

# RF MEASUREMENT REPORT

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**FCC ID:** 2BEY3LCUR57WWDC  
**Applicant:** NETPRISMA INC.  
**Product:** LTE-A Cat 16 M.2 Module  
**Model No.:** LCUR57-WWD  
**Brand Name:** Vrileg  
**FCC Rule(s):** Part 96  
**Result:** Complies  
**Received Date:** 2024-04-22  
**Test Date:** 2024-04-25 ~ 2024-06-01

**Reviewed By:**

\_\_\_\_\_  
Sunny Sun

**Approved By:**

\_\_\_\_\_  
Robin Wu



The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.26-2015. Test results reported herein relate only to the item(s) tested.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

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### Revision History

Report No.	Version	Description	Issue Date	Note
2404RSU035-U6	V01	Initial Report	2024-06-07	Valid

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#### 1.4. Product Information

Product Name	LTE-A Cat 16 M.2 Module
Model No.	LCUR57-WWD
Brand Name	Vrileg
Serial No.	D1C24CG1D000013 (Conducted) D1C24CG1D000108 (Radiated)
3GPP Specification	WCDMA Band II/IV/V LTE Band 2, 4, 5, 7, 12, 13, 14, 25, 26, 30, 38, 41, 42, 43, 48, 66
Operating Temperature Range	-25 ~ 75 °C
Supply Voltage Rating	3.135 – 4.4Vdc, typical 3.7Vdc
Antenna Specification	Refer to Section 1.6
Remark: The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.	

#### 1.5. Radio Specification under Testing

E-UTRA Specification	
TX & Rx Frequency Range	Band 42: 3550 ~ 3600 MHz; Band 43: 3600 ~ 3700 MHz; Band 48: 3550 ~ 3700 MHz
Support Bandwidth	5MHz, 10MHz, 15MHz, 20MHz
Support Power Class	PC3
Modulation	UL up to 64QAM, DL up to 256QAM
Device Type	End User Device

### 1.6. Description of Available Antennas

Technology	Frequency Range (MHz)	Antenna Type	Max Peak Gain (dBi)
LTE Band 42	3550 ~ 3600	PIFA	2.35
LTE Band 43	3600 ~ 3700		1.94
LTE Band 48	3550 ~ 3700		1.00
Note 1: All antenna information (Antenna type and Peak Gain) is provided by the manufacturer. Note 2: The typical antennas used to calculate the ERP (EIRP).			

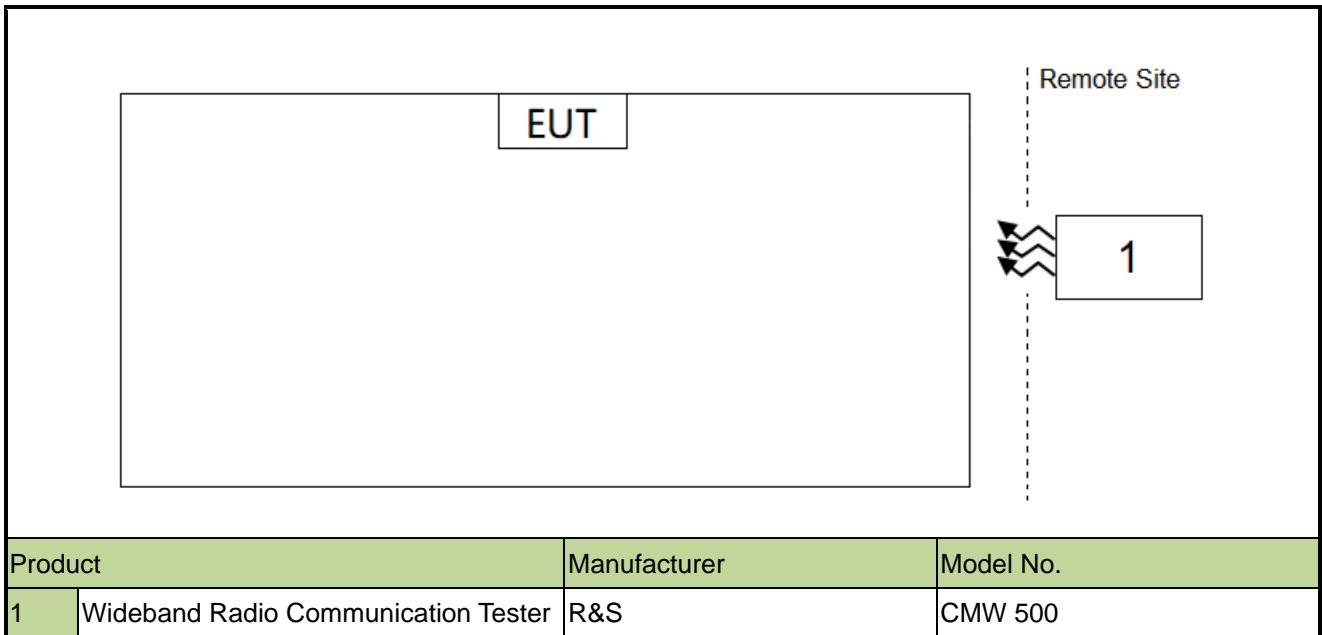
### 1.7. Test Methodology

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ANSI C63.26:2015
- FCC CFR 47 Part Part 96
- FCC KDB 971168 D01 v03r01: Power Meas License Digital Systems
- FCC KDB 971168 D02 v02r01: Misc Rev Approv License Devices
- FCC KDB 412172 D01 v01r01: Determining ERP and EIRP
- FCC KDB 940660 D01 v03 Part 96 CBRS Eqpt
- WINNF-TS-0122 V1.0.2: Test and Certification for Citizens Broadband Radio Service (CBRS);  
Conformance and Performance Test Technical Specification; CBSD/DP as Unit Under Test (UUT)

## 2. Test Configuration

### 2.1. Test System Connection Diagram



### 2.2. Test Environment Condition

Ambient Temperature	15 ~ 35°C
Relative Humidity	20% ~ 75%RH



### 3. Measuring Instrument

Instrument	Manufacturer	Model No.	Asset No.	Cali. Interval	Cali. Due Date	Test Site
Communication Tester	R&S	CMW500	MRTSUE06243	1 year	2024-09-27	SIP-SR1
Thermohygrometer	testo	622	MRTSUE06629	1 year	2024-12-21	SIP-SR1
Communication Tester	R&S	CMW500	MRTSUE06881	1 year	2024-05-09	SIP-SR1
				1 year	2025-05-08	SIP-SR1
Temperature Chamber	BAOYT	BYG-80CL	MRTSUE06932	1 year	2025-02-03	SIP-SR1
Shielding Room	MIX-BEP	SIP-SR1	MRTSUE06948	N/A	N/A	SIP-SR1
Directional Coupler	MVE	MVE4912-10	MRTSUE07052	1 year	2024-08-24	SIP
Attenuator	MVE	MVE2213	MRTSUE11111	1 year	2024-08-02	SIP
Signal Analyzer	Keysight	N9010B	MRTSUE07028	1 year	2024-10-23	SIP-SR1
Directional Coupler	MVE	MVE4816-10	MRTSUE11120	1 year	2024-08-24	SIP
Communication Tester	R&S	CMW500	MRTSUE06108	1 year	2024-10-23	WZ-SR6
Thermohygrometer	testo	608-H1	MRTSUE06362	1 year	2025-02-04	WZ-SR6
Shielding Room	HUAMING	WZ-SR6	MRTSUE06443	N/A	N/A	WZ-SR6
Radio Communication Analyzer	Anritsu	MT8821C	MRTSUE06960	1 year	2024-07-06	WZ-SR6
Temperature Chamber	BAOYT	BYH-150CL	MRTSUE06051	1 year	2024-09-27	WZ-TR3
Thermohygrometer	testo	608-H1	MRTSUE11268	1 year	2024-12-14	WZ-TR3
Thermohygrometer	testo	608-H1	MRTSUE06362	1 year	2025-02-04	WZ-SR6
Shielding Room	HUAMING	WZ-SR6	MRTSUE06443	N/A	N/A	WZ-SR6
Signal Analyzer	Keysight	N9020B	MRTSUE06583	1 year	2024-09-27	WZ-SR6
USB Power Sensor	Keysight	U8488A	MRTSUE06958	5 years	2026-07-08	SIP-SR3
Thermohygrometer	testo	608-H1	MRTSUE06616	1 year	2024-10-28	SIP-AC1
Horn Antenna	R&S	HF907	MRTSUE06610	1 year	2024-06-17	SIP-AC1
EMI Test Receiver	R&S	ESR3	MRTSUE06185	1 year	2024-12-17	SIP-AC1
Anechoic Chamber	RIKEN	SIP-AC1	MRTSUE06554	1 year	2024-12-21	SIP-AC1
Signal Analyzer	Keysight	N9010B	MRTSUE06559	1 year	2024-05-09	SIP-AC1
				1 year	2025-05-08	SIP-AC1
Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06599	1 year	2024-09-24	SIP-AC1
Preamplifier	EMCI	EMC184045SE	MRTSUE06602	1 year	2024-10-09	SIP-AC1
Loop Antenna	Schwarzbeck	FMZB 1519 B	MRTSUE06937	1 year	2025-01-27	SIP-AC1
Signal Analyzer	Keysight	N9010B	MRTSUE07028	1 year	2024-10-23	SIP-AC1
Active Loop Antenna	Schwarzbeck	FMZB 1519-60 D	MRTSUE07075	1 year	2024-12-04	SIP-AC1
Thermohygrometer	testo	608-H1	MRTSUE06622	1 year	2024-11-03	SIP-AC2
Preamplifier	EMCI	EMC051845SE	MRTSUE06601	1 year	2024-11-02	SIP-AC2
TRILOG Antenna	Schwarzbeck	VULB 9168	MRTSUE06647	1 year	2024-06-17	SIP-AC2

EMI Test Receiver	R&S	ESR3	MRTSUE06613	1 year	2024-12-17	SIP-AC2
Signal Analyzer	Keysight	N9020B	MRTSUE06604	1 year	2025-02-03	SIP-AC2
Preamplifier	EMCI	EMC051845SE	MRTSUE06601	1 year	2024-11-02	SIP-AC2
Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06598	1 year	2024-11-04	SIP-AC2
Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06648	1 year	2024-10-21	SIP-AC2
Anechoic Chamber	RIKEN	SIP-AC2	MRTSUE06781	1 year	2024-12-21	SIP-AC2
Cable	HUBER+SUHNER	SF106	MRTSUE06522	1 year	2025-05-07	SIP-AC2
Cable	HUBER+SUHNER	SF106	MRTSUE06594	1 year	2024-12-21	SIP-AC1
Cable	HUBER+SUHNER	SF106	MRTSUE06874	1 year	2024-12-21	SIP-AC1
Cable	HUBER+SUHNER	SF106	MRTSUE06875	1 year	2024-12-21	SIP-AC2

Software	Version	Function
EMI Software	V3.0.0	EMI Test Software
Controller_MF 7802BS	1.02	RE Antenna & Turntable
CMWrun	V 1.9.10.20	license 2G & 3G & 4G
UCTS	V 6.23.217.99	license 3G & 4G & 5G
Agilent Power Analyzer/Agilent Power Panel	V R03.09.00	Power

## 4. Decision Rules and Measurement Uncertainty

### 4.1. Decision Rules

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4: 2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

### 4.2. Measurement Uncertainty

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k = 2$ .

<b>Radiated Spurious Emissions</b>
Measurement Uncertainty for a Level of Confidence of 95% ( $U=2Uc(y)$ ): Coaxial: 9kHz~30MHz: 2.61dB Coplanar: 9kHz~30MHz: 2.62dB Horizontal: 30MHz~200MHz: 3.79dB 200MHz~1GHz: 3.91dB 1GHz~40GHz: 4.99dB Vertical: 30MHz~200MHz: 4.06dB 200MHz~1GHz: 5.21dB 1GHz~40GHz: 4.90dB
<b>Conducted Spurious Emissions</b>
Measuring Uncertainty for a Level of Confidence of 95% ( $U=2Uc(y)$ ): 1.47dB
<b>Output Power</b>
Measuring Uncertainty for a Level of Confidence of 95% ( $U=2Uc(y)$ ): 0.66dB
<b>Occupied Bandwidth</b>
Measuring Uncertainty for a Level of Confidence of 95% ( $U=2Uc(y)$ ): 69.28kHz
<b>Frequency Stability</b>
Measuring Uncertainty for a Level of Confidence of 95% ( $U=2Uc(y)$ ): 8.04Hz

## 5. Test Result

### 5.1. Summary

FCC Part Section(s)	Test Description	Test Condition	Test Result
2.1049	Occupied Bandwidth	Conducted	Pass
2.1055	Frequency Stability		Pass
96.41(b)	Transmitter Output Power		Pass
2.1051, 96.41(e)	Transmitter unwanted emissions (band-edge)		Pass
2.1051, 96.41(e)	Transmitter unwanted emissions (spurious)		Pass
2.1053, 96.41(e)	Transmitter Spurious Emissions	Radiated	Pass
96.47	End User Device Additional Requirements (CBSD Protocol)		Pass

#### Notes:

- 1) The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
- 2) All supported modulation types were evaluated. The worst-case emission of modulation was selected. Therefore, the Frequency Stability, Transmitter unwanted emissions (band-edge), Transmitter unwanted emissions (spurious), Radiated Spurious Emissions were presented worst-case in the test report.
- 3) For radiated emission tests, every axis (X, Y, Z) was also verified. The test results shown in the following sections represent the worst-case emissions.
- 4) This report is based on MRT Original "2404RSU035-U6" Report, FCC ID: 2BEY3LCUR57WWDA to copying report and updating the FCC ID.

## 5.2. Occupied Bandwidth Measurement

### 5.2.1. Test Limit

The occupied bandwidth, that 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 radiated by a given emission shall be measured.

