

# ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT



**Applicant:** Telit Communications S.p.A.  
Via Stazione di Prosecco 5/b 34010 Sgonico - Trieste

**Product Name:** LN920A12-WW / LN920A6-WW

**Brand Name:** Telit

**Model No.:** LN920A12-WW / LN920A6-WW

**Model Difference:** Refer to Page 4

**Report Number:** ER/2021/A0028-01

**FCC ID** RI7LN920

**Issue Date:** March 16, 2022

**Date of Test:** October 6, 2021~December 10, 2021

**Date of EUT Received:** October 6, 2021

Approved By

Blue Yang

## We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Central RF Lab. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.26-2015 and the energy emitted by the sample EUT comply with FCC rule part 2, § 96.

The results of this report relate only to the sample identified in this report.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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## Revision History

| Report Number    | Revision | Description                                        | Issue Date     | Revised By | Remark |
|------------------|----------|----------------------------------------------------|----------------|------------|--------|
| ER/2021/A0028-01 | 00       | Inserting section 1.2 to address model difference. | March 16, 2022 | Susan Lin  |        |
|                  |          |                                                    |                |            |        |
|                  |          |                                                    |                |            |        |
|                  |          |                                                    |                |            |        |
|                  |          |                                                    |                |            |        |
|                  |          |                                                    |                |            |        |
|                  |          |                                                    |                |            |        |

**Note:**

- 1、The remark "" indicates modification of the report upon requests from certification body.
- 2、Variant information of model numbers is provided by the applicant, test results of this report are applicable to the sample EUT(s) received and are assessed as identical in hardware and firmware to each other.
- 3、Please note that the report ER/2021/A0028-01 will replace the previous ER/2021/A0028 as the new version and ER/2021/A0028 is ineffective anymore from now on.

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## 1 GENERAL PRODUCT INFORMATION

### 1.1 Product Description

|                               |                                                                                                        |
|-------------------------------|--------------------------------------------------------------------------------------------------------|
| Product Name:                 | LN920A12-WW / LN920A6-WW                                                                               |
| Brand Name:                   | Telit                                                                                                  |
| Model No.:                    | LN920A12-WW / LN920A6-WW                                                                               |
| Model Difference:             | 1. Internal Component is different between two model.<br>2. Capability is different between two model. |
| Hardware Version:             | 1.0                                                                                                    |
| Firmware Version:             | LN920A12-WW: M0L.000001 / LN920A6-WW : M0L.010001                                                      |
| EUT Series No.:               | 35417570001280                                                                                         |
| Power Supply:                 | 3.3Vdc                                                                                                 |
| Test Software (Name/Version): | N/A                                                                                                    |

### 1.2 Model difference

- The mobile data modem chip on U200 between two models are pin for pin compatible with identical internal circuits.
- The **LN920A6-WW** uses MOBILE DATA MODEM SDX12-2 with CAT12 features disabled by a fuse bit with different FVIN.
- The **LN920A12-WW** is tested as the representative sample with the most modem capabilities.

| Model              | FVIN       | Component on U200          | Modem Capability                                                        |
|--------------------|------------|----------------------------|-------------------------------------------------------------------------|
| <b>LN920A12-WW</b> | M0L.000001 | MOBILE DATA MO-DEM SDX12-0 | LTE, 4 × 4 MIMO, CA 60 MHz<br>DL 256QAM DL, CA 40 MHz<br>UL, 64 QAM UL, |
| <b>LN920A6-WW</b>  | M0L.010001 | MOBILE DATA MO-DEM SDX12-2 | LTE, 4 × 4 MIMO, CA 40 MHz<br>DL, 64 QAM DL, CA 20 MHz<br>UL, 16 QAM UL |

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### 1.3 Antenna Designation

| Antenna Type                                                                                          | Antenna Model No. |
|-------------------------------------------------------------------------------------------------------|-------------------|
| Dipole                                                                                                | WE14-S3-2         |
| <b>Note:</b> Transmission frequencies in this test report are only available by the above antenna(s). |                   |

| Type   | Modulation  | Frequency (MHz) | Peak Antenna Gain (dBi) |
|--------|-------------|-----------------|-------------------------|
| Dipole | LTE-Band 42 | 3400 ~ 3600     | 1                       |
|        | LTE-Band 43 | 3600 ~ 3700     | 1                       |
|        | LTE-Band 48 | 3550 ~ 3700     | 1                       |

**Note:** Antenna information is provided by the applicant.

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## 1.4 Operation Frequencies

| LTE Band | BW (MHz) | Operation Frequency (MHz) |   |        |
|----------|----------|---------------------------|---|--------|
| 42/43/48 | 5        | 3552.5                    | - | 3697.5 |
|          | 10       | 3555.0                    | - | 3695.0 |
|          | 15       | 3557.5                    | - | 3692.5 |
|          | 20       | 3560.0                    | - | 3690.0 |

## 1.5 Maximum ERP/EIRP

| LTE Band | BW | Modulation | ERP / EIRP (dBm/10MHz) |      | (W)          | 99%     | Type of Emission |
|----------|----|------------|------------------------|------|--------------|---------|------------------|
| 48       | 5  | QPSK       | 22.78                  | EIRP | 0.190        | 4.4904  | 4M49G7D          |
|          |    | 16QAM      | 22.01                  | EIRP | 0.159        | 4.4826  | 4M48D7W          |
|          |    | 64QAM      | 20.79                  | EIRP | 0.120        | 4.4964  | 4M50D7W          |
| 48       | 10 | QPSK       | 22.68                  | EIRP | 0.185        | 8.9618  | 8M96G7D          |
|          |    | 16QAM      | 22.02                  | EIRP | 0.159        | 8.9433  | 8M94D7W          |
|          |    | 64QAM      | 20.80                  | EIRP | 0.120        | 8.9568  | 8M96D7W          |
| 48       | 15 | QPSK       | 22.82                  | EIRP | 0.191        | 13.4270 | 13M4G7D          |
|          |    | 16QAM      | 22.05                  | EIRP | 0.160        | 13.4420 | 13M4D7W          |
|          |    | 64QAM      | 20.81                  | EIRP | <b>0.121</b> | 13.4230 | 13M4D7W          |
| 48       | 20 | QPSK       | 22.87                  | EIRP | <b>0.194</b> | 17.8840 | 17M9G7D          |
|          |    | 16QAM      | 22.06                  | EIRP | <b>0.161</b> | 17.8850 | 17M9D7W          |
|          |    | 64QAM      | 20.74                  | EIRP | 0.119        | 17.8830 | 17M9D7W          |

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## 1.6 Test Methodology of Applied Standards

FCC 47 CFR Part 2, Part 96E

ANSI C63.26-2015

ANSI/ITA C603-E.2016

KDB 971168 D01 Power Meas license Digital System v03r01

KDB 940660 D01 Part 96 CBRs Eqpt v02

KDB 412172 D01 Determining ERP and EIRP V01r01

## 1.7 Test Facility

| Laboratory                                            | Test Site Address                                                                         | Test Site Name | FCC Designation number | IC CAB identifier |
|-------------------------------------------------------|-------------------------------------------------------------------------------------------|----------------|------------------------|-------------------|
| SGS Taiwan Ltd.<br>Central RF Lab.<br>(TAF code 3702) | No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan. | SAC 1          | TW0027                 | TW3702            |
|                                                       |                                                                                           | SAC 3          |                        |                   |
|                                                       |                                                                                           | Conduction 1   |                        |                   |
|                                                       |                                                                                           | Conducted 1    |                        |                   |
|                                                       |                                                                                           | Conducted 2    |                        |                   |
|                                                       |                                                                                           | Conducted 3    |                        |                   |
|                                                       |                                                                                           | Conducted 4    |                        |                   |
|                                                       |                                                                                           | Conducted 5    |                        |                   |
|                                                       |                                                                                           | Conducted 6    |                        |                   |
|                                                       | No.2, Keji 1st Rd., Guishan District, Taoyuan City, Taiwan 333                            | Conduction C   | TW0028                 |                   |
|                                                       |                                                                                           | SAC C          |                        |                   |
|                                                       |                                                                                           | SAC D          |                        |                   |
|                                                       |                                                                                           | SAC G          |                        |                   |
|                                                       |                                                                                           | Conducted A    |                        |                   |
|                                                       |                                                                                           | Conducted B    |                        |                   |
|                                                       |                                                                                           | Conducted C    |                        |                   |
|                                                       |                                                                                           | Conducted D    |                        |                   |
|                                                       |                                                                                           | Conducted E    |                        |                   |
|                                                       |                                                                                           | Conducted F    |                        |                   |
|                                                       |                                                                                           | Conducted G    |                        |                   |

**Note:** Test site name is remarked on the equipment list in each section of this report as an indication where measurements occurred in specific test site and address.

## 1.8 Special Accessories

No special accessories were used during testing.

## 1.9 Equipment Modifications

There was no modifications incorporated into the EUT.

## 1.10 Radiated Emission Test Sites For Measurements From 9 kHz To 30 MHz

Radiated emission below 30MHz is measured in a 9m\*9m\*6m semi-anechoic chamber, the measurements correspond to those obtained at an open-field test site.

There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

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## 2 SYSTEM TEST CONFIGURATION

### 2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

### 2.2 EUT Exercise

The EUT (Transmitter) was operated in the continuous transmission mode employed with the simulator of the Base Station that fixates at test default channels to fix the Tx frequency which was for the purpose of the measurements.

### 2.3 Test Procedure

#### 2.3.1 Conducted Measurement at Antenna Port

The EUT is placed on a table which is 0.8 m above ground plane. A low loss of RF cable was used to connect the antenna port of EUT to measurement equipment.

#### 2.3.2 Radiated Emissions (ERP/EIRP)

The EUT is placed on a turn table, for emission measurements below 1 GHz is 0.8 m above ground plane, for emission measurements above 1 GHz, the table height shall be 1.5 m. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both Horizontal and Vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna.

### 2.4 Measurement Results Explanation Example

#### For all conducted test items:

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

#### Note:

The spectrum analyzer offset is derived from RF cable loss and attenuator factor. Following shows an offset computation in physical test.

| Frequency     | RF Cable loss (dB) | Attenuation (dB) | Offset (dB) |
|---------------|--------------------|------------------|-------------|
| HB(over 3GHz) | 5.47               | 10               | 15.47       |

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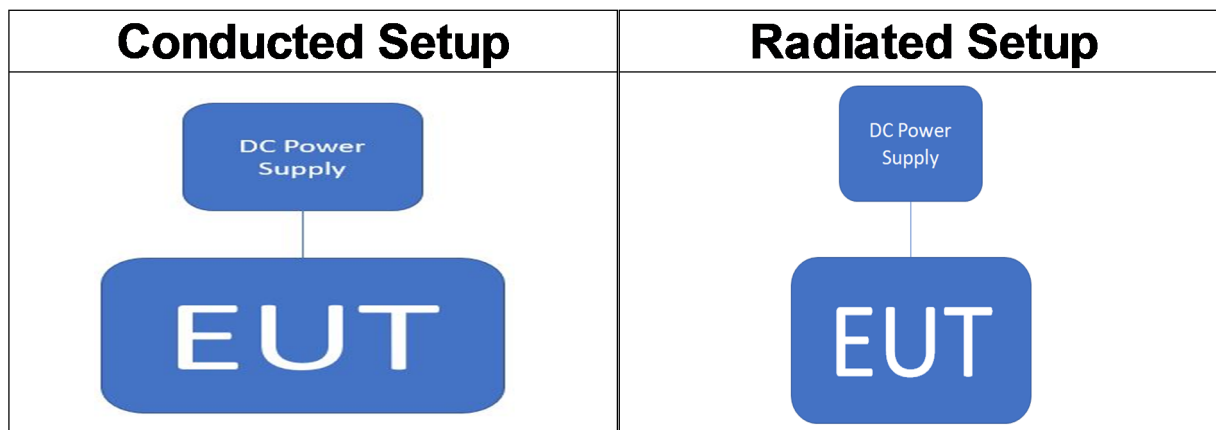


## 2.5 Final Amplifier Voltage and Current Information:

### LTE Band 48

| Test Mode               | DC voltage (V) | DC current (mA) |
|-------------------------|----------------|-----------------|
| LTE Band 48_20M<br>QPSK | 3.3            | 457             |

## 2.6 Test Configuration



**Note:** Radio Communication Analyzer is placed in remote side for radiated test.

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### 3 SUMMARY OF TEST RESULTS

| FCC Rules               | Description Of Test                  | Result    |
|-------------------------|--------------------------------------|-----------|
| §2.1046(a)<br>§96.41(b) | Maximum Power Output                 | Compliant |
| §2.1046,<br>§96.41(b)   | Maximum Power Density                | Compliant |
| §2.1053,<br>§96.41(e)   | FIELD STRENGTH OF SPURIOUS RADIATION | Compliant |
| §2.1051<br>§96.41(e)    | OUT OF BAND EMISSION AT ANTENNA      | Compliant |
| §2.1049,(h)             | OCCUPIED BANDWIDTH                   | Compliant |
| §2.1055(a)              | Frequency Stability                  | Compliant |

#### Note

1. All test data is leveraged from test report ER/2021/A0028.

#### 3.1 Reporting statements of conformity

The conformity statement in this report is based solely on the test results, measurement uncertainty is excluded.

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## 4 DESCRIPTION OF TEST MODES

### 4.1 The Worst Test Modes and Channel Details

1. The EUT has been tested under operating condition.
2. Pre-Scan has been conducted to determine the worst-case scenario from all possible combinations among available modulations, data rates and antenna ports, the worst case configurations listed below for the final test.
3. The field strength of radiated emission was measured as the EUT positioned in different orthogonal planes (E1/E2/H) based on actual usage of the EUT to pre-scan the emissions for determining the worst case scenario.

### 4.2 Measurement Configuration

#### LTE Band 48 MODE

| Test Items        | Band | Test Channel |   |   | Bandwidth (MHz) |   |   |    |    |    | Modulation |       |       |        | RB # |      |      |
|-------------------|------|--------------|---|---|-----------------|---|---|----|----|----|------------|-------|-------|--------|------|------|------|
|                   |      | L            | M | H | 1.4             | 3 | 5 | 10 | 15 | 20 | QPSK       | 16QAM | 64QAM | 256QAM | 1    | Half | Full |
| Max. Output Power | 48   | v            | v | v | -               | - | v | v  | v  | v  | v          | v     | v     | v      | v    | v    | v    |
| Frequency         | 48   | -            | v | - | -               | - |   | v  |    |    | v          | -     | -     | -      | -    | -    | v    |

| Test Items             | Band | Test Channel |   |   | Bandwidth (MHz) |   |   |    |    |    | Modulation |       |       |       | RB # |      |      |
|------------------------|------|--------------|---|---|-----------------|---|---|----|----|----|------------|-------|-------|-------|------|------|------|
|                        |      | L            | M | H | 1.4             | 3 | 5 | 10 | 15 | 20 | QPSK       | 16QAM | 64QAM | 64QAM | 1    | Half | Full |
| 26dB and 99% Bandwidth | 48   | v            | v | v | -               | - | v | v  | v  | v  | v          | v     | v     | v     | -    | -    | v    |
| Peak-to-Average Ratio  | 48   | v            | v | v | -               | - | v | v  | v  | v  | -          | -     | v     | -     | -    | -    | v    |

| Test Items         | Band | Test Channel |   |   | Bandwidth (MHz) |   |   |    |    |    | Modulation |       |       |       | RB # |      |      |
|--------------------|------|--------------|---|---|-----------------|---|---|----|----|----|------------|-------|-------|-------|------|------|------|
|                    |      | L            | M | H | 1.4             | 3 | 5 | 10 | 15 | 20 | QPSK       | 16QAM | 64QAM | 64QAM | 1    | Half | Full |
| Mask               | 48   | v            | v | v | -               | - | v | v  | v  | v  | v          | -     | -     | -     | v    | v    | v    |
| Conducted Emission | 48   | v            | v | v | -               | - | - | -  | -  | v  | v          | -     | -     | -     | v    | -    | -    |

| Test Items        | Band | Test Channel |   |   | Bandwidth (MHz) |   |   |    |    |    | Modulation |       |       |        | RB # |      |      |
|-------------------|------|--------------|---|---|-----------------|---|---|----|----|----|------------|-------|-------|--------|------|------|------|
|                   |      | L            | M | H | 1.4             | 3 | 5 | 10 | 15 | 20 | QPSK       | 16QAM | 64QAM | 256QAM | 1    | Half | Full |
| Radiated Emission | 48   | v            | v | v | -               | - | - | -  | -  | v  | v          | -     | -     | -      | v    | -    | -    |

**Note:** LTE band 42/43 is covered by LTE band 48 because it is a subset of Band 48 and they have same output power.

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## 5 MEASUREMENT UNCERTAINTY

| Test Items                                               | Uncertainty |
|----------------------------------------------------------|-------------|
| RF Power Output                                          | +/- 1 dB    |
| ERP/ EIRP measurement                                    | +/- 3 dB    |
|                                                          | +/- 3 dB    |
| Emission Bandwidth                                       | +/- 1.53 Hz |
| Out of Band Emissions at Antenna Terminals and Band Edge | +/- 1.69 dB |
| Peak to Average Ratio                                    | +/- 1 dB    |
| Frequency Stability vs. Temperature                      | +/- 1.53 Hz |
| Frequency Stability vs. Voltage                          | +/- 1.53 Hz |
| Temperature                                              | +/- 0.4 °C  |
| Humidity                                                 | +/- 3.5 %   |
| DC / AC Power Source                                     | +/- 1 %     |

| Radiated Spurious Emission Measurement Uncertainty |             |                 |  |
|----------------------------------------------------|-------------|-----------------|--|
| Polarization: Vertical                             | +/- 2.64 dB | 9kHz~30MHz      |  |
|                                                    | +/- 4.93 dB | 30MHz - 1000MHz |  |
|                                                    | +/- 4.81 dB | 1GHz - 18GHz    |  |
|                                                    | +/- 4.52 dB | 18GHz - 40GHz   |  |
| Polarization: Horizontal                           | +/- 2.64 dB | 9kHz~30MHz      |  |
|                                                    | +/- 4.45 dB | 30MHz - 1000MHz |  |
|                                                    | +/- 4.81 dB | 1GHz - 18GHz    |  |
|                                                    | +/- 4.52 dB | 18GHz - 40GHz   |  |

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

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## 6 MEASUREMENT EQUIPMENT USED

### 6.1 Conducted Measurement

| Conducted Emission Test Site: Conducted 4 |               |                     |                |            |            |
|-------------------------------------------|---------------|---------------------|----------------|------------|------------|
| EQUIPMENT TYPE                            | MFR           | MODEL NUMBER        | SERIAL NUMBER  | LAST CAL.  | CAL DUE.   |
| EXA Spectrum Analyzer                     | Agilent       | N9010A              | MY54200716     | 10/13/2021 | 10/12/2022 |
| Radio Communication Analyzer              | Anritsu       | MT8821C             | 6262044670     | 08/18/2021 | 08/17/2022 |
| Test Software                             | SGS           | Radio Test Software | Ver. 21        | N.C.R      | N.C.R      |
| Temperature Chamber                       | Giant Force   | GTH-150-40-CP-AR    | MAA0512-018    | 05/19/2021 | 05/18/2022 |
| DC Power Supply                           | Gwinstek      | SPS-3610            | GEV856761      | 09/18/2021 | 09/17/2022 |
| Attenuator                                | Mini-Circuit  | BW-S10W2+           | 4              | 12/16/2020 | 12/15/2021 |
| DC Block                                  | Mini-Circuits | BLK-18-S+           | 1              | 12/16/2020 | 12/15/2021 |
| Power Divider                             | RF-LAMBAD     | RFLT2W1G18G         | 11-JSPF412-017 | 12/16/2020 | 12/15/2021 |

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## 6.2 Radiated Measurement

| Radiated Emission Test Site: SAC 1 |                 |                    |                  |            |            |
|------------------------------------|-----------------|--------------------|------------------|------------|------------|
| EQUIPMENT TYPE                     | MFR             | MODEL NUMBER       | SERIAL NUMBER    | LAST CAL.  | CAL DUE.   |
| Bi-log Antenna                     | SCHWARZBECK     | VULB9168           | 300              | 11/18/2020 | 11/17/2021 |
| Horn Antenna                       | SCHWARZBECK     | BBHA9120D          | 603              | 05/18/2021 | 05/17/2022 |
| Horn Antenna                       | SCHWARZBECK     | BBHA9170           | 184              | 12/11/2020 | 12/10/2021 |
| Horn Antenna                       | SCHWARZBECK     | BBHA9170           | 185              | 08/06/2021 | 08/05/2022 |
| Site Cal                           | SGS             | SAC I chamber      | N/A              | 01/01/2021 | 12/31/2021 |
| Horn Antenna                       | SCHWARZBECK     | BBHA9120D          | D803             | 12/17/2020 | 12/16/2021 |
| Bi-log Antenna                     | TESEO           | CBL 6112D          | 35242 & AT-N0555 | 01/13/2021 | 01/12/2022 |
| Spectrum Analyzer                  | Agilent         | E4446A             | MY51100003       | 10/26/2020 | 10/25/2022 |
| Radio Communication Analyzer       | Anritsu         | MT8815B            | 6200711454       | 04/07/2021 | 04/06/2022 |
| Radio Communication Analyzer       | Anritsu         | MT8821C            | 6262044751       | 10/27/2021 | 10/26/2022 |
| DC Power Supply                    | Agilent         | E3640A             | MY40005907       | 10/12/2021 | 10/11/2022 |
| Pre-Amplifier                      | EMC Instruments | EMC184045 B        | 980135           | 10/27/2021 | 10/26/2022 |
| Pre-Amplifier                      | HP              | 8449B              | 3008A01973       | 12/16/2020 | 12/15/2021 |
| Pre-Amplifier                      | HP              | 8447D              | 2944A09469       | 12/16/2020 | 12/15/2021 |
| Bandreject Filter 3300-3800        | Micro-Tronics   | WI                 | 1                | 12/16/2020 | 12/15/2021 |
| High Pass Filter                   | WI              | WHKX6.0/18G-10SS   | WHKX6.0/18G-10SS | 12/16/2020 | 12/15/2021 |
| Coaxial Cable                      | Huber Suhner    | succoflex 102      | MY2622/2         | 12/16/2020 | 12/15/2021 |
| Coaxial Cable                      | Huber Suhner    | succoflex 104A     | 800086/4a        | 12/16/2020 | 12/15/2021 |
| Coaxial Cable                      | Huber Suhner    | EMC 104-SM-SM-2000 | 160123           | 12/16/2020 | 12/15/2021 |
| Coaxial Cable                      | Huber Suhner    | SUCOFLEX 104       | 160125           | 12/16/2020 | 12/15/2021 |
| Coaxial Cable                      | Huber Suhner    | SUCOFLEX 106       | 76096/6          | 12/16/2020 | 12/15/2021 |
| Coaxial Cable                      | Huber Suhner    | SUCOFLEX 102       | MY2630/2         | 12/16/2020 | 12/15/2021 |
| Coaxial Cable                      | Huber Suhner    | SUCOFLEX 102       | MY22962/2        | 12/16/2020 | 12/15/2021 |
| Coaxial Cable                      | Huber Suhner    | SUCOFLEX 102       | SN 520430/2      | 12/16/2020 | 12/15/2021 |

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## 7 MAXIMUM OUTPUT POWER MEASUREMENT

### 7.1 Standard Applicable

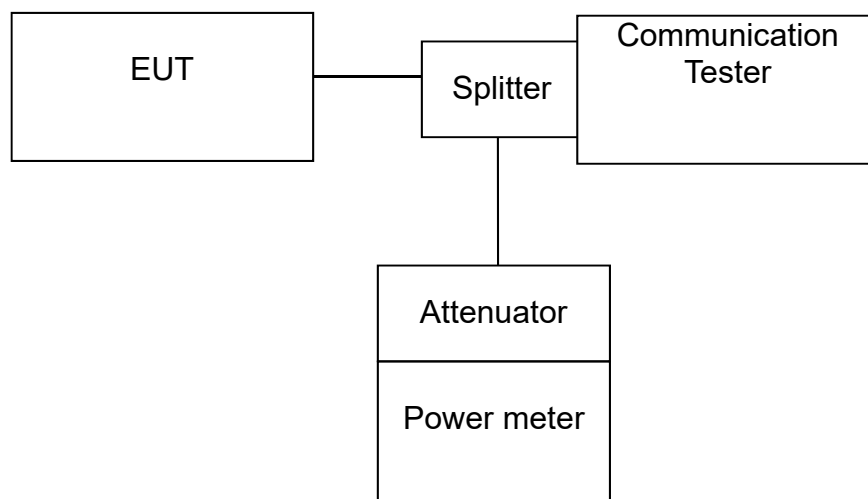
FCC §2.1046 & 96.41

- (a) FCC 96.41(a) Digital modulation. Systems operating in the Citizens Broadband Radio Service must use digital modulation techniques.
- (b) FCC 96.41(b) Power limits. Unless otherwise specified in this section, the maximum effective isotropic radiated power (EIRP) of any CBSD and End User Device must comply with the limits shown in the table in this paragraph (b):

| Device                       | Maximum EIRP (dBm/10 megahertz) |
|------------------------------|---------------------------------|
| End User Device              | 23                              |
| Category A CBSD              | 30                              |
| Category B CBSD <sup>1</sup> | 47                              |

Category B CBSDs will only be authorized for use after an ESC is approved and commercially deployed consistent with §§96.15 and 96.67.

