

## ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT



**Applicant:** Quanta Computer Inc.  
No. 188, Wenhua 2nd Road, Guishan District, Taoyuan City  
33377, Taiwan

**Product Name:** Clover Station Solo

**Brand Name:** clover

**Model No.:** C501

**Model Difference:** N/A

**Report Number:** E2/2021/70039

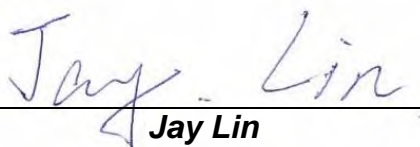
**FCC ID** HFS-C501F

**Issue Date:** August 24, 2021

**Date of Test:** July 16, 2021 ~ August 13, 2021

**Date of EUT Received:** July 15, 2021

Approved By

  
Jay Lin

### 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, 24E & 27 C.

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
E2/2021/70039	00	Original	August 24, 2021	Ariel Chang

**Note:**

1. Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.

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## 1 GENERAL PRODUCT INFORMATION

### 1.1 Product Description

Product Name:	Clover Station Solo
Brand Name:	clover
Model No.:	C501
Model Difference:	N/A
Hardware Version:	N/A
Firmware Version:	N/A
EUT Series No.:	C051UQ12570003
Power Supply:	24V from AC/DC Adapter or 3.8V from Rechargeable Li-ion Polymer Battery

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## 1.2 Operation Frequency Range

LTE Band 2			
BW (MHz)	Operation Frequency (MHz)		
1.4	1850.7	-	1909.3
3	1851.5	-	1908.5
5	1852.5	-	1907.5
10	1855.0	-	1905.0
15	1857.5	-	1902.5
20	1860.0	-	1900.0
LTE Band 4			
BW (MHz)	Operation Frequency (MHz)		
1.4	1710.7	-	1754.3
3	1711.5	-	1753.5
5	1712.5	-	1752.5
10	1715.0	-	1750.0
15	1717.5	-	1747.5
20	1720.0	-	1745.0

LTE Band 12			
BW (MHz)	Operation Frequency (MHz)		
1.4	699.7	-	715.3
3	700.5	-	714.5
5	701.5	-	713.5
10	704.0	-	711.0
LTE Band 17			
BW (MHz)	Operation Frequency (MHz)		
5	706.5	-	713.5
10	709.0	-	711.0
LTE Band 66			
BW (MHz)	Operation Frequency (MHz)		
1.4	1710.7	-	1779.3
3	1711.5	-	1778.5
5	1712.5	-	1777.5
10	1715.0	-	1775.0
15	1717.5	-	1772.5
20	1720.0	-	1770.0

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## 1.3 Antenna Designation

Antenna Type	Antenna Model No.
PIFA	Ant0
<b>Note:</b> Transmission in frequencies in this test report are only available by the above antenna(s).	

Type	Modulation	Frequency (MHz)	Peak Antenna Gain (dBi)
			Ant0
PIFA	LTE-Band 2	1850 ~ 1910	1.89
	LTE-Band 4	1710 ~ 1755	1.83
	LTE-Band 12	699 ~ 716	-0.63
	LTE-Band 17	704 ~ 716	-0.63
	LTE-Band 66	1710 ~ 1780	1.83

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

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## 1.4 Type of Emission & Max ERP/EIRP Power Measurement Result:

LTE Band	BW	Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
2	1.4	QPSK	24.11	EIRP	0.258	1.0899	1M09G7D
		16QAM	22.94	EIRP	0.197	1.0897	1M09D7W
2	3	QPSK	24.15	EIRP	0.260	2.6932	2M69G7D
		16QAM	22.60	EIRP	0.182	2.6922	2M69D7W
2	5	QPSK	24.18	EIRP	0.262	4.5078	4M51G7D
		16QAM	23.61	EIRP	0.230	4.4945	4M49D7W
2	10	QPSK	24.28	EIRP	0.268	8.9831	8M98G7D
		16QAM	23.30	EIRP	0.214	3.0906	3M09D7W
2	15	QPSK	24.33	EIRP	0.271	13.445	13M4G7D
		16QAM	22.87	EIRP	0.194	3.227	3M23D7W
2	20	QPSK	24.09	EIRP	0.256	17.940	17M9G7D
		16QAM	23.15	EIRP	0.207	3.775	3M77D7W

