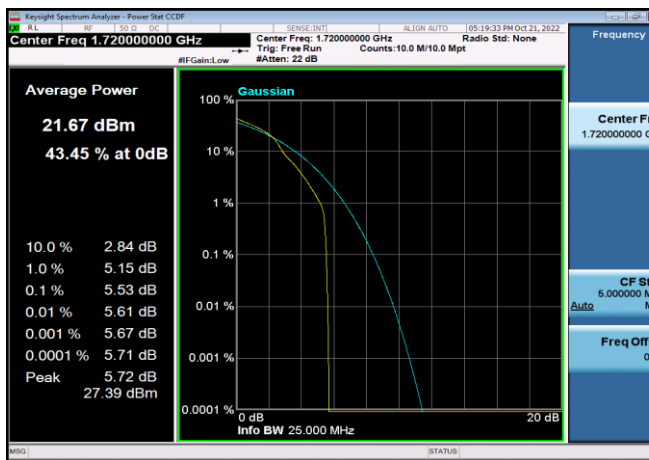
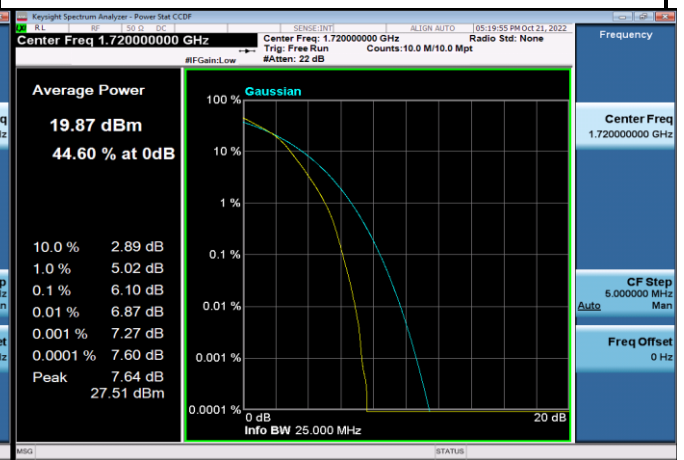
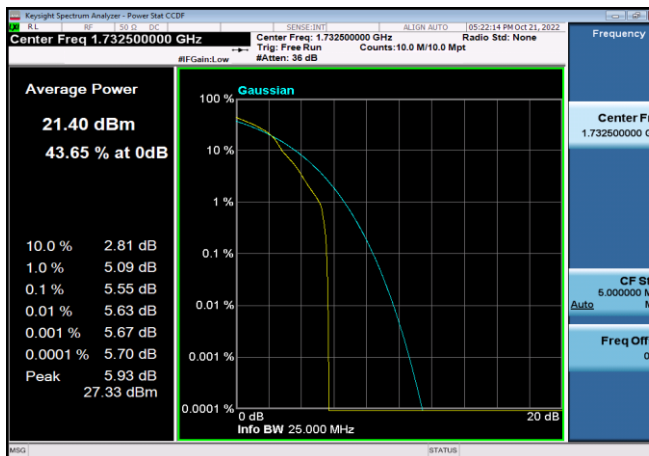
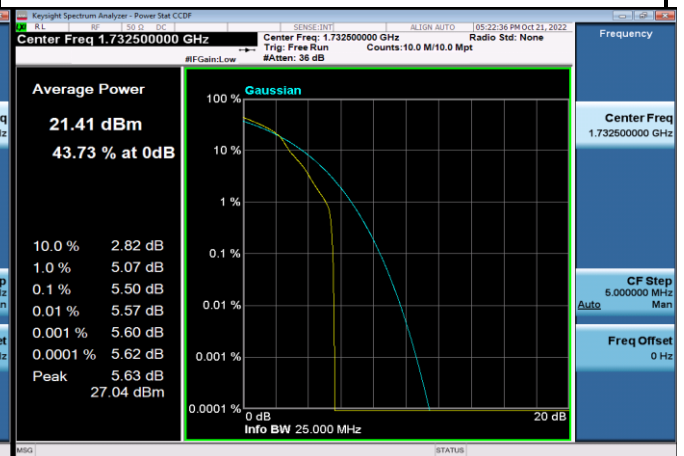
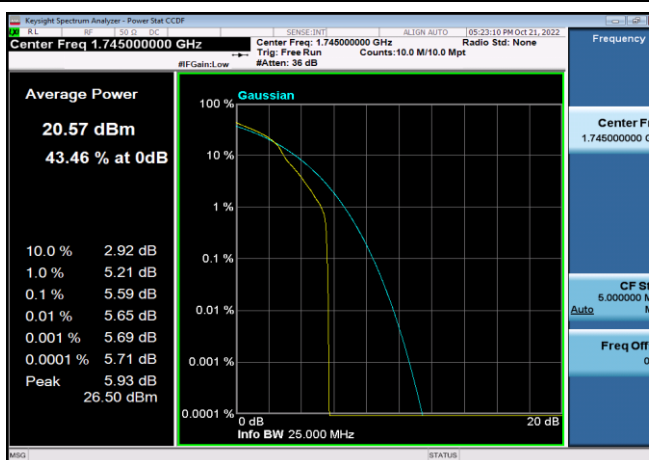
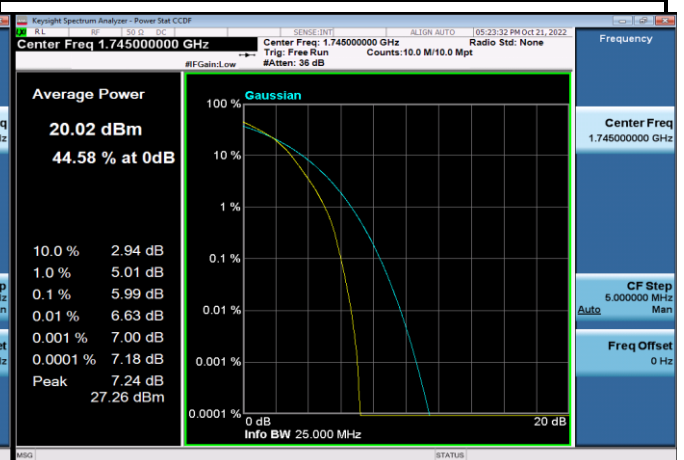
| LTE Band 66 - 1.4MHz Bandwidth |         |           |                     |           |           |                 |                 |                  |
|--------------------------------|---------|-----------|---------------------|-----------|-----------|-----------------|-----------------|------------------|
| Modulation                     | RB Size | RB Offset | Average Power (dBm) |           |           | Ant. Gain (dBi) | Max. EIRP (dBm) | EIRP Limit (dBm) |
|                                |         |           | 131979              | 132322    | 132665    |                 |                 |                  |
|                                |         |           | 1710.7MHz           | 1745.0MHz | 1779.3MHz |                 |                 |                  |
| QPSK                           | 1       | 0         | 22.55               | 22.56     | 22.65     | 3.55            | 26.40           | 30.00            |
|                                | 1       | 2         | 22.85               | 22.40     | 22.62     |                 |                 |                  |
|                                | 1       | 5         | 22.70               | 22.61     | 22.82     |                 |                 |                  |
|                                | 3       | 0         | 22.77               | 22.54     | 22.75     |                 |                 |                  |
|                                | 3       | 1         | 22.60               | 22.71     | 22.76     |                 |                 |                  |
|                                | 3       | 2         | 22.65               | 22.54     | 22.78     |                 |                 |                  |
|                                | 6       | 0         | 21.68               | 22.60     | 21.64     |                 |                 |                  |
| 16QAM                          | 1       | 0         | 21.72               | 21.47     | 21.86     | 3.55            | 25.90           | 30.00            |
|                                | 1       | 2         | 22.27               | 21.33     | 22.35     |                 |                 |                  |
|                                | 1       | 5         | 21.74               | 21.38     | 22.27     |                 |                 |                  |
|                                | 3       | 0         | 21.60               | 21.85     | 21.70     |                 |                 |                  |
|                                | 3       | 1         | 21.55               | 21.72     | 21.70     |                 |                 |                  |
|                                | 3       | 2         | 21.64               | 21.91     | 21.49     |                 |                 |                  |
|                                | 6       | 0         | 20.72               | 21.19     | 20.67     |                 |                 |                  |
| LTE Band 66 - 3MHz Bandwidth   |         |           |                     |           |           |                 |                 |                  |
| Modulation                     | RB Size | RB Offset | Average Power (dBm) |           |           | Ant. Gain (dBi) | Max. EIRP (dBm) | IRP Limit (dBm)  |
|                                |         |           | 131987              | 132322    | 132657    |                 |                 |                  |
|                                |         |           | 1711.5MHz           | 1745.0MHz | 1778.5MHz |                 |                 |                  |
| QPSK                           | 1       | 0         | 22.76               | 22.65     | 22.64     | 3.55            | 26.31           | 30.00            |
|                                | 1       | 7         | 22.59               | 22.44     | 22.49     |                 |                 |                  |
|                                | 1       | 14        | 22.57               | 22.59     | 22.58     |                 |                 |                  |
|                                | 8       | 0         | 21.69               | 21.59     | 21.62     |                 |                 |                  |
|                                | 8       | 4         | 21.69               | 21.61     | 21.72     |                 |                 |                  |
|                                | 8       | 7         | 21.60               | 21.48     | 21.69     |                 |                 |                  |
|                                | 15      | 0         | 21.64               | 21.57     | 21.75     |                 |                 |                  |
| 16QAM                          | 1       | 0         | 21.54               | 21.98     | 21.96     | 3.55            | 25.65           | 30.00            |
|                                | 1       | 7         | 21.67               | 22.10     | 21.99     |                 |                 |                  |
|                                | 1       | 14        | 21.59               | 22.02     | 21.93     |                 |                 |                  |
|                                | 8       | 0         | 20.54               | 20.76     | 20.55     |                 |                 |                  |
|                                | 8       | 4         | 20.54               | 20.80     | 20.65     |                 |                 |                  |
|                                | 8       | 7         | 20.45               | 20.94     | 20.62     |                 |                 |                  |
|                                | 15      | 0         | 20.31               | 20.59     | 20.72     |                 |                 |                  |