### 7.2 Test Set-up



**Note:** Measurement setup for testing on Antenna connector

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### 7.3 Measurement Procedure

The transmitter output was connected to a calibrated attenuator, the other end of which was connected to a power meter. Transmitter output was read off the power meter in dBm. The power output at the transmitter antenna port was determined by adding the value of the attenuator to the power meter reading.

#### **Determining ERP and/or EIRP from conducted RF output power measurements**

$$\text{ERP/EIRP} = \text{PMeas} + \text{GT-LC}$$

Where:

ERP/EIRP = effective or equivalent radiated power, respectively (expressed in the same units as PMeas, typically dBW or dBm);

PMeas = measured transmitter output power or PSD, in dBm or dBW;

GT = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP)

LC = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

For devices utilizing multiple antennas, KDB 662911 provides guidance for determining the effective array transmit antenna gain term to be used in the above equation.

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## 7.4 Measurement Result

### RF Conducted Output Power

#### LTE MODE:

| Antenna gain (dBi)                                   |            | 1               |            |         |           |                               |                          |                        |                    |
|------------------------------------------------------|------------|-----------------|------------|---------|-----------|-------------------------------|--------------------------|------------------------|--------------------|
| LTE Band 48_Uplink frequency band : 3550 to 3700 MHz |            |                 |            |         |           |                               |                          |                        |                    |
| BW (MHz)                                             | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm/10MHz) | EIRP Average (dBm/10MHz) | EIRP Limit (dBm/10MHz) | Margin (dBm/10MHz) |
| 5                                                    | 55265      | 3552.5          | QPSK       | 1       | 0         | 21.65                         | 22.65                    | 23                     | -0.35              |
|                                                      |            |                 |            | 1       | 24        | 21.69                         | 22.69                    | 23                     | -0.31              |
|                                                      |            |                 |            | 12      | 6         | 20.66                         | 21.66                    | 23                     | -1.34              |
|                                                      |            |                 |            | 25      | 0         | 20.64                         | 21.64                    | 23                     | -1.36              |
|                                                      | 55990      | 3625            | QPSK       | 1       | 0         | 21.65                         | 22.65                    | 23                     | -0.35              |
|                                                      |            |                 |            | 1       | 24        | 21.65                         | 22.65                    | 23                     | -0.35              |
|                                                      |            |                 |            | 12      | 6         | 20.64                         | 21.64                    | 23                     | -1.36              |
|                                                      |            |                 |            | 25      | 0         | 20.62                         | 21.62                    | 23                     | -1.38              |
|                                                      | 56715      | 3697.5          | QPSK       | 1       | 0         | 21.76                         | 22.76                    | 23                     | -0.24              |
|                                                      |            |                 |            | 1       | 24        | 21.78                         | 22.78                    | 23                     | -0.22              |
|                                                      |            |                 |            | 12      | 6         | 20.79                         | 21.79                    | 23                     | -1.21              |
|                                                      |            |                 |            | 25      | 0         | 20.77                         | 21.77                    | 23                     | -1.23              |
| 5                                                    | 55265      | 3552.5          | 16QAM      | 1       | 0         | 20.96                         | 21.96                    | 23                     | -1.04              |
|                                                      |            |                 |            | 1       | 24        | 20.91                         | 21.91                    | 23                     | -1.09              |
|                                                      |            |                 |            | 12      | 6         | 19.71                         | 20.71                    | 23                     | -2.29              |
|                                                      |            |                 |            | 25      | 0         | 19.68                         | 20.68                    | 23                     | -2.32              |
|                                                      | 55990      | 3625            | 16QAM      | 1       | 0         | 20.90                         | 21.90                    | 23                     | -1.1               |
|                                                      |            |                 |            | 1       | 24        | 20.86                         | 21.86                    | 23                     | -1.14              |
|                                                      |            |                 |            | 12      | 6         | 19.71                         | 20.71                    | 23                     | -2.29              |
|                                                      |            |                 |            | 25      | 0         | 19.67                         | 20.67                    | 23                     | -2.33              |
|                                                      | 56715      | 3697.5          | 16QAM      | 1       | 0         | 21.01                         | 22.01                    | 23                     | -0.99              |
|                                                      |            |                 |            | 1       | 24        | 20.98                         | 21.98                    | 23                     | -1.02              |
|                                                      |            |                 |            | 12      | 6         | 19.84                         | 20.84                    | 23                     | -2.16              |
|                                                      |            |                 |            | 25      | 0         | 19.80                         | 20.80                    | 23                     | -2.2               |
| 5                                                    | 55265      | 3552.5          | 64QAM      | 1       | 0         | 19.66                         | 20.66                    | 23                     | -2.34              |
|                                                      |            |                 |            | 1       | 24        | 19.70                         | 20.70                    | 23                     | -2.3               |
|                                                      |            |                 |            | 12      | 6         | 18.79                         | 19.79                    | 23                     | -3.21              |
|                                                      |            |                 |            | 25      | 0         | 18.73                         | 19.73                    | 23                     | -3.27              |
|                                                      | 55990      | 3625            | 64QAM      | 1       | 0         | 19.64                         | 20.64                    | 23                     | -2.36              |
|                                                      |            |                 |            | 1       | 24        | 19.62                         | 20.62                    | 23                     | -2.38              |
|                                                      |            |                 |            | 12      | 6         | 18.73                         | 19.73                    | 23                     | -3.27              |
|                                                      |            |                 |            | 25      | 0         | 18.69                         | 19.69                    | 23                     | -3.31              |
|                                                      | 56715      | 3697.5          | 64QAM      | 1       | 0         | 19.78                         | 20.78                    | 23                     | -2.22              |
|                                                      |            |                 |            | 1       | 24        | 19.79                         | 20.79                    | 23                     | -2.21              |
|                                                      |            |                 |            | 12      | 6         | 18.84                         | 19.84                    | 23                     | -3.16              |
|                                                      |            |                 |            | 25      | 0         | 18.82                         | 19.82                    | 23                     | -3.18              |

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| Antenna gain (dBi)                                   |            | 1               |            |         |           |                               |                          |                        |                    |
|------------------------------------------------------|------------|-----------------|------------|---------|-----------|-------------------------------|--------------------------|------------------------|--------------------|
| LTE Band 48_Uplink frequency band : 3550 to 3700 MHz |            |                 |            |         |           |                               |                          |                        |                    |
| BW (MHz)                                             | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm/10MHz) | EIRP Average (dBm/10MHz) | EIRP Limit (dBm/10MHz) | Margin (dBm/10MHz) |
| 10                                                   | 55290      | 3555            | QPSK       | 1       | 0         | 21.57                         | 22.57                    | 23                     | -0.43              |
|                                                      |            |                 |            | 1       | 49        | 21.65                         | 22.65                    | 23                     | -0.35              |
|                                                      |            |                 |            | 25      | 12        | 20.70                         | 21.70                    | 23                     | -1.3               |
|                                                      |            |                 |            | 50      | 0         | 20.69                         | 21.69                    | 23                     | -1.31              |
|                                                      | 55990      | 3625            | QPSK       | 1       | 0         | 21.55                         | 22.55                    | 23                     | -0.45              |
|                                                      |            |                 |            | 1       | 49        | 21.52                         | 22.52                    | 23                     | -0.48              |
|                                                      |            |                 |            | 25      | 12        | 20.66                         | 21.66                    | 23                     | -1.34              |
|                                                      |            |                 |            | 50      | 0         | 20.65                         | 21.65                    | 23                     | -1.35              |
|                                                      | 56690      | 3695            | QPSK       | 1       | 0         | 21.67                         | 22.67                    | 23                     | -0.33              |
|                                                      |            |                 |            | 1       | 49        | 21.68                         | 22.68                    | 23                     | -0.32              |
|                                                      |            |                 |            | 25      | 12        | 20.80                         | 21.80                    | 23                     | -1.2               |
|                                                      |            |                 |            | 50      | 0         | 20.76                         | 21.76                    | 23                     | -1.24              |
| 10                                                   | 55290      | 3555            | 16QAM      | 1       | 0         | 20.90                         | 21.90                    | 23                     | -1.1               |
|                                                      |            |                 |            | 1       | 49        | 20.95                         | 21.95                    | 23                     | -1.05              |
|                                                      |            |                 |            | 25      | 12        | 19.75                         | 20.75                    | 23                     | -2.25              |
|                                                      |            |                 |            | 50      | 0         | 19.76                         | 20.76                    | 23                     | -2.24              |
|                                                      | 55990      | 3625            | 16QAM      | 1       | 0         | 20.91                         | 21.91                    | 23                     | -1.09              |
|                                                      |            |                 |            | 1       | 49        | 20.89                         | 21.89                    | 23                     | -1.11              |
|                                                      |            |                 |            | 25      | 12        | 19.68                         | 20.68                    | 23                     | -2.32              |
|                                                      |            |                 |            | 50      | 0         | 19.69                         | 20.69                    | 23                     | -2.31              |
|                                                      | 56690      | 3695            | 16QAM      | 1       | 0         | 20.98                         | 21.98                    | 23                     | -1.02              |
|                                                      |            |                 |            | 1       | 49        | 21.02                         | 22.02                    | 23                     | -0.98              |
|                                                      |            |                 |            | 25      | 12        | 19.83                         | 20.83                    | 23                     | -2.17              |
|                                                      |            |                 |            | 50      | 0         | 19.81                         | 20.81                    | 23                     | -2.19              |
| 10                                                   | 55290      | 3555            | 64QAM      | 1       | 0         | 19.61                         | 20.61                    | 23                     | -2.39              |
|                                                      |            |                 |            | 1       | 49        | 19.69                         | 20.69                    | 23                     | -2.31              |
|                                                      |            |                 |            | 25      | 12        | 18.79                         | 19.79                    | 23                     | -3.21              |
|                                                      |            |                 |            | 50      | 0         | 18.71                         | 19.71                    | 23                     | -3.29              |
|                                                      | 55990      | 3625            | 64QAM      | 1       | 0         | 19.64                         | 20.64                    | 23                     | -2.36              |
|                                                      |            |                 |            | 1       | 49        | 19.62                         | 20.62                    | 23                     | -2.38              |
|                                                      |            |                 |            | 25      | 12        | 18.75                         | 19.75                    | 23                     | -3.25              |
|                                                      |            |                 |            | 50      | 0         | 18.68                         | 19.68                    | 23                     | -3.32              |
|                                                      | 56690      | 3695            | 64QAM      | 1       | 0         | 19.78                         | 20.78                    | 23                     | -2.22              |
|                                                      |            |                 |            | 1       | 49        | 19.80                         | 20.80                    | 23                     | -2.2               |
|                                                      |            |                 |            | 25      | 12        | 18.90                         | 19.90                    | 23                     | -3.1               |
|                                                      |            |                 |            | 50      | 0         | 18.78                         | 19.78                    | 23                     | -3.22              |

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| Antenna gain (dBi)                                   |            | 1               |            |         |           |                               |                          |                        |                    |
|------------------------------------------------------|------------|-----------------|------------|---------|-----------|-------------------------------|--------------------------|------------------------|--------------------|
| LTE Band 48_Uplink frequency band : 3550 to 3700 MHz |            |                 |            |         |           |                               |                          |                        |                    |
| BW (MHz)                                             | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm/10MHz) | EIRP Average (dBm/10MHz) | EIRP Limit (dBm/10MHz) | Margin (dBm/10MHz) |
| 15                                                   | 55315      | 3557.5          | QPSK       | 1       | 0         | 21.69                         | 22.69                    | 23                     | -0.31              |
|                                                      |            |                 |            | 1       | 74        | 21.77                         | 22.77                    | 23                     | -0.23              |
|                                                      |            |                 |            | 36      | 18        | 20.68                         | 21.68                    | 23                     | -1.32              |
|                                                      |            |                 |            | 75      | 0         | 20.67                         | 21.67                    | 23                     | -1.33              |
|                                                      | 55990      | 3625            | QPSK       | 1       | 0         | 21.61                         | 22.61                    | 23                     | -0.39              |
|                                                      |            |                 |            | 1       | 74        | 21.61                         | 22.61                    | 23                     | -0.39              |
|                                                      |            |                 |            | 36      | 18        | 20.66                         | 21.66                    | 23                     | -1.34              |
|                                                      |            |                 |            | 75      | 0         | 20.65                         | 21.65                    | 23                     | -1.35              |
|                                                      | 56665      | 3692.5          | QPSK       | 1       | 0         | 21.74                         | 22.74                    | 23                     | -0.26              |
|                                                      |            |                 |            | 1       | 74        | 21.82                         | 22.82                    | 23                     | -0.18              |
|                                                      |            |                 |            | 36      | 18        | 20.80                         | 21.80                    | 23                     | -1.2               |
|                                                      |            |                 |            | 75      | 0         | 20.79                         | 21.79                    | 23                     | -1.21              |
| 15                                                   | 55315      | 3557.5          | 16QAM      | 1       | 0         | 20.86                         | 21.86                    | 23                     | -1.14              |
|                                                      |            |                 |            | 1       | 74        | 21.02                         | 22.02                    | 23                     | -0.98              |
|                                                      |            |                 |            | 36      | 18        | 19.70                         | 20.70                    | 23                     | -2.3               |
|                                                      |            |                 |            | 75      | 0         | 19.69                         | 20.69                    | 23                     | -2.31              |
|                                                      | 55990      | 3625            | 16QAM      | 1       | 0         | 20.87                         | 21.87                    | 23                     | -1.13              |
|                                                      |            |                 |            | 1       | 74        | 20.90                         | 21.90                    | 23                     | -1.1               |
|                                                      |            |                 |            | 36      | 18        | 19.64                         | 20.64                    | 23                     | -2.36              |
|                                                      |            |                 |            | 75      | 0         | 19.68                         | 20.68                    | 23                     | -2.32              |
|                                                      | 56665      | 3692.5          | 16QAM      | 1       | 0         | 20.94                         | 21.94                    | 23                     | -1.06              |
|                                                      |            |                 |            | 1       | 74        | 21.05                         | 22.05                    | 23                     | -0.95              |
|                                                      |            |                 |            | 36      | 18        | 19.78                         | 20.78                    | 23                     | -2.22              |
|                                                      |            |                 |            | 75      | 0         | 19.82                         | 20.82                    | 23                     | -2.18              |
| 15                                                   | 55315      | 3557.5          | 64QAM      | 1       | 0         | 19.58                         | 20.58                    | 23                     | -2.42              |
|                                                      |            |                 |            | 1       | 74        | 19.66                         | 20.66                    | 23                     | -2.34              |
|                                                      |            |                 |            | 36      | 18        | 18.73                         | 19.73                    | 23                     | -3.27              |
|                                                      |            |                 |            | 75      | 0         | 18.73                         | 19.73                    | 23                     | -3.27              |
|                                                      | 55990      | 3625            | 64QAM      | 1       | 0         | 19.58                         | 20.58                    | 23                     | -2.42              |
|                                                      |            |                 |            | 1       | 74        | 19.59                         | 20.59                    | 23                     | -2.41              |
|                                                      |            |                 |            | 36      | 18        | 18.64                         | 19.64                    | 23                     | -3.36              |
|                                                      |            |                 |            | 75      | 0         | 18.65                         | 19.65                    | 23                     | -3.35              |
|                                                      | 56665      | 3692.5          | 64QAM      | 1       | 0         | 19.69                         | 20.69                    | 23                     | -2.31              |
|                                                      |            |                 |            | 1       | 74        | 19.81                         | 20.81                    | 23                     | -2.19              |
|                                                      |            |                 |            | 36      | 18        | 18.79                         | 19.79                    | 23                     | -3.21              |
|                                                      |            |                 |            | 75      | 0         | 18.80                         | 19.80                    | 23                     | -3.2               |

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| Antenna gain (dBi)                                   |            | 1               |            |         |           |                               |                          |                        |                    |
|------------------------------------------------------|------------|-----------------|------------|---------|-----------|-------------------------------|--------------------------|------------------------|--------------------|
| LTE Band 48_Uplink frequency band : 3550 to 3700 MHz |            |                 |            |         |           |                               |                          |                        |                    |
| BW (MHz)                                             | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm/10MHz) | EIRP Average (dBm/10MHz) | EIRP Limit (dBm/10MHz) | Margin (dBm/10MHz) |
| 20                                                   | 55340      | 3560            | QPSK       | 1       | 0         | 21.68                         | 22.68                    | 23                     | -0.32              |
|                                                      |            |                 |            | 1       | 99        | 21.77                         | 22.77                    | 23                     | -0.23              |
|                                                      |            |                 |            | 50      | 25        | 20.72                         | 21.72                    | 23                     | -1.28              |
|                                                      |            |                 |            | 100     | 0         | 20.74                         | 21.74                    | 23                     | -1.26              |
|                                                      | 55990      | 3625            | QPSK       | 1       | 0         | 21.66                         | 22.66                    | 23                     | -0.34              |
|                                                      |            |                 |            | 1       | 99        | 21.66                         | 22.66                    | 23                     | -0.34              |
|                                                      |            |                 |            | 50      | 25        | 20.65                         | 21.65                    | 23                     | -1.35              |
|                                                      |            |                 |            | 100     | 0         | 20.64                         | 21.64                    | 23                     | -1.36              |
|                                                      | 56640      | 3690            | QPSK       | 1       | 0         | 21.87                         | 22.87                    | 23                     | -0.13              |
|                                                      |            |                 |            | 1       | 99        | 21.74                         | 22.74                    | 23                     | -0.26              |
|                                                      |            |                 |            | 50      | 25        | 20.75                         | 21.75                    | 23                     | -1.25              |
|                                                      |            |                 |            | 100     | 0         | 20.74                         | 21.74                    | 23                     | -1.26              |
| 20                                                   | 55340      | 3560            | 16QAM      | 1       | 0         | 20.90                         | 21.90                    | 23                     | -1.1               |
|                                                      |            |                 |            | 1       | 99        | 20.99                         | 21.99                    | 23                     | -1.01              |
|                                                      |            |                 |            | 50      | 25        | 19.76                         | 20.76                    | 23                     | -2.24              |
|                                                      |            |                 |            | 100     | 0         | 19.75                         | 20.75                    | 23                     | -2.25              |
|                                                      | 55990      | 3625            | 16QAM      | 1       | 0         | 20.90                         | 21.90                    | 23                     | -1.1               |
|                                                      |            |                 |            | 1       | 99        | 20.88                         | 21.88                    | 23                     | -1.12              |
|                                                      |            |                 |            | 50      | 25        | 19.70                         | 20.70                    | 23                     | -2.3               |
|                                                      |            |                 |            | 100     | 0         | 19.67                         | 20.67                    | 23                     | -2.33              |
|                                                      | 56640      | 3690            | 16QAM      | 1       | 0         | 20.98                         | 21.98                    | 23                     | -1.02              |
|                                                      |            |                 |            | 1       | 99        | 21.06                         | 22.06                    | 23                     | -0.94              |
|                                                      |            |                 |            | 50      | 25        | 19.80                         | 20.80                    | 23                     | -2.2               |
|                                                      |            |                 |            | 100     | 0         | 19.78                         | 20.78                    | 23                     | -2.22              |
| 20                                                   | 55340      | 3560            | 64QAM      | 1       | 0         | 19.60                         | 20.60                    | 23                     | -2.4               |
|                                                      |            |                 |            | 1       | 99        | 19.67                         | 20.67                    | 23                     | -2.33              |
|                                                      |            |                 |            | 50      | 25        | 18.72                         | 19.72                    | 23                     | -3.28              |
|                                                      |            |                 |            | 100     | 0         | 18.71                         | 19.71                    | 23                     | -3.29              |
|                                                      | 55990      | 3625            | 64QAM      | 1       | 0         | 19.56                         | 20.56                    | 23                     | -2.44              |
|                                                      |            |                 |            | 1       | 99        | 19.58                         | 20.58                    | 23                     | -2.42              |
|                                                      |            |                 |            | 50      | 25        | 18.68                         | 19.68                    | 23                     | -3.32              |
|                                                      |            |                 |            | 100     | 0         | 18.66                         | 19.66                    | 23                     | -3.34              |
|                                                      | 56640      | 3690            | 64QAM      | 1       | 0         | 19.62                         | 20.62                    | 23                     | -2.38              |
|                                                      |            |                 |            | 1       | 99        | 19.74                         | 20.74                    | 23                     | -2.26              |
|                                                      |            |                 |            | 50      | 25        | 18.78                         | 19.78                    | 23                     | -3.22              |
|                                                      |            |                 |            | 100     | 0         | 18.76                         | 19.76                    | 23                     | -3.24              |

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## 8 MAXIMUM POWER DENSITY MEASUREMENT

### 8.1 Standard Applicable

FCC §2.1046 & 96.41

- (a) FCC 96.41(a) Digital modulation. Systems operating in the Citizens Broadband Radio Service must use digital modulation techniques.
- (b) FCC 96.41(b) Power limits. Unless otherwise specified in this section, the maximum effective isotropic radiated power (EIRP) of any CBSD and End User Device must comply with the limits shown in the table in this paragraph (b):

| Device                       | Maximum PSD<br>(dBm/MHz) |
|------------------------------|--------------------------|
| End User Device              | n/a                      |
| Category A CBSD              | 20                       |
| Category B CBSD <sup>1</sup> | 37                       |

Category B CBSDs will only be authorized for use after an ESC is approved and commercially deployed consistent with §§96.15 and 96.67.