LTE Band	BW	Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
4	1.4	QPSK	24.28	EIRP	0.268	1.0907	1M09G7D
		16QAM	22.86	EIRP	0.193	1.0884	1M09D7W
4	3	QPSK	24.06	EIRP	0.255	2.7105	2M71G7D
		16QAM	22.57	EIRP	0.181	2.6937	2M69D7W
4	5	QPSK	24.26	EIRP	0.267	4.5062	4M51G7D
		16QAM	23.29	EIRP	0.213	4.4938	4M49D7W
4	10	QPSK	24.49	EIRP	0.281	8.9784	8M98G7D
		16QAM	22.54	EIRP	0.179	3.0635	3M06D7W
4	15	QPSK	24.43	EIRP	0.277	13.4380	13M4G7D
		16QAM	22.71	EIRP	0.187	3.2163	3M22D7W
4	20	QPSK	24.36	EIRP	0.273	17.9060	17M9G7D
		16QAM	22.96	EIRP	0.198	3.7769	3M78D7W

LTE Band	BW	Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
12	1.4	QPSK	19.63	ERP	0.092	1.0905	1M09G7D
		16QAM	18.32	ERP	0.068	1.0887	1M09D7W
12	3	QPSK	19.64	ERP	0.092	2.6907	2M69G7D
		16QAM	18.70	ERP	0.074	2.6924	2M69D7W
12	5	QPSK	19.65	ERP	0.092	4.4967	4M50G7D
		16QAM	18.16	ERP	0.065	4.4924	4M49D7W
12	10	QPSK	19.70	ERP	0.093	8.9803	8M98G7D
		16QAM	18.23	ERP	0.067	3.0436	3M04D7W

LTE Band	BW	Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
17	5	QPSK	19.76	ERP	0.095	4.4999	4M50G7D
		16QAM	18.50	ERP	0.071	4.4941	4M49D7W
17	10	QPSK	19.88	ERP	0.097	8.9907	8M99G7D
		16QAM	18.70	ERP	0.074	3.0396	3M04D7W

LTE Band	BW	Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
66	1.4	QPSK	23.76	EIRP	0.238	1.0905	1M09G7D
		16QAM	22.66	EIRP	0.185	1.0902	1M09D7W
66	3	QPSK	23.96	EIRP	0.249	2.6962	2M70G7D
		16QAM	22.86	EIRP	0.193	2.6935	2M69D7W
66	5	QPSK	24.02	EIRP	0.252	4.5034	4M50G7D
		16QAM	22.67	EIRP	0.185	4.4931	4M49D7W
66	10	QPSK	24.38	EIRP	0.274	8.9573	8M96G7D
		16QAM	23.20	EIRP	0.209	3.0322	3M03D7W
66	15	QPSK	24.52	EIRP	0.283	13.4310	13M4G7D
		16QAM	22.75	EIRP	0.188	3.1834	3M18D7W
66	20	QPSK	24.16	EIRP	0.261	17.8850	17M9G7D
		16QAM	22.97	EIRP	0.198	3.7367	3M74D7W

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## 1.5 Test Methodology of Applied Standards

FCC 47 CFR Part 2, 24E, 27C.

ISED RSS-130 Issue 2 Feb. 2019, ISED RSS-133 Issue 6, Amendment 1 Jan. 18, 2018,

ISED RSS-139 Issue 3 July 16, 2015

ANSI C63.26-2015

KDB971168 D01 Power Meas license Digital System v03r01

KDB412172 D01 Determining ERP and EIRP v01r01

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## 1.6 Test Facility

Laboratory	Test Site Address	Test Site Name	FCC Designation number	IC CAB identifier
SGS Taiwan Ltd. Central RF Lab. (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.

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### 1.7 Special Accessories

No special accessories were used during testing.

### 1.8 Equipment Modifications

There was no modifications incorporated into the EUT.