| LTE Band 66 - 5MHz Bandwidth |         |           |                     |           |           |                 |                 |                  |
|------------------------------|---------|-----------|---------------------|-----------|-----------|-----------------|-----------------|------------------|
| Modulation                   | RB Size | RB Offset | Average Power (dBm) |           |           | Ant. Gain (dBi) | Max. EIRP (dBm) | EIRP Limit (dBm) |
|                              |         |           | 131997              | 132322    | 132647    |                 |                 |                  |
|                              |         |           | 1712.5MHz           | 1745.0MHz | 1777.5MHz |                 |                 |                  |
| QPSK                         | 1       | 0         | 22.64               | 22.67     | 22.65     | 3.55            | 26.22           | 30.00            |
|                              | 1       | 12        | 22.47               | 22.60     | 22.62     |                 |                 |                  |
|                              | 1       | 24        | 22.48               | 22.41     | 22.50     |                 |                 |                  |
|                              | 12      | 0         | 21.51               | 21.54     | 21.70     |                 |                 |                  |
|                              | 12      | 6         | 21.60               | 21.55     | 21.82     |                 |                 |                  |
|                              | 12      | 11        | 21.59               | 21.54     | 21.64     |                 |                 |                  |
|                              | 25      | 0         | 21.58               | 21.66     | 21.71     |                 |                 |                  |
| 16QAM                        | 1       | 0         | 21.28               | 21.01     | 21.84     | 3.55            | 25.77           | 30.00            |
|                              | 1       | 12        | 21.36               | 21.17     | 22.09     |                 |                 |                  |
|                              | 1       | 24        | 21.24               | 20.70     | 22.22     |                 |                 |                  |
|                              | 12      | 0         | 20.60               | 20.51     | 20.70     |                 |                 |                  |
|                              | 12      | 6         | 20.59               | 20.62     | 20.59     |                 |                 |                  |
|                              | 12      | 11        | 20.57               | 20.60     | 20.63     |                 |                 |                  |
|                              | 25      | 0         | 20.73               | 20.67     | 20.66     |                 |                 |                  |
| LTE Band 4 - 10MHz Bandwidth |         |           |                     |           |           |                 |                 |                  |
| Modulation                   | RB Size | RB Offset | Average Power (dBm) |           |           | Ant. Gain (dBi) | Max. EIRP (dBm) | EIRP Limit (dBm) |
|                              |         |           | 132022              | 132322    | 132622    |                 |                 |                  |
|                              |         |           | 1715.0MHz           | 1745.0MHz | 1775.0MHz |                 |                 |                  |
| QPSK                         | 1       | 0         | 22.68               | 22.66     | 22.80     | 3.55            | 26.40           | 30.00            |
|                              | 1       | 24        | 22.70               | 22.71     | 22.51     |                 |                 |                  |
|                              | 1       | 49        | 22.55               | 22.58     | 22.85     |                 |                 |                  |
|                              | 25      | 0         | 21.62               | 21.59     | 21.84     |                 |                 |                  |
|                              | 25      | 12        | 21.61               | 21.61     | 21.73     |                 |                 |                  |
|                              | 25      | 24        | 21.52               | 21.65     | 21.65     |                 |                 |                  |
|                              | 50      | 0         | 21.67               | 21.55     | 21.68     |                 |                 |                  |
| 16QAM                        | 1       | 0         | 22.20               | 22.20     | 22.26     | 3.55            | 26.09           | 30.00            |
|                              | 1       | 24        | 22.16               | 22.07     | 22.54     |                 |                 |                  |
|                              | 1       | 49        | 22.13               | 22.10     | 22.35     |                 |                 |                  |
|                              | 25      | 0         | 20.65               | 20.73     | 20.68     |                 |                 |                  |
|                              | 25      | 12        | 20.63               | 20.51     | 20.79     |                 |                 |                  |
|                              | 25      | 24        | 20.57               | 20.56     | 20.57     |                 |                 |                  |
|                              | 50      | 0         | 20.74               | 20.69     | 20.73     |                 |                 |                  |

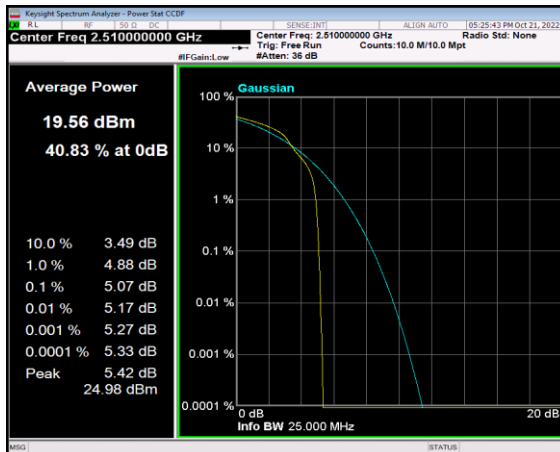
| LTE Band 66 - 15MHz Bandwidth |         |           |                     |           |           |                 |                 |                  |
|-------------------------------|---------|-----------|---------------------|-----------|-----------|-----------------|-----------------|------------------|
| Modulation                    | RB Size | RB Offset | Average Power (dBm) |           |           | Ant. Gain (dBi) | Max. EIRP (dBm) | EIRP Limit (dBm) |
|                               |         |           | 132047              | 132322    | 132597    |                 |                 |                  |
|                               |         |           | 1717.5MHz           | 1745.0MHz | 1772.5MHz |                 |                 |                  |
| QPSK                          | 1       | 0         | 22.56               | 22.78     | 22.63     | 3.55            | 26.33           | 30.00            |
|                               | 1       | 37        | 22.72               | 22.58     | 22.75     |                 |                 |                  |
|                               | 1       | 74        | 22.50               | 22.61     | 22.59     |                 |                 |                  |
|                               | 36      | 0         | 22.04               | 22.28     | 22.07     |                 |                 |                  |
|                               | 36      | 16        | 22.00               | 22.28     | 22.11     |                 |                 |                  |
|                               | 36      | 35        | 21.92               | 22.15     | 22.08     |                 |                 |                  |
|                               | 75      | 0         | 21.50               | 21.73     | 21.72     |                 |                 |                  |
| 16QAM                         | 1       | 0         | 22.03               | 22.21     | 22.14     | 3.55            | 25.91           | 30.00            |
|                               | 1       | 37        | 22.08               | 22.03     | 22.35     |                 |                 |                  |
|                               | 1       | 74        | 22.15               | 22.09     | 22.36     |                 |                 |                  |
|                               | 36      | 0         | 22.02               | 22.28     | 22.14     |                 |                 |                  |
|                               | 36      | 16        | 22.10               | 22.20     | 22.09     |                 |                 |                  |
|                               | 36      | 35        | 21.97               | 22.17     | 22.09     |                 |                 |                  |
|                               | 75      | 0         | 20.49               | 20.71     | 20.65     |                 |                 |                  |
| LTE Band 66 - 20MHz Bandwidth |         |           |                     |           |           |                 |                 |                  |
| Modulation                    | RB Size | RB Offset | Average Power (dBm) |           |           | Ant. Gain (dBi) | Max. EIRP (dBm) | EIRP Limit (dBm) |
|                               |         |           | 132072              | 132322    | 132572    |                 |                 |                  |
|                               |         |           | 1720.0MHz           | 1745.0MHz | 1770.0MHz |                 |                 |                  |
| QPSK                          | 1       | 0         | 22.46               | 22.80     | 22.79     | 3.55            | 26.59           | 30.00            |
|                               | 1       | 49        | 22.76               | 22.88     | 23.04     |                 |                 |                  |
|                               | 1       | 99        | 22.49               | 22.53     | 22.68     |                 |                 |                  |
|                               | 50      | 0         | 21.52               | 21.76     | 21.82     |                 |                 |                  |
|                               | 50      | 24        | 21.52               | 21.78     | 21.80     |                 |                 |                  |
|                               | 50      | 49        | 21.41               | 21.56     | 21.62     |                 |                 |                  |
|                               | 100     | 0         | 21.48               | 21.80     | 21.78     |                 |                 |                  |
| 16QAM                         | 1       | 0         | 21.84               | 22.03     | 21.78     | 3.55            | 25.81           | 30.00            |
|                               | 1       | 49        | 22.26               | 22.12     | 21.88     |                 |                 |                  |
|                               | 1       | 99        | 21.72               | 22.07     | 21.82     |                 |                 |                  |
|                               | 50      | 0         | 20.48               | 20.73     | 20.74     |                 |                 |                  |
|                               | 50      | 24        | 20.56               | 20.73     | 20.72     |                 |                 |                  |
|                               | 50      | 49        | 20.41               | 20.62     | 20.69     |                 |                 |                  |
|                               | 100     | 0         | 20.57               | 20.77     | 20.72     |                 |                 |                  |