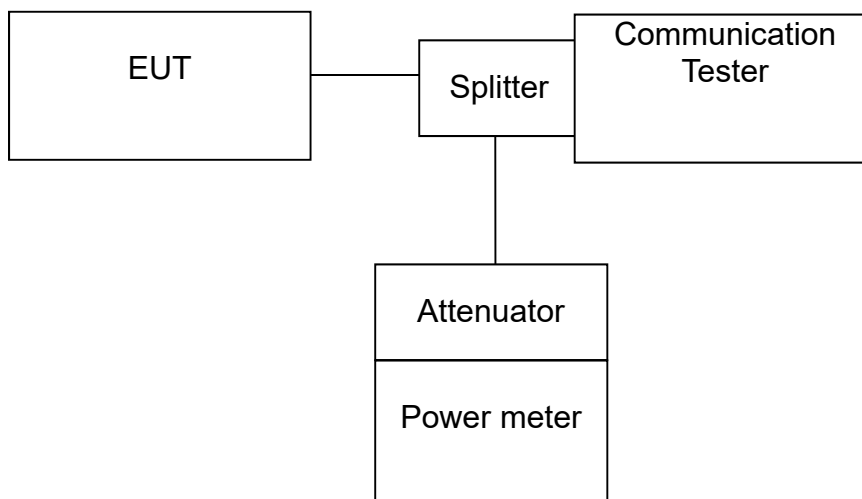
- (c) Power management. CBSDs and End User Devices shall limit their operating power to the minimum necessary for successful operations
- (1) CBSDs must support transmit power control capability and the capability to limit their maximum EIRP and the maximum EIRP of associated End User Devices in response to instructions from an SAS.
- (2) End User Devices shall include transmit power control capability and the capability to limit their maximum EIRP in response to instructions from their associated CBSDs.

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## 8.2 Test Set-up



**Note:** Measurement setup for testing on Antenna connector

## 8.3 Measurement Procedure

1. Set instrument center frequency to OBW center frequency.
2. Set span to at least 1.5 times the OBW.
3. Set the RBW to the specified reference bandwidth (often 1 MHz).
4. Set VBW  $\geq 3 \times$  RBW.
5. Detector = RMS (power averaging).
6. Ensure that the number of measurement points in the sweep  $\geq 2 \times$  span/RBW.
7. Sweep time = auto couple.
8. Employ trace averaging (RMS) mode over a minimum of 100 traces.
9. Use the peak marker function to determine the maximum amplitude level within the reference bandwidth (PSD).
10. Determine the EIRP by adding the effective antenna gain to the adjusted power level.

## 8.4 Measurement Result

### Peak Power Density Results:

N/A, this is an End user device.

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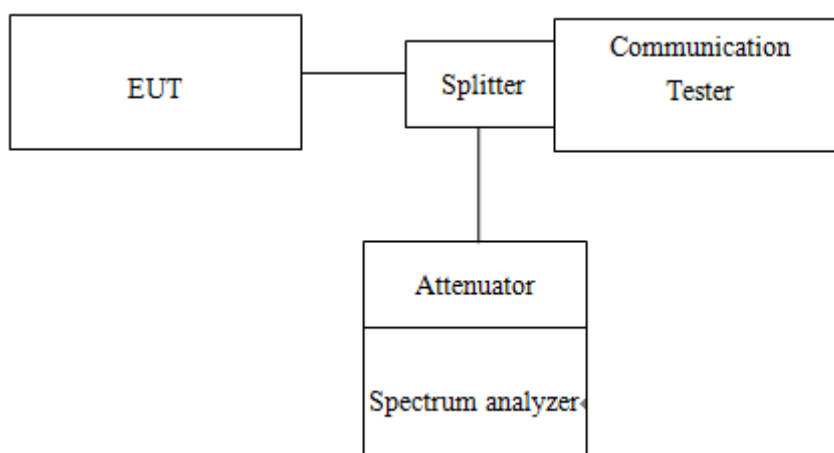
## 9 OCCUPIED BANDWIDTH MEASUREMENT

### 9.1 Standard Applicable

FCC Part 2.1049(h)

The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power.

### 9.2 Test Set-up



### 9.3 Measurement Procedure

#### 99% & 26dB Bandwidth with detector peak

The EUT's output RF connector was connected with a short cable to the spectrum analyzer, RBW was set to about 1% of emission BW, VBW= 3 times RBW, -26dBc display line was placed on the screen (or 26dB bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace. Then set RBW to 99% bandwidth, RBW= 1%, VBW= 3 RBW, with span > 2 \* Signal BW, set % Power = 99%.

### 9.4 Measurement Result

| LTE BAND 48 Channel bandwidth: 5MHz |       |               |               |               |                |              |              |
|-------------------------------------|-------|---------------|---------------|---------------|----------------|--------------|--------------|
| Freq.<br>(MHz)                      | CH    | 99% BW (MHz)  |               |               | 26 dB BW (MHz) |              |              |
|                                     |       | QPSK          | 16QAM         | 64QAM         | QPSK           | 16QAM        | 64QAM        |
| 3552.5                              | 55265 | 4.4866        | <b>4.4826</b> | <b>4.4964</b> | <b>5.038</b>   | <b>4.959</b> | 4.902        |
| 3625.0                              | 55990 | 4.4759        | 4.4697        | 4.4691        | 4.962          | 4.807        | <b>4.960</b> |
| 3697.5                              | 56715 | <b>4.4904</b> | 4.4538        | 4.4771        | 4.910          | 4.842        | 4.791        |

| LTE BAND 48 Channel bandwidth: 10MHz |       |               |               |               |                |              |              |
|--------------------------------------|-------|---------------|---------------|---------------|----------------|--------------|--------------|
| Freq.<br>(MHz)                       | CH    | 99% BW (MHz)  |               |               | 26 dB BW (MHz) |              |              |
|                                      |       | QPSK          | 16QAM         | 64QAM         | QPSK           | 16QAM        | 64QAM        |
| 3555.0                               | 55290 | <b>8.9618</b> | 8.9403        | 8.9568        | <b>9.708</b>   | <b>9.688</b> | <b>9.729</b> |
| 3625.0                               | 55990 | 8.9489        | 8.9356        | 8.9505        | 9.462          | 9.395        | 9.565        |
| 3695.0                               | 56690 | 8.9479        | <b>8.9433</b> | <b>8.9703</b> | 9.542          | 9.408        | 9.578        |

| LTE BAND 48 Channel bandwidth: 15MHz |       |               |               |               |                |              |              |
|--------------------------------------|-------|---------------|---------------|---------------|----------------|--------------|--------------|
| Freq.<br>(MHz)                       | CH    | 99% BW (MHz)  |               |               | 26 dB BW (MHz) |              |              |
|                                      |       | QPSK          | 16QAM         | 64QAM         | QPSK           | 16QAM        | 64QAM        |
| 3557.5                               | 55315 | <b>13.427</b> | 13.437        | <b>13.423</b> | <b>14.44</b>   | <b>14.65</b> | <b>14.53</b> |
| 3625.0                               | 55990 | 13.422        | 13.379        | 13.367        | 14.37          | 14.16        | 14.35        |
| 3692.5                               | 56665 | 13.367        | <b>13.442</b> | 13.397        | 14.13          | 14.19        | 14.24        |

| LTE BAND 48 Channel bandwidth: 20MHz |       |               |               |               |                |              |              |
|--------------------------------------|-------|---------------|---------------|---------------|----------------|--------------|--------------|
| Freq.<br>(MHz)                       | CH    | 99% BW (MHz)  |               |               | 26 dB BW (MHz) |              |              |
|                                      |       | QPSK          | 16QAM         | 64QAM         | QPSK           | 16QAM        | 64QAM        |
| 3650.0                               | 55340 | <b>17.884</b> | <b>17.885</b> | 17.883        | <b>19.30</b>   | <b>19.25</b> | 19.23        |
| 3625.0                               | 55990 | 17.822        | 17.804        | 17.848        | 18.83          | 19.09        | 18.77        |
| 3690.0                               | 56640 | 17.852        | 17.881        | <b>29.730</b> | 18.90          | 19.02        | <b>30.00</b> |

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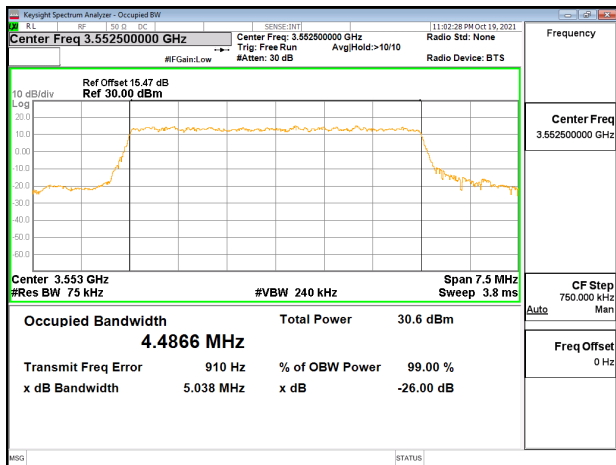
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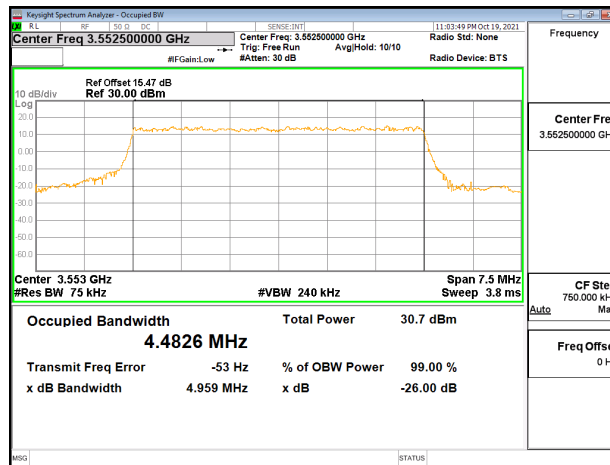
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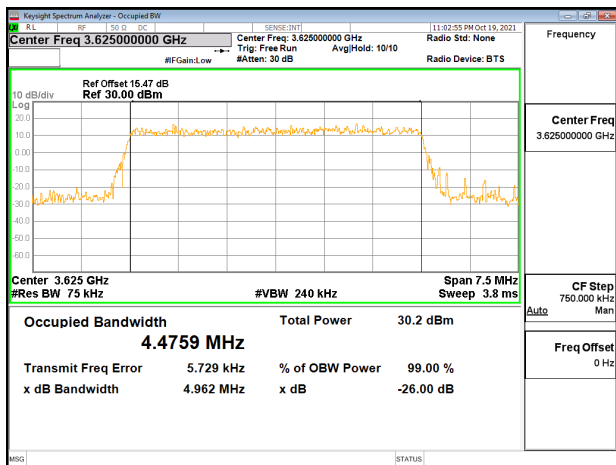
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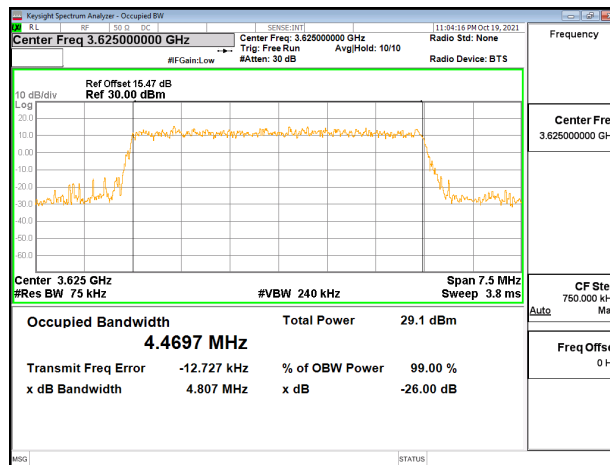
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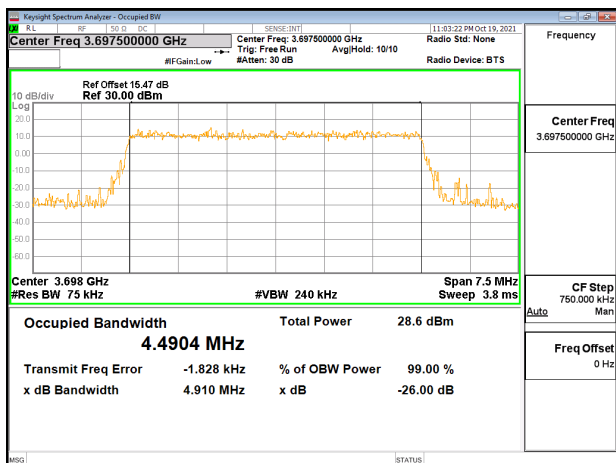
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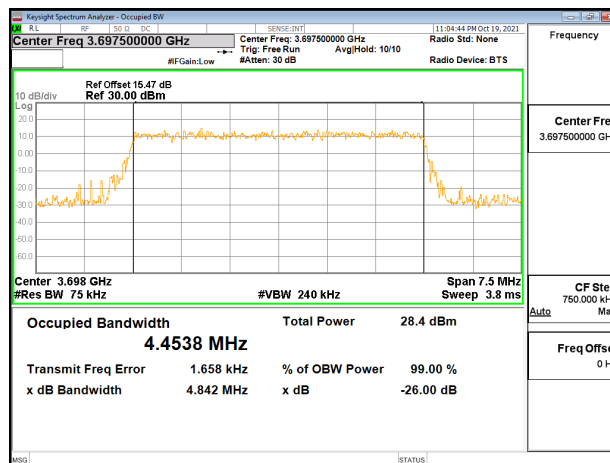
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Band48\_5MHz\_QPSK\_RB25\_0\_CH56715



Band48\_5MHz\_16QAM\_RB25\_0\_CH56715



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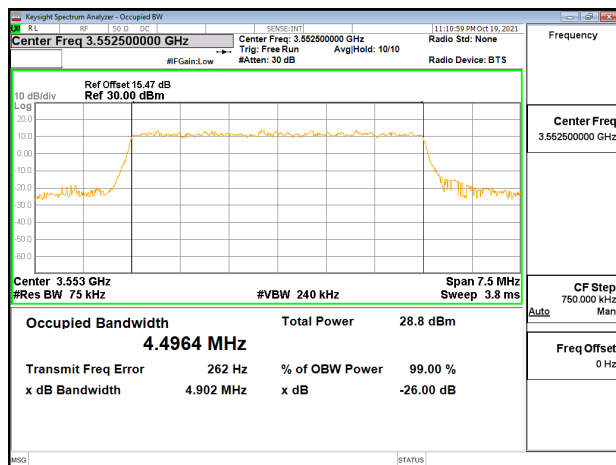
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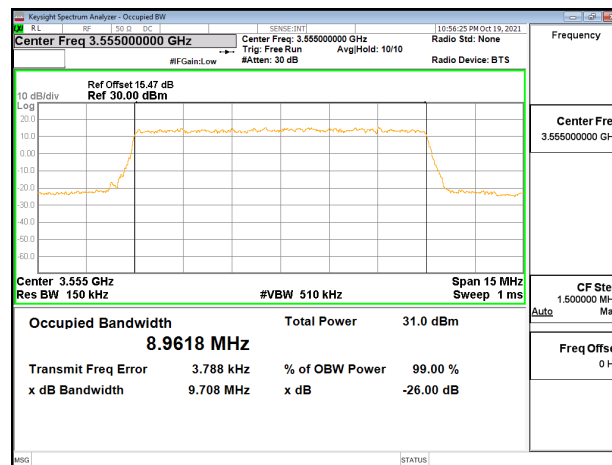
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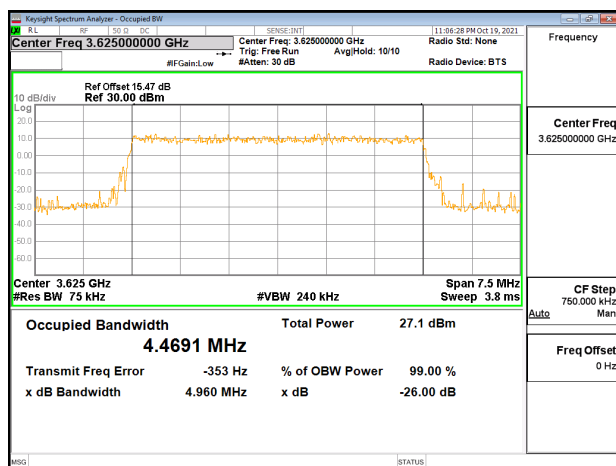
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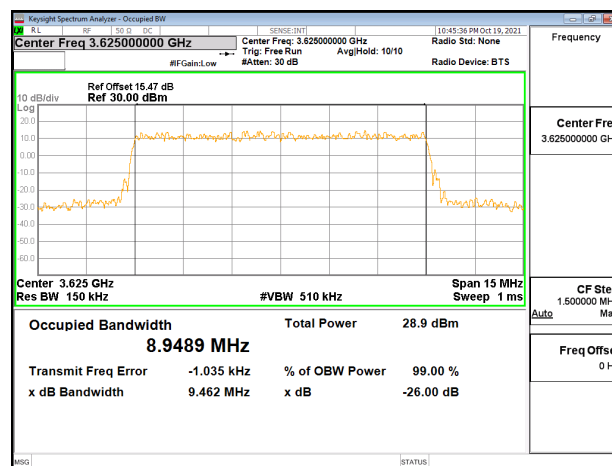
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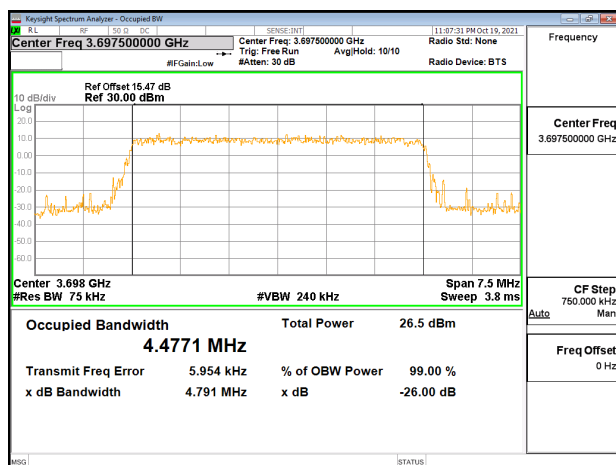
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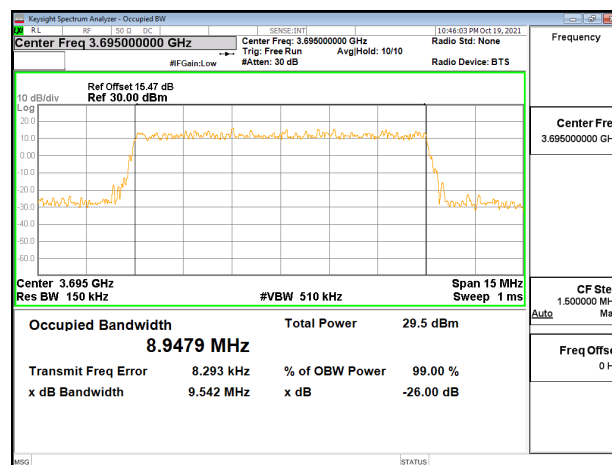
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Band48\_5MHz\_64QAM\_RB25\_0\_CH56715