### 1.9 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)
LB(1GHz below)	3.7	10	13.7
MB(1GHz - 2GHz)	3.9	10	13.9

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## 2.5 Final Amplifier Voltage and Current Information:

Test Mode	DC voltage (V)	DC current (mA)
LTE Band 2	24	0.65
LTE Band 4		0.69
LTE Band 12		0.63
LTE Band 17		0.61
LTE Band 66		0.66

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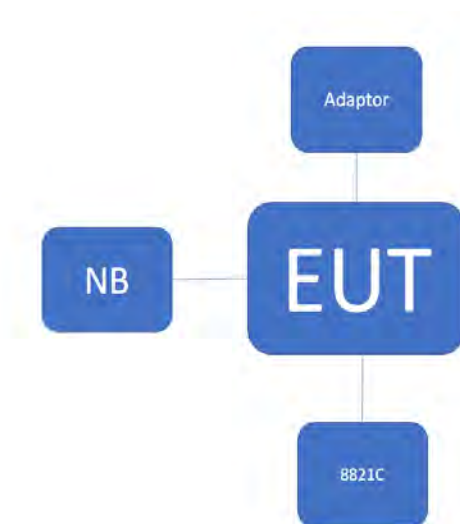
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## 2.6 Test Configuration

### 2.6.1 Conducted Emission at the Antenna Port



### 2.6.2 Radiated Emission



### 2.6.3 Equipment used for test

Equipment	Mfr/Brand	Model/Type No.	Series No.
Test Software	android	N/A	V10
Notebook	Lenovo	T470	P0001293
Base station	Anritsu	MT8821C	6262044732
Adaptor	N/A	N/A	N/A

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### 3 SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§2.1046(a)	RF Power Output	Compliant
§24.232(c) §27.50(c)(9)	ERP/ EIRP measurement	Compliant
§2.1049(h)	99% & 26dB Occupied Bandwidth	Compliant
§2.1051 §27.53(g)	Out of Band Emissions at Antenna Terminals and Band Edge / Emission mask requirements	Compliant
§2.1053	Field Strength of Spurious Radiation	Compliant
§24.232(d)	Peak to Average Ratio	Compliant
§2.1055(a)(1)	Frequency Stability	Compliant

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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 mode from all possible combinations between available modulations, data rates, X(E1)Y(E2)Z(H) axis and antenna ports. The worst case was found as listed below. Following channel(s) was (were) selected for the final test as listed below:

BAND	H PLANE	E1 PLANE	E2 PLANE
LTE Band 2	V		
LTE Band 4	V		
LTE Band 12	V		
LTE Band 17	V		
LTE Band 66	V		

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## 4.2 Measurement Configuration

Test Items	Band	Test Channel			Bandwidth (MHz)						Modulation		RB #		
		L	M	H	1.4	3	5	10	15	20	QPSK	16QAM	1	Half	Full
Max. Output Power	2	V	V	V	V	V	V	V	V	V	V	V	V	V	V
	4	V	V	V	V	V	V	V	V	V	V	V	V	V	V
	12	V	V	V	V	V	V	V	-	-	V	V	V	V	V
	17	V	V	V	-	-	V	V	-	-	V	V	V	V	V
	66	V	V	V	V	V	V	V	V	V	V	V	V	V	V
Frequency Stability	2		V					V			V				V
	4		V					V			V				V
	12		V					V	-	-	V				V
	17		V		-	-	V	V	-	-	V				V
	66		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	1	Half	Full
26dB and 99% Bandwidth	2	V	V	V	V	V	V	V	V	V	V	V			V
	4	V	V	V	V	V	V	V	V	V	V	V			V
	12	V	V	V	V	V	V	V	-	-	V	V			V
	17	V	V	V	-	-	V	V	-	-	V	V			V
	66	V	V	V	V	V	V	V	V	V	V	V			V
Peak-to-Average Ratio	2	V	V	V	V	V	V	V	V	V		V			V
	4	V	V	V	V	V	V	V	V	V		V			V
	12	V	V	V	V	V	V	V	-	-		V			V
	17	V	V	V	-	-	V	V	-	-		V			V
	66	V	V	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	1	Half	Full
Band Edge	2	V		V	V	V	V	V	V	V	V		V		V
	4	V		V	V	V	V	V	V	V	V		V		V
	12	V		V	V	V	V	V	-	-	V		V		V
	17	V		V	-	-	V	V	-	-	V		V		V
	66	V		V	V	V	V	V	V	V	V		V		V
Conducted Emission	2	V	V	V	V	V	V	V	V	V	V		V		
	4	V	V	V	V	V	V	V	V	V	V		V		
	12	V	V	V	V	V	V	V	-	-	V		V		
	17	V	V	V	-	-	V	V	-	-	V		V		
	66	V	V	V	V	V	V	V	V	V	V		V		

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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 MAXMUM OUTPUT POWER

### 6.1 Standard Applicable

A base station simulator was used to establish communication with the EUT. Its parameters were set to transmit the maximum power on the EUT. The measured power in the radio frequency on the transmitter output terminals.