### Peak To Average Ratio

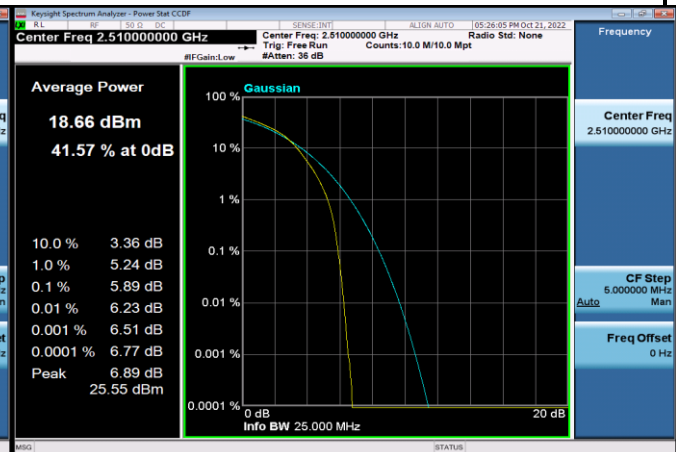
| PeakToAveragePowerRatio NormalTC_NormalVol |           |           |            |            |            |             |        |
|--------------------------------------------|-----------|-----------|------------|------------|------------|-------------|--------|
| Band                                       | Range     | BandWidth | RbMode     | Modulation | PAPR (dBm) | Limit (dBm) | Result |
| FDD04                                      | LowRange  | 20        | OneRB_high | Q16        | 5.53       | 13.00       | Pass   |
| FDD04                                      | LowRange  | 20        | fullRB     | Q16        | 6.10       | 13.00       | Pass   |
| FDD04                                      | MidRange  | 20        | OneRB_high | Q16        | 5.55       | 13.00       | Pass   |
| FDD04                                      | MidRange  | 20        | fullRB     | Q16        | 5.50       | 13.00       | Pass   |
| FDD04                                      | HighRange | 20        | OneRB_high | Q16        | 5.59       | 13.00       | Pass   |
| FDD04                                      | HighRange | 20        | fullRB     | Q16        | 5.99       | 13.00       | Pass   |
| FDD07                                      | LowRange  | 20        | OneRB_high | Q16        | 5.07       | 13.00       | Pass   |
| FDD07                                      | LowRange  | 20        | fullRB     | Q16        | 5.89       | 13.00       | Pass   |
| FDD07                                      | MidRange  | 20        | OneRB_high | Q16        | 5.48       | 13.00       | Pass   |
| FDD07                                      | MidRange  | 20        | fullRB     | Q16        | 7.29       | 13.00       | Pass   |
| FDD07                                      | HighRange | 20        | OneRB_high | Q16        | 7.01       | 13.00       | Pass   |
| FDD07                                      | HighRange | 20        | fullRB     | Q16        | 6.49       | 13.00       | Pass   |
| FDD66                                      | LowRange  | 20        | OneRB_high | Q16        | 5.54       | 13.00       | Pass   |
| FDD66                                      | LowRange  | 20        | fullRB     | Q16        | 6.11       | 13.00       | Pass   |
| FDD66                                      | MidRange  | 20        | OneRB_high | Q16        | 5.55       | 13.00       | Pass   |
| FDD66                                      | MidRange  | 20        | fullRB     | Q16        | 5.56       | 13.00       | Pass   |
| FDD66                                      | HighRange | 20        | OneRB_high | Q16        | 5.64       | 13.00       | Pass   |
| FDD66                                      | HighRange | 20        | fullRB     | Q16        | 6.15       | 13.00       | Pass   |

FDD04\_LowRange\_20MHz\_1720\_OneRB  
\_high\_Q16

FDD04\_LowRange\_20MHz\_1720\_fullRB  
\_Q16

FDD04\_MidRange\_20MHz\_1732.5\_OneRB  
\_high\_Q16

FDD04\_MidRange\_20MHz\_1732.5\_fullRB  
\_Q16

FDD04\_HighRange\_20MHz\_1745\_OneRB  
\_high\_Q16

FDD04\_HighRange\_20MHz\_1745\_fullRB  
\_Q16


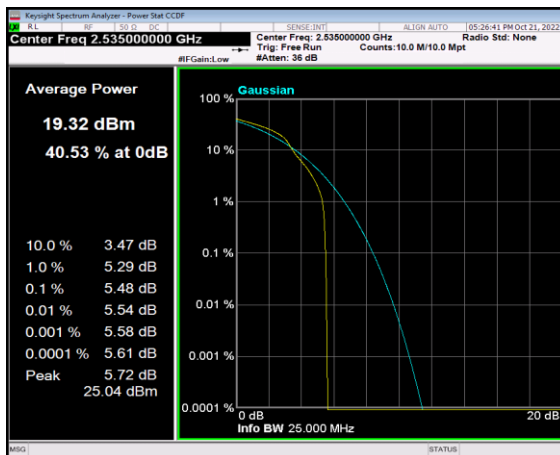
FDD07\_LowRange\_20MHz\_2510\_OneRB  
\_high\_Q16



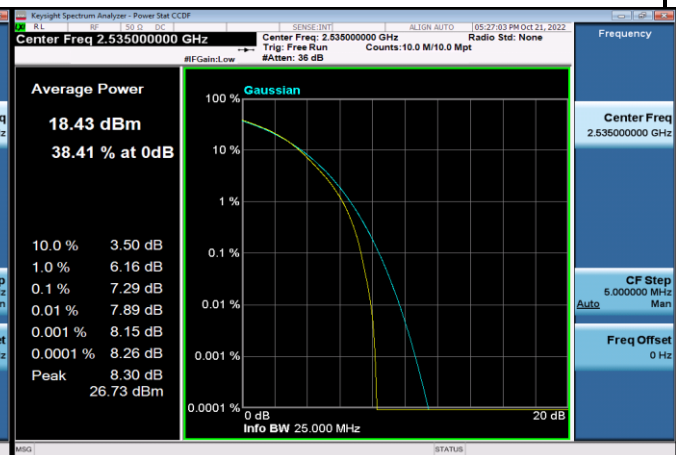
FDD07\_LowRange\_20MHz\_2510\_fullRB  
\_Q16



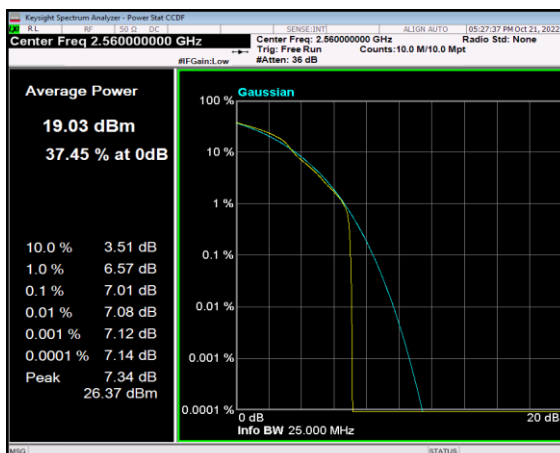
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\_high\_Q16