Band48\_10MHz\_QPSK\_RB50\_0\_CH56690



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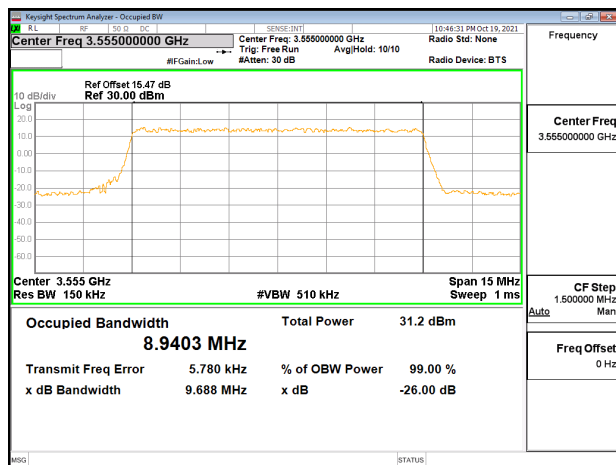
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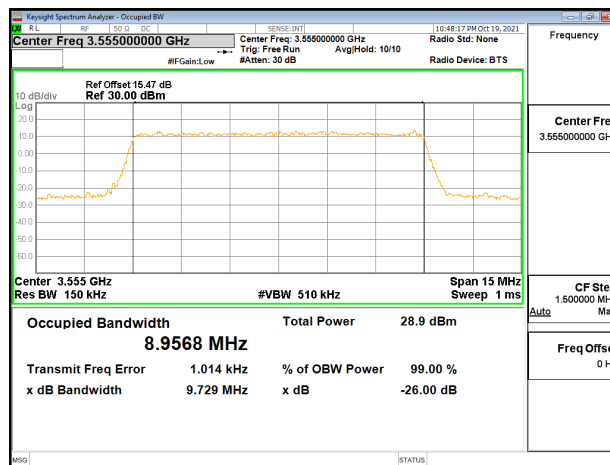
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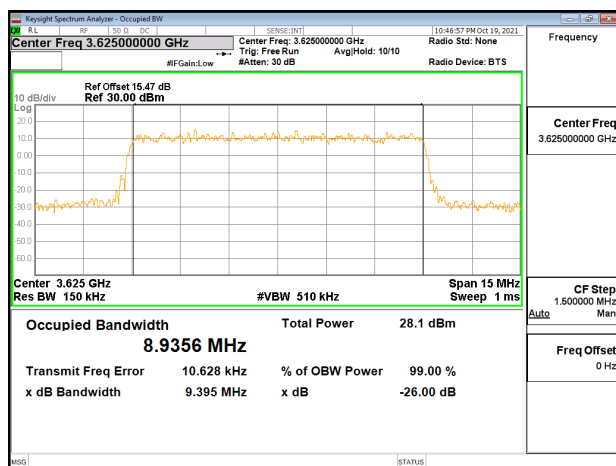
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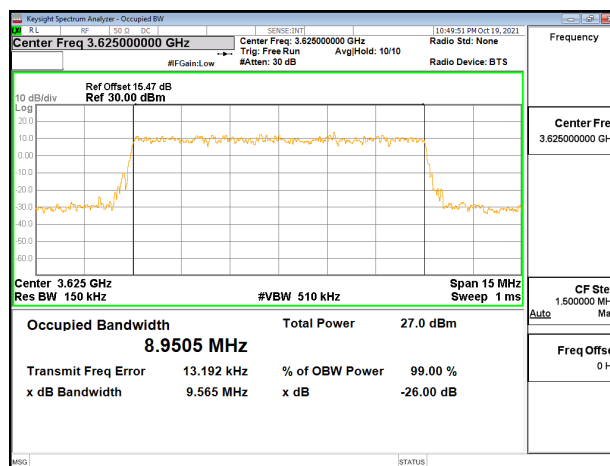
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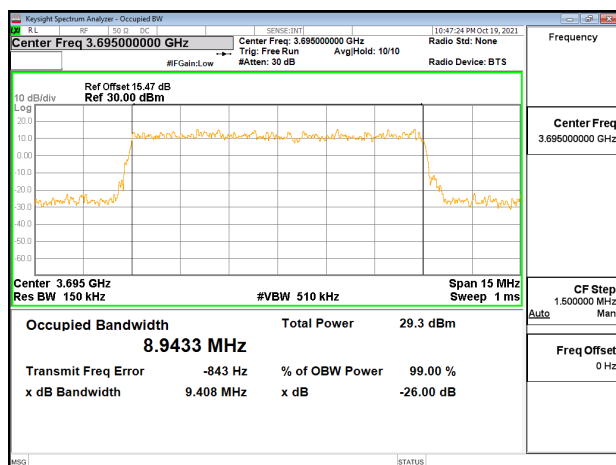
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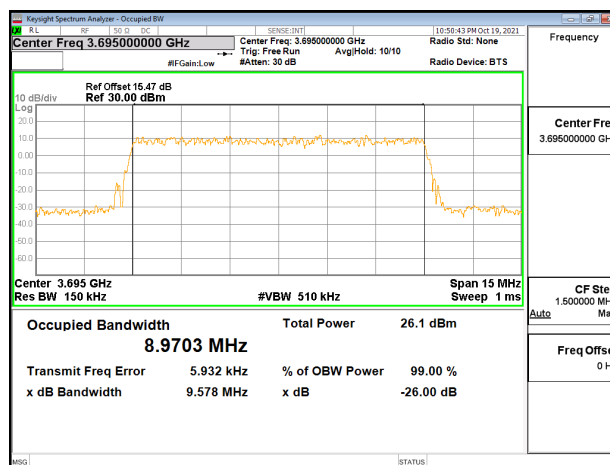
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Band48\_10MHz\_16QAM\_RB50\_0\_CH56690



Band48\_10MHz\_64QAM\_RB50\_0\_CH56690



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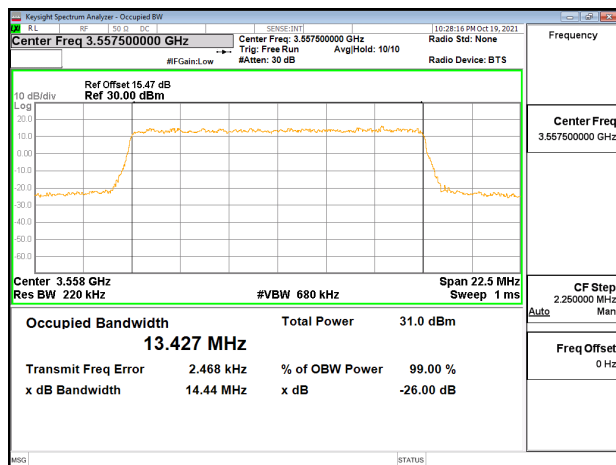
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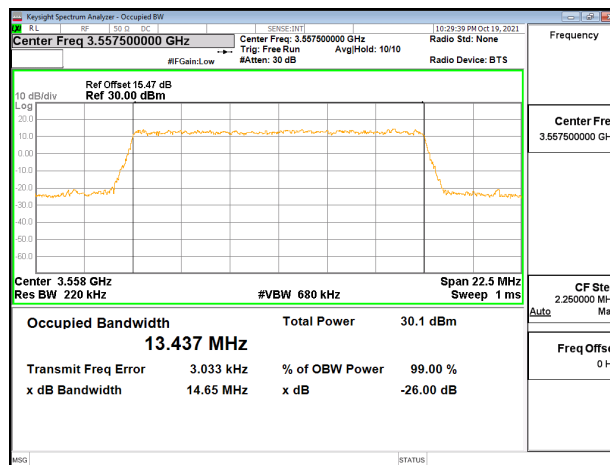
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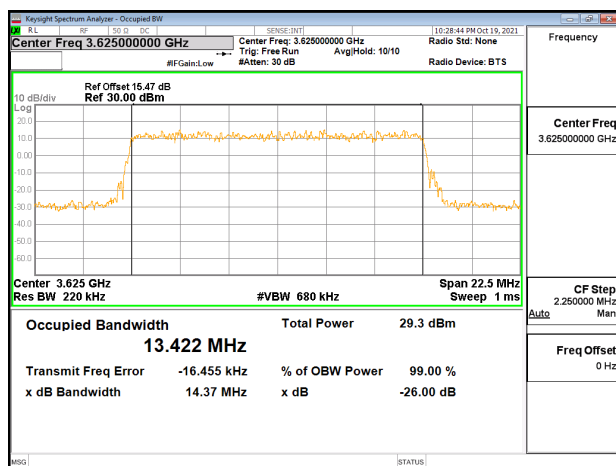
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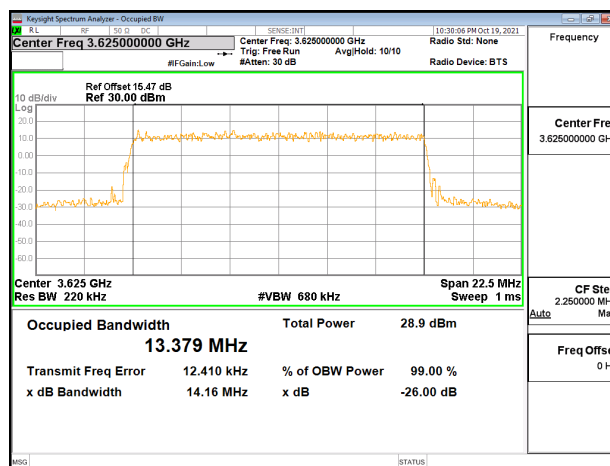
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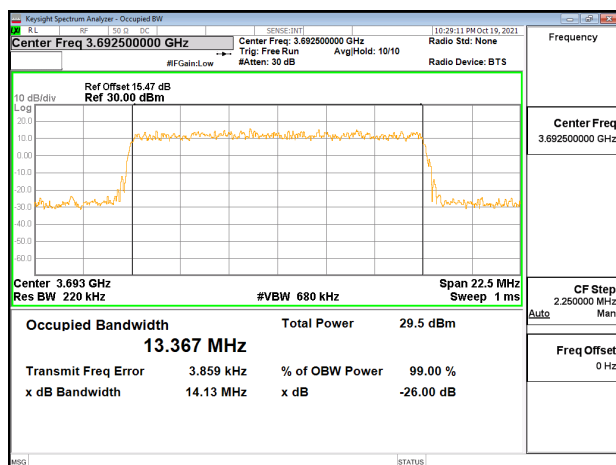
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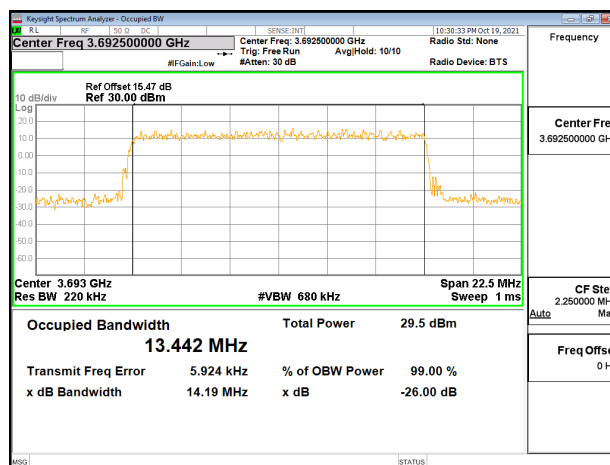
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Band48\_15MHz\_QPSK\_RB75\_0\_CH56665



Band48\_15MHz\_16QAM\_RB75\_0\_CH56665



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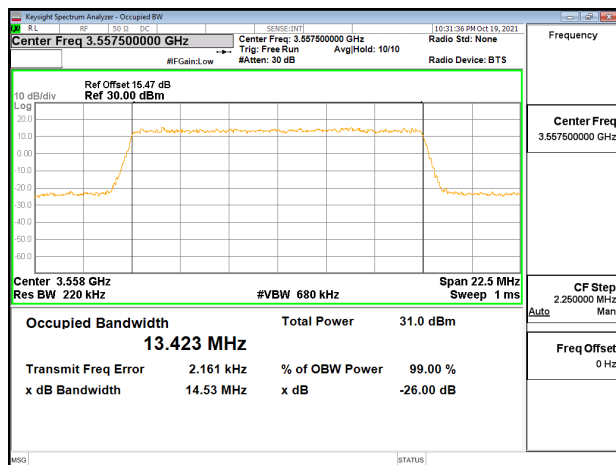
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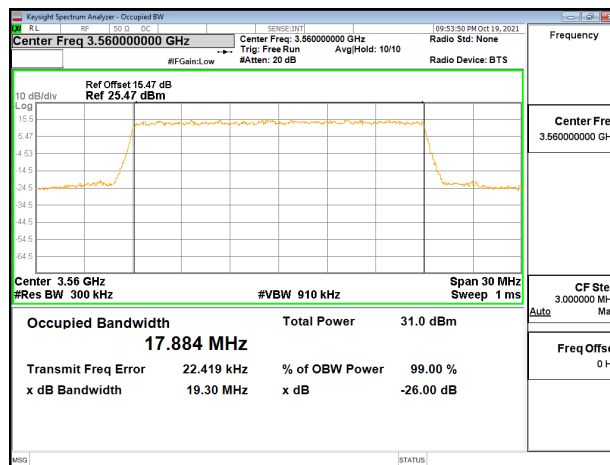
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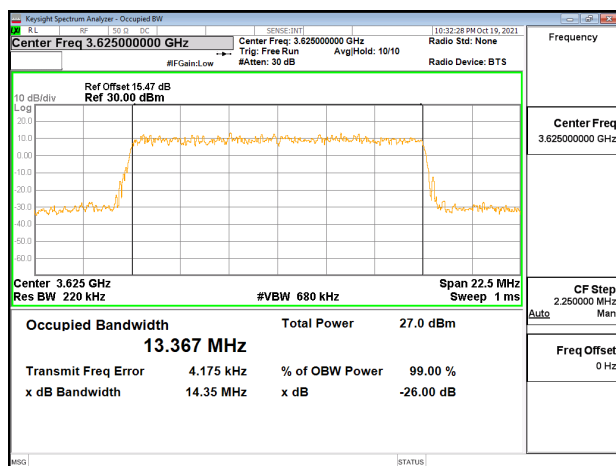
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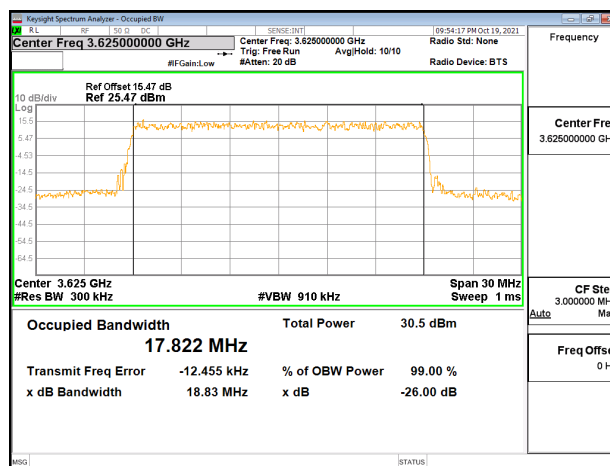
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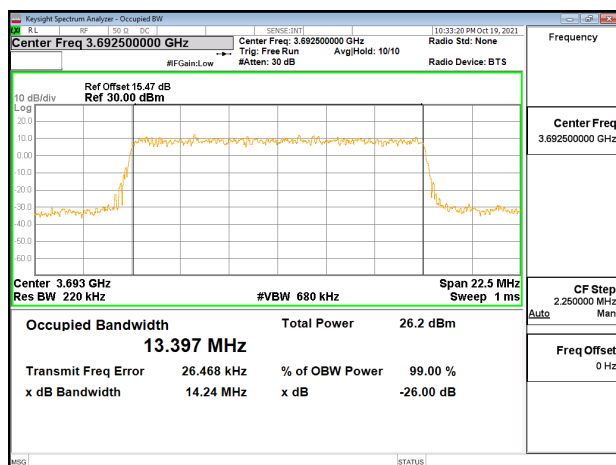
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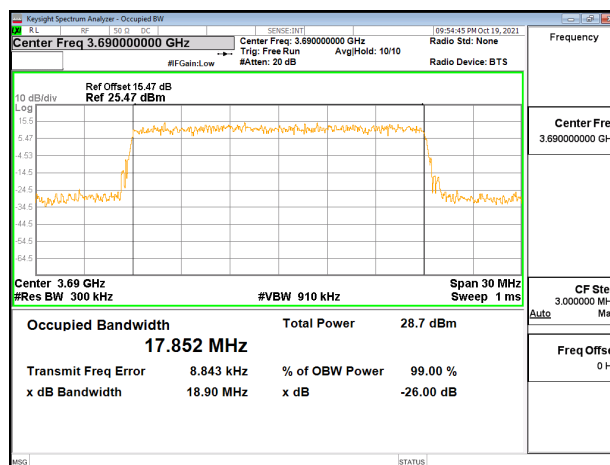
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Band48\_15MHz\_64QAM\_RB75\_0\_CH56665



Band48\_20MHz\_QPSK\_RB100\_0\_CH56640



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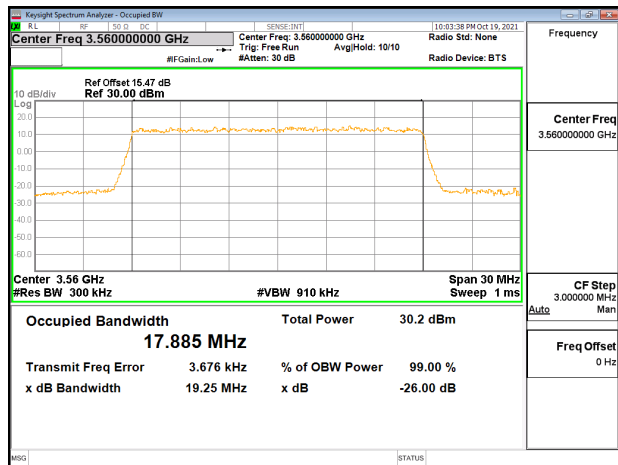
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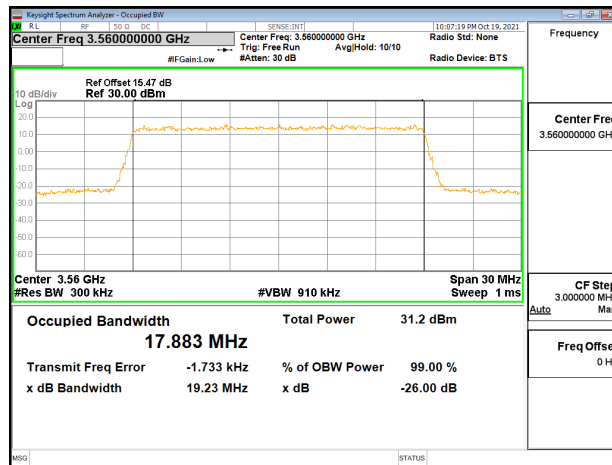
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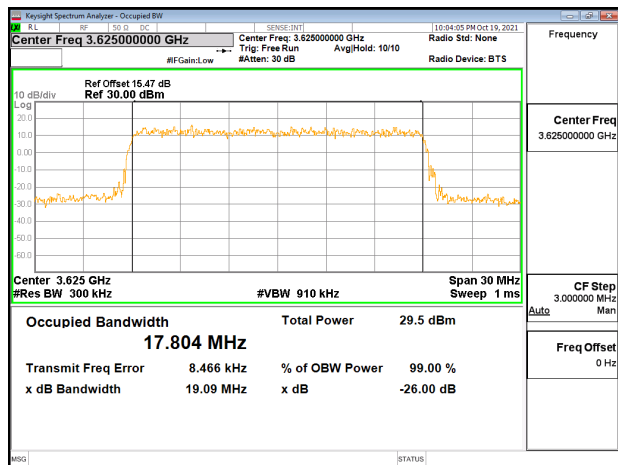
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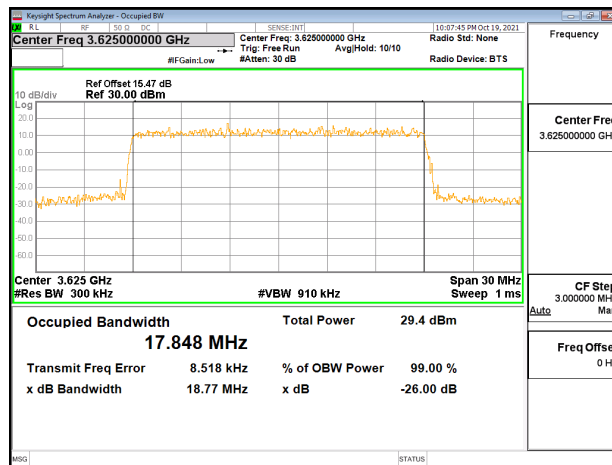
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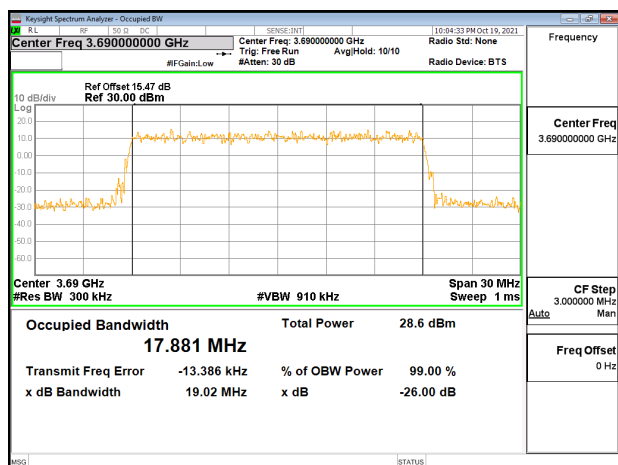
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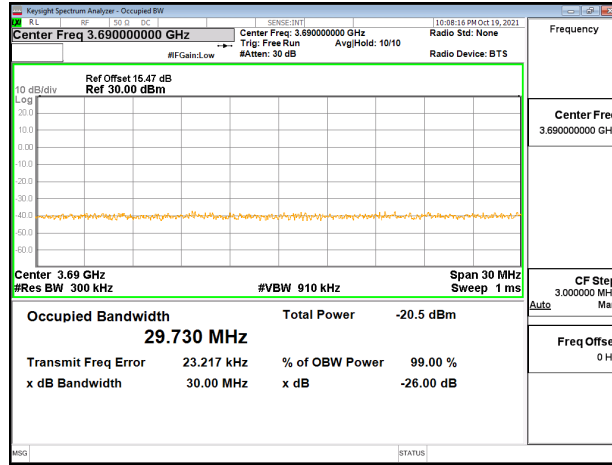
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Band48\_20MHz\_16QAM\_RB100\_0\_CH56640



Band48\_20MHz\_64QAM\_RB100\_0\_CH56640



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## 10 OUT OF BAND EMISSION AT ANTENNA TERMINALS

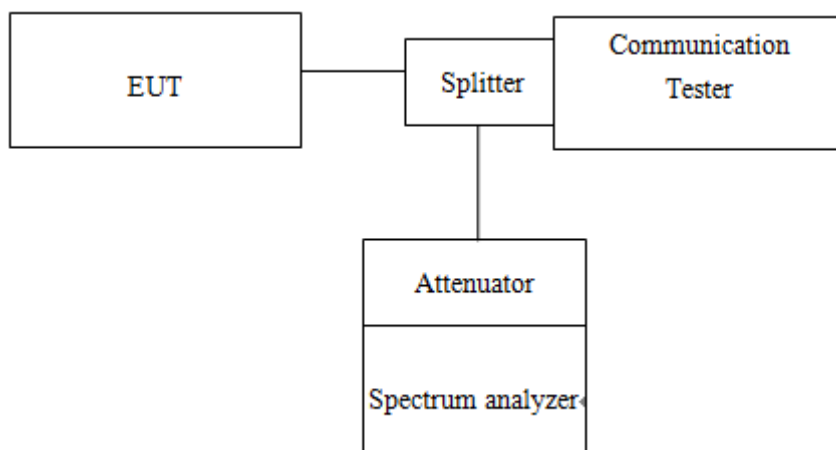
### 10.1 Standard Applicable

FCC Part 2.1051, Part 96.41, C63.26 Clause 5.7.