#### 6.1.1 ERP/EIRP LIMIT

According to FCC §2.1046

##### FCC 24.232(c)

Mobile and portable stations are limited to 2 W EIRP.

##### FCC 27.50(c)

(9) Control and mobile stations in the 698-746 MHz band are limited to 30 watts ERP.

##### FCC 27.50(d)

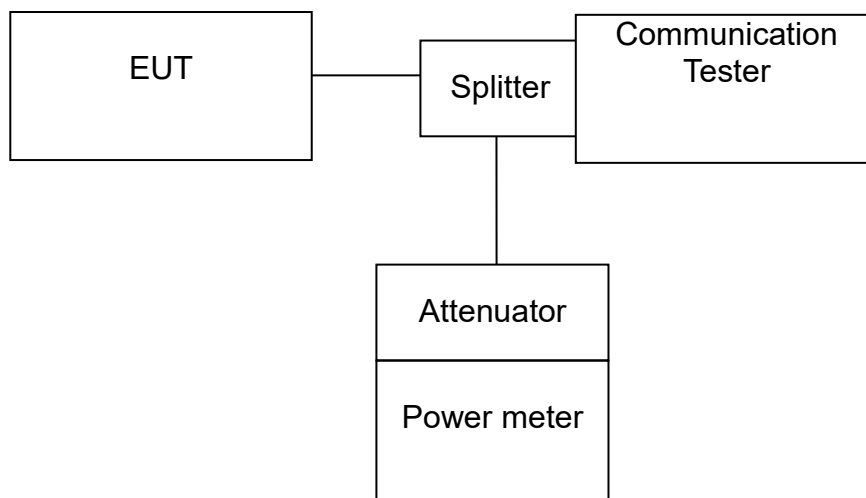
(4) Mobile, and portable (hand-held) stations operating in the 1710-1755 MHz, 1695-1710 MHz and 1755-1780 MHz bands are limited to 1W EIRP.

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## 6.2 Test Set-up



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

## 6.3 Output Power Measurement Applicable Guidance

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.

KDB 971168 D01 Power Meas License Digital System as the supplemental test methodology to adjust the proper setting obtaining the measurement results.

All LTE bands conducted average power is obtained from the simulator telecommunication test set.

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

According to KDB 412172 D01 Power Approach,

$$EIRP = P_T + G_T - L_C,$$

$$ERP = EIRP - 2.15,$$

Where:

- ERP or EIRP = effective radiated power or equivalent isotropically radiated power (expressed in the same units as  $P_T$ , typically dBW, dBm, or power spectral density (PSD)<sup>2</sup>), relative to either a dipole antenna (ERP) or an isotropic antenna (EIRP);
- $P_T$  = transmitter output power, expressed in dBW, dBm, or PSD;
- $G_T$  = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);
- $L_C$  = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

## 6.5 Measurement Equipment Used

Conducted Emission Test Site: Conducted B					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	KEYSIGHT	N9010A	MY51440113	07/13/2021	07/12/2022
Radio Communication Analyser	Anritsu	MT8820C	6201107337	07/28/2021	07/27/2022
Attenuator	Marvelous	MVE2213-10	RF05	11/19/2020	11/18/2021
DC Block	PASTER-NACK	PE8210	RF157	11/19/2020	11/18/2021
Splitter	Woken	DOM35LW1A2	RF255	11/19/2020	11/18/2021
Coaxial Cables	Woken	00100A1F1A185C	RF54	11/19/2020	11/18/2021
Coaxial Cables	Woken	00100A1F1A185C	RF55	11/19/2020	11/18/2021
Coaxial Cables	Woken	00100A1F1A185C	RF71	11/19/2020	11/18/2021
Coaxial Cables	Woken	00100A1F1A185C	RF72	11/19/2020	11/18/2021
DC Power Supply	Agilent	E3640A	MY53140006	05/28/2021	05/27/2022
Temperature Chamber	TERCHY	MHK-120LK	1020582	07/01/2021	06/30/2022
Test Software	SGS	Radio Test Software	Ver.21	N.C.R	N.C.R
Radio Communication Analyser	Anritsu	MT8820C	6201107337	07/28/2021	07/27/2022