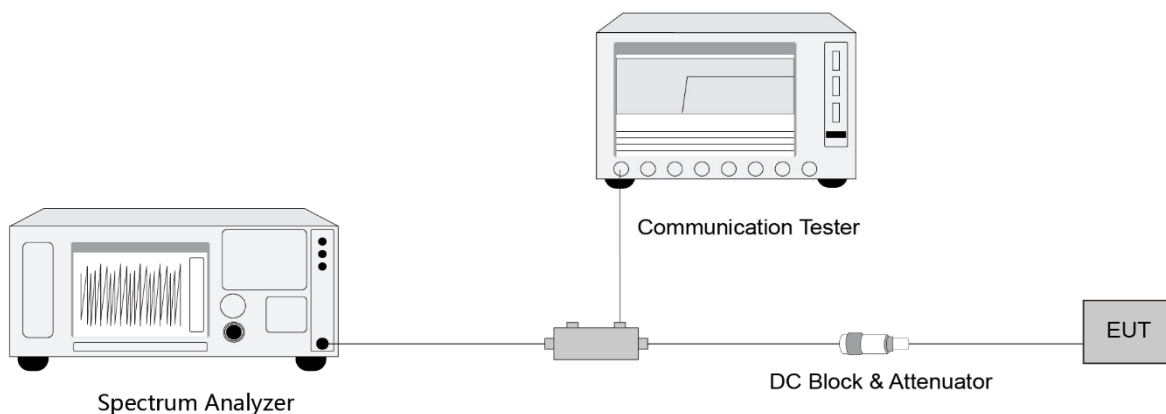
### 5.2.2. Test Procedure

ANSI C63.26-2015 - Section 5.4.4

### 5.2.3. Test Setting

1. Set center frequency to the nominal EUT channel center frequency
2. RBW = The nominal RBW shall be in the range of 1% to 5% of the anticipated OBW
3.  $VBW \geq 3 \times RBW$
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. Allow the trace to stabilize
8. Use the 99% power bandwidth function of the instrument and report the measured bandwidth.

### 5.2.4. Test Setup



### 5.2.5. Test Result

Refer to Appendix A.1.

### 5.3. Frequency Stability Measurement

#### 5.3.1. Test Limit

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within  $\pm 0.00025\%$  ( $\pm 2.5\text{ppm}$ ) of the center frequency.

#### 5.3.2. Test Procedure

ANSI C63.26-2015 - Section 5.6

#### 5.3.3. Test Setting

1. A reference point shall be established at the applicable unwanted emissions limit using a RBW equal to the RBW required by the unwanted emissions specification of the applicable regulatory standard. These reference points measured using the lowest and highest channel of operation shall be identified as  $f_L$  and  $f_H$  respectively.
2. Use the frequency error function of the instrument and record the frequency error.
3. Change the temperature of equipment and repeat Steps 2.
4. Change the Voltage of equipment and repeat Steps 2.
5. The frequency error offset determined in the above methods shall be added or subtracted from the values of  $f_L$  and  $f_H$  and the resulting frequencies must remain within the band

#### **Frequency Stability Under Temperature Variations:**

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 20°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to highest. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C decreased per stage until the lowest temperature reached.

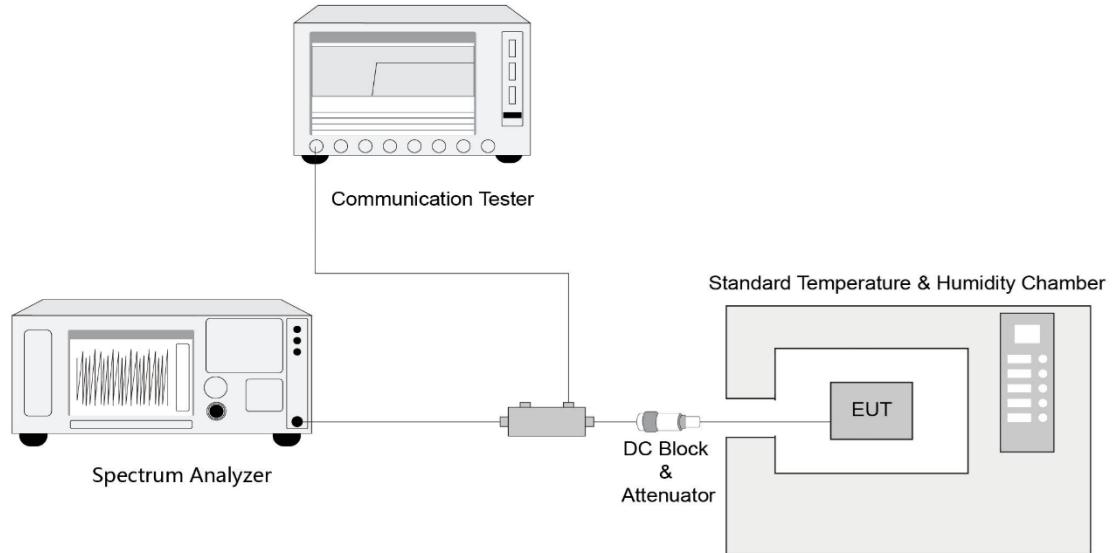
#### **Frequency Stability Under Voltage Variations:**

Set chamber temperature to 20°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 ( $\pm 15\%$ ) and endpoint, record the maximum

frequency change.

### 5.3.4. Test Setup



### 5.3.5. Test Result

Refer to Appendix A.2.

## 5.4. Transmitter Output Power Measurement

### 5.4.1. Test Limit

The maximum effective isotropic radiated power (EIRP) End User Device is 23dBm/10MHz

### 5.4.2. Test Procedure

ANSI C63.26-2015 - Section 5.2.4.2 & 5.2.4.4

### 5.4.3. Test Setting

#### Average Power Measurement

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter.

#### Average Power Spectral Density Measurement

1. Set span to  $2 \times$  to  $3 \times$  the OBW;
2. Set RBW = 1% to 5% of the OBW;
3. Set VBW  $\geq 3 \times$  RBW;
4. Set number of measurement points in sweep  $\geq 2 \times$  span / RBW;
5. Sweep time set to auto;
6. Detector = power averaging (rms);
7. If the EUT can be configured to transmit continuously, then set the trigger to free run;
8. If the EUT cannot be configured to transmit continuously, then use a sweep trigger with the level set to enable triggering only on full power bursts and configure the EUT to transmit at full power for the entire duration of each sweep.
9. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. To accurately determine the average power over multiple symbols, it can be necessary to increase the number of traces to be averaged above 100 or, if using a manually configured sweep time, increase the sweep time.
10. Compute power by integrating the spectrum across the specified bandwidth of the signal using the instrument's band or channel power measurement function with band/channel limits set equal to the specified bandwidth band edges. If the instrument does not have a band or channel power function, sum the spectrum levels (in linear power units) at intervals equal to the RBW extending across the entire



specified bandwidth of the spectrum.

### **ERP & EIRP Measurement**

The relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation (1) as follows:

$$\text{ERP or EIRP} = P_{\text{Meas}} + G_T \quad (1)$$

where

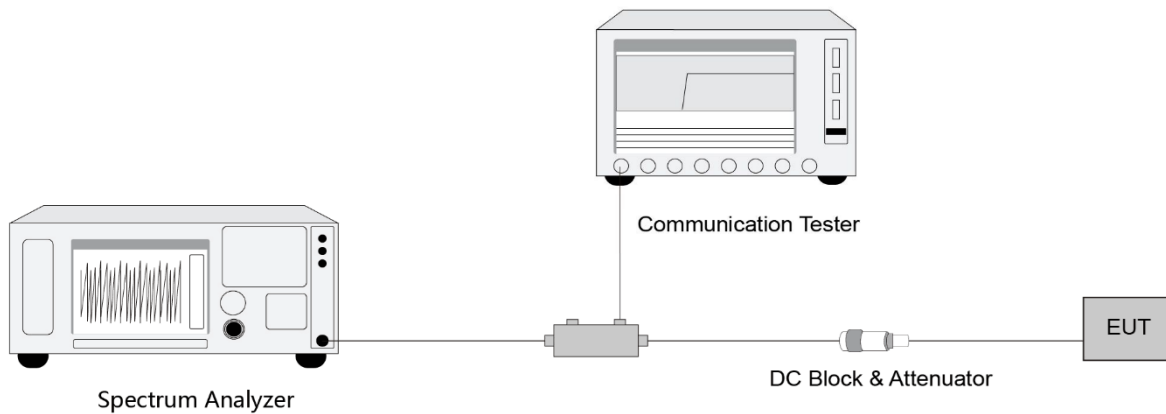
ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively (expressed in the same units as  $P_{\text{Meas}}$ , e.g., dBm or dBW)

$P_{\text{Meas}}$  measured transmitter output power or PSD, in dBm or dBW

$G_T$  gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP)

For devices utilizing multiple antennas, see 6.4 for guidance with respect to determining the effective array transmit antenna gain term to be used in the above equation.

#### **5.4.4. Test Setup**



#### **5.4.5. Test Result**

Refer to Appendix A.3.

## **5.5. Transmitter unwanted emissions (band-edge) Measurement**

### **5.5.1. Test Limit**

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst-case configuration. All modes of operation were investigated, and the worst-case configuration results are reported in this section.

The conducted power of any emission outside the fundamental emission (whether in 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 emission shall not exceed  $-25$  dBm/MHz. The conducted power of any emissions below 3530 MHz or above 3720 MHz shall not exceed  $-40$  dBm/MHz.

### **5.5.2. Test Procedure**

ANSI C63.26-2015 – Section 5.7

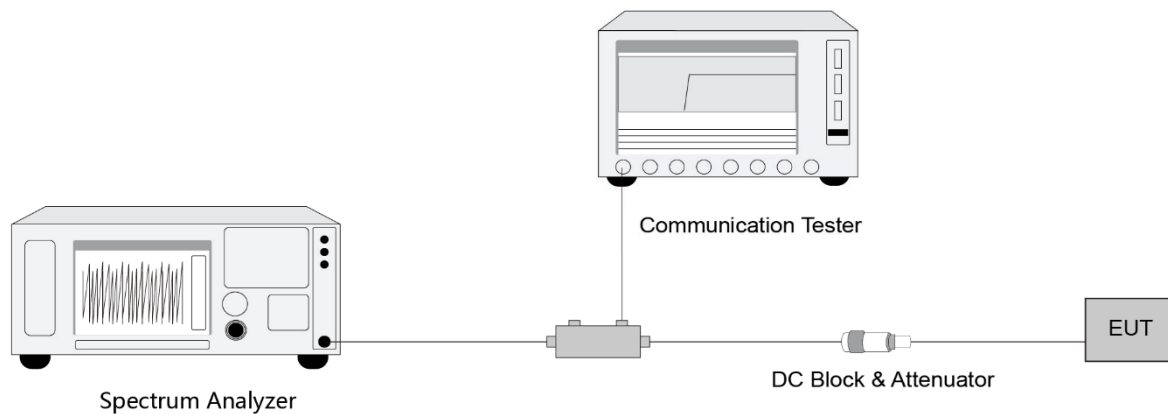
### **5.5.3. Test Setting**

1. Set the analyzer frequency to Low or High channel
2. RBW = specified resolution bandwidth, for improvement of the accuracy in the measurement of the average power of a noise-like emission, a RBW narrower than the specified reference bandwidth can be used (generally limited to no less than 1% of the frequency block group, provided that a subsequent integration is performed over the full required measurement bandwidth. This integration should be performed using the spectrum analyzer's band power functions.
3. VBW  $\geq 3 \cdot$ RBW
4. Sweep time = auto
5. Detector = power averaging (rms)
6. If the EUT can be configured to transmit continuously, then set the trigger to free run
7. If the EUT cannot be configured to transmit continuously, then use a sweep trigger with the level set to enable triggering only on full power bursts and configure the EUT to transmit at full power for the entire duration of each sweep. Verify that the sweep time is less than or equal to the transmission burst duration. Time gating can also be used under similar constraints
8. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. To

accurately determine the average power over the on and off time of the transmitter, it can be necessary to increase the number of traces to be averaged above 100, or if using a manually configured sweep time, increase the sweep time.

9. Compute the power by integrating the spectrum across the specified resolution bandwidth using the instrument's band or channel power measurement function, with the band/channel limits set equal to the specified resolution bandwidth, when using a measurement bandwidth smaller than the specified bandwidth. Otherwise, Use the peak marker function to determine the maximum amplitude level.

#### 5.5.4. Test Setup



#### 5.5.5. Test Result

Refer to Appendix A.4.

## **5.6. Transmitter unwanted emissions (spurious) Measurement**

### **5.6.1. Test Limit**

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10<sup>th</sup> harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst-case configuration. All modes of operation were investigated, and the worst-case configuration results are reported in this section.

The conducted power of any emissions below 3530MHz or above 3720MHz shall not exceed -40dBm/MHz.

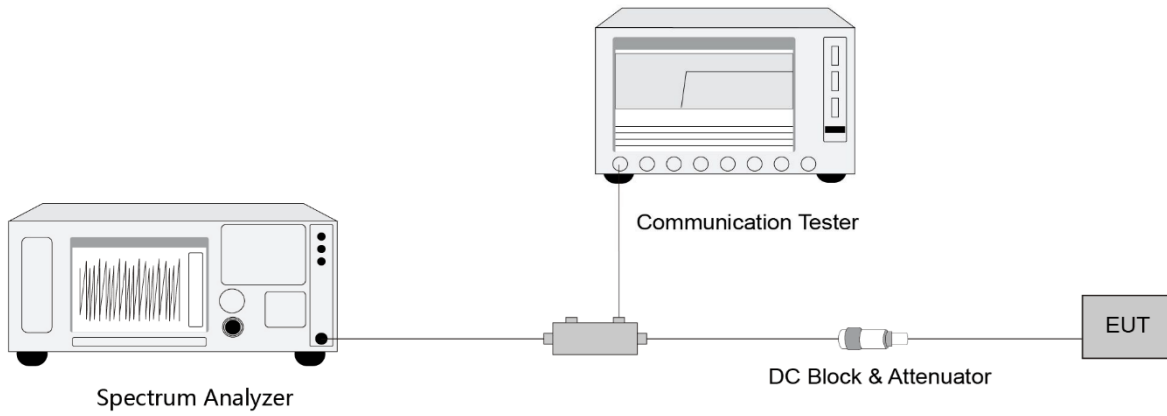
### **5.6.2. Test Procedure**

ANSI C63.26-2015 - Section 5.7

### **5.6.3. Test Setting**

1. Set the analyzer frequency to low, Mid or high channel.
2. RBW = specified resolution bandwidth
3. VBW  $\geq 3 \cdot$ RBW
4. Sweep time = auto
5. Detector = power averaging (rms)
6. If the EUT can be configured to transmit continuously, then set the trigger to free run
7. If the EUT cannot be configured to transmit continuously, then use a sweep trigger with the level set to enable triggering only on full power bursts and configure the EUT to transmit at full power for the entire duration of each sweep. Verify that the sweep time is less than or equal to the transmission burst duration.  
Time gating can also be used under similar constraints
8. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. To accurately determine the average power over the on and off time of the transmitter, it can be necessary to increase the number of traces to be averaged above 100, or if using a manually configured sweep time, increase the sweep time.
9. Use the peak marker function to determine the maximum amplitude level.