For channel and frequency assignments made by the SAS to CBSDs, the conducted power of any CBSD emission outside the fundamental emission bandwidth as specified in paragraph (e)(3) of this section (whether the emission is inside or outside of the authorized band) shall not exceed  $-13$  dBm/MHz within 0-10 megahertz above the upper SAS-assigned channel edge and within 0-10 megahertz below the lower SAS-assigned channel edge. At all frequencies greater than 10 megahertz above the upper SAS assigned channel edge and less than 10 MHz below the lower SAS assigned channel edge, the conducted power of any CBSD emission shall not exceed  $-25$  dBm/MHz. The upper and lower SAS assigned channel edges are the upper and lower limits of any channel assigned to a CBSD by an SAS, or in the case of multiple contiguous channels, the upper and lower limits of the combined contiguous channels.

For CBSDs and End User Devices, the conducted power of emissions below 3540 MHz or above 3710 MHz shall not exceed  $-25$  dBm/MHz, and the conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed  $-40$  dBm/MHz.

### 10.2 Test SET-UP



### 10.3 Measurement Procedure

#### 10.3.1 Conducted Emission

The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic.

To connect Antenna Port of EUT to Spectrum.

Set RBW = 1MHz & VBW = 1MHz on Spectrum.

Allow trace to fully stabilize

Repeat above procedures until all default test channel measured were complete.

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### 10.3.2 Band Edge

1. To connect Antenna Port of EUT to Spectrum.
2. The band edge of low and high channels for the highest RF powers was measured.  
Setting RBW  $\geq$  1% EBW.
3. Allow trace to fully stabilize
4. Repeat above procedures until all default test channel measured were complete.

### 10.4 Test Results:

Refer to next page for test plots.

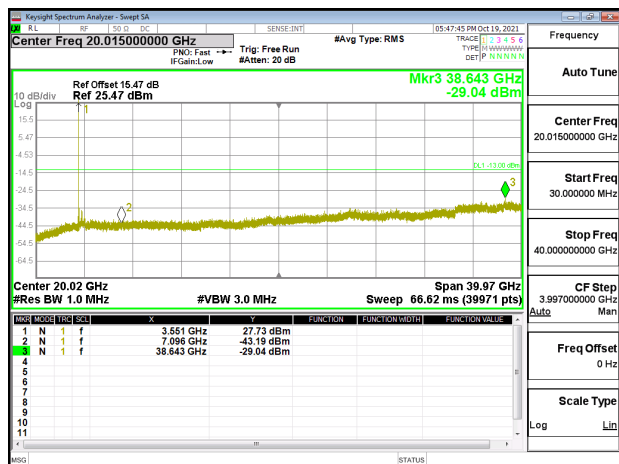
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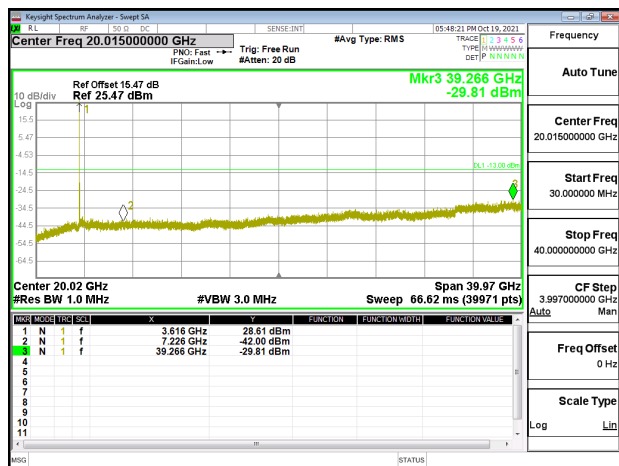
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## 10.4.1 Unwanted Emission

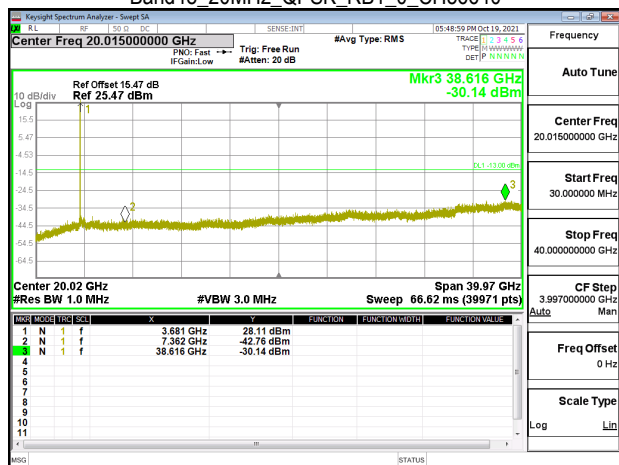
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Band48\_20MHz\_QPSK\_RB1\_0\_CH55990



Band48\_20MHz\_QPSK\_RB1\_0\_CH56640



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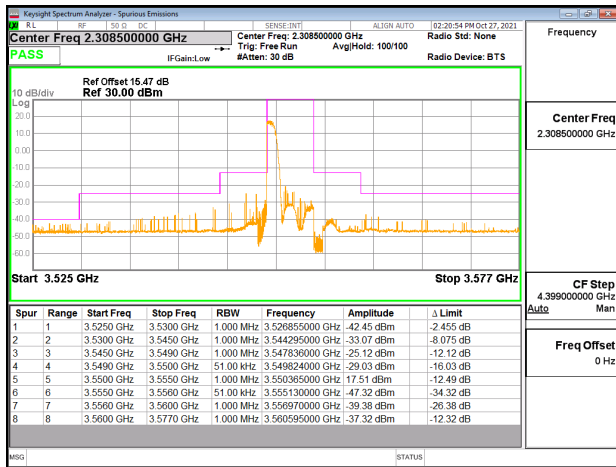
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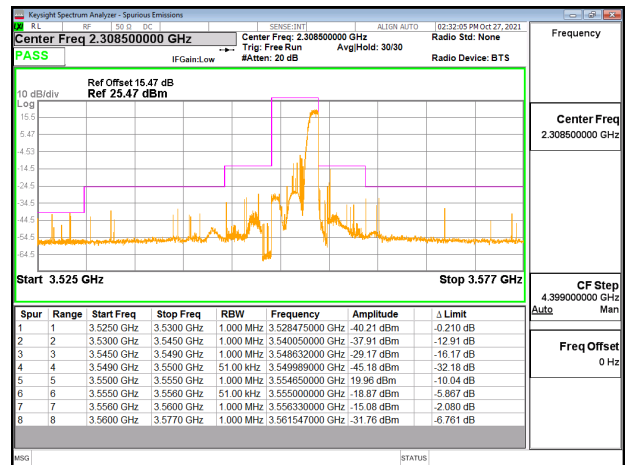


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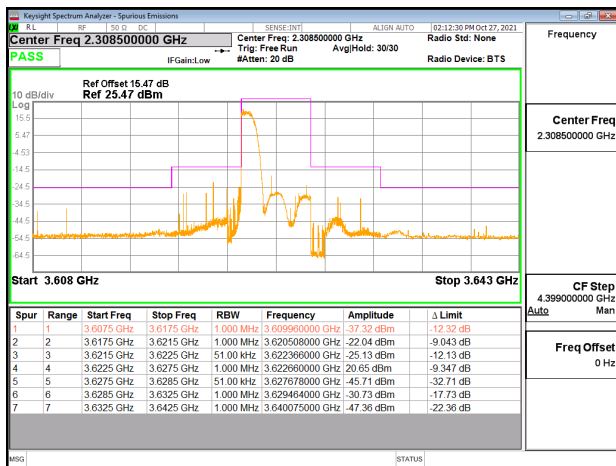
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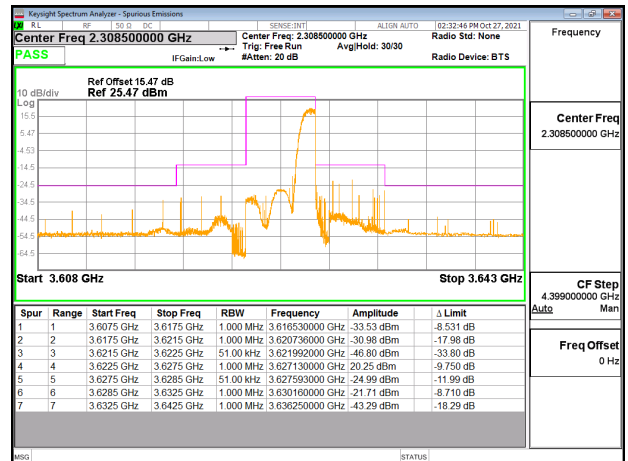
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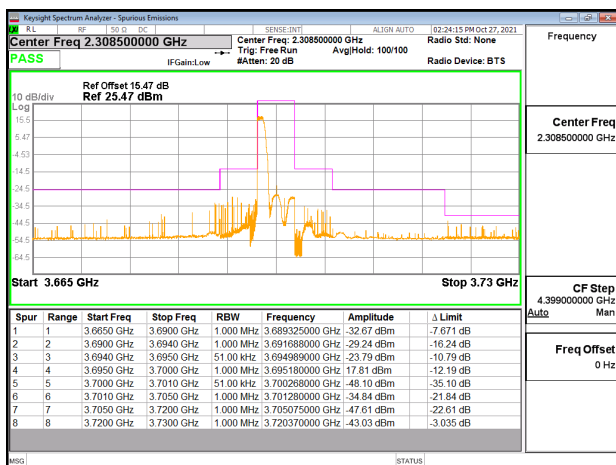
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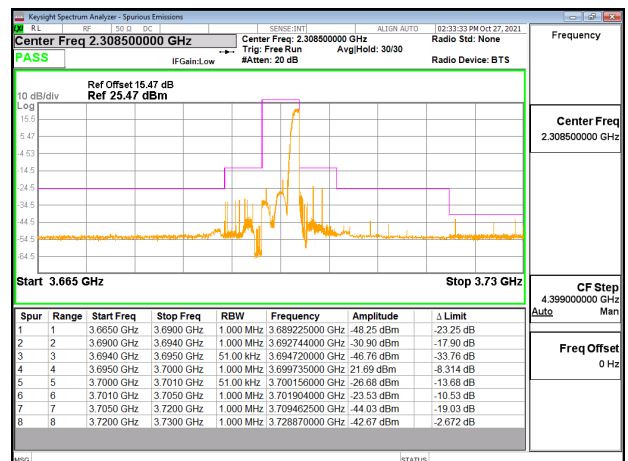
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Emission Mask\_Band48\_5MHz\_QPSK\_RB1\_0\_CH56715



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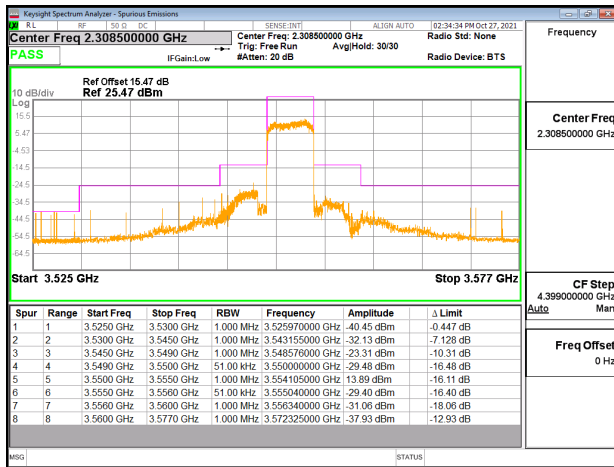


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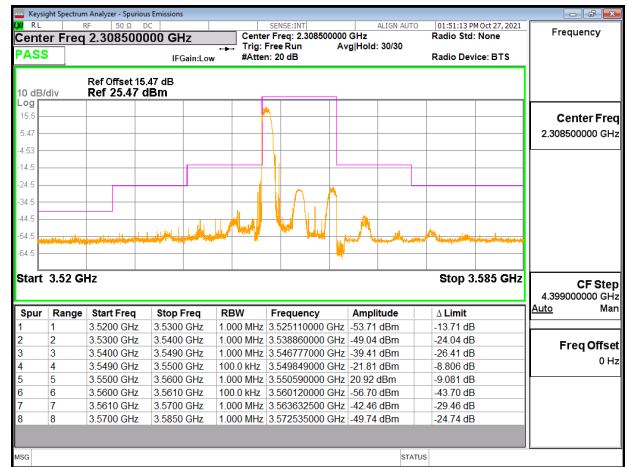
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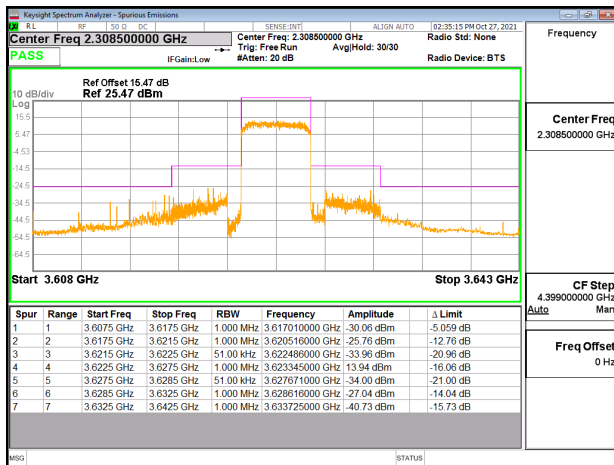
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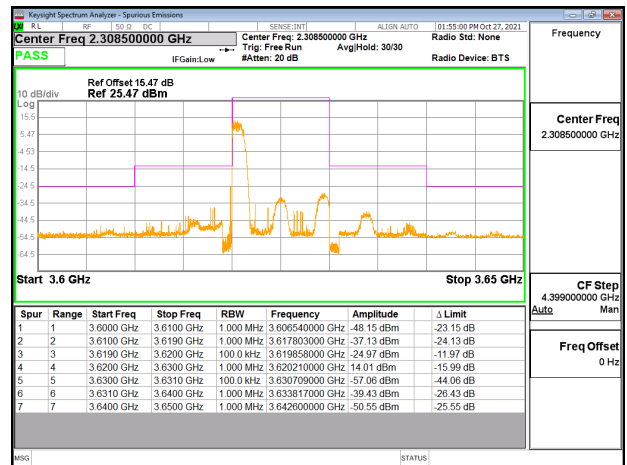
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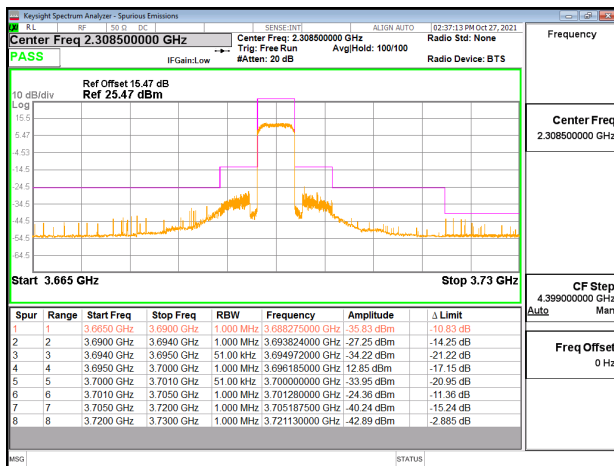
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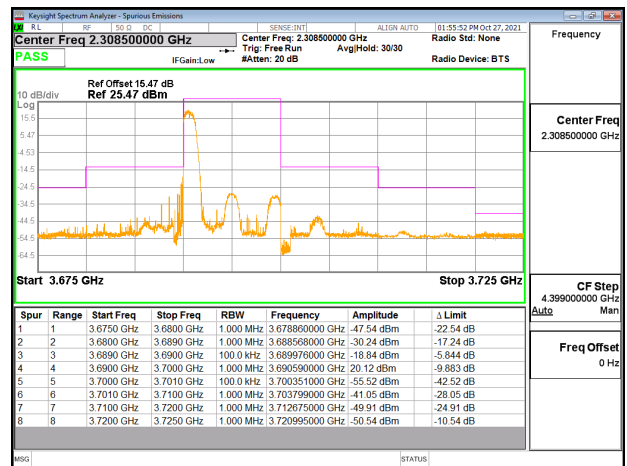
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Emission Mask\_Band48\_5MHz\_QPSK\_RB25\_0\_CH56715



Emission Mask\_Band48\_10MHz\_QPSK\_RB1\_0\_CH56690

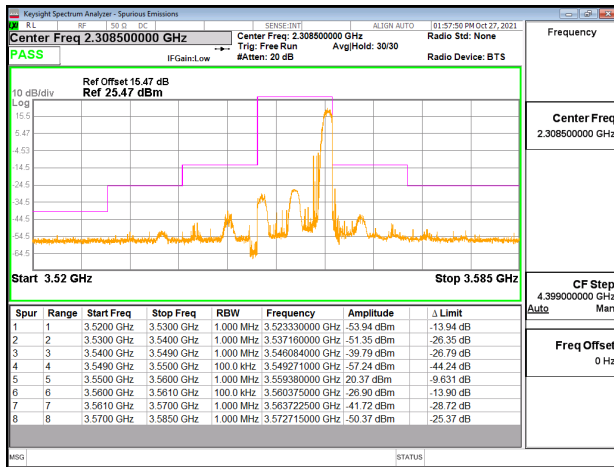


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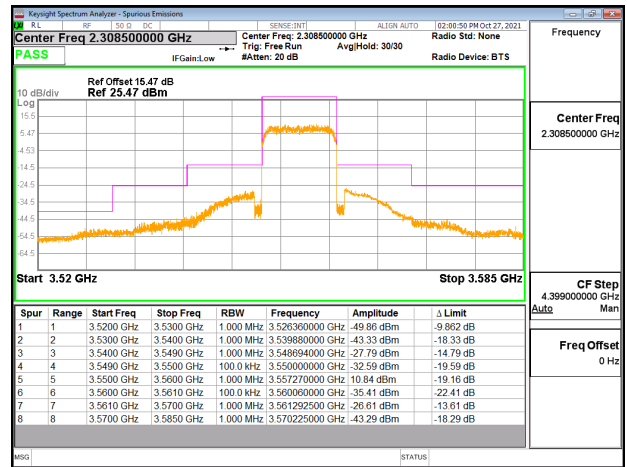
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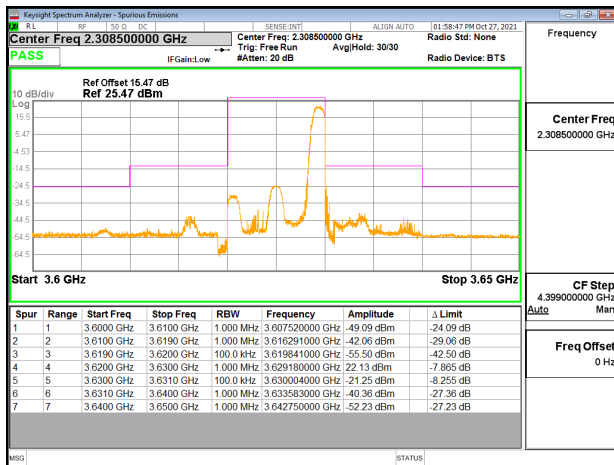
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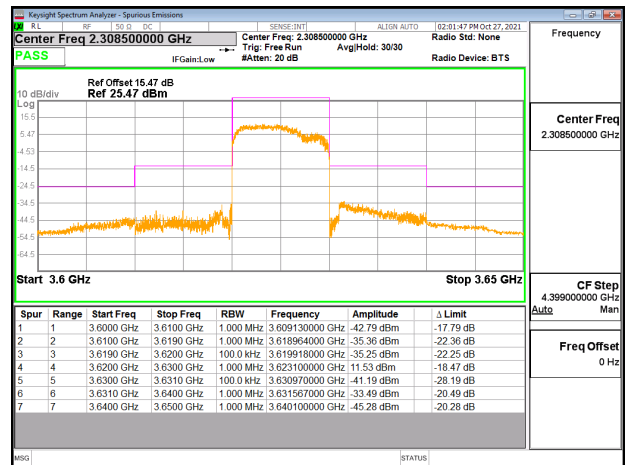
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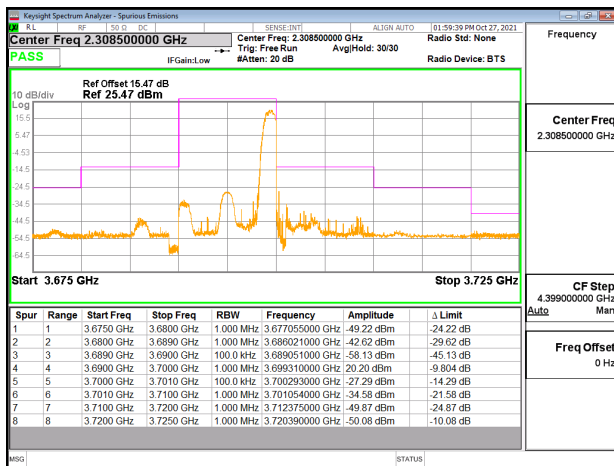
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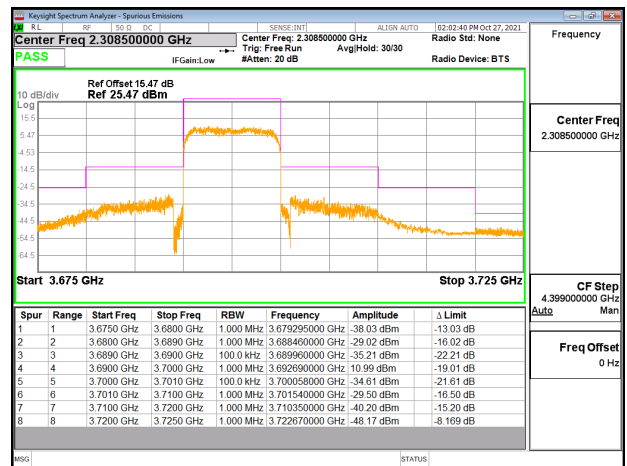
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Emission Mask\_Band48\_10MHz\_QPSK\_RB1\_49\_CH56690