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## 6.6 Measurement Results:

Antenna gain (dBi)		1.89							
LTE Band 2_Uplink frequency band : 1850 to 1910 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
1.4	18607	1850.7	QPSK	1	0	22.06	23.95	33	-9.05
				1	5	22.22	24.11	33	-8.89
				3	2	22.14	24.03	33	-8.97
				6	0	20.94	22.83	33	-10.17
	18900	1880	QPSK	1	0	22.06	23.95	33	-9.05
				1	5	22.01	23.90	33	-9.1
				3	2	21.93	23.82	33	-9.18
				6	0	20.96	22.85	33	-10.15
	19193	1909.3	QPSK	1	0	21.87	23.76	33	-9.24
				1	5	21.83	23.72	33	-9.28
				3	2	21.81	23.70	33	-9.3
				6	0	20.60	22.49	33	-10.51
1.4	18607	1850.7	16QAM	1	0	20.83	22.72	33	-10.28
				1	5	20.88	22.77	33	-10.23
				3	2	21.05	22.94	33	-10.06
				6	0	20.09	21.98	33	-11.02
	18900	1880	16QAM	1	0	20.53	22.42	33	-10.58
				1	5	20.61	22.50	33	-10.5
				3	2	20.74	22.63	33	-10.37
				6	0	19.73	21.62	33	-11.38
	19193	1909.3	16QAM	1	0	20.38	22.27	33	-10.73
				1	5	20.75	22.64	33	-10.36
				3	2	20.46	22.35	33	-10.65
				6	0	19.87	21.76	33	-11.24

Antenna gain (dBi)		1.89							
LTE Band 2_Uplink frequency band : 1850 to 1910 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
3	18615	1851.5	QPSK	1	0	22.26	24.15	33	-8.85
				1	14	22.00	23.89	33	-9.11
				8	4	21.07	22.96	33	-10.04
				15	0	20.99	22.88	33	-10.12
	18900	1880	QPSK	1	0	22.11	24.00	33	-9
				1	14	21.90	23.79	33	-9.21
				8	4	20.95	22.84	33	-10.16
				15	0	21.04	22.93	33	-10.07
	19185	1908.5	QPSK	1	0	21.92	23.81	33	-9.19
				1	14	21.84	23.73	33	-9.27
				8	4	20.97	22.86	33	-10.14
				15	0	20.85	22.74	33	-10.26
3	18615	1851.5	16QAM	1	0	20.71	22.60	33	-10.4
				1	14	20.65	22.54	33	-10.46
				8	4	20.15	22.04	33	-10.96
				15	0	19.65	21.54	33	-11.46
	18900	1880	16QAM	1	0	20.10	21.99	33	-11.01
				1	14	20.25	22.14	33	-10.86
				8	4	19.79	21.68	33	-11.32
				15	0	19.81	21.70	33	-11.3
	19185	1908.5	16QAM	1	0	20.71	22.60	33	-10.4
				1	14	20.59	22.48	33	-10.52
				8	4	19.75	21.64	33	-11.36
				15	0	19.59	21.48	33	-11.52

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Antenna gain (dBi)		1.89							
LTE Band 2_Uplink frequency band : 1850 to 1910 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
5	18625	1852.5	QPSK	1	0	22.29	24.18	33	-8.82
				1	24	22.22	24.11	33	-8.89
				12	6	21.12	23.01	33	-9.99
				25	0	20.94	22.83	33	-10.17
	18900	1880	QPSK	1	0	21.87	23.76	33	-9.24
				1	24	22.03	23.92	33	-9.08
				12	6	21.08	22.97	33	-10.03
				25	0	20.94	22.83	33	-10.17
	19175	1907.5	QPSK	1	0	21.97	23.86	33	-9.14
				1	24	21.90	23.79	33	-9.21
				12	6	20.93	22.82	33	-10.18
				25	0	20.96	22.85	33	-10.15
5	18625	1852.5	16QAM	1	0	21.72	23.61	33	-9.39
				1	24	21.59	23.48	33	-9.52
				12	6	20.27	22.16	33	-10.84
				25	0	20.07	21.96	33	-11.04
	18900	1880	16QAM	1	0	20.40	22.29	33	-10.71
				1	24	20.06	21.95	33	-11.05
				12	6	19.93	21.82	33	-11.18
				25	0	19.38	21.27	33	-11.73
	19175	1907.5	16QAM	1	0	20.53	22.42	33	-10.58
				1	24	20.46	22.35	33	-10.65
				12	6	19.61	21.50	33	-11.5
				25	0	19.58	21.47	33	-11.53