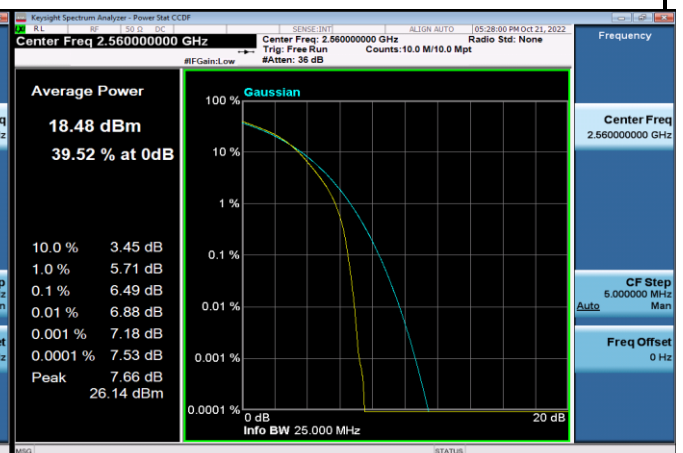
FDD07\_MidRange\_20MHz\_2535\_fullRB  
\_Q16

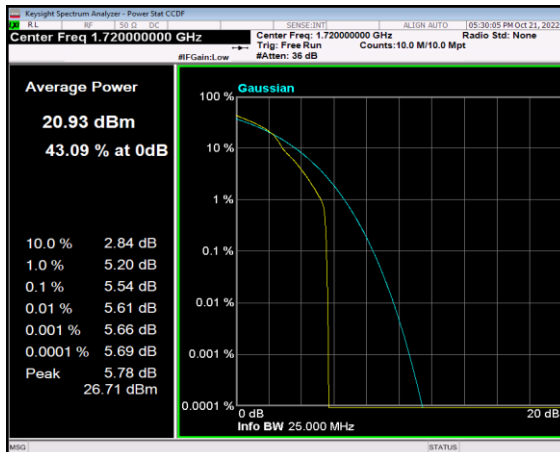
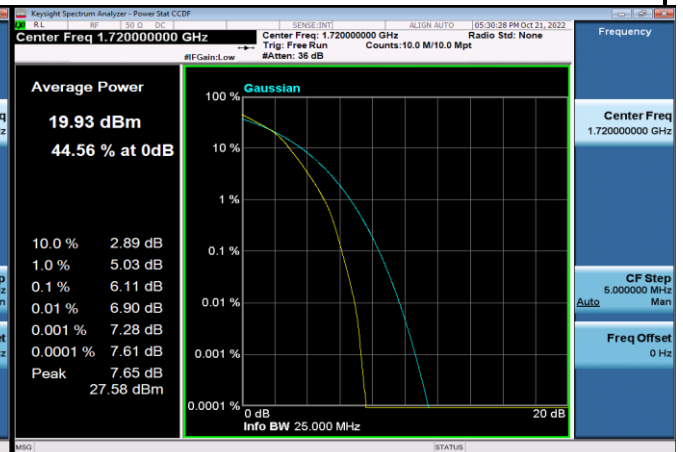
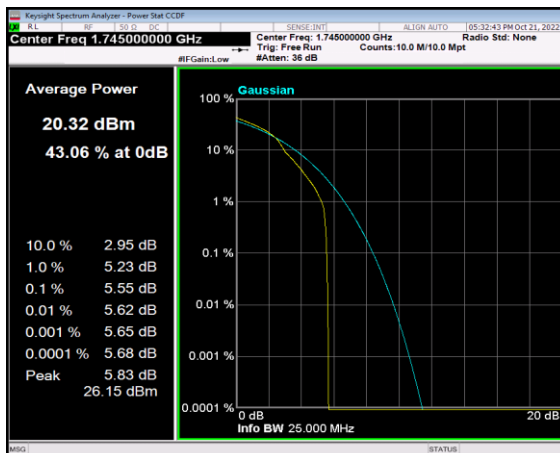
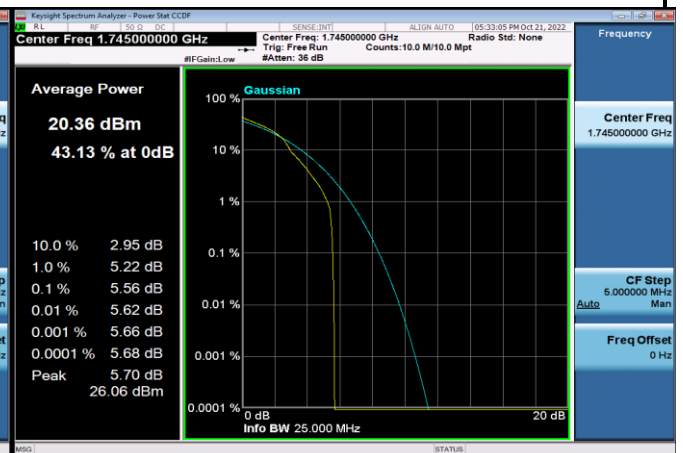
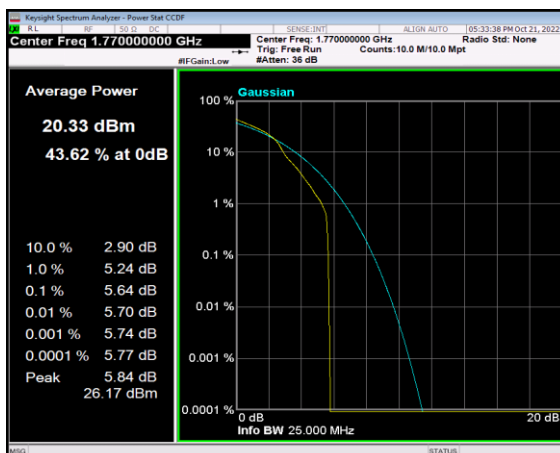
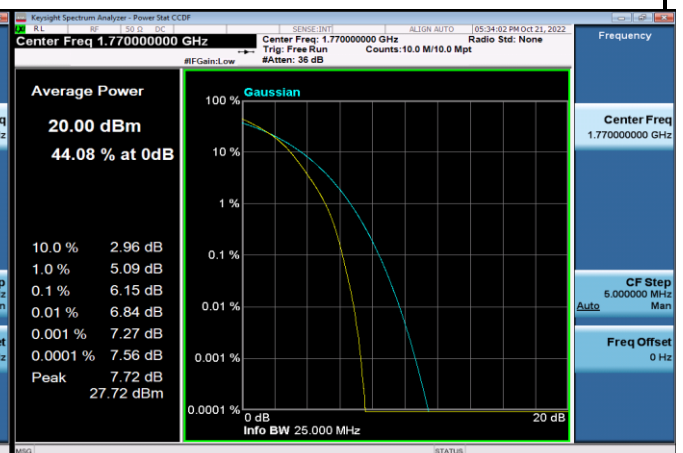