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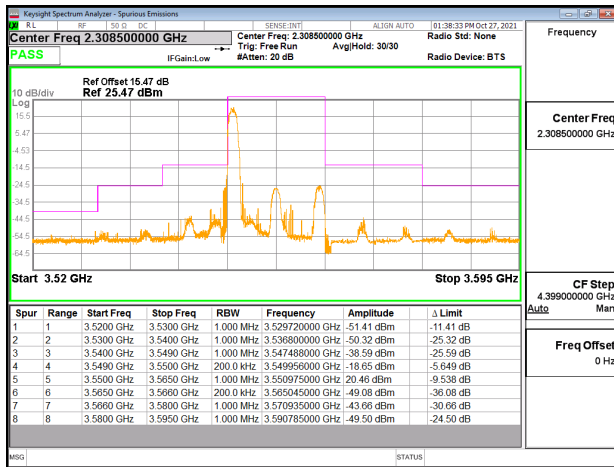


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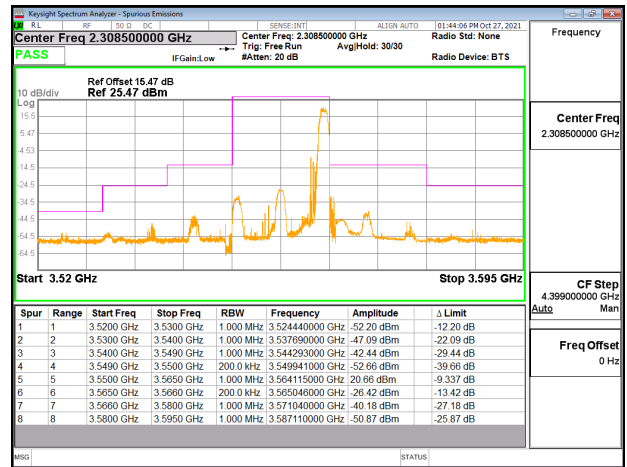
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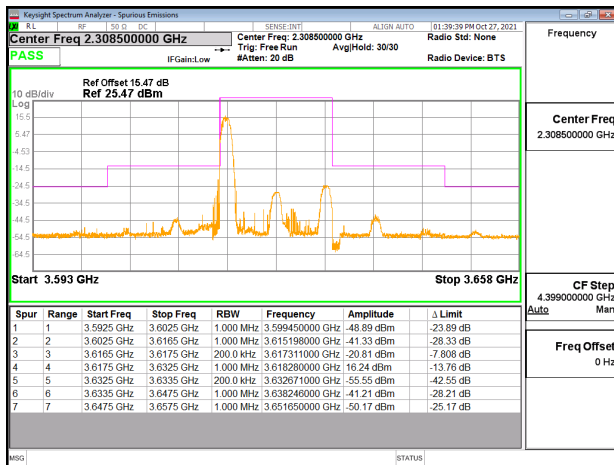
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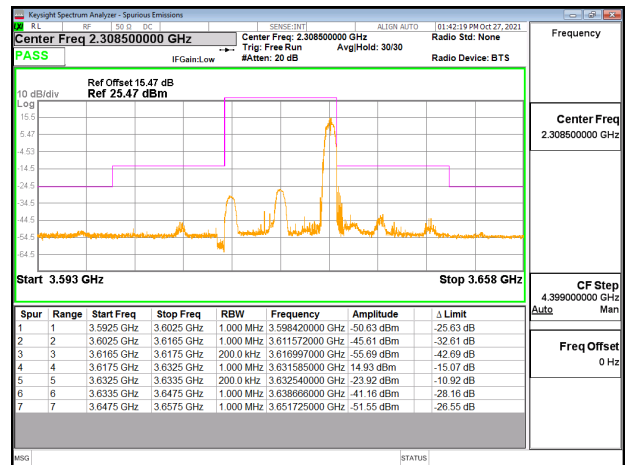
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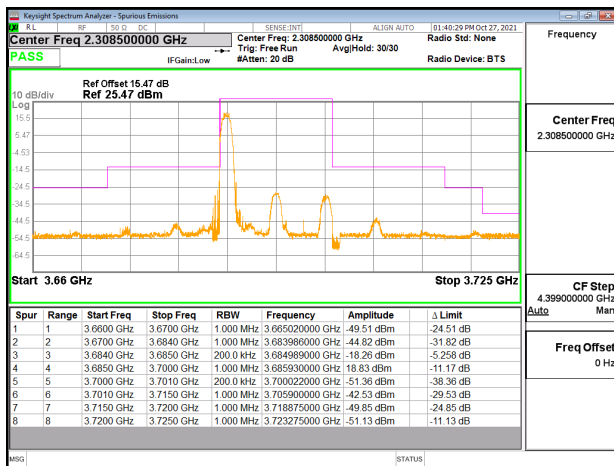
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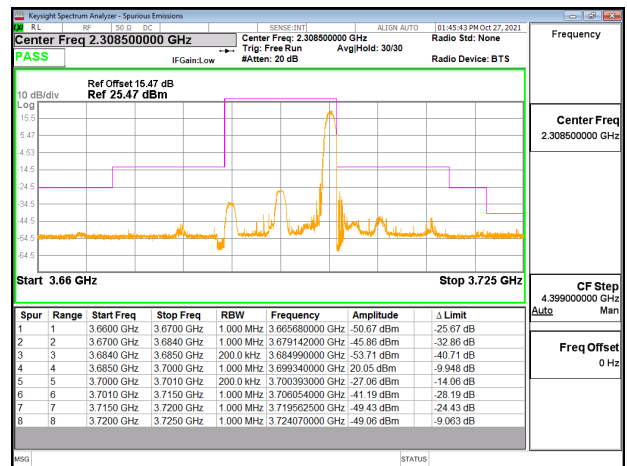
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Emission Mask\_Band48\_15MHz\_QPSK\_RB1\_0\_CH56665



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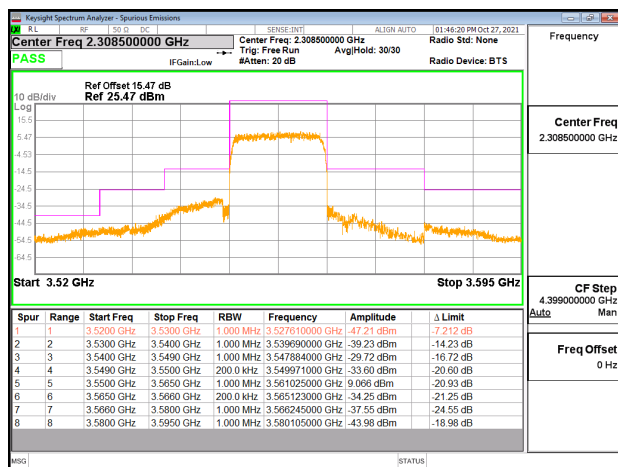
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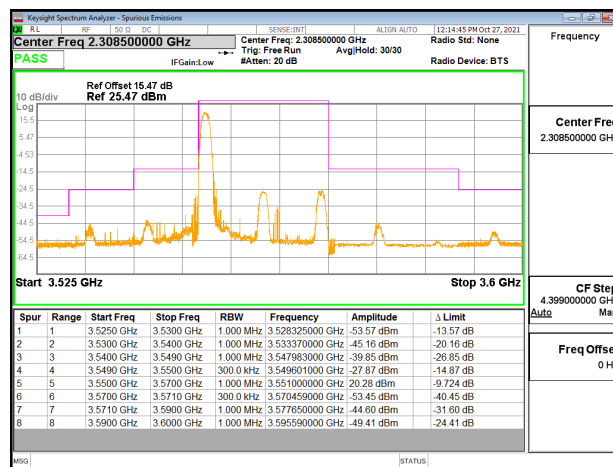
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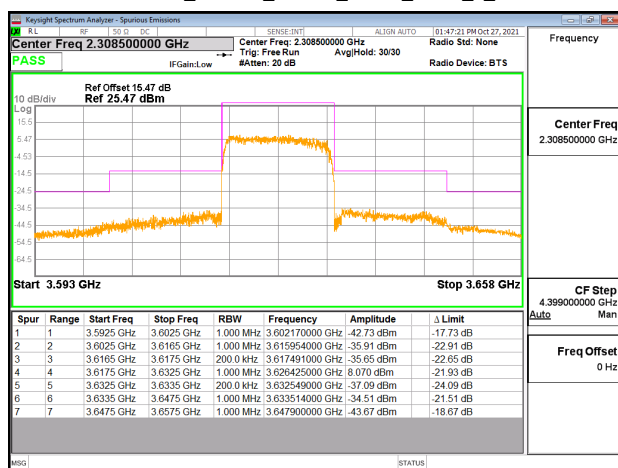
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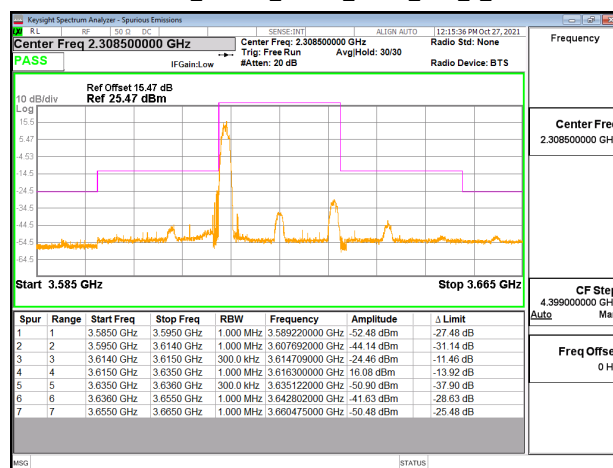
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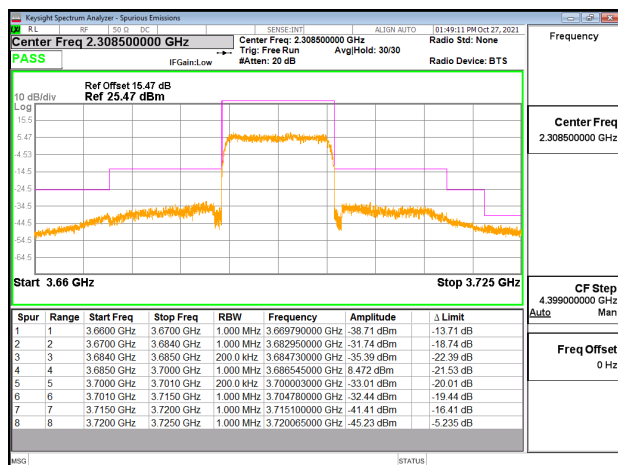
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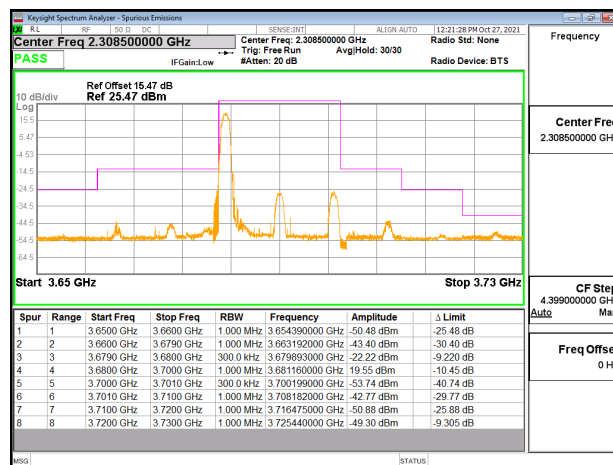
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Emission Mask\_Band48\_15MHz\_QPSK\_RB75\_0\_CH56665



Emission Mask\_Band48\_20MHz\_QPSK\_RB1\_0\_CH56640

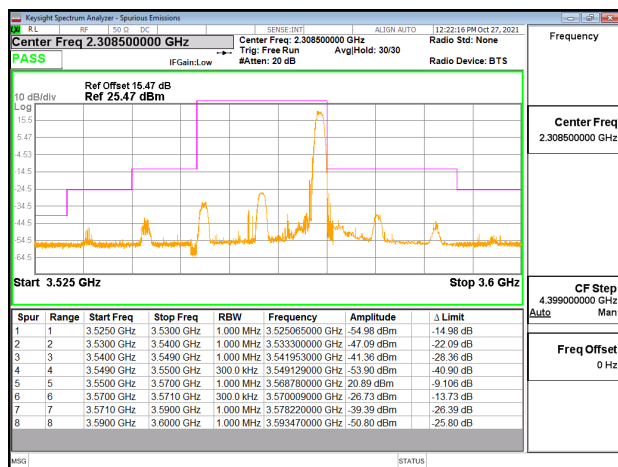


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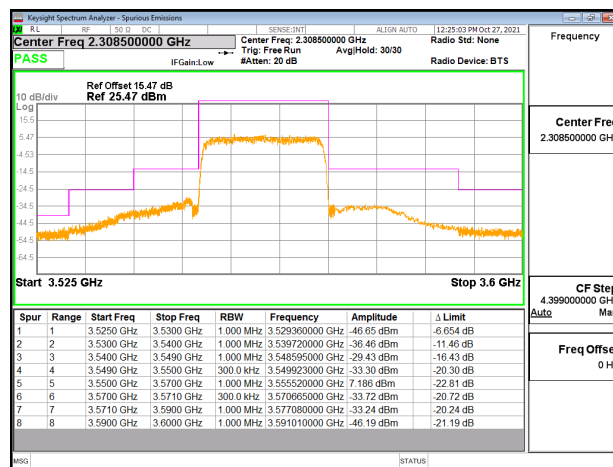
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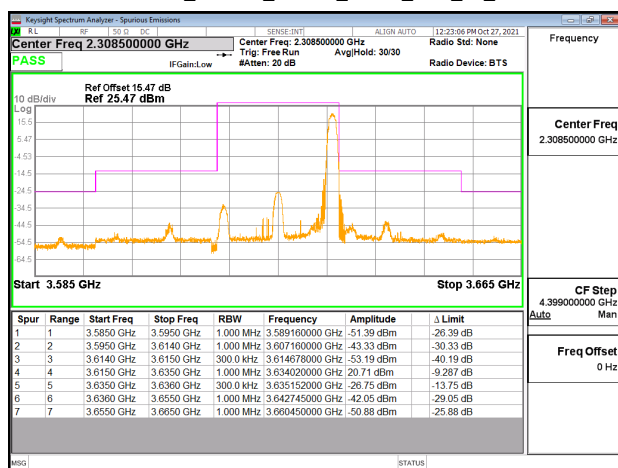
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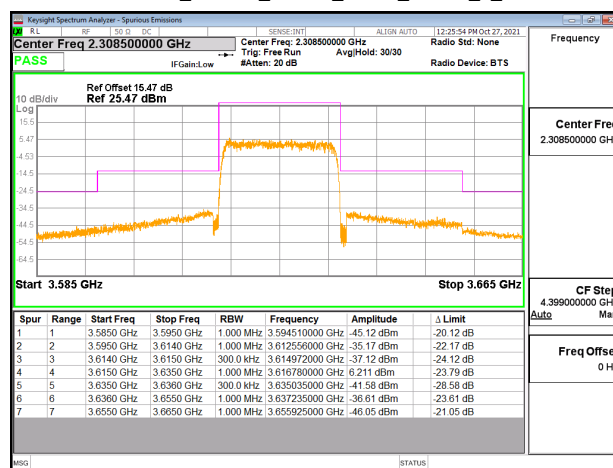
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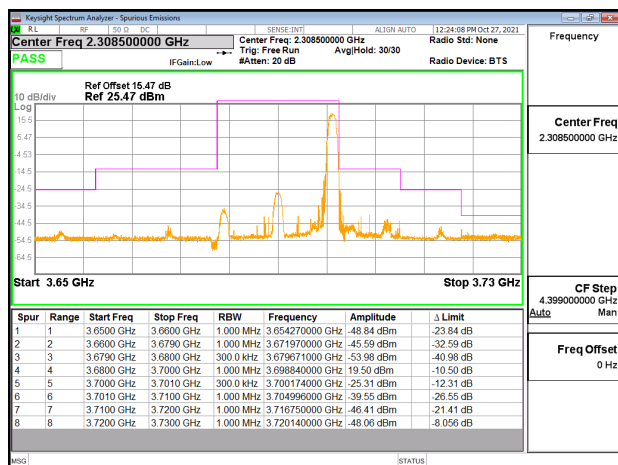
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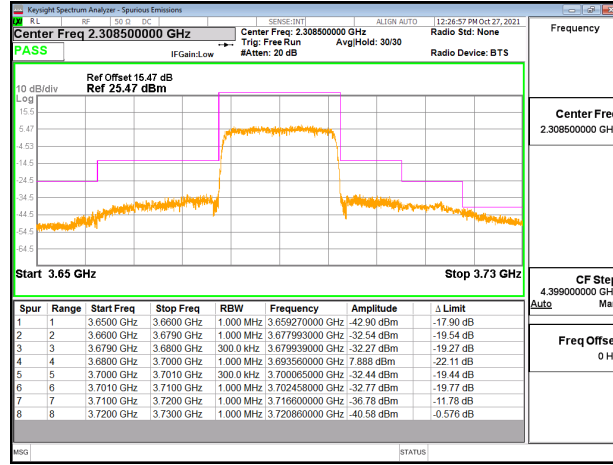
Emission Mask\_Band48\_20MHz\_QPSK\_RB100\_0\_CH55990



Emission Mask\_Band48\_20MHz\_QPSK\_RB1\_99\_CH56640



Emission Mask\_Band48\_20MHz\_QPSK\_RB100\_0\_CH56640



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## 11 FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

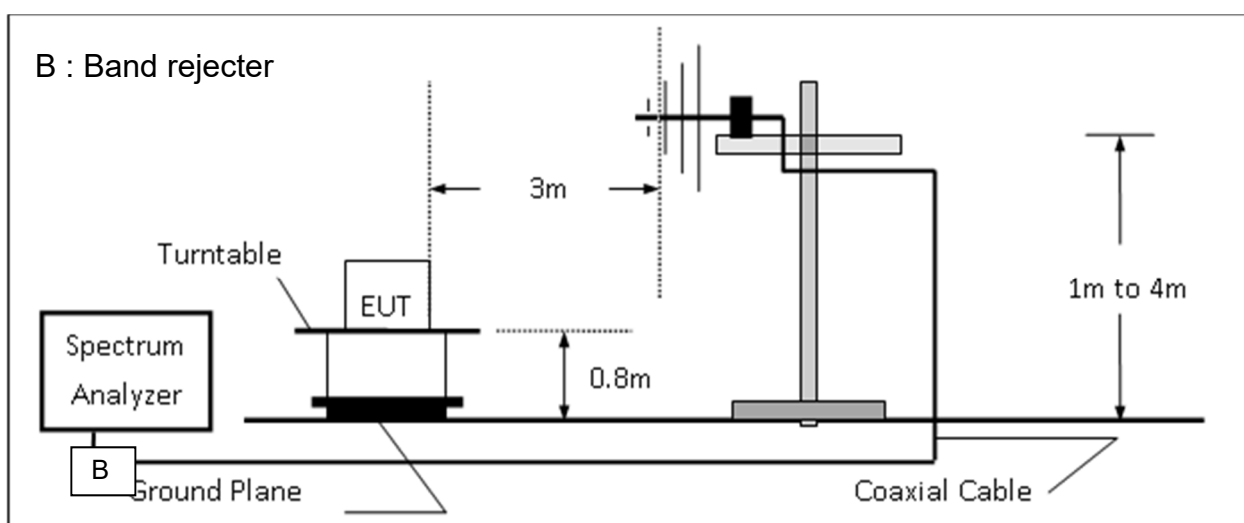
### 11.1 Standard Applicable

FCC Part 2.1053, Part 96.41, C63.26 Clause 5.7

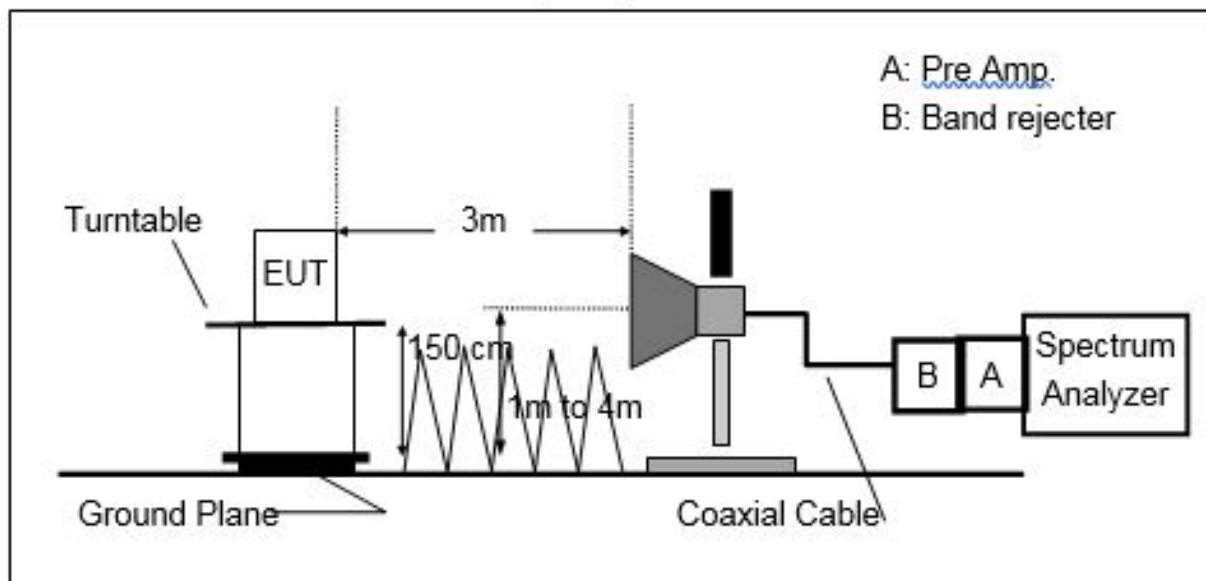
1. within 0 MHz to 10 MHz above and below the **assigned channel**  $\leq -13$  dBm/MHz
2. greater than 10 MHz above and below the **assigned channel**  $\leq -25$  dBm/MHz
3. any emission below 3530 MHz and above 3720 MHz  $\leq -40$  dBm/MHz

### 11.2 EUT Setup

Radiated Emission Test Set-Up, Frequency Below 1000MHz



Radiated Emission Test Set-UP Frequency Over 1 GHz



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台灣檢驗科技股份有限公司

t (886-2) 2299-3279

f (886-2) 2298-0488

[www.sgs.com.tw](http://www.sgs.com.tw)

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### 11.3 Measurement Procedure:

The EUT was placed on a non-conductive; the measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

The frequency range up to tenth harmonic was investigated for each of three fundamental frequencies (low, middle and high channels). Once spurious emission was identified, the power of the emission was determined using the substitution method.