### 5.6.4. Test Setup



### 5.6.5. Test Result

Refer to Appendix A.5.

## **5.7. Radiated Spurious Emissions Measurement**

### **5.7.1. Test Limit**

Out of band emissions: The power of any emissions below 3530 MHz or above 3720 MHz shall not exceed -40dBm/MHz.

$E \text{ (dB}\mu\text{V/m)} = \text{EIRP (dBm)} - 20 \log D + 104.8$ ; where D is the measurement distance in meters. The emission limit equal to 55.3dB $\mu$ V/m.

### **5.7.2. Test Procedure**

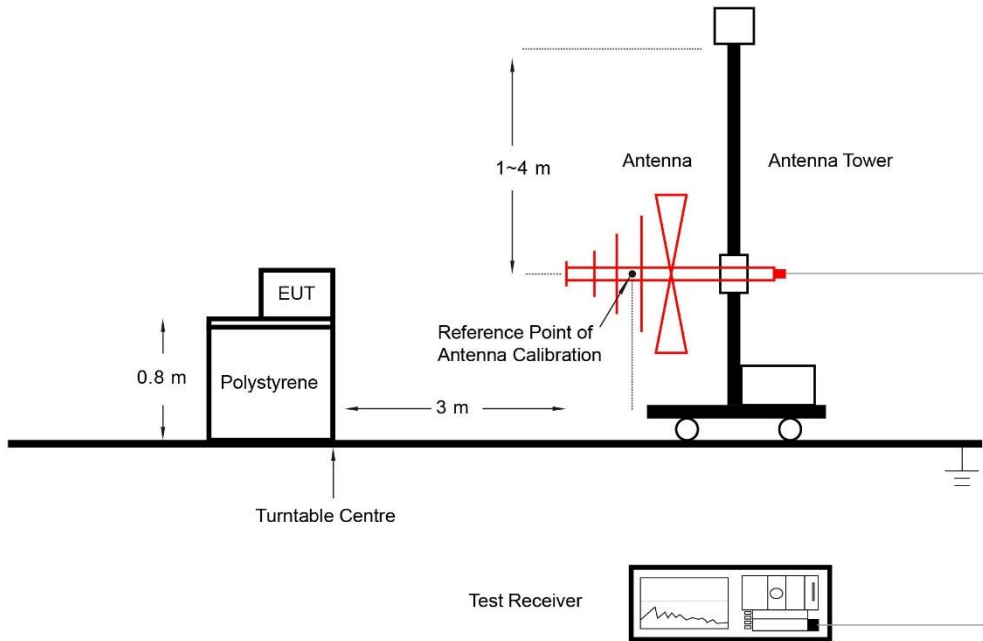
ANSI C63.26-2015 - Section 5.2.7 & 5.5

### **5.7.3. Test Setting**

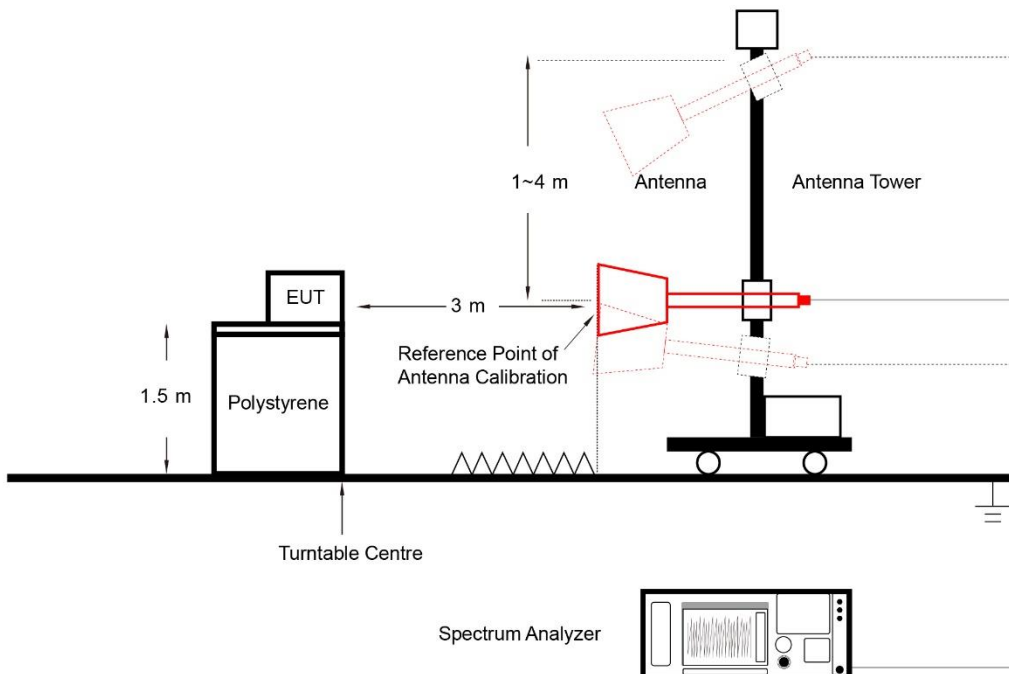
1. RBW = 120kHz or 1MHz
2. VBW  $\geq 3 \times$  RBW
3. Sweep time  $\geq 10 \times$  (number of points in sweep)  $\times$  (transmission symbol period)
4. Detector = CISPR quasi-peak / average detector (Below 1 GHz, compliance with the limits shall be demonstrated using a CISPR quasi-peak detector and the related measurement bandwidth. Above 1 GHz, compliance with the limits shall be demonstrated using a linear average detector with a minimum resolution bandwidth of 1 MHz.)
5. The trace was allowed to stabilize

### 5.7.4. Test Setup

#### Below 1GHz Test Setup:



#### Above 1GHz Test Setup:



### 5.7.5. Test Result

Refer to Appendix A.6.

## **5.8. End User Device Additional Requirement (CBSD Protocol) Measurement**

### **5.8.1. Test Limit**

End User Devices may operate only if they can positively receive and decode an authorization signal transmitted by aCBSD, including the frequencies and power limits for their operation.

An End User Device must discontinue operations, change frequencies, or change its operational power level within 10 seconds of receiving instructions from its associated CBSD

### **5.8.2. Test Procedure**

KDB 940660 D01 v02, WINNF-TS-0122 V1.0.2

### **5.8.3. Test Setting**

The EUT was connected via an RF cable to a certified CBSD (Sercomm Corp. FCC ID: P27-SCE4255W) and spectrum analyzer. The following procedure is performed by applying WINNF-TS-0122 CBRS CBSD Test Specification.

#### Step 1:

- a. Setup WINNF.PT.C.HBT.1 with 3570 ~ 3590MHz and power level at 6 dBm/MHz.
- b. Enable Smallcell service from EPC Manage Tool.
- c. Check EUT Tx frequency and power.
- d. Disable Smallcell service from EPC Manage Tool and check EUT stop transmission within 10s.

#### Step 2:

- a. Setup WINNF.PT.C.HBT.1 with 3670 ~ 3690MHz and power level at 11 dBm/MHz.
- b. Enable Smallcell service from EPC Manage Tool.
- c. Check EUT Tx frequency and power.
- d. Disable Smallcell service from EPC Manage Tool and check EUT stop transmission within 10s.

### **5.8.4. Test Result**

Refer to Appendix A.7.



## Appendix A - Test Result

### A.1 Occupied Bandwidth Test Result

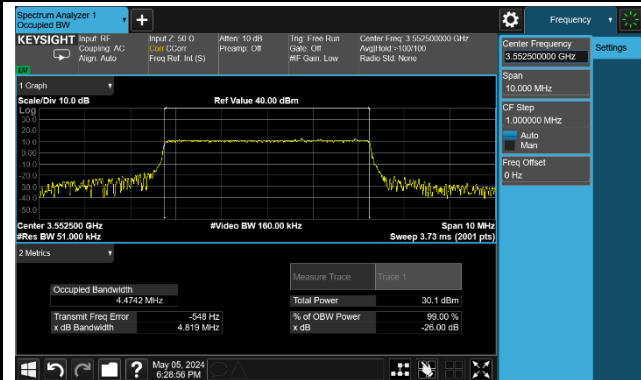
Test Site	SIP-SR1	Test Engineer	Yoniter Yang
Test Date	2024-05-05	Test Band	Band 42 & 43/48

Bandwidth (MHz)	Frequency (MHz)	99% Bandwidth (MHz)
QPSK		
5	3552.50	4.47
	3625.00	4.46
	3697.50	4.47
10	3555.00	8.95
	3625.00	8.94
	3695.00	8.95
15	3557.50	13.41
	3625.00	13.39
	3692.50	13.41
20	3560.00	17.91
	3625.00	17.85
	3690.00	17.87
16QAM		
5	3552.50	4.46
	3625.00	4.46
	3697.50	4.45
10	3555.00	8.95
	3625.00	8.95
	3695.00	8.93
15	3557.50	13.43
	3625.00	13.42
	3692.50	13.45
20	3560.00	17.85
	3625.00	17.86
	3690.00	17.85

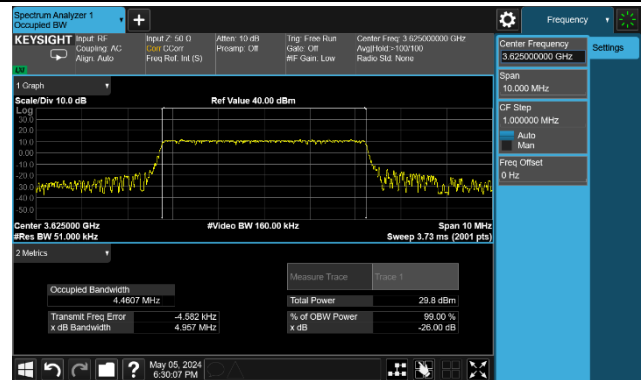
64QAM		
5	3552.50	4.46
	3625.00	4.44
	3697.50	4.45
10	3555.00	8.97
	3625.00	8.95
	3695.00	8.93
15	3557.50	13.41
	3625.00	13.44
	3692.50	13.41
20	3560.00	17.86
	3625.00	17.85
	3690.00	17.92