FDD07\_HighRange\_20MHz\_2560\_OneRB  
\_high\_Q16



FDD07\_HighRange\_20MHz\_2560\_fullRB  
\_Q16



FDD66\_LowRange\_20MHz\_1720\_OneRB  
\_high\_Q16

FDD66\_LowRange\_20MHz\_1720\_fullRB  
\_Q16

FDD66\_MidRange\_20MHz\_1745\_OneRB  
\_high\_Q16

FDD66\_MidRange\_20MHz\_1745\_fullRB  
\_Q16

FDD66\_HighRange\_20MHz\_1770\_OneRB  
\_high\_Q16

FDD66\_HighRange\_20MHz\_1770\_fullRB  
\_Q16


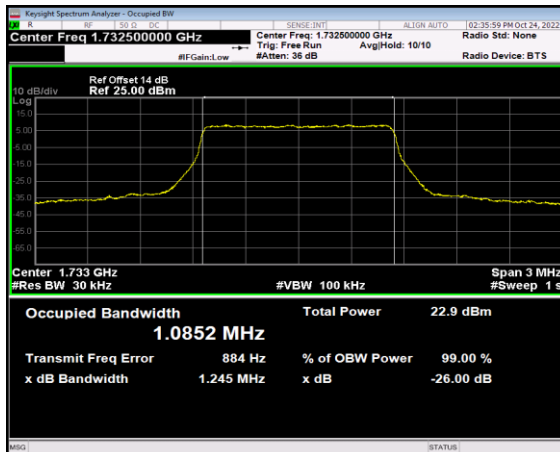
## 99% Occupied Bandwidth and 26dB Emission Bandwidth

| Occupied Bandwidth NormalTC_NormalVol |          |           |                 |            |                |                |
|---------------------------------------|----------|-----------|-----------------|------------|----------------|----------------|
| Band                                  | Range    | BandWidth | Frequency (MHz) | Modulation | OBW(99%) (MHz) | 26dB EBW (MHz) |
| FDD04                                 | MidRange | 1.4       | 1732.5          | QPSK       | 1.0852         | 1.25           |
| FDD04                                 | MidRange | 1.4       | 1732.5          | 16QAM      | 1.0850         | 1.26           |
| FDD04                                 | MidRange | 3         | 1732.5          | QPSK       | 2.7200         | 2.96           |
| FDD04                                 | MidRange | 3         | 1732.5          | 16QAM      | 2.7194         | 2.96           |
| FDD04                                 | MidRange | 5         | 1732.5          | QPSK       | 4.4901         | 4.85           |
| FDD04                                 | MidRange | 5         | 1732.5          | 16QAM      | 4.4896         | 4.81           |
| FDD04                                 | MidRange | 10        | 1732.5          | QPSK       | 8.9117         | 9.36           |
| FDD04                                 | MidRange | 10        | 1732.5          | 16QAM      | 8.9063         | 9.35           |
| FDD04                                 | MidRange | 15        | 1732.5          | QPSK       | 13.414         | 14.23          |
| FDD04                                 | MidRange | 15        | 1732.5          | 16QAM      | 13.415         | 14.22          |
| FDD04                                 | MidRange | 20        | 1732.5          | QPSK       | 17.834         | 18.72          |
| FDD04                                 | MidRange | 20        | 1732.5          | 16QAM      | 17.832         | 18.73          |
| FDD05                                 | MidRange | 1.4       | 836.5           | QPSK       | 1.0863         | 1.25           |
| FDD05                                 | MidRange | 1.4       | 836.5           | 16QAM      | 1.0856         | 1.26           |
| FDD05                                 | MidRange | 3         | 836.5           | QPSK       | 2.7202         | 2.97           |
| FDD05                                 | MidRange | 3         | 836.5           | 16QAM      | 2.7207         | 2.96           |
| FDD05                                 | MidRange | 5         | 836.5           | QPSK       | 4.4919         | 4.85           |
| FDD05                                 | MidRange | 5         | 836.5           | 16QAM      | 4.4893         | 4.82           |
| FDD05                                 | MidRange | 10        | 836.5           | QPSK       | 8.9268         | 9.42           |
| FDD05                                 | MidRange | 10        | 836.5           | 16QAM      | 8.9201         | 9.42           |
| FDD07                                 | MidRange | 5         | 2535            | QPSK       | 4.5437         | 9.31           |
| FDD07                                 | MidRange | 5         | 2535            | Q16        | 4.5716         | 9.9            |
| FDD07                                 | MidRange | 10        | 2535            | QPSK       | 9.0010         | 17.44          |
| FDD07                                 | MidRange | 10        | 2535            | Q16        | 9.0230         | 19.43          |
| FDD07                                 | MidRange | 15        | 2535            | QPSK       | 13.620         | 28.13          |
| FDD07                                 | MidRange | 15        | 2535            | Q16        | 13.701         | 29.21          |
| FDD07                                 | MidRange | 20        | 2535            | QPSK       | 18.023         | 32.01          |
| FDD07                                 | MidRange | 20        | 2535            | Q16        | 18.081         | 36.3           |
| FDD066                                | MidRange | 1.4       | 1745            | QPSK       | 1.0855         | 1.25           |
| FDD066                                | MidRange | 1.4       | 1745            | 16QAM      | 1.0854         | 1.26           |

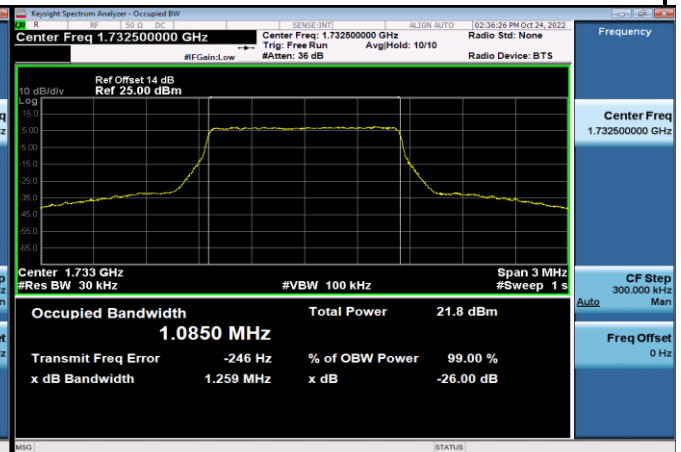


|        |          |    |      |       |        |       |
|--------|----------|----|------|-------|--------|-------|
| FDD066 | MidRange | 3  | 1745 | QPSK  | 2.7188 | 2.97  |
| FDD066 | MidRange | 3  | 1745 | 16QAM | 2.7191 | 2.96  |
| FDD066 | MidRange | 5  | 1745 | QPSK  | 4.4922 | 4.83  |
| FDD066 | MidRange | 5  | 1745 | 16QAM | 4.4887 | 4.81  |
| FDD066 | MidRange | 10 | 1745 | QPSK  | 8.9118 | 9.38  |
| FDD066 | MidRange | 10 | 1745 | 16QAM | 8.9036 | 9.36  |
| FDD066 | MidRange | 15 | 1745 | QPSK  | 13.401 | 14.22 |
| FDD066 | MidRange | 15 | 1745 | 16QAM | 13.399 | 14.22 |
| FDD066 | MidRange | 20 | 1745 | QPSK  | 17.805 | 18.7  |
| FDD066 | MidRange | 20 | 1745 | 16QAM | 17.798 | 18.71 |

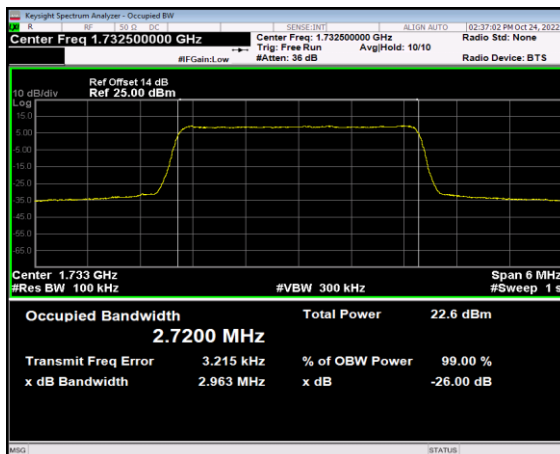
### FDD04\_MidRange\_1.4MHz\_1732.5MHz\_QPSK



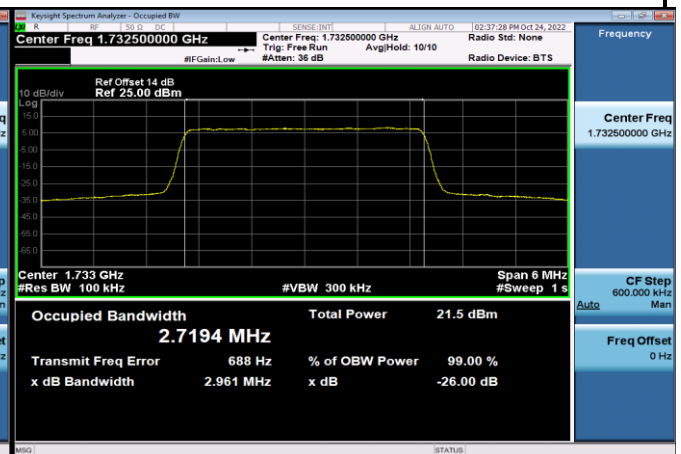
### FDD04\_MidRange\_1.4MHz\_1732.5MHz\_Q16