The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency.

$$\text{ERP (dBm)} = \text{SG Level(dBm)} + \text{Antenna Gain(dBd)} + \text{Cable Loss(dB)}$$

$$\text{EIRP (dBm)} = \text{SG Level(dBm)} + \text{Antenna Gain(dBi)} + \text{Cable Loss(dB)}$$

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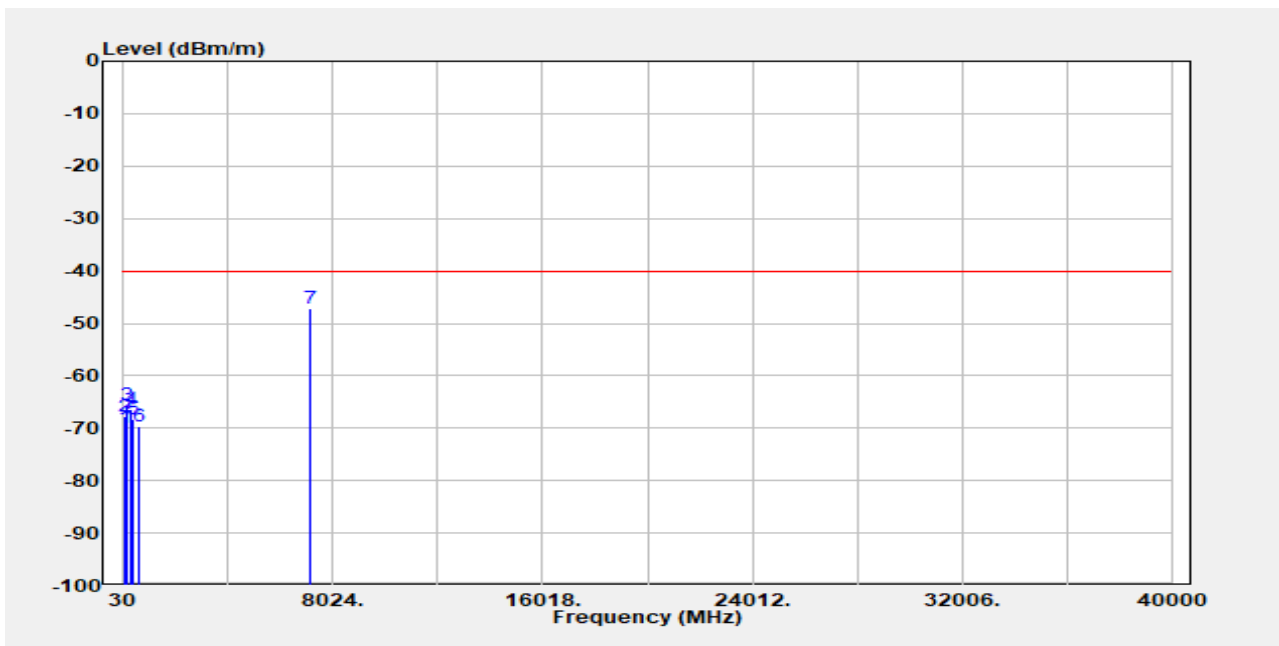
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## 11.4 Measurement Result:

Report Number :ER/2021/A0028  
 Operation Mode :LTE B48  
 Test Mode :Tx CH Low  
 EUT Pol :H Plane  
 Test Frequency :3557.5 MHz

Test Site :SAC 1  
 Test Date :2021-11-12  
 Temp./Humi. :23.8/53  
 Antenna Pol. :Vertical  
 Engineer :GN Lin



| Freq.<br>MHz | EIRP/ERP<br>dBm | SG<br>Output Level<br>dBm | Antenna<br>Gain<br>dBi/dBd | Cable<br>Loss<br>dB | Limit<br>dBm | Margin<br>dB |
|--------------|-----------------|---------------------------|----------------------------|---------------------|--------------|--------------|
| 60.72        | -69.99          | -59.86                    | -9.38                      | -0.74               | -40.00       | -29.99       |
| 101.13       | -67.84          | -65.94                    | -0.88                      | -1.02               | -40.00       | -27.84       |
| 149.63       | -65.61          | -62.85                    | -1.62                      | -1.15               | -40.00       | -25.61       |
| 335.55       | -66.52          | -68.91                    | 4.28                       | -1.90               | -40.00       | -26.52       |
| 348.48       | -68.26          | -70.78                    | 4.52                       | -2.01               | -40.00       | -28.26       |
| 623.32       | -69.74          | -70.89                    | 3.47                       | -2.32               | -40.00       | -29.74       |
| 7115.00      | -47.05          | -48.19                    | 10.97                      | -9.83               | -40.00       | -7.05        |

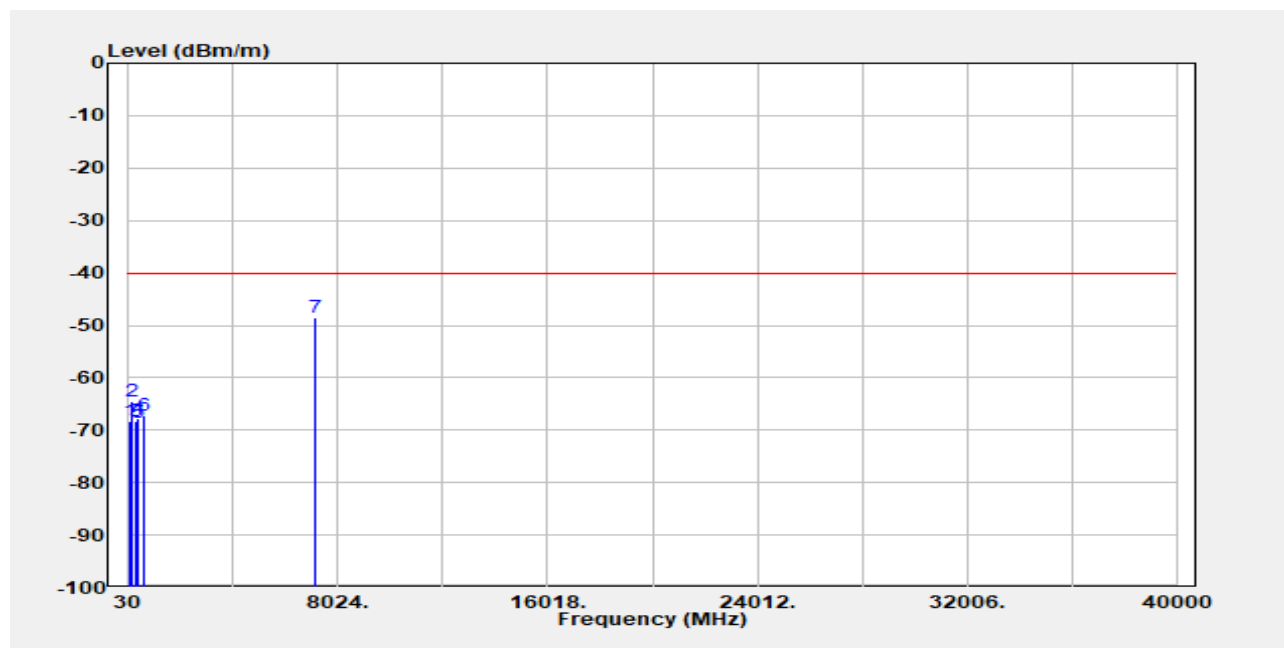
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Report Number :ER/2021/A0028  
Operation Mode :LTE B48  
Test Mode :Tx CH Low  
EUT Pol :H Plane  
Test Frequency :3557.5 MHz

Test Site :SAC 1  
Test Date :2021-11-12  
Temp./Humi. :23.8/53  
Antenna Pol. :Horizontal  
Engineer :GN Lin



| Freq.<br>MHz | EIRP/ERP<br>dBm | SG<br>Output Level<br>dBm | Antenna<br>Gain<br>dBi/dBd | Cable<br>Loss<br>dB | Limit<br>dBm | Margin<br>dB |
|--------------|-----------------|---------------------------|----------------------------|---------------------|--------------|--------------|
| 89.82        | -68.27          | -66.86                    | -0.43                      | -0.98               | -40.00       | -28.27       |
| 164.18       | -64.38          | -62.25                    | -0.88                      | -1.26               | -40.00       | -24.38       |
| 335.55       | -68.20          | -70.59                    | 4.28                       | -1.90               | -40.00       | -28.20       |
| 348.48       | -67.65          | -70.16                    | 4.52                       | -2.01               | -40.00       | -27.65       |
| 388.90       | -68.51          | -70.87                    | 4.40                       | -2.04               | -40.00       | -28.51       |
| 610.38       | -67.29          | -68.28                    | 3.48                       | -2.50               | -40.00       | -27.29       |
| 7115.00      | -48.45          | -49.59                    | 10.97                      | -9.83               | -40.00       | -8.45        |

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Report Number :ER/2021/A0028

Test Site :SAC 1

Operation Mode :LTE B48

Test Date :2021-11-12

Test Mode :Tx CH Mid

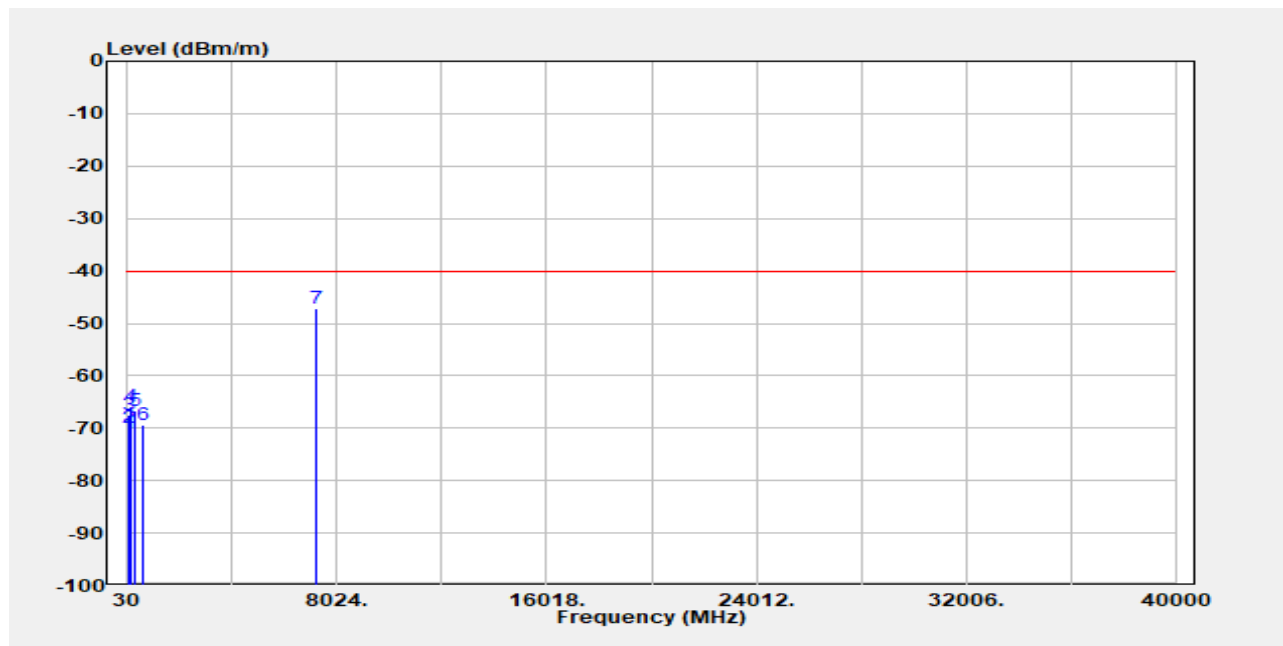
Temp./Humi. :23.8/53

EUT Pol :H Plane

Antenna Pol. :Vertical

Test Frequency :3625 MHz

Engineer :GN Lin



| Freq.<br>MHz | EIRP/ERP<br>dBm | SG<br>Output Level<br>dBm | Antenna<br>Gain<br>dBi/dBd | Cable<br>Loss<br>dB | Limit<br>dBm | Margin<br>dB |
|--------------|-----------------|---------------------------|----------------------------|---------------------|--------------|--------------|
| 60.72        | -70.90          | -60.77                    | -9.38                      | -0.74               | -40.00       | -30.90       |
| 89.82        | -69.87          | -68.46                    | -0.43                      | -0.98               | -40.00       | -29.87       |
| 107.60       | -67.58          | -65.12                    | -1.42                      | -1.04               | -40.00       | -27.58       |
| 149.63       | -65.90          | -63.13                    | -1.62                      | -1.15               | -40.00       | -25.90       |
| 335.55       | -66.67          | -69.06                    | 4.28                       | -1.90               | -40.00       | -26.67       |
| 610.38       | -69.27          | -70.26                    | 3.48                       | -2.50               | -40.00       | -29.27       |
| 7250.00      | -47.29          | -48.65                    | 10.80                      | -9.44               | -40.00       | -7.29        |

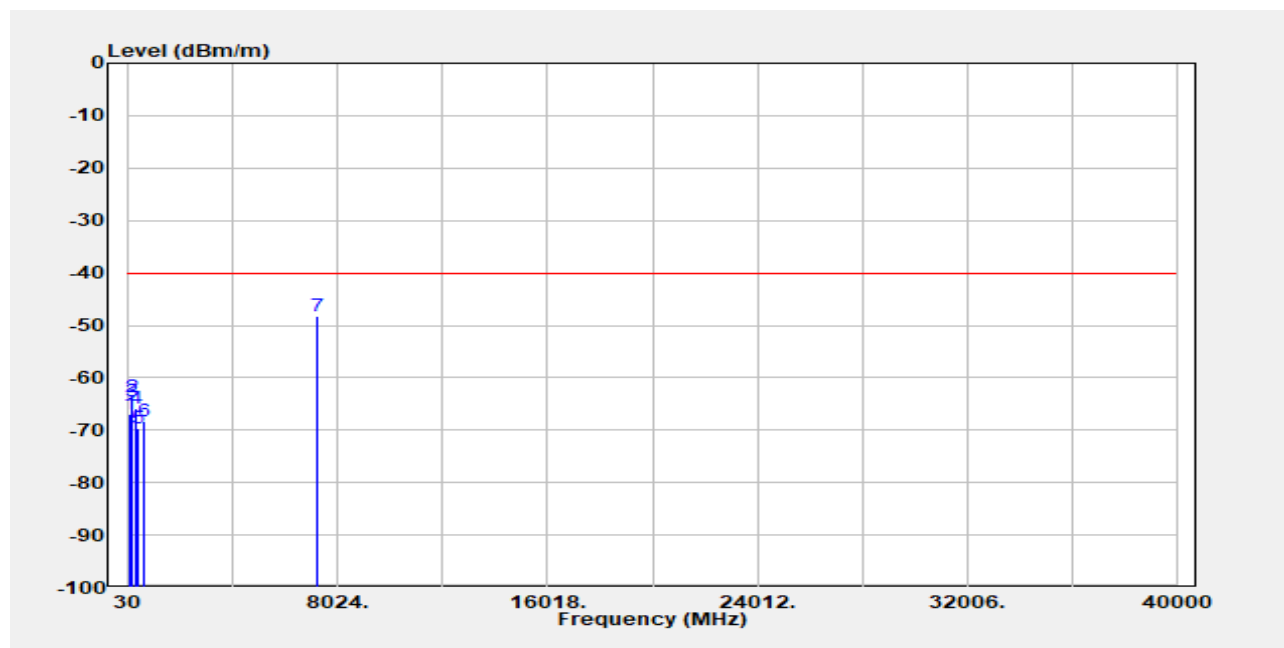
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Report Number :ER/2021/A0028  
Operation Mode :LTE B48  
Test Mode :Tx CH Mid  
EUT Pol :H Plane  
Test Frequency :3625 MHz

Test Site :SAC 1  
Test Date :2021-11-12  
Temp./Humi. :23.8/53  
Antenna Pol. :Horizontal  
Engineer :GN Lin



| Freq.<br>MHz | EIRP/ERP<br>dBm | SG<br>Output Level<br>dBm | Antenna<br>Gain<br>dBi/dBd | Cable<br>Loss<br>dB | Limit<br>dBm | Margin<br>dB |
|--------------|-----------------|---------------------------|----------------------------|---------------------|--------------|--------------|
| 89.82        | -66.94          | -65.53                    | -0.43                      | -0.98               | -40.00       | -26.94       |
| 149.63       | -63.78          | -61.01                    | -1.62                      | -1.15               | -40.00       | -23.78       |
| 164.18       | -64.41          | -62.28                    | -0.88                      | -1.26               | -40.00       | -24.41       |
| 342.02       | -65.84          | -68.28                    | 4.36                       | -1.92               | -40.00       | -25.84       |
| 388.90       | -69.70          | -72.06                    | 4.40                       | -2.04               | -40.00       | -29.70       |
| 610.38       | -68.24          | -69.23                    | 3.48                       | -2.50               | -40.00       | -28.24       |
| 7250.00      | -48.16          | -49.52                    | 10.80                      | -9.44               | -40.00       | -8.16        |

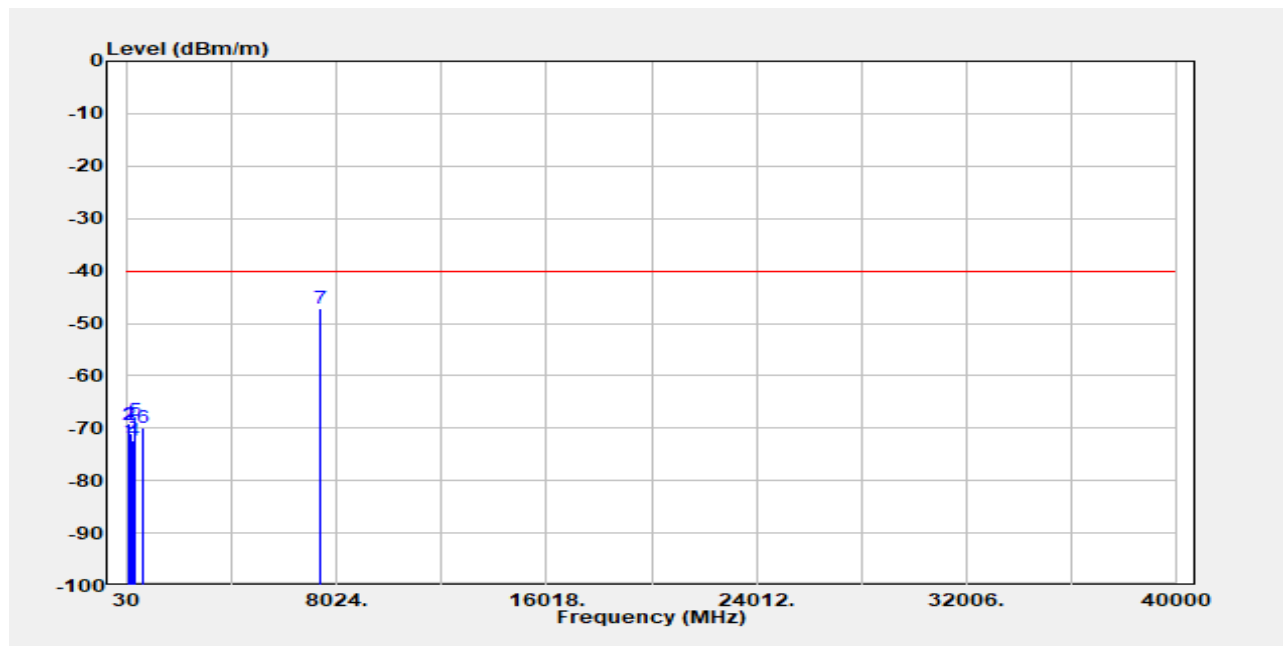
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Report Number :ER/2021/A0028  
Operation Mode :LTE B48  
Test Mode :Tx CH High  
EUT Pol :H Plane  
Test Frequency :3692.5 MHz

Test Site :SAC 1  
Test Date :2021-11-12  
Temp./Humi. :23.8/53  
Antenna Pol. :Vertical  
Engineer :GN Lin



| Freq.<br>MHz | EIRP/ERP<br>dBm | SG<br>Output Level<br>dBm | Antenna<br>Gain<br>dBi/dBd | Cable<br>Loss<br>dB | Limit<br>dBm | Margin<br>dB |
|--------------|-----------------|---------------------------|----------------------------|---------------------|--------------|--------------|
| 60.72        | -69.20          | -59.08                    | -9.38                      | -0.74               | -40.00       | -29.20       |
| 89.82        | -69.26          | -67.85                    | -0.43                      | -0.98               | -40.00       | -29.26       |
| 164.18       | -70.88          | -68.75                    | -0.88                      | -1.26               | -40.00       | -30.88       |
| 240.17       | -72.28          | -75.05                    | 4.38                       | -1.61               | -40.00       | -32.28       |
| 342.02       | -68.61          | -71.05                    | 4.36                       | -1.92               | -40.00       | -28.61       |
| 610.38       | -69.98          | -70.97                    | 3.48                       | -2.50               | -40.00       | -29.98       |
| 7385.00      | -47.15          | -49.11                    | 10.97                      | -9.01               | -40.00       | -7.15        |