99% Bandwidth – 5MHz Bandwidth QPSK

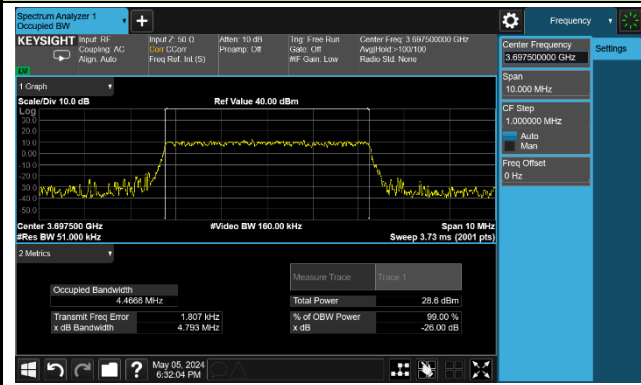
Low Channel Bandwidth



Middle Channel Bandwidth

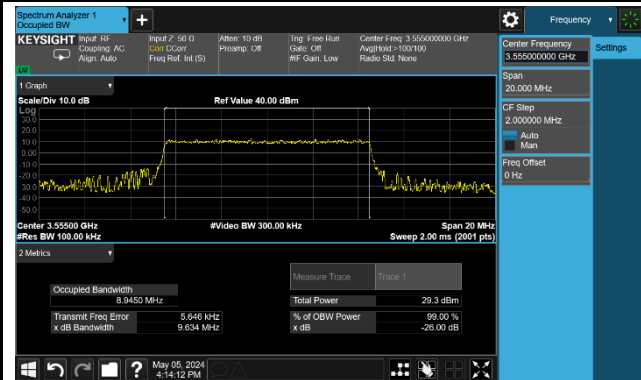


High Channel Bandwidth

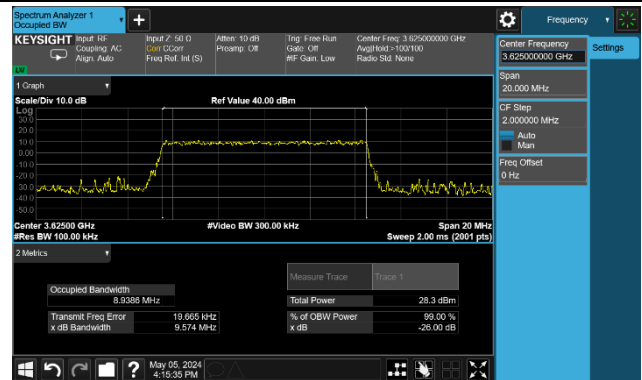


99% Bandwidth – 10MHz Bandwidth QPSK

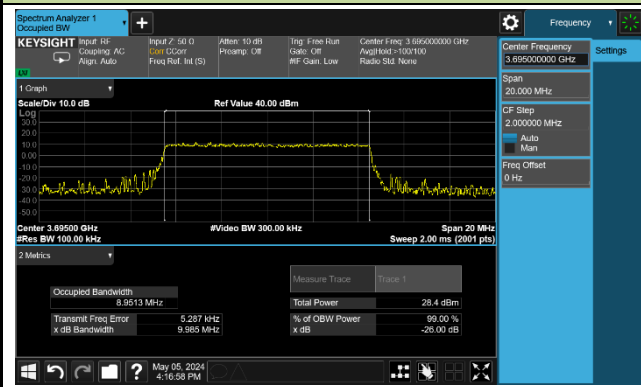
Low Channel Bandwidth



Middle Channel Bandwidth

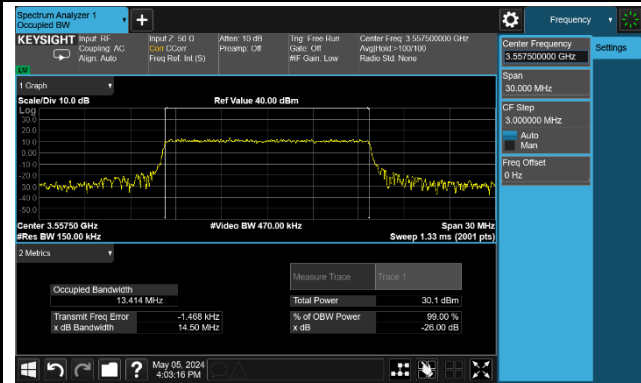


High Channel Bandwidth

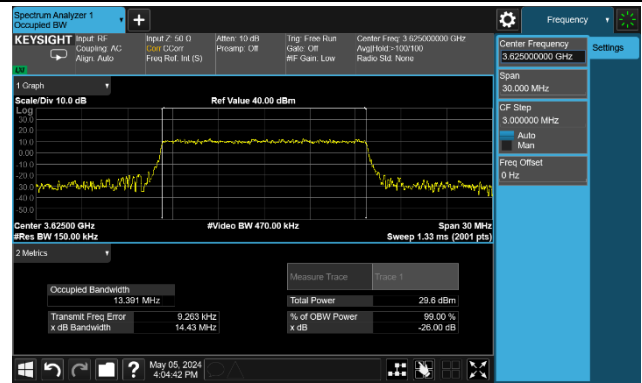


99% Bandwidth – 15MHz Bandwidth QPSK

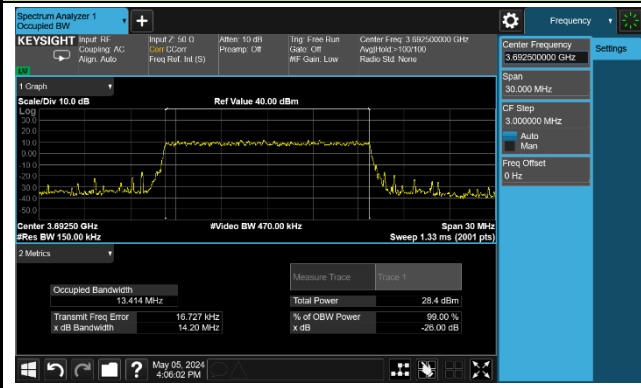
Low Channel Bandwidth



Middle Channel Bandwidth

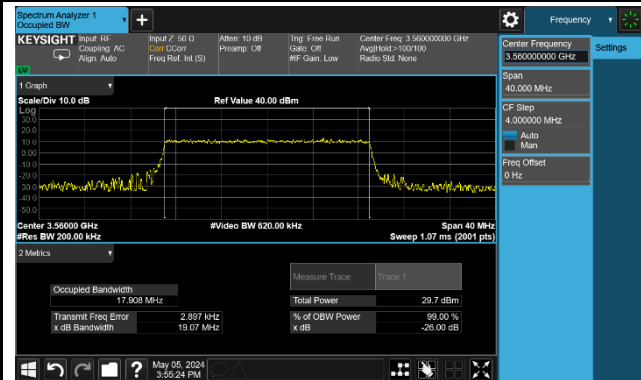


High Channel Bandwidth

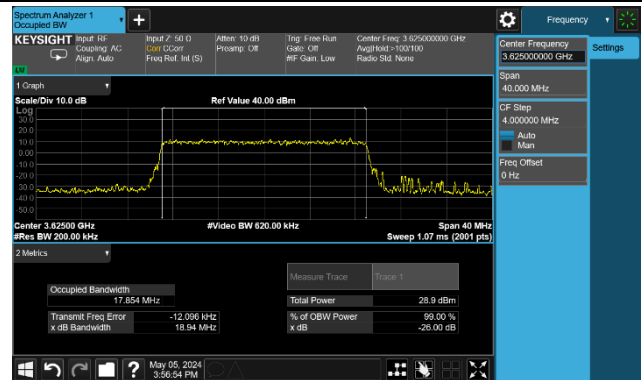


99% Bandwidth – 20MHz Bandwidth QPSK

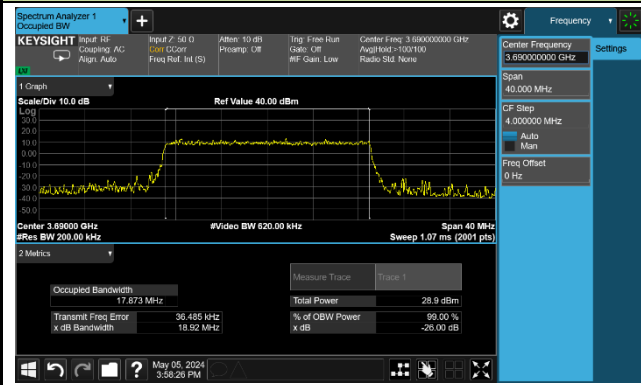
Low Channel Bandwidth



Middle Channel Bandwidth

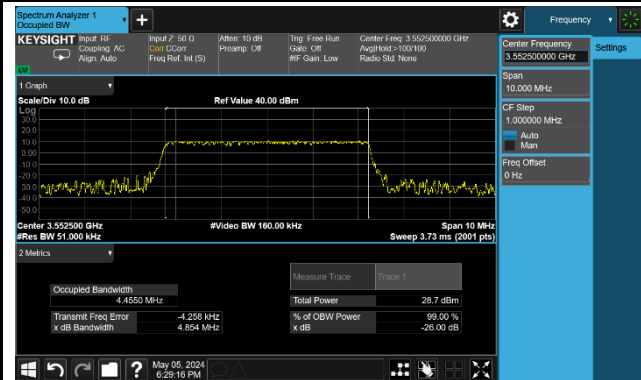


High Channel Bandwidth

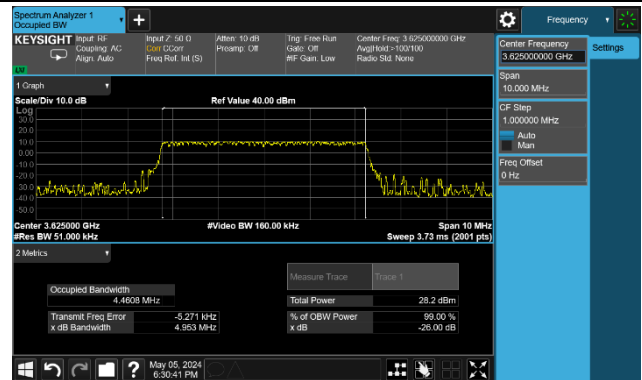


99% Bandwidth – 5MHz Bandwidth 16QAM

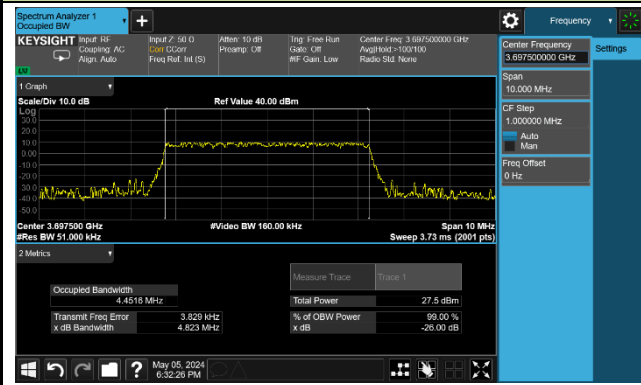
Low Channel Bandwidth



Middle Channel Bandwidth

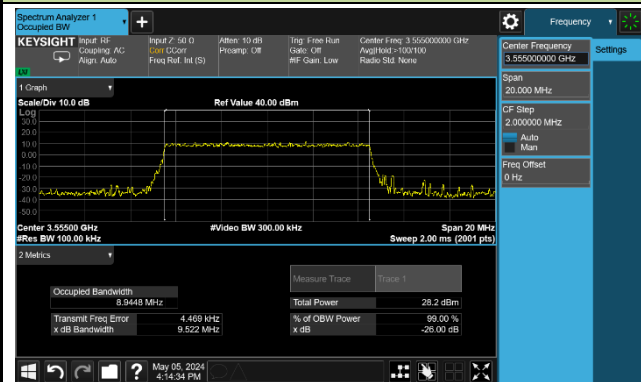


High Channel Bandwidth

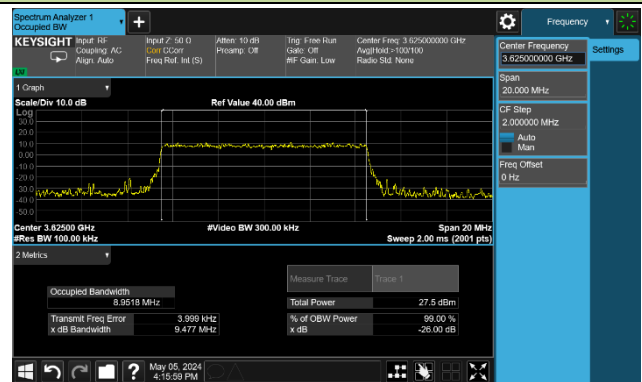


### 99% Bandwidth – 10MHz Bandwidth 16QAM

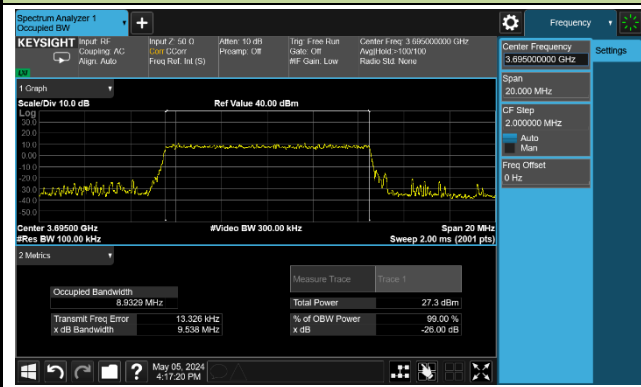
#### Low Channel Bandwidth



#### Middle Channel Bandwidth



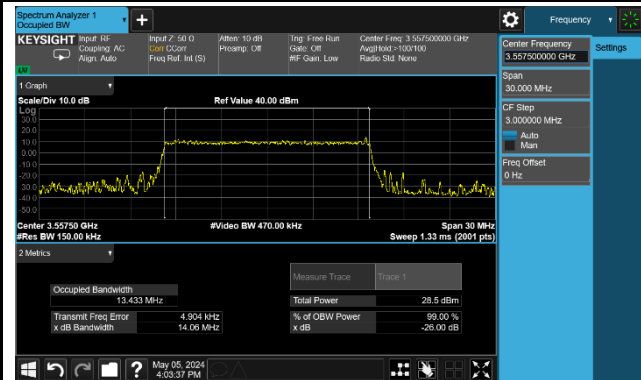
#### High Channel Bandwidth



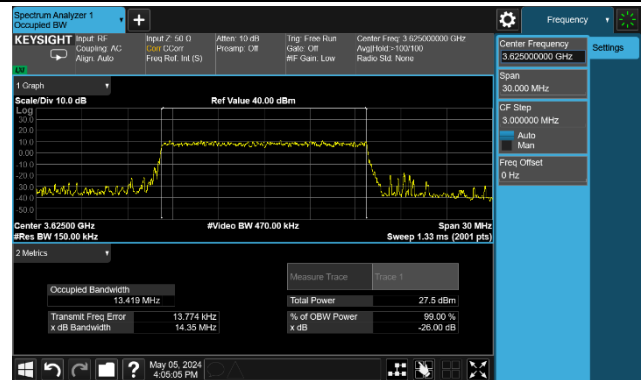


99% Bandwidth – 15MHz Bandwidth 16QAM

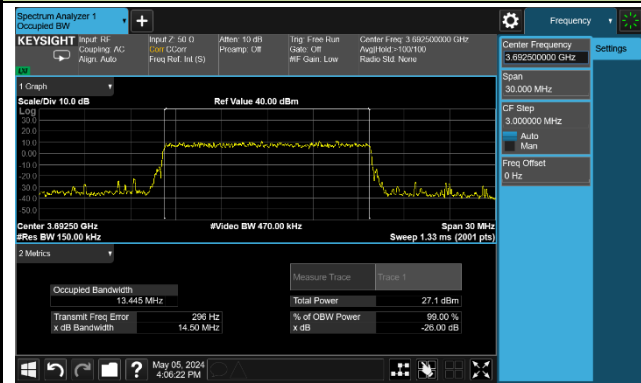
Low Channel Bandwidth



Middle Channel Bandwidth

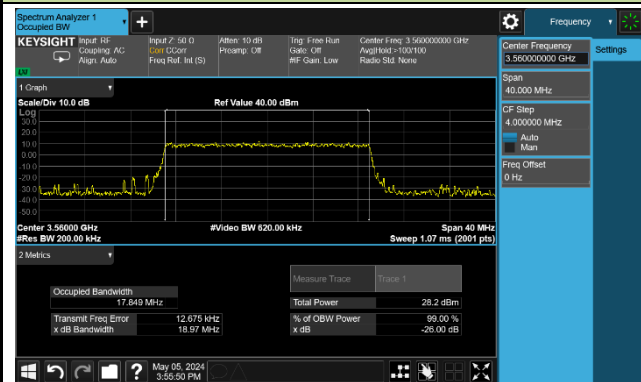


High Channel Bandwidth

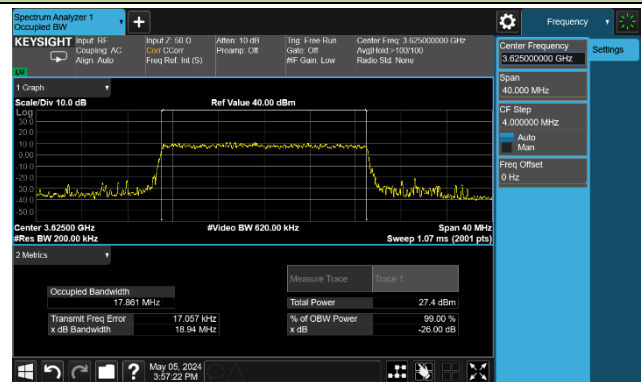


### 99% Bandwidth – 20MHz Bandwidth 16QAM

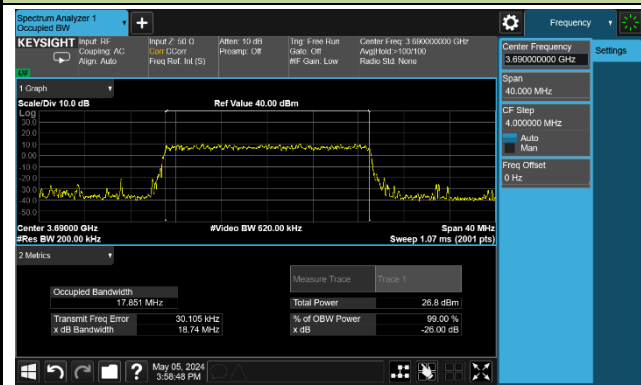
#### Low Channel Bandwidth



#### Middle Channel Bandwidth

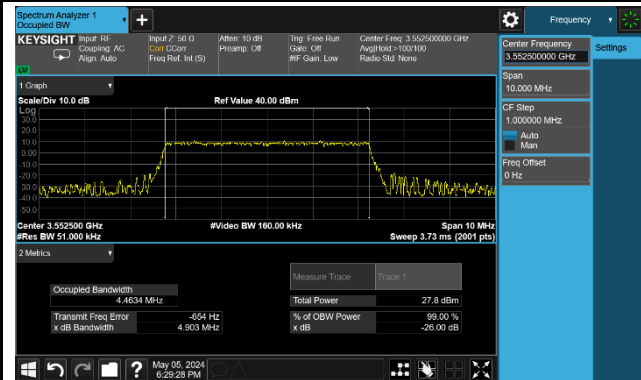


#### High Channel Bandwidth

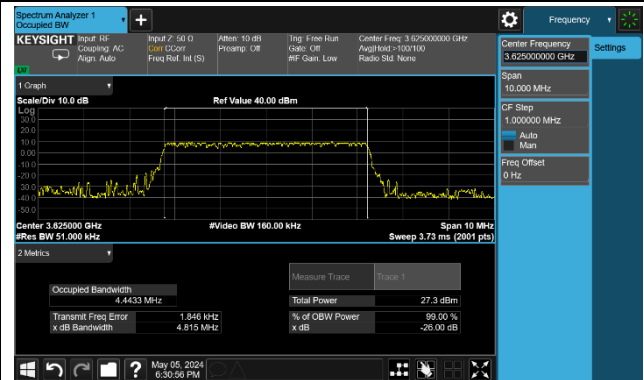


99% Bandwidth – 5MHz Bandwidth 64QAM

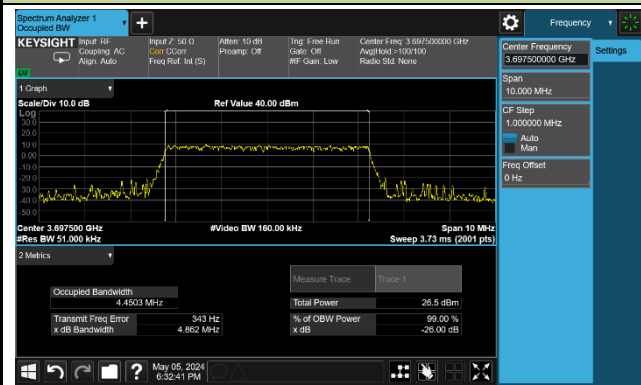
Low Channel Bandwidth



Middle Channel Bandwidth

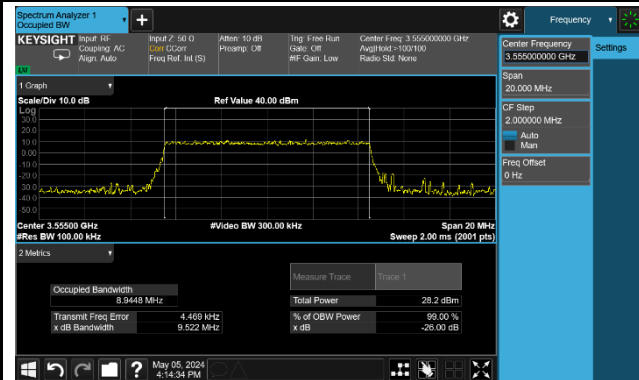


High Channel Bandwidth

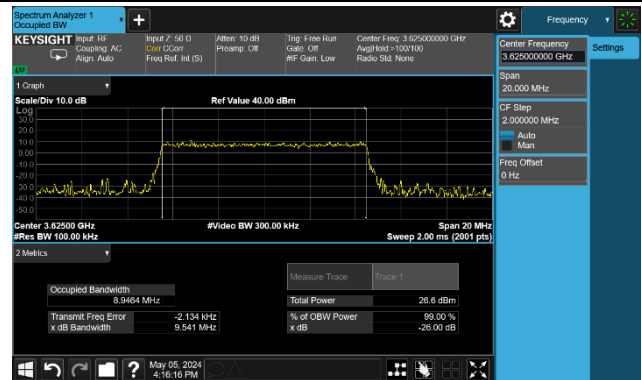


### 99% Bandwidth – 10MHz Bandwidth 64QAM

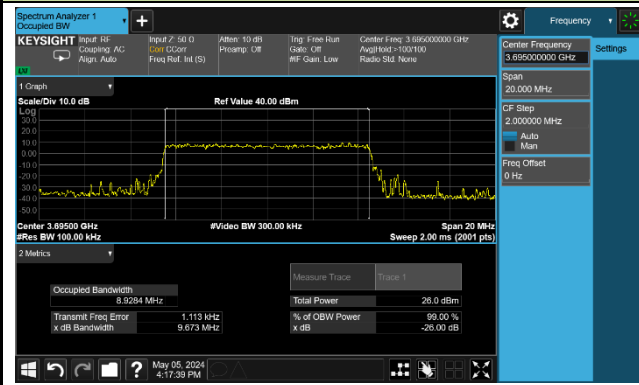
#### Low Channel Bandwidth



#### Middle Channel Bandwidth

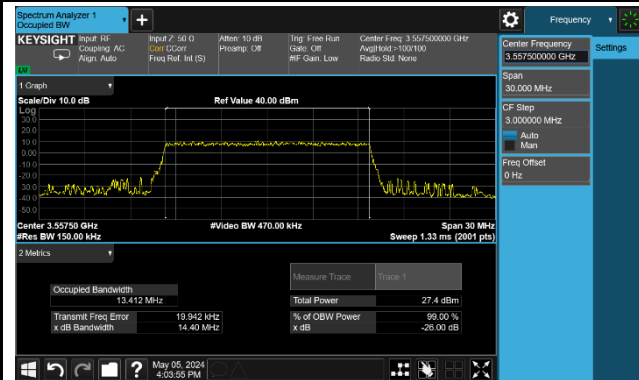


#### High Channel Bandwidth

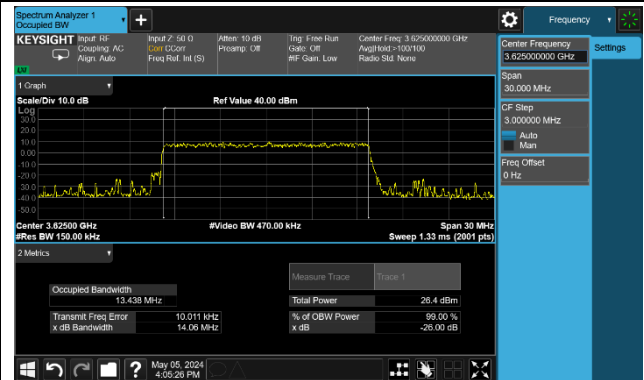