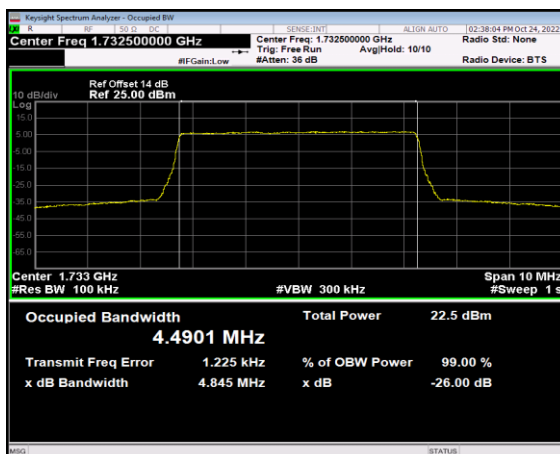
### FDD04\_MidRange\_3MHz\_1732.5MHz\_QPSK



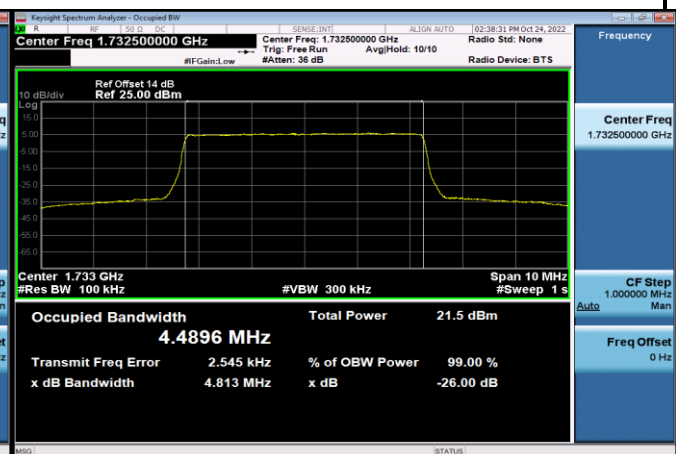
### FDD04\_MidRange\_3MHz\_1732.5MHz\_Q16



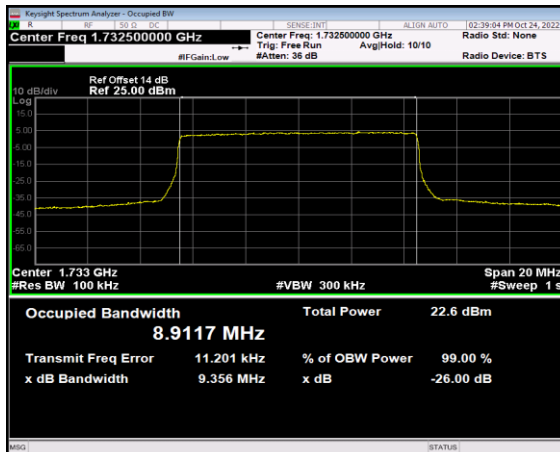
### FDD04\_MidRange\_5MHz\_1732.5MHz\_QPSK



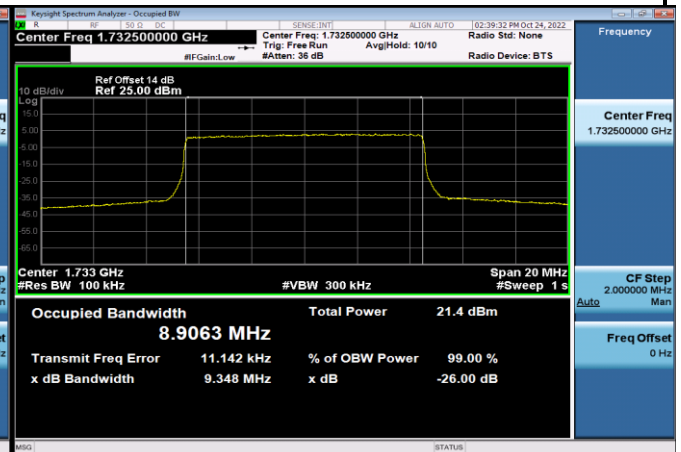
### FDD04\_MidRange\_5MHz\_1732.5MHz\_Q16



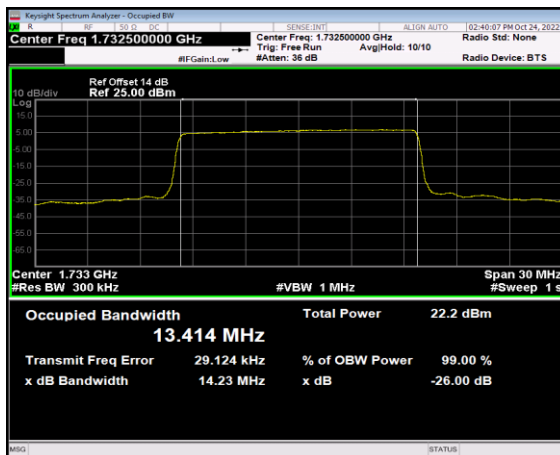
### FDD04\_MidRange\_10MHz\_1732.5MHz \_QPSK



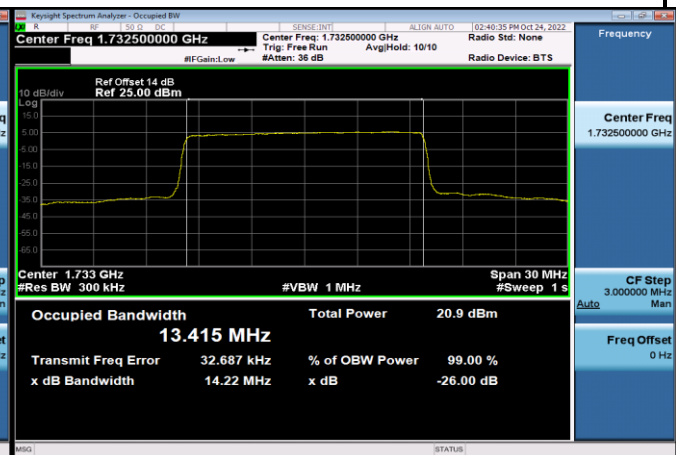
### FDD04\_MidRange\_10MHz\_1732.5MHz \_Q16



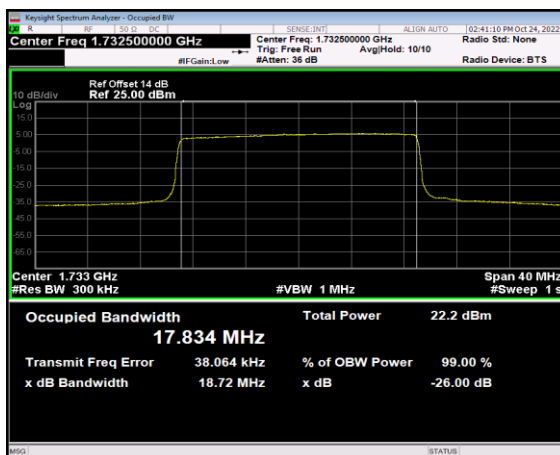
### FDD04\_MidRange\_15MHz\_1732.5MHz \_QPSK



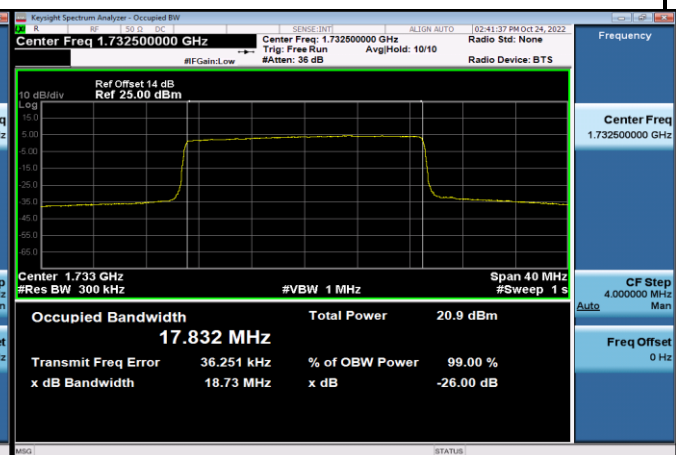
### FDD04\_MidRange\_15MHz\_1732.5MHz \_Q16



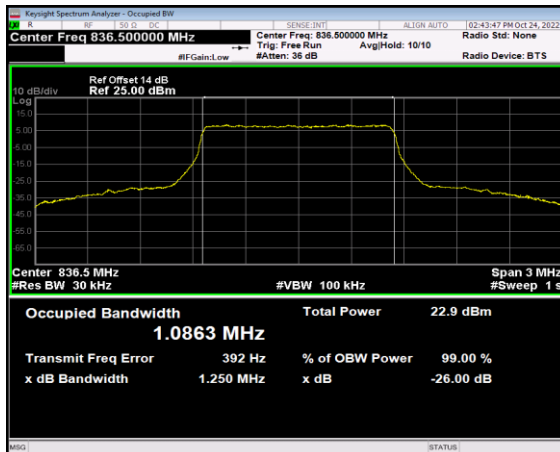
### FDD04\_MidRange\_20MHz\_1732.5MHz \_QPSK