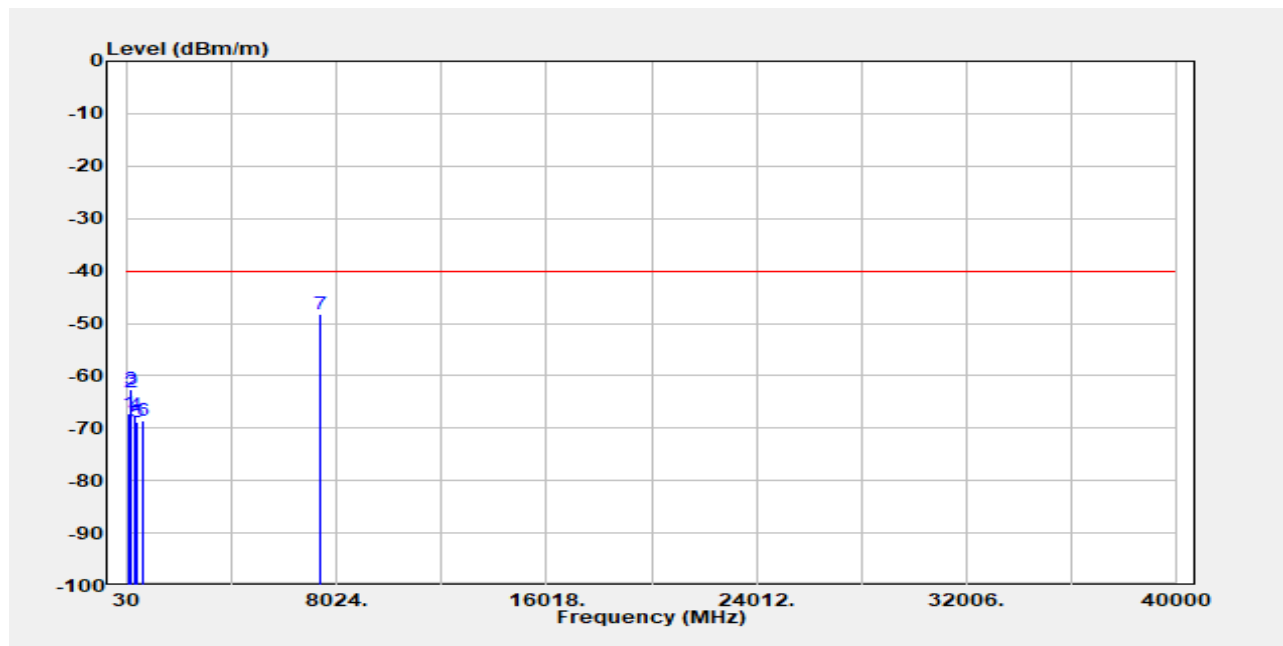
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Report Number :ER/2021/A0028  
Operation Mode :LTE B48  
Test Mode :Tx CH High  
EUT Pol :H Plane  
Test Frequency :3692.5 MHz

Test Site :SAC 1  
Test Date :2021-11-12  
Temp./Humi. :23.8/53  
Antenna Pol. :Horizontal  
Engineer :GN Lin



| Freq.<br>MHz | EIRP/ERP<br>dBm | SG<br>Output Level<br>dBm | Antenna<br>Gain<br>dBi/dBd | Cable<br>Loss<br>dB | Limit<br>dBm | Margin<br>dB |
|--------------|-----------------|---------------------------|----------------------------|---------------------|--------------|--------------|
| 89.82        | -67.34          | -65.93                    | -0.43                      | -0.98               | -40.00       | -27.34       |
| 149.63       | -63.25          | -60.48                    | -1.62                      | -1.15               | -40.00       | -23.25       |
| 164.18       | -62.53          | -60.40                    | -0.88                      | -1.26               | -40.00       | -22.53       |
| 335.55       | -67.41          | -69.80                    | 4.28                       | -1.90               | -40.00       | -27.41       |
| 388.90       | -68.81          | -71.17                    | 4.40                       | -2.04               | -40.00       | -28.81       |
| 610.38       | -68.57          | -69.56                    | 3.48                       | -2.50               | -40.00       | -28.57       |
| 7385.00      | -48.31          | -50.26                    | 10.97                      | -9.01               | -40.00       | -8.31        |

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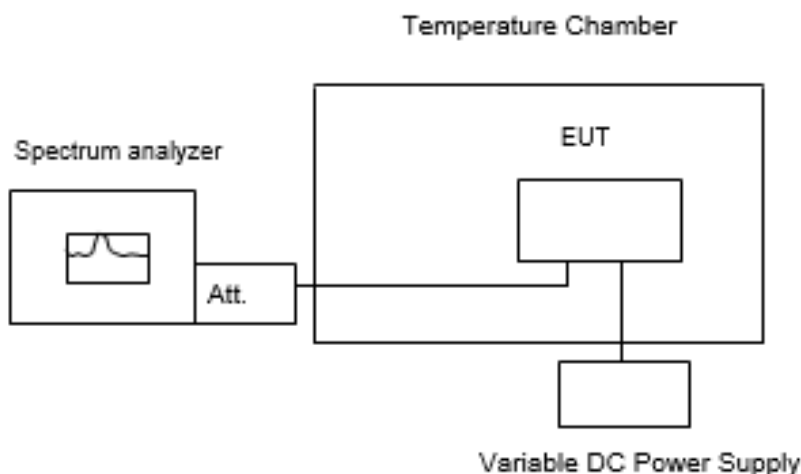
## 12 FREQUENCY STABILITY MEASUREMENT

### 12.1 Standard Applicable

FCC §2.1055(a)

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency band. The frequency stability of the transmitter shall be maintained within  $\pm 0.00025\%$  ( $\pm 2.5$  ppm) of the center frequency.

### 12.2 Test Set-up



**Note:** Measurement setup for testing on Antenna connector

### 12.3 Measurement Procedure

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.

Set chamber temperature to 25°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specify extreme voltage variation (+/- 15%) and endpoint as declared by the manufacturer, record the maximum frequency change.

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## 12.4 Measurement Result

|                         |            |                     |         |             |                       |
|-------------------------|------------|---------------------|---------|-------------|-----------------------|
| Reference Freq.:        |            | LTE B48 Mid Channel |         | 3625.0000   | MHz 10M QPSK CH 55990 |
| Power Supply Vdc        | Temp. (°C) | Freq. (MHz)         | (ppm)   | Limit       |                       |
| Freq. ERROR vs. VOLTAGE |            |                     |         |             |                       |
| 3.795                   | 25         | 3624.999993         | -0.0019 | +/- 2.5 ppm |                       |
| 3.3                     | 25         | 3624.999997         | -0.0008 |             |                       |
| 2.805                   | 25         | 3624.999999         | -0.0003 |             |                       |
| 2.4<br>(End Point)      | 25         | 3625.000010         | 0.0028  |             |                       |
| Freq. ERROR vs. Temp.   |            |                     |         |             |                       |
| 3.3                     | -30        | 3625.000006         | 0.0017  | +/- 2.5 ppm |                       |
| 3.3                     | -20        | 3624.999989         | -0.0030 |             |                       |
| 3.3                     | -10        | 3624.999998         | -0.0006 |             |                       |
| 3.3                     | 0          | 3624.999994         | -0.0017 |             |                       |
| 3.3                     | 10         | 3624.999992         | -0.0022 |             |                       |
| 3.3                     | 20         | 3625.000007         | 0.0019  |             |                       |
| 3.3                     | 30         | 3624.999991         | -0.0025 |             |                       |
| 3.3                     | 40         | 3625.000005         | 0.0014  |             |                       |
| 3.3                     | 50         | 3624.999998         | -0.0006 |             |                       |

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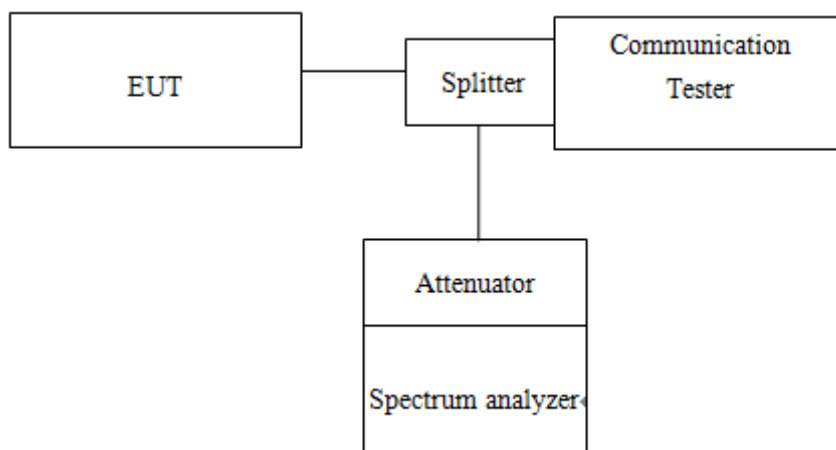
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## 13 PEAK TO AVERAGE RATIO

### 13.1 Standard Applicable

The peak-to-average ratio (PAR) of the transmission may not exceed 13dB.

### 13.2 Test SET-UP



### 13.3 Measurement Procedure

1. KDB 971168 D01 is employed as the following procedure is proper adjusted accordingly:
2. Set resolution/measurement bandwidth  $\geq$  signal's occupied bandwidth; & internal = 1ms
3. Set the number of counts to a value that stabilizes the measured CCDF curve.

### 13.4 Measurement Result

| LTE BAND 48             |       |           |       |                          |       |           |       |
|-------------------------|-------|-----------|-------|--------------------------|-------|-----------|-------|
| Channel bandwidth: 5MHz |       |           |       | Channel bandwidth: 10MHz |       |           |       |
| Freq.<br>(MHz)          | CH    | PAPR (dB) |       | Freq.<br>(MHz)           | CH    | PAPR (dB) |       |
|                         |       | 64QAM     | Limit |                          |       | 64QAM     | Limit |
| 3552.5                  | 55265 | 7.22      | 13    | 3555.0                   | 55290 | 6.45      | 13    |
| 3625.0                  | 55990 | 7.07      | 13    | 3625.0                   | 55990 | 6.72      | 13    |
| 3697.5                  | 56715 | 6.27      | 13    | 3695.0                   | 56690 | 6.46      | 13    |

| LTE BAND 48              |       |           |       |                          |       |           |       |
|--------------------------|-------|-----------|-------|--------------------------|-------|-----------|-------|
| Channel bandwidth: 15MHz |       |           |       | Channel bandwidth: 20MHz |       |           |       |
| Freq.<br>(MHz)           | CH    | PAPR (dB) |       | Freq.<br>(MHz)           | CH    | PAPR (dB) |       |
|                          |       | 64QAM     | Limit |                          |       | 64QAM     | Limit |
| 3557.5                   | 55315 | 9.00      | 13    | 3650.0                   | 55340 | 6.43      | 13    |
| 3625.0                   | 55990 | 6.74      | 13    | 3625.0                   | 55990 | 6.61      | 13    |
| 3692.5                   | 56665 | 6.28      | 13    | 3690.0                   | 56640 | 6.61      | 13    |

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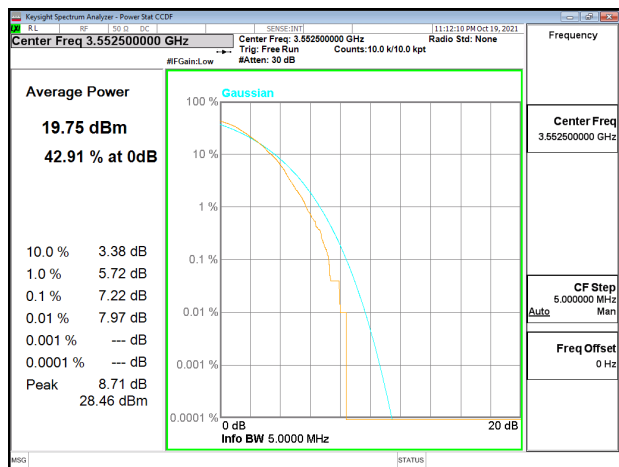
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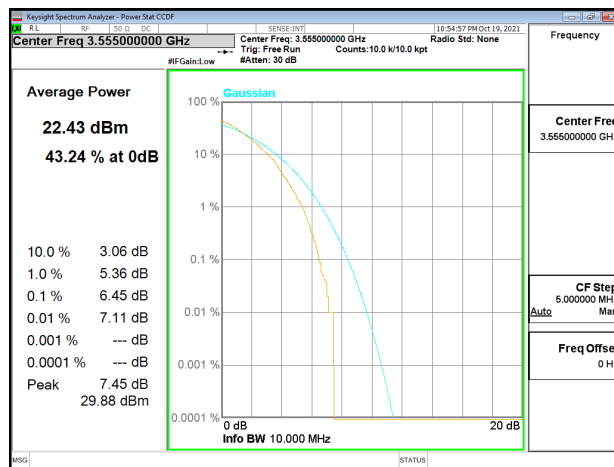
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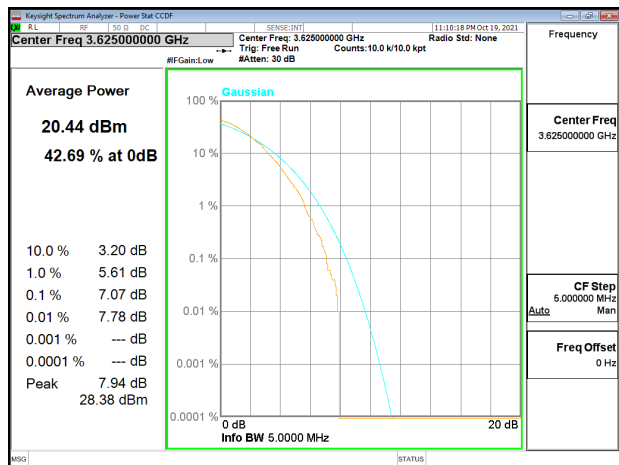
Band48\_5MHz\_64QAM\_RB25\_0\_CH55265



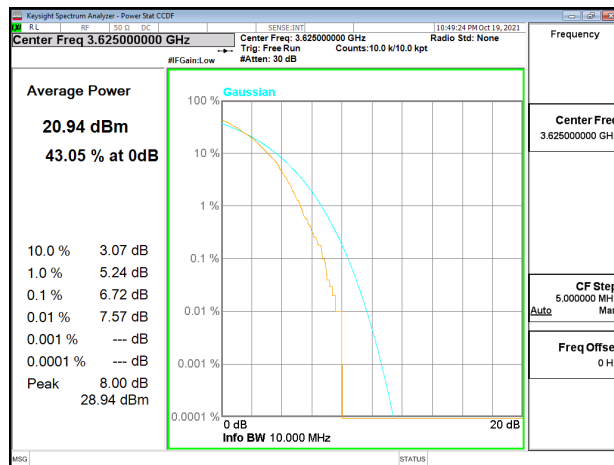
Band48\_10MHz\_64QAM\_RB50\_0\_CH55290



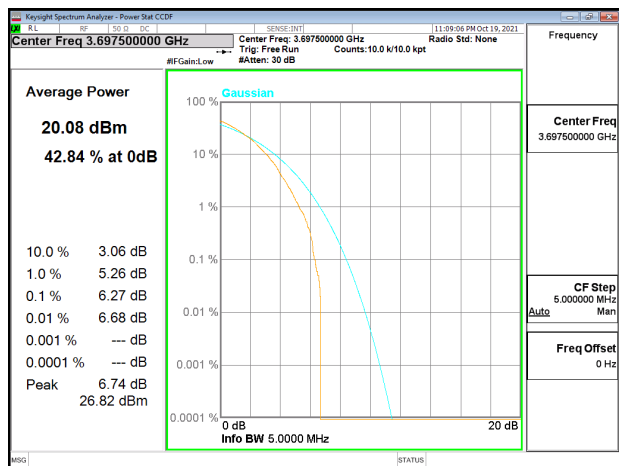
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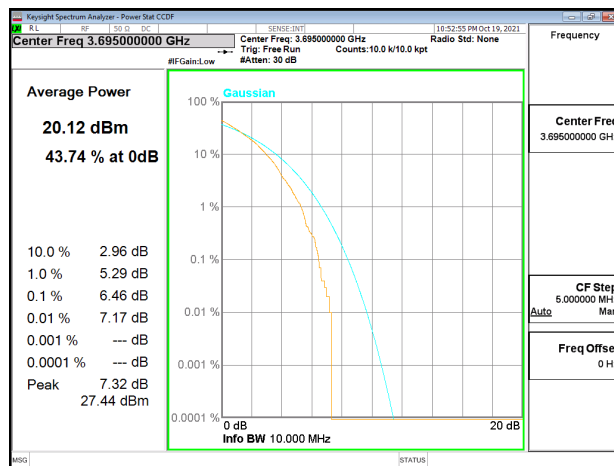
Band48\_10MHz\_64QAM\_RB50\_0\_CH55990



Band48\_5MHz\_64QAM\_RB25\_0\_CH56715



Band48\_10MHz\_64QAM\_RB50\_0\_CH56690



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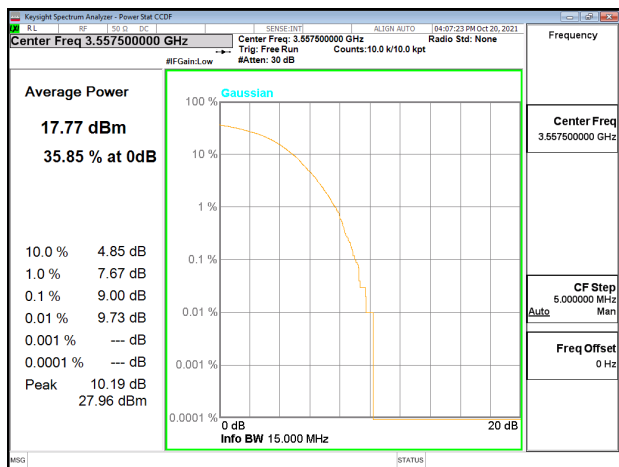
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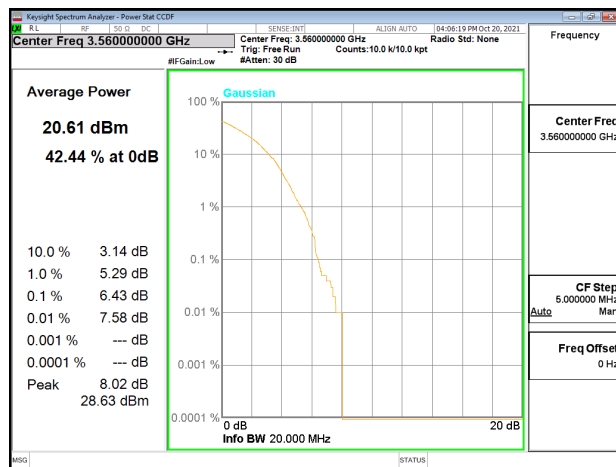
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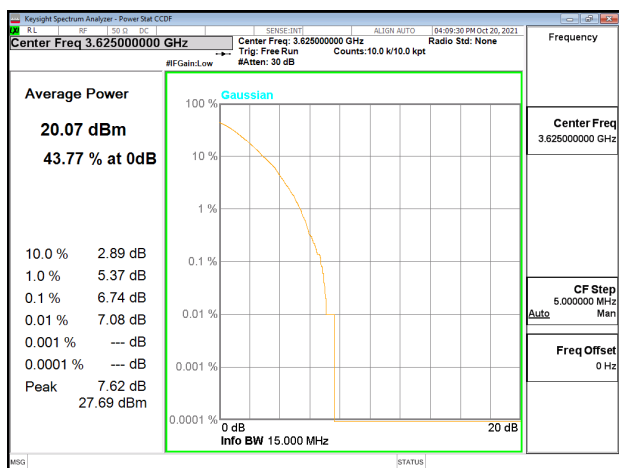
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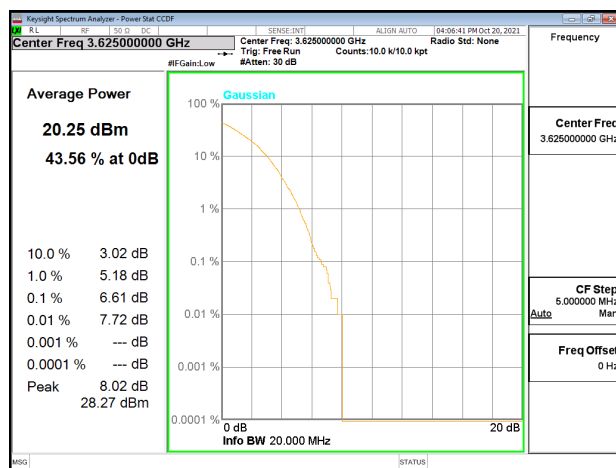
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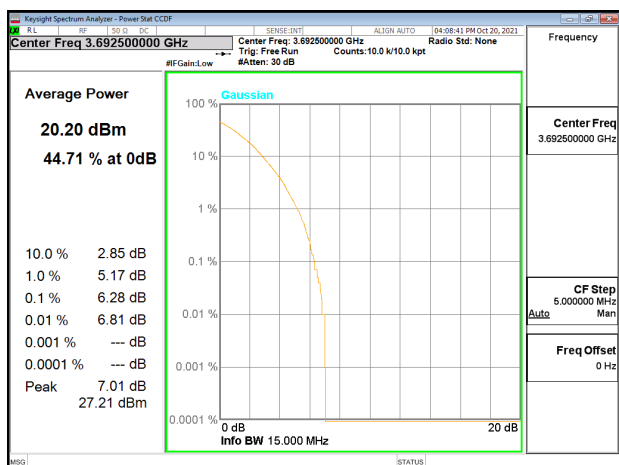
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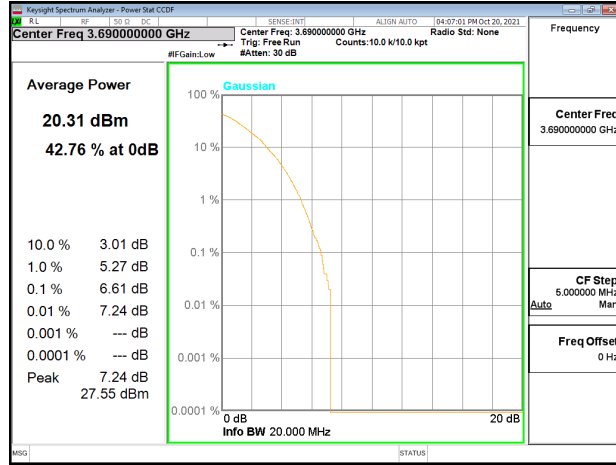
Band48\_20MHz\_64QAM\_RB100\_0\_CH55990



Band48\_15MHz\_64QAM\_RB75\_0\_CH56665



Band48\_20MHz\_64QAM\_RB100\_0\_CH56640



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~ End of Report ~

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