99% Bandwidth – 15MHz Bandwidth 64QAM

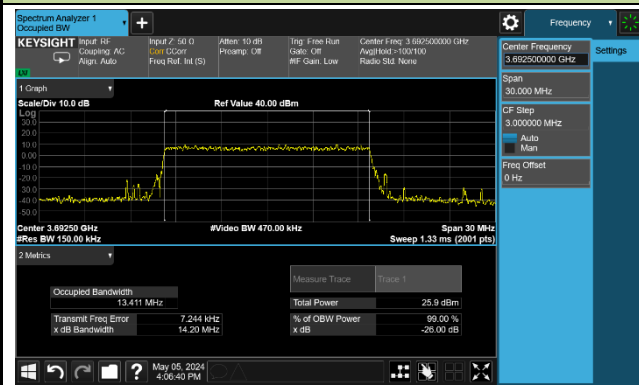
Low Channel Bandwidth



Middle Channel Bandwidth

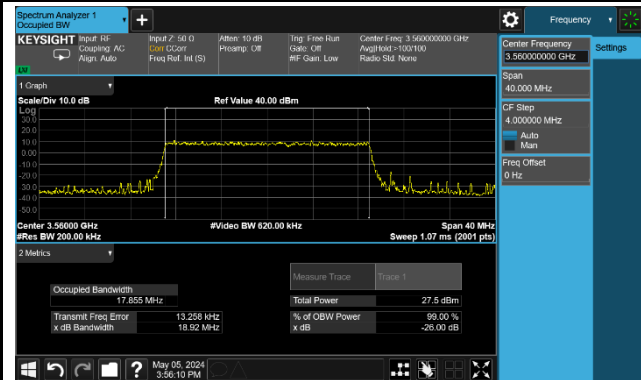


High Channel Bandwidth

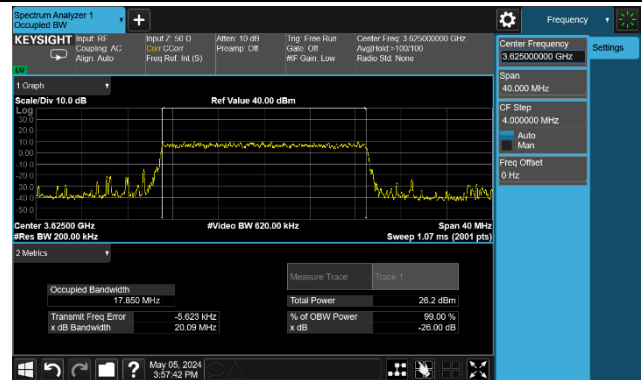


### 99% Bandwidth – 20MHz Bandwidth 64QAM

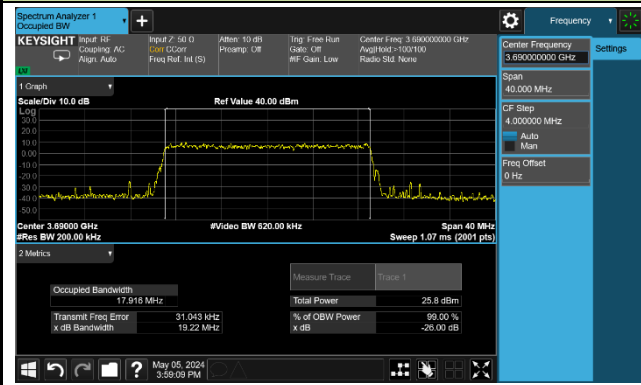
#### Low Channel Bandwidth



#### Middle Channel Bandwidth



#### High Channel Bandwidth



**A.2 Frequency Stability Test Result**

Test Site	WZ-TR3	Test Engineer	Jone Zhang
Test Date	2024-05-23 ~ 2024-05-27	Test Band	Band 42 & 43/48

Voltage	Temp (°C)	Frequency Range (MHz)		Delta (Hz)	Frequency stability (ppm)	Within Authorized Frequency Block
		3550.0	3700.0			
		f <sub>L</sub>	f <sub>H</sub>			
Normal	+ 20 (Ref)	3550.2000	3699.8300	0.00	0.0000	Pass
	+ 50	3550.2000	3699.8300	-12.70	-0.0035	Pass
	+ 40	3550.2000	3699.8300	12.20	0.0034	Pass
	+ 30	3550.2000	3699.8300	-9.40	-0.0026	Pass
	+ 10	3550.2000	3699.8300	-9.70	-0.0027	Pass
	0	3550.2000	3699.8300	-11.20	-0.0031	Pass
	- 10	3550.2000	3699.8300	-14.80	-0.0041	Pass
	- 20	3550.2000	3699.8300	10.00	0.0028	Pass
	- 30	3550.2000	3699.8300	-5.80	-0.0016	Pass
15%	+ 20	3550.2000	3699.8300	10.30	0.0028	Pass
-15%	+ 20	3550.2000	3699.8300	9.80	0.0027	Pass

**A.3 Transmitter Output Power Test Result**

Test Site	SIP-SR1	Test Engineer	Yoniter Yang
Test Date	2024-04-25 ~ 2024-05-17	Test Band	Band 42 &43/48

Channel Bandwidth (MHz)	Frequency (MHz)	RB Size	RB Offset	Power Spectral Density (dBm/10MHz)	EIRP Spectral Density (dBm/10MHz)	Limit (dBm /10MHz)
QPSK						
5	3552.50	1	0	21.54	22.54	< 23.00
	3625.00			21.28	22.28	< 23.00
	3697.50			21.04	22.04	< 23.00
5	3552.50	1	12	21.61	22.61	< 23.00
	3625.00			21.32	22.32	< 23.00
	3697.50			21.07	22.07	< 23.00
5	3552.50	1	24	21.67	22.67	< 23.00
	3625.00			21.23	22.23	< 23.00
	3697.50			21.08	22.08	< 23.00
5	3552.50	25	0	20.71	21.71	< 23.00
	3625.00			20.40	21.40	< 23.00
	3697.50			20.18	21.18	< 23.00
10	3555.00	1	0	21.47	22.47	< 23.00
	3625.00			21.13	22.13	< 23.00
	3695.00			20.87	21.87	< 23.00
10	3555.00	1	24	21.52	22.52	< 23.00
	3625.00			21.24	22.24	< 23.00
	3695.00			20.98	21.98	< 23.00
10	3555.00	1	49	21.66	22.66	< 23.00
	3625.00			21.25	22.25	< 23.00
	3695.00			21.06	22.06	< 23.00
10	3555.00	50	0	20.70	21.70	< 23.00
	3625.00			20.41	21.41	< 23.00
	3695.00			20.16	21.16	< 23.00

Note: The EIRP Spectral Density (dBm/10MHz) = Power Spectral Density (dBm/10MHz) + Antenna Gain (dBi)