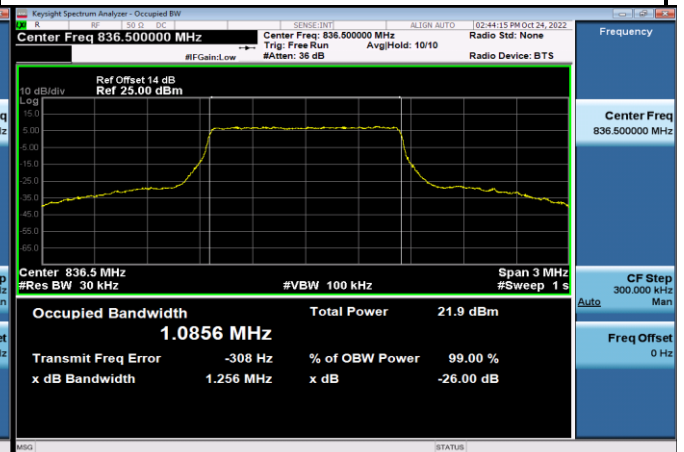
### FDD04\_MidRange\_20MHz\_1732.5MHz \_Q16



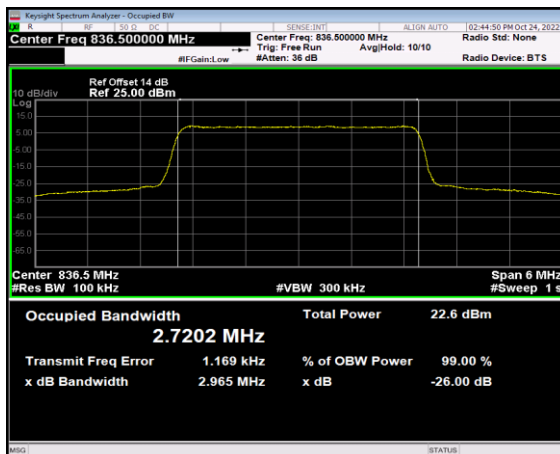
### FDD05\_MidRange\_1.4MHz\_836.5MHz \_QPSK



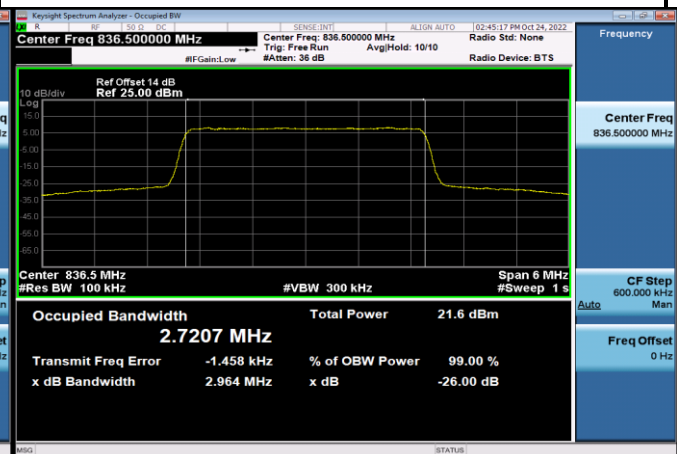
### FDD05\_MidRange\_1.4MHz\_836.5MHz \_Q16



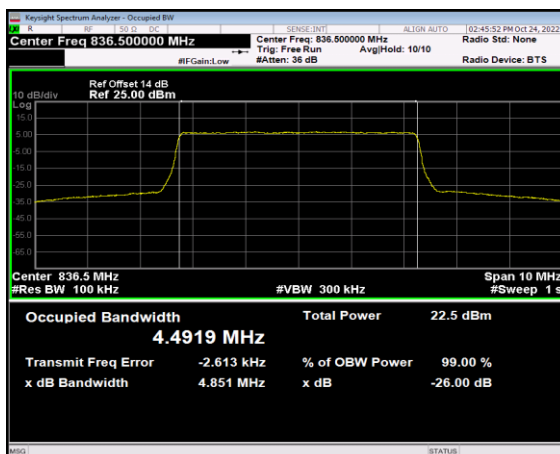
### FDD05\_MidRange\_3MHz\_836.5MHz\_QPSK



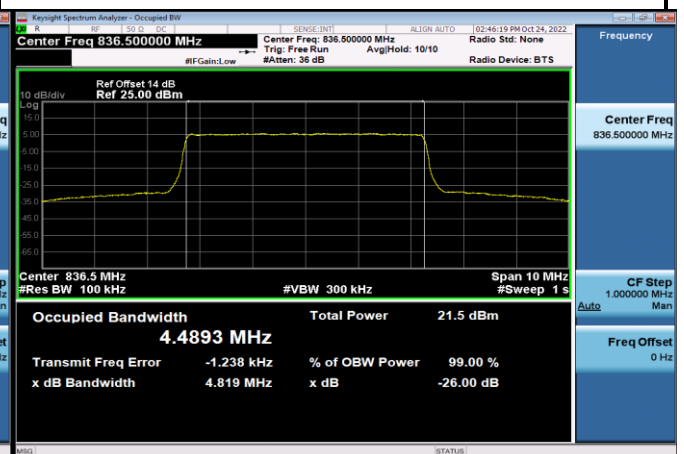
### FDD05\_MidRange\_3MHz\_836.5MHz\_Q16



### FDD05\_MidRange\_5MHz\_836.5MHz\_QPSK

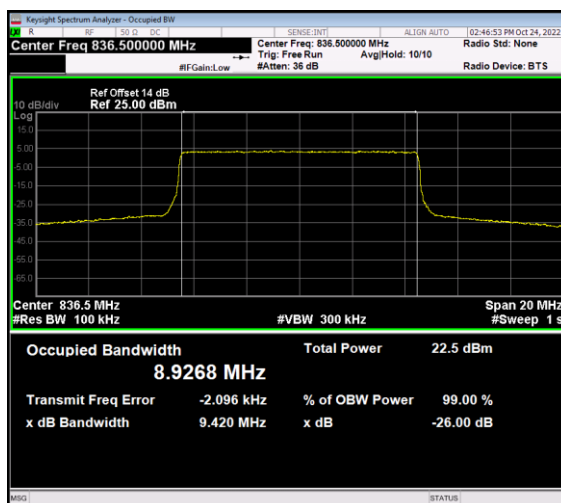


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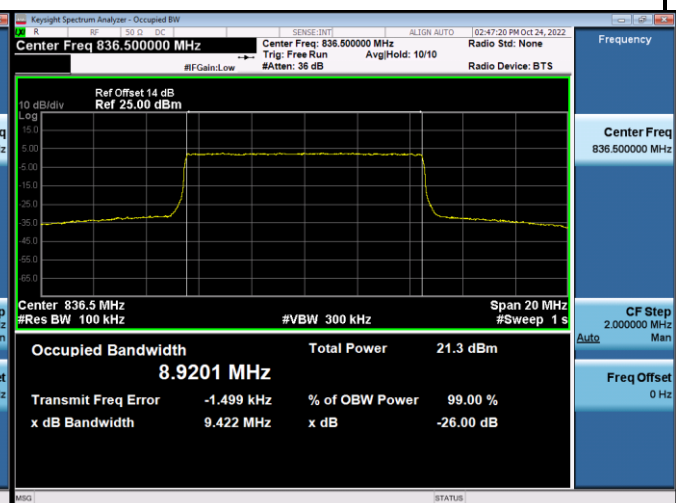