Channel Bandwidth (MHz)	Frequency (MHz)	RB Size	RB Offset	Power Spectral Density (dBm/10MHz)	EIRP Spectral Density (dBm/10MHz)	Limit (dBm /10MHz)
QPSK						
15	3557.50	1	0	21.83	22.83	< 23.00
	3625.00			21.37	22.37	< 23.00
	3692.50			21.06	22.06	< 23.00
15	3557.50	1	37	21.81	22.81	< 23.00
	3625.00			21.42	22.42	< 23.00
	3692.50			21.12	22.12	< 23.00
15	3557.50	1	74	21.79	22.79	< 23.00
	3625.00			21.39	22.39	< 23.00
	3692.50			21.13	22.13	< 23.00
15	3557.50	75	0	19.81	20.81	< 23.00
	3625.00			19.51	20.51	< 23.00
	3692.50			19.05	20.05	< 23.00
20	3560.00	1	0	21.65	22.65	< 23.00
	3625.00			21.46	22.46	< 23.00
	3690.00			21.07	22.07	< 23.00
20	3560.00	1	49	21.55	22.55	< 23.00
	3625.00			21.33	22.33	< 23.00
	3690.00			21.04	22.04	< 23.00
20	3560.00	1	99	21.46	22.46	< 23.00
	3625.00			21.30	22.30	< 23.00
	3690.00			21.07	22.07	< 23.00
20	3560.00	100	0	18.50	19.50	< 23.00
	3625.00			18.17	19.17	< 23.00
	3690.00			17.87	18.87	< 23.00
Note: The EIRP Spectral Density (dBm/10MHz) = Power Spectral Density (dBm/10MHz) + Antenna Gain (dBi)						

Channel Bandwidth (MHz)	Frequency (MHz)	RB Size	RB Offset	Power Spectral Density (dBm/10MHz)	EIRP Spectral Density (dBm/10MHz)	Limit (dBm /10MHz)
16QAM						
5	3552.50	1	0	21.11	22.11	< 23.00
	3625.00			20.76	21.76	< 23.00
	3697.50			20.58	21.58	< 23.00
5	3552.50	1	12	21.21	22.21	< 23.00
	3625.00			20.86	21.86	< 23.00
	3697.50			20.68	21.68	< 23.00
5	3552.50	1	24	21.21	22.21	< 23.00
	3625.00			20.77	21.77	< 23.00
	3697.50			20.75	21.75	< 23.00
5	3552.50	25	0	20.09	21.09	< 23.00
	3625.00			19.77	20.77	< 23.00
	3697.50			19.61	20.61	< 23.00
10	3555.00	1	0	21.02	22.02	< 23.00
	3625.00			20.67	21.67	< 23.00
	3695.00			20.48	21.48	< 23.00
10	3555.00	1	24	21.07	22.07	< 23.00
	3625.00			20.71	21.71	< 23.00
	3695.00			20.57	21.57	< 23.00
10	3555.00	1	49	21.11	22.11	< 23.00
	3625.00			20.75	21.75	< 23.00
	3695.00			20.62	21.62	< 23.00
10	3555.00	50	0	20.03	21.03	< 23.00
	3625.00			19.72	20.72	< 23.00
	3695.00			19.56	20.56	< 23.00
Note: The EIRP Spectral Density (dBm/10MHz) = Power Spectral Density (dBm/10MHz) + Antenna Gain (dBi)						

Channel Bandwidth (MHz)	Frequency (MHz)	RB Size	RB Offset	Power Spectral Density (dBm/10MHz)	EIRP Spectral Density (dBm/10MHz)	Limit (dBm /10MHz)
16QAM						
15	3557.50	1	0	21.33	22.33	< 23.00
	3625.00			20.96	21.96	< 23.00
	3692.50			20.82	21.82	< 23.00
15	3557.50	1	37	21.37	22.37	< 23.00
	3625.00			21.00	22.00	< 23.00
	3692.50			20.85	21.85	< 23.00
15	3557.50	1	74	21.27	22.27	< 23.00
	3625.00			21.02	22.02	< 23.00
	3692.50			20.89	21.89	< 23.00
15	3557.50	75	0	18.91	19.91	< 23.00
	3625.00			18.63	19.63	< 23.00
	3692.50			18.18	19.18	< 23.00
20	3560.00	1	0	21.27	22.27	< 23.00
	3625.00			21.00	22.00	< 23.00
	3690.00			20.73	21.73	< 23.00
20	3560.00	1	49	21.24	22.24	< 23.00
	3625.00			20.96	21.96	< 23.00
	3690.00			20.77	21.77	< 23.00
20	3560.00	1	99	21.12	22.12	< 23.00
	3625.00			20.95	21.95	< 23.00
	3690.00			20.87	21.87	< 23.00
20	3560.00	100	0	17.53	18.53	< 23.00
	3625.00			17.10	18.10	< 23.00
	3690.00			16.88	17.88	< 23.00
Note: The EIRP Spectral Density (dBm/10MHz) = Power Spectral Density (dBm/10MHz) + Antenna Gain (dBi)						

Channel Bandwidth (MHz)	Frequency (MHz)	RB Size	RB Offset	Power Spectral Density (dBm/10MHz)	EIRP Spectral Density (dBm/10MHz)	Limit (dBm /10MHz)
64QAM						
5	3552.50	1	0	20.17	21.17	< 23.00
	3625.00			19.82	20.82	< 23.00
	3697.50			19.65	20.65	< 23.00
5	3552.50	1	12	20.23	21.23	< 23.00
	3625.00			19.89	20.89	< 23.00
	3697.50			19.71	20.71	< 23.00
5	3552.50	1	24	20.27	21.27	< 23.00
	3625.00			19.80	20.80	< 23.00
	3697.50			19.79	20.79	< 23.00
5	3552.50	25	0	19.12	20.12	< 23.00
	3625.00			18.79	19.79	< 23.00
	3697.50			18.63	19.63	< 23.00
10	3555.00	1	0	20.17	21.17	< 23.00
	3625.00			19.79	20.79	< 23.00
	3695.00			19.61	20.61	< 23.00
10	3555.00	1	24	20.20	21.20	< 23.00
	3625.00			19.85	20.85	< 23.00
	3695.00			19.75	20.75	< 23.00
10	3555.00	1	49	20.23	21.23	< 23.00
	3625.00			19.90	20.90	< 23.00
	3695.00			19.76	20.76	< 23.00
10	3555.00	50	0	19.04	20.04	< 23.00
	3625.00			18.74	19.74	< 23.00
	3695.00			18.57	19.57	< 23.00
Note: The EIRP Spectral Density (dBm/10MHz) = Power Spectral Density (dBm/10MHz) + Antenna Gain (dBi)						

Channel Bandwidth (MHz)	Frequency (MHz)	RB Size	RB Offset	Power Spectral Density (dBm/10MHz)	EIRP Spectral Density (dBm/10MHz)	Limit (dBm /10MHz)
64QAM						
15	3557.50	1	0	20.35	21.35	< 23.00
	3625.00			19.99	20.99	< 23.00
	3692.50			19.79	20.79	< 23.00
15	3557.50	1	37	20.34	21.34	< 23.00
	3625.00			20.00	21.00	< 23.00
	3692.50			19.81	20.81	< 23.00
15	3557.50	1	74	20.28	21.28	< 23.00
	3625.00			19.98	20.98	< 23.00
	3692.50			19.88	20.88	< 23.00
15	3557.50	75	0	17.75	18.75	< 23.00
	3625.00			17.47	18.47	< 23.00
	3692.50			16.97	17.97	< 23.00
20	3560.00	1	0	20.33	21.33	< 23.00
	3625.00			20.05	21.05	< 23.00
	3690.00			19.77	20.77	< 23.00
20	3560.00	1	49	20.28	21.28	< 23.00
	3625.00			19.96	20.96	< 23.00
	3690.00			19.82	20.82	< 23.00
20	3560.00	1	99	20.15	21.15	< 23.00
	3625.00			20.01	21.01	< 23.00
	3690.00			19.88	20.88	< 23.00
20	3560.00	100	0	16.51	17.51	< 23.00
	3625.00			16.30	17.30	< 23.00
	3690.00			15.97	16.97	< 23.00
Note: The EIRP Spectral Density (dBm/10MHz) = Power Spectral Density (dBm/10MHz) + Antenna Gain (dBi)						

Test Site	SIP-SR1	Test Engineer	Yoniter Yang
Test Date	2024-04-25 ~ 2024-05-17	Test Band	Band 42 & 43/48 (report only)

Channel Bandwidth (MHz)	Frequency (MHz)	RB Size	RB Offset	Power (dBm)	EIRP (dBm)
QPSK					
5	3552.50	1	0	21.54	22.54
	3625.00			21.28	22.28
	3697.50			21.04	22.04
5	3552.50	1	12	21.61	22.61
	3625.00			21.32	22.32
	3697.50			21.07	22.07
5	3552.50	1	24	21.67	22.67
	3625.00			21.23	22.23
	3697.50			21.08	22.08
5	3552.50	25	0	20.71	21.71
	3625.00			20.40	21.40
	3697.50			20.18	21.18
10	3555.00	1	0	21.47	22.47
	3625.00			21.13	22.13
	3695.00			20.87	21.87
10	3555.00	1	24	21.52	22.52
	3625.00			21.24	22.24
	3695.00			20.98	21.98
10	3555.00	1	49	21.66	22.66
	3625.00			21.25	22.25
	3695.00			21.06	22.06
10	3555.00	50	0	20.70	21.70
	3625.00			20.41	21.41
	3695.00			20.16	21.16

Note: The EIRP (dBm) = Power (dBm) + Antenna Gain (dBi)

Channel Bandwidth (MHz)	Frequency (MHz)	RB Size	RB Offset	Power (dBm)	EIRP (dBm)
QPSK					
15	3557.50	1	0	21.83	22.83
	3625.00			21.37	22.37
	3692.50			21.06	22.06
15	3557.50	1	37	21.81	22.81
	3625.00			21.42	22.42
	3692.50			21.12	22.12
15	3557.50	1	74	21.79	22.79
	3625.00			21.39	22.39
	3692.50			21.13	22.13
15	3557.50	75	0	20.92	21.92
	3625.00			20.49	21.49
	3692.50			20.19	21.19
20	3560.00	1	0	21.65	22.65
	3625.00			21.46	22.46
	3690.00			21.07	22.07
20	3560.00	1	49	21.55	22.55
	3625.00			21.33	22.33
	3690.00			21.04	22.04
20	3560.00	1	99	21.46	22.46
	3625.00			21.30	22.30
	3690.00			21.07	22.07
20	3560.00	100	0	20.76	21.76
	3625.00			20.50	21.50
	3695.00			20.25	21.25
Note: The EIRP (dBm) = Power (dBm) + Antenna Gain (dBi)					

Channel Bandwidth (MHz)	Frequency (MHz)	RB Size	RB Offset	Power (dBm)	EIRP (dBm)
16QAM					
5	3552.50	1	0	21.11	22.11
	3625.00			20.76	21.76
	3697.50			20.58	21.58
5	3552.50	1	12	21.21	22.21
	3625.00			20.86	21.86
	3697.50			20.68	21.68
5	3552.50	1	24	21.21	22.21
	3625.00			20.77	21.77
	3697.50			20.75	21.75
5	3552.50	25	0	20.09	21.09
	3625.00			19.77	20.77
	3697.50			19.61	20.61
10	3555.00	1	0	21.02	22.02
	3625.00			20.67	21.67
	3695.00			20.48	21.48
10	3555.00	1	24	21.07	22.07
	3625.00			20.71	21.71
	3695.00			20.57	21.57
10	3555.00	1	49	21.11	22.11
	3625.00			20.75	21.75
	3695.00			20.62	21.62
10	3555.00	50	0	20.03	21.03
	3625.00			19.72	20.72
	3695.00			19.56	20.56
Note: The EIRP (dBm) = Power (dBm) + Antenna Gain (dBi)					



Channel Bandwidth (MHz)	Frequency (MHz)	RB Size	RB Offset	Power (dBm)	EIRP (dBm)
16QAM					
15	3557.50	1	0	21.33	22.33
	3625.00			20.96	21.96
	3692.50			20.82	21.82
15	3557.50	1	37	21.37	22.37
	3625.00			21.00	22.00
	3692.50			20.85	21.85
15	3557.50	1	74	21.27	22.27
	3625.00			21.02	22.02
	3692.50			20.89	21.89
15	3557.50	75	0	20.19	21.19
	3625.00			19.86	20.86
	3692.50			19.74	20.74
20	3560.00	1	0	21.27	22.27
	3625.00			21.00	22.00
	3690.00			20.73	21.73
20	3560.00	1	49	21.24	22.24
	3625.00			20.96	21.96
	3690.00			20.77	21.77
20	3560.00	1	99	21.12	22.12
	3625.00			20.95	21.95
	3690.00			20.87	21.87
20	3560.00	100	0	20.22	21.22
	3625.00			19.89	20.89
	3695.00			19.73	20.73
Note: The EIRP (dBm) = Power (dBm) + Antenna Gain (dBi)					