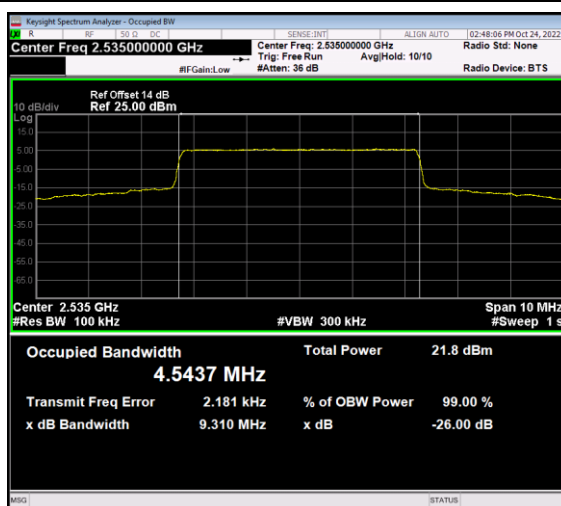
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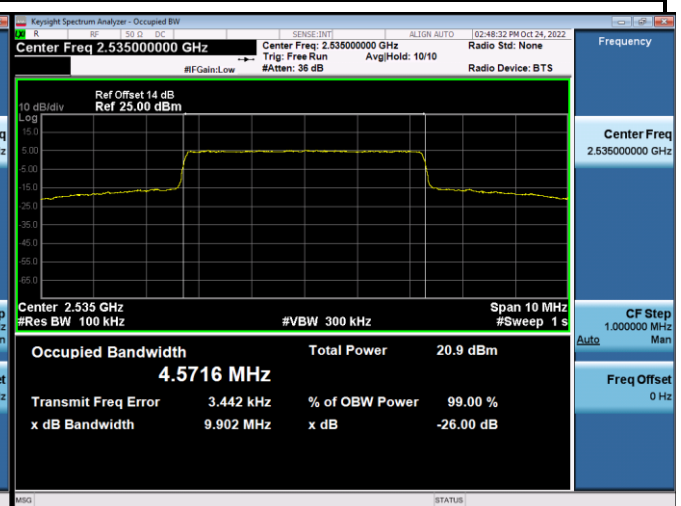
FDD05\_MidRange\_10MHz\_836.5MHz\_Q16



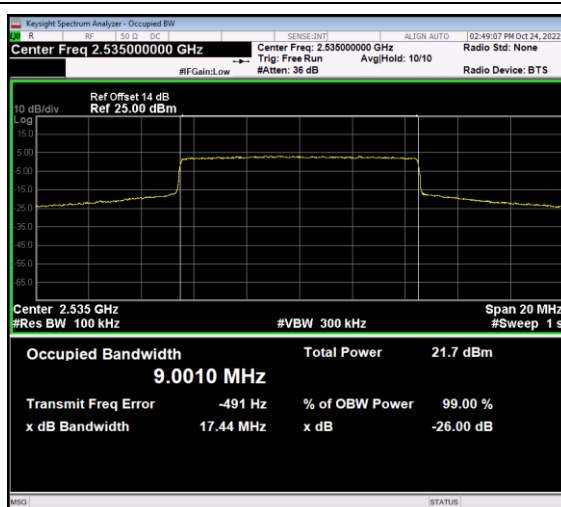
FDD07\_MidRange\_5MHz\_2535MHz\_QPSK



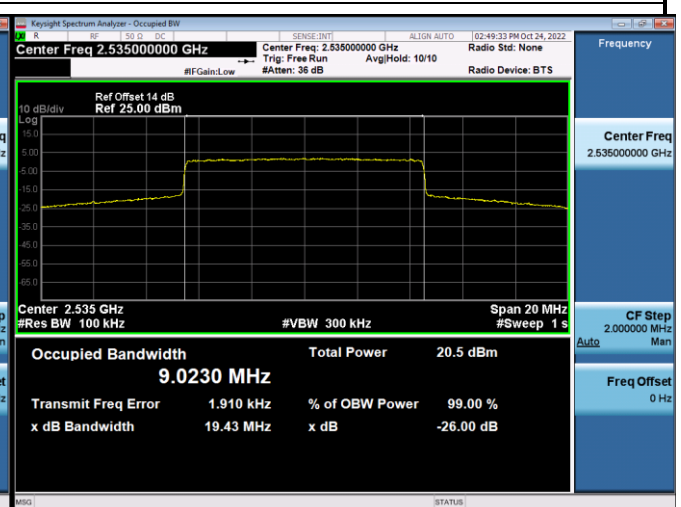
FDD07\_MidRange\_5MHz\_2535MHz\_Q16



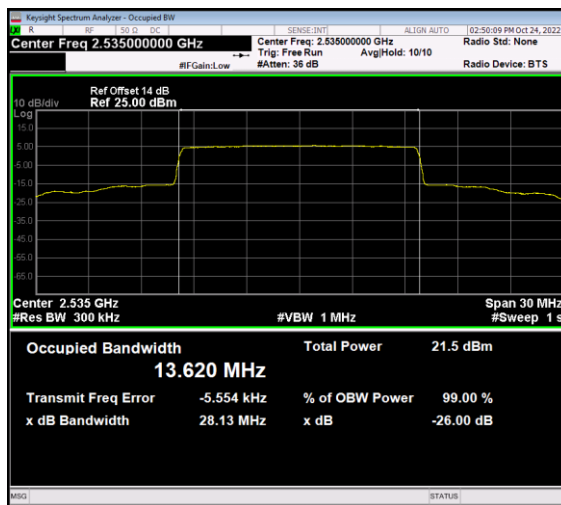
FDD07\_MidRange\_10MHz\_2535MHz\_QPSK



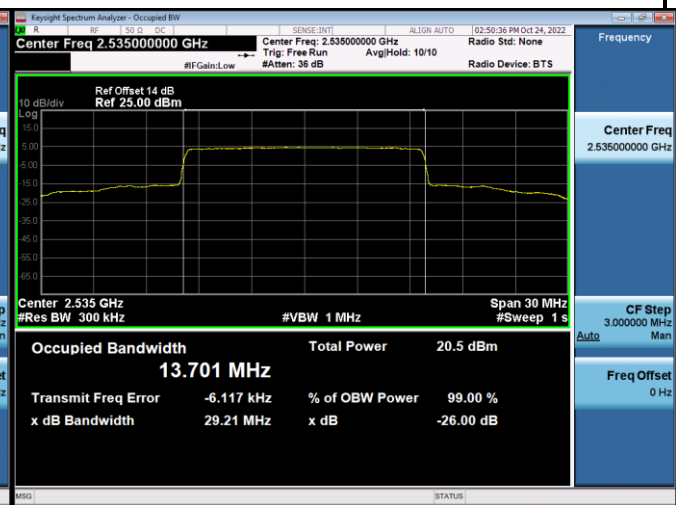
FDD07\_MidRange\_10MHz\_2535MHz\_Q16



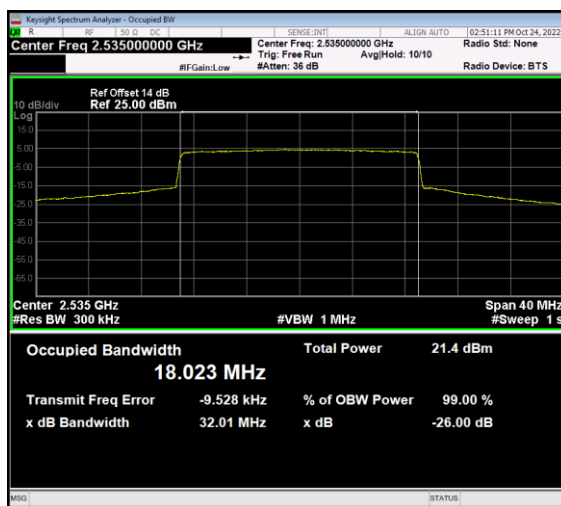
FDD07\_MidRange\_15MHz\_2535MHz\_QPSK



FDD07\_MidRange\_15MHz\_2535MHz\_Q16



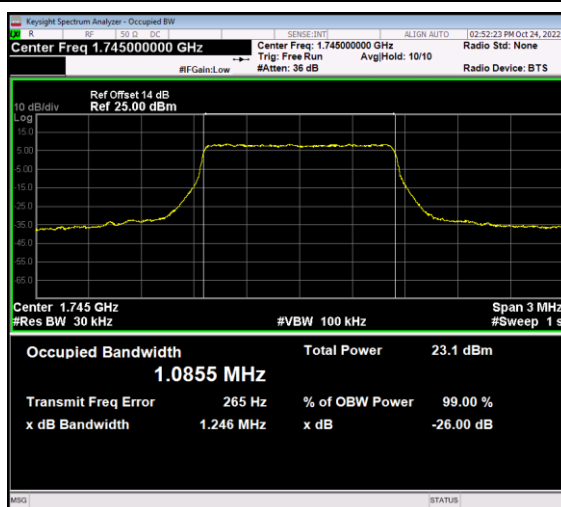
FDD07\_MidRange\_20MHz\_2535MHz\_QPSK



FDD07\_MidRange\_20MHz\_2535MHz\_Q16



FDD66\_MidRange\_1.4MHz\_1745MHz\_QPSK



FDD66\_MidRange\_1.4MHz\_1745MHz\_Q16