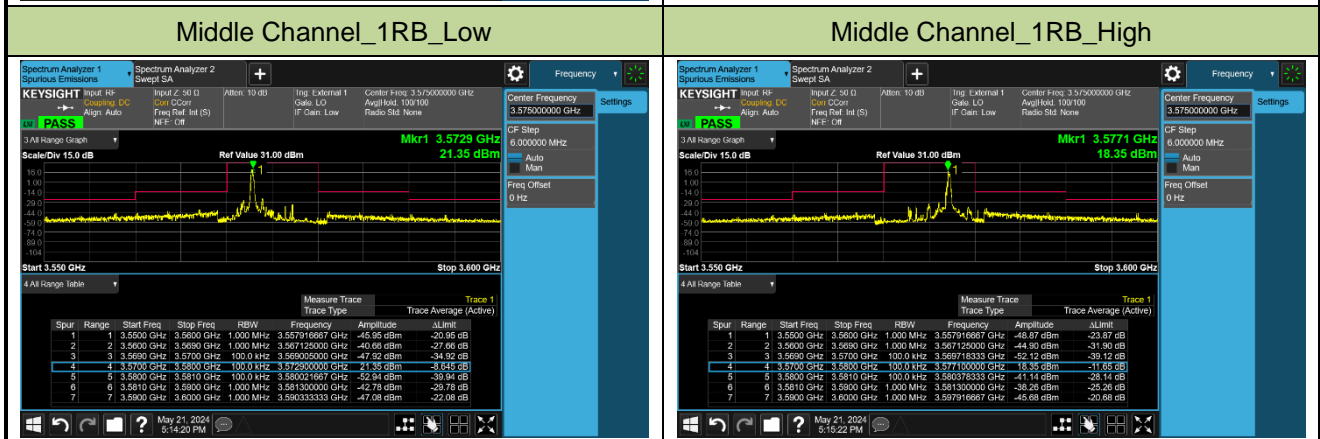
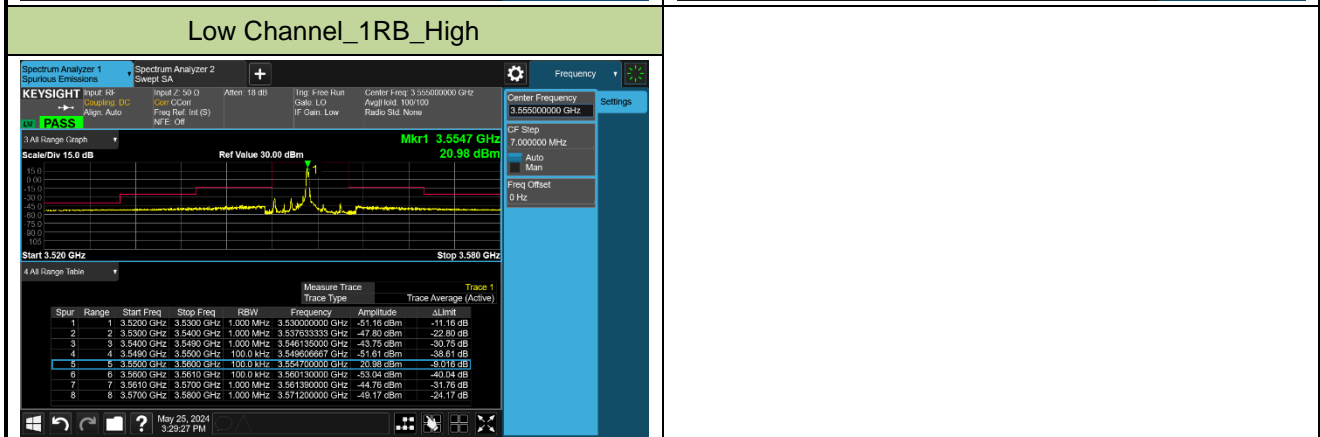
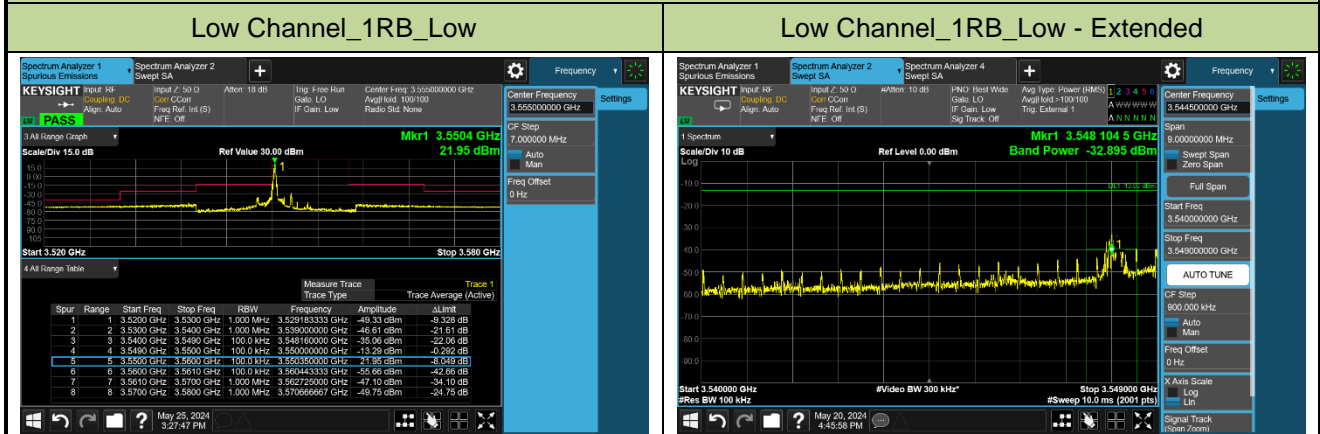
Channel Bandwidth (MHz)	Frequency (MHz)	RB Size	RB Offset	Power (dBm)	EIRP (dBm)
64QAM					
5	3552.50	1	0	20.17	21.17
	3625.00			19.82	20.82
	3697.50			19.65	20.65
5	3552.50	1	12	20.23	21.23
	3625.00			19.89	20.89
	3697.50			19.71	20.71
5	3552.50	1	24	20.27	21.27
	3625.00			19.80	20.80
	3697.50			19.79	20.79
5	3552.50	25	0	19.12	20.12
	3625.00			18.79	19.79
	3697.50			18.63	19.63
10	3555.00	1	0	20.17	21.17
	3625.00			19.79	20.79
	3695.00			19.61	20.61
10	3555.00	1	24	20.20	21.20
	3625.00			19.85	20.85
	3695.00			19.75	20.75
10	3555.00	1	49	20.23	21.23
	3625.00			19.90	20.90
	3695.00			19.76	20.76
10	3555.00	50	0	19.04	20.04
	3625.00			18.74	19.74
	3695.00			18.57	19.57
Note: The EIRP (dBm) = Power (dBm) + Antenna Gain (dBi)					

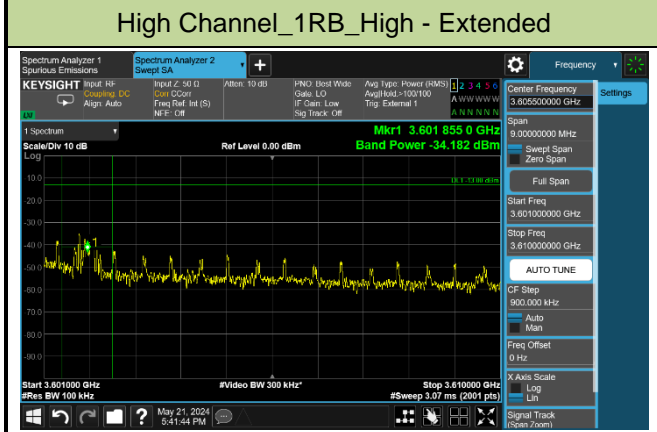
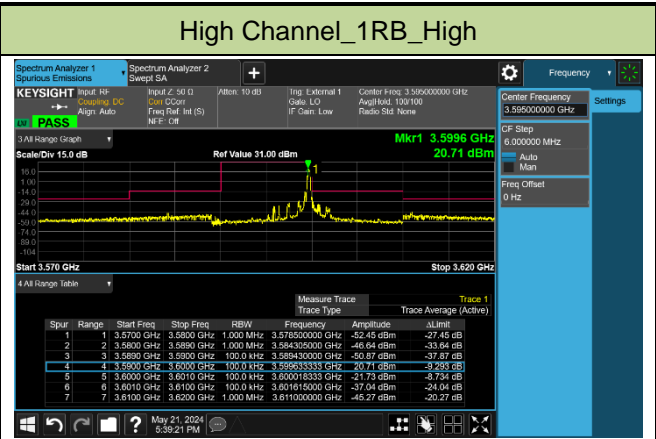
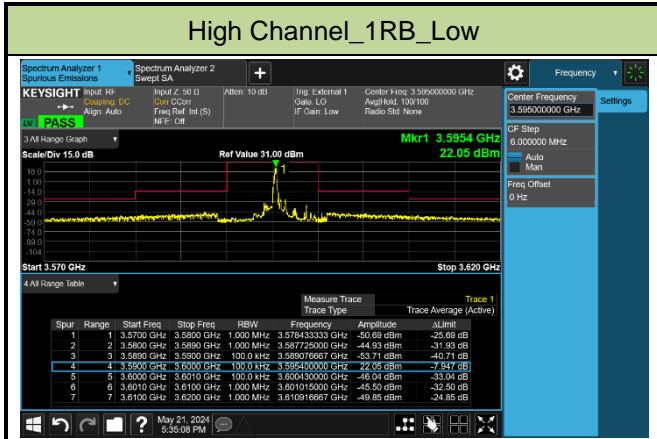
Channel Bandwidth (MHz)	Frequency (MHz)	RB Size	RB Offset	Power (dBm)	EIRP (dBm)
64QAM					
15	3557.50	1	0	20.35	21.35
	3625.00			19.99	20.99
	3692.50			19.79	20.79
15	3557.50	1	37	20.34	21.34
	3625.00			20.00	21.00
	3692.50			19.81	20.81
15	3557.50	1	74	20.28	21.28
	3625.00			19.98	20.98
	3692.50			19.88	20.88
15	3557.50	75	0	19.23	20.23
	3625.00			18.94	19.94
	3692.50			18.72	19.72
20	3560.00	1	0	20.33	21.33
	3625.00			20.05	21.05
	3690.00			19.77	20.77
20	3560.00	1	49	20.28	21.28
	3625.00			19.96	20.96
	3690.00			19.82	20.82
20	3560.00	1	99	20.15	21.15
	3625.00			20.01	21.01
	3690.00			19.88	20.88
20	3560.00	100	0	19.18	20.18
	3625.00			18.91	19.91
	3695.00			18.66	19.66
Note: The EIRP (dBm) = Power (dBm) + Antenna Gain (dBi)					

### A.4 Transmitter unwanted emissions (band-edge) Test Result

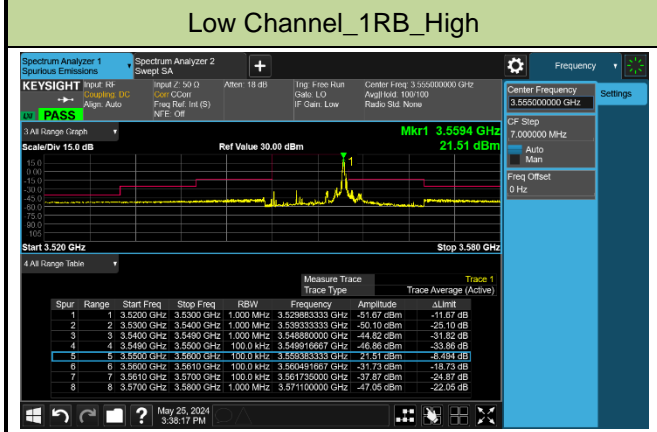
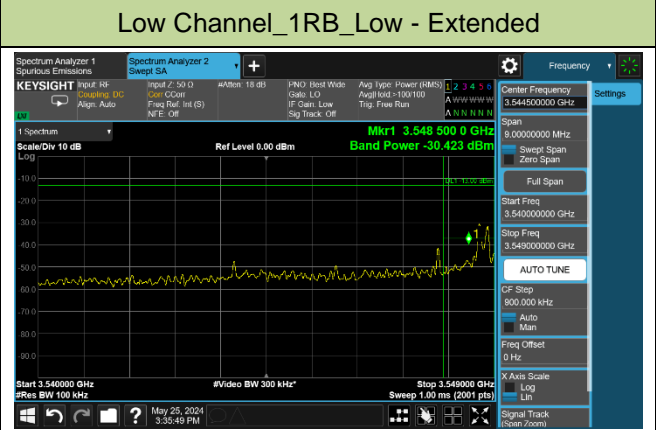
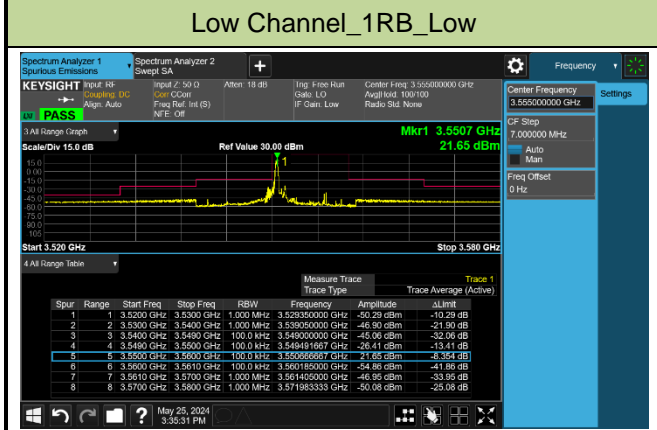
Test Site	SIP-SR1	Test Engineer	Yoniter Yang
Test Date	2024-05-21 ~ 202405-25	Test Band	LTE Band 42

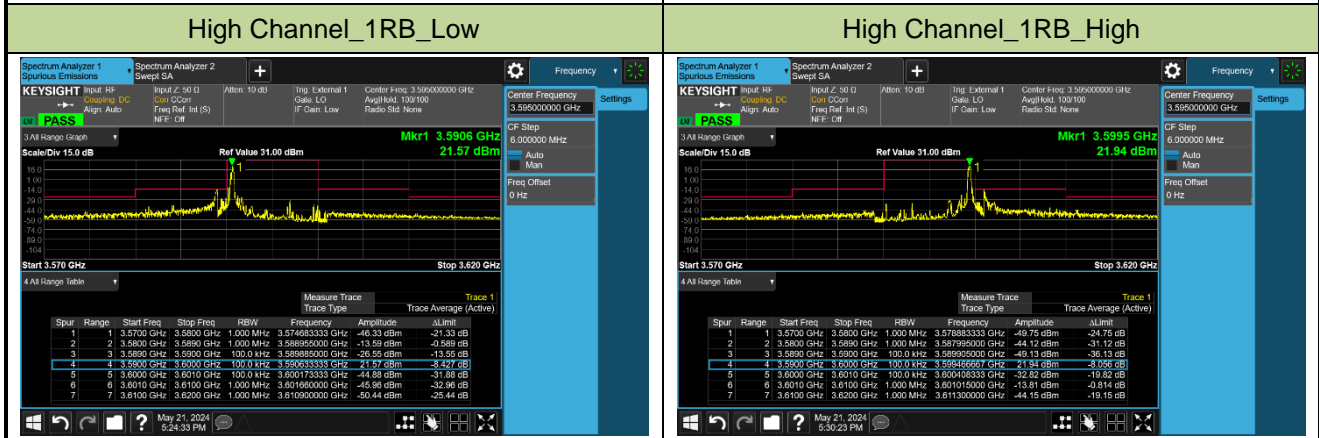
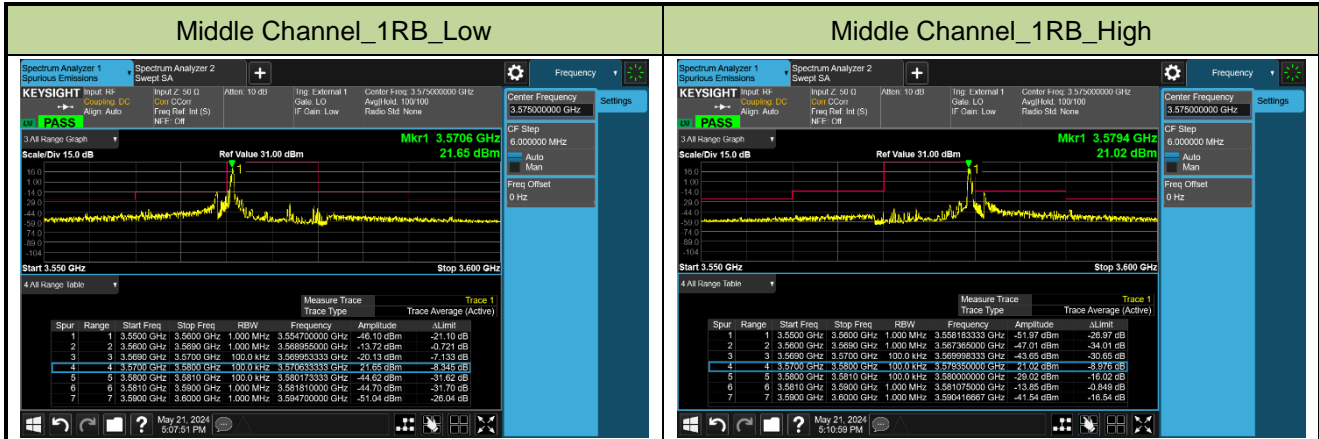
#### 5MHz Channel Bandwidth - 1RB



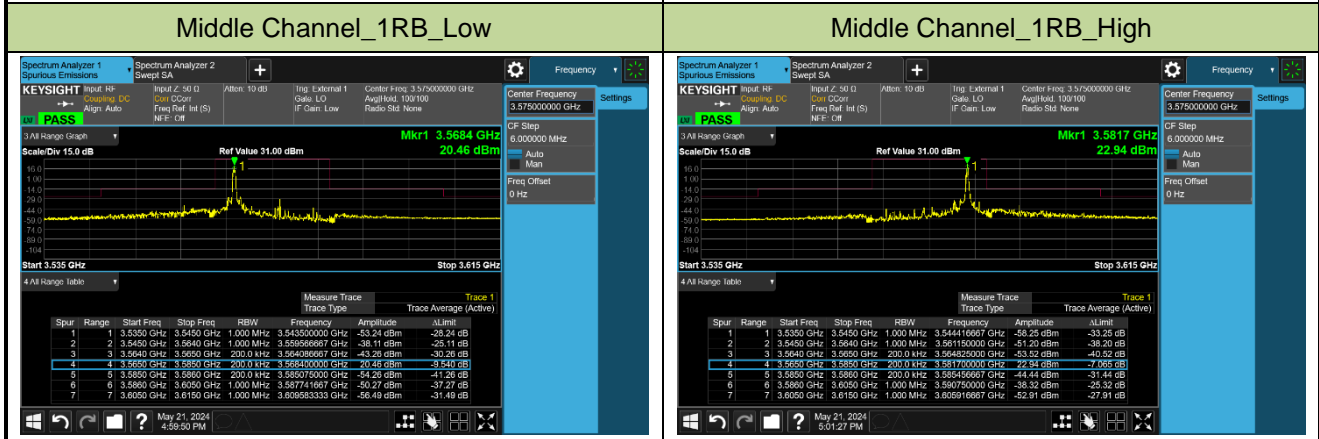
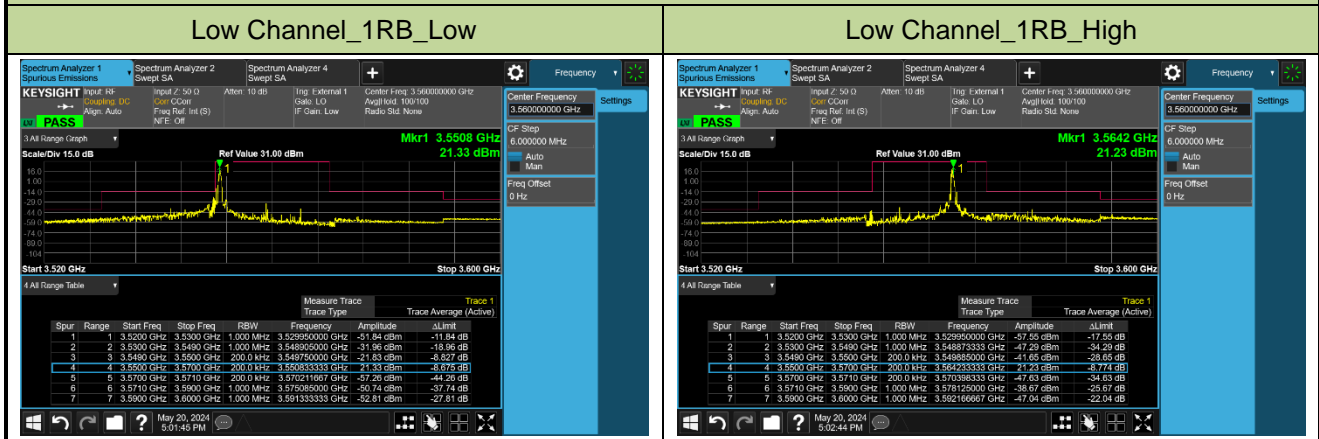


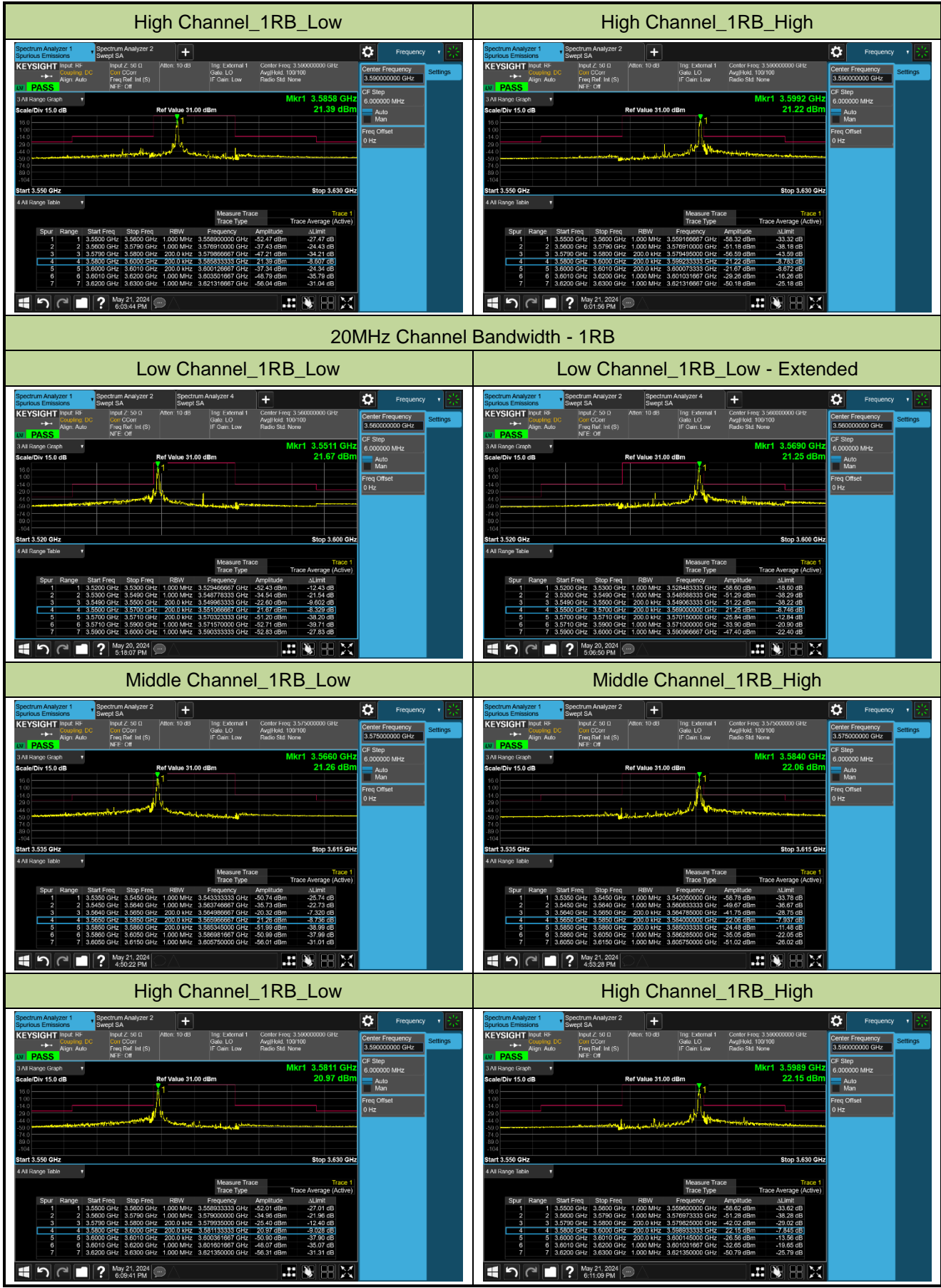
## 10MHz Channel Bandwidth - 1RB





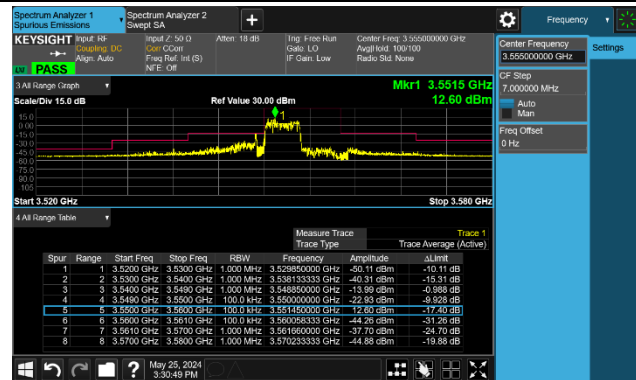
## 15MHz Channel Bandwidth - 1RB



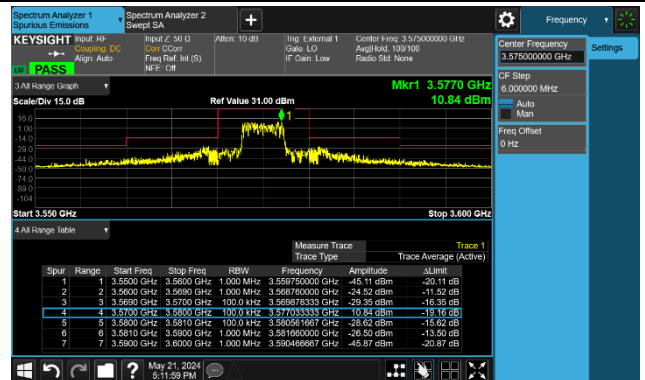


### 5MHz Channel Bandwidth - Full RB

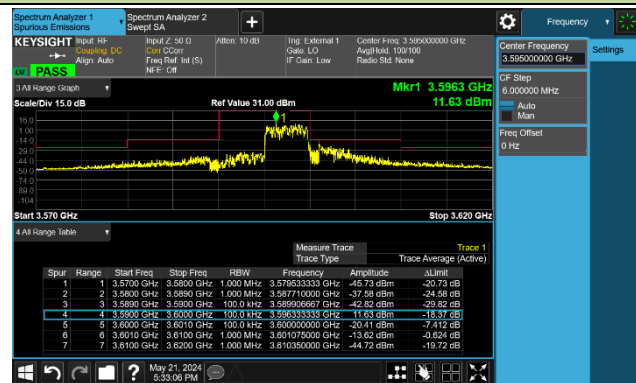
#### Low Channel



#### Middle Channel

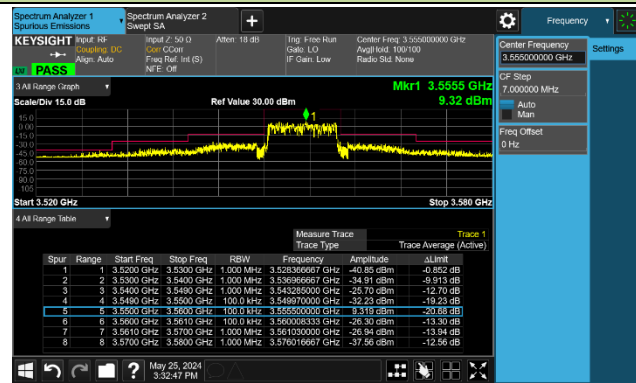


#### High Channel

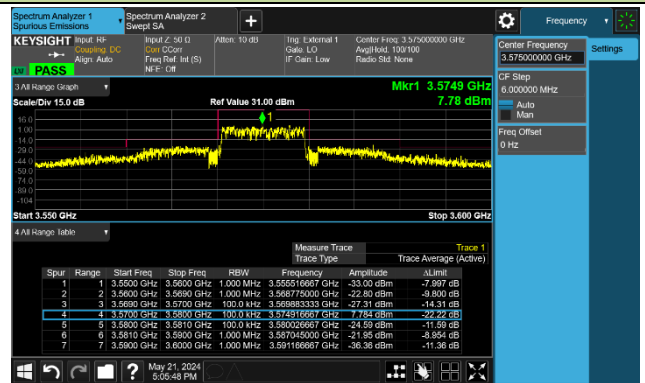


### 10MHz Channel Bandwidth - Full RB

#### Low Channel



#### Middle Channel



#### High Channel