Antenna gain (dBi)		1.89							
LTE Band 2_Uplink frequency band : 1850 to 1910 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
10	18650	1855	QPSK	1	0	22.39	24.28	33	-8.72
				1	49	22.27	24.16	33	-8.84
				25	12	21.03	22.92	33	-10.08
				50	0	20.59	22.48	33	-10.52
	18900	1880	QPSK	1	0	22.19	24.08	33	-8.92
				1	49	21.89	23.78	33	-9.22
				25	12	20.91	22.80	33	-10.2
				50	0	20.47	22.36	33	-10.64
	19150	1905	QPSK	1	0	21.26	23.15	33	-9.85
				1	49	22.19	24.08	33	-8.92
				25	12	19.33	21.22	33	-11.78
				50	0	19.96	21.85	33	-11.15
10	18650	1855	16QAM	1	0	21.41	23.30	33	-9.7
				1	15	21.31	23.20	33	-9.8
				12	0	20.43	22.32	33	-10.68
				16	0	20.50	22.39	33	-10.61
	18900	1880	16QAM	1	0	21.03	22.92	33	-10.08
				1	15	21.00	22.89	33	-10.11
				12	0	20.41	22.30	33	-10.7
				16	0	20.61	22.50	33	-10.5
	19150	1905	16QAM	1	0	20.99	22.88	33	-10.12
				1	15	20.88	22.77	33	-10.23
				12	0	20.47	22.36	33	-10.64
				16	0	20.65	22.54	33	-10.46

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Antenna gain (dBi)		1.89							
LTE Band 2_Uplink frequency band : 1850 to 1910 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
15	18675	1857.5	QPSK	1	0	22.44	24.33	33	-8.67
				1	74	21.50	23.39	33	-9.61
				36	18	21.03	22.92	33	-10.08
				75	0	20.94	22.83	33	-10.17
	18900	1880	QPSK	1	0	21.89	23.78	33	-9.22
				1	74	21.94	23.83	33	-9.17
				36	18	20.97	22.86	33	-10.14
				75	0	20.90	22.79	33	-10.21
	19125	1902.5	QPSK	1	0	21.99	23.88	33	-9.12
				1	74	22.14	24.03	33	-8.97
				36	18	20.83	22.72	33	-10.28
				75	0	20.72	22.61	33	-10.39
15	18675	1857.5	16QAM	1	0	20.98	22.87	33	-10.13
				1	15	20.91	22.80	33	-10.2
				16	0	20.85	22.74	33	-10.26
	18900	1880	16QAM	1	0	20.61	22.50	33	-10.5
				1	15	20.55	22.44	33	-10.56
				16	0	20.42	22.31	33	-10.69
	19125	1902.5	16QAM	1	0	20.65	22.54	33	-10.46
				1	15	20.45	22.34	33	-10.66
				16	0	20.39	22.28	33	-10.72

Antenna gain (dBi)		1.89							
LTE Band 2_Uplink frequency band : 1850 to 1910 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
20	18700	1860	QPSK	1	0	22.20	24.09	33	-8.91
				1	99	22.07	23.96	33	-9.04
				50	25	20.88	22.77	33	-10.23
				100	0	21.13	23.02	33	-9.98
	18900	1880	QPSK	1	0	22.14	24.03	33	-8.97
				1	99	22.15	24.04	33	-8.96
				50	25	20.98	22.87	33	-10.13
				100	0	20.94	22.83	33	-10.17
	19100	1900	QPSK	1	0	22.14	24.03	33	-8.97
				1	99	22.15	24.04	33	-8.96
				50	25	20.98	22.87	33	-10.13
				100	0	20.93	22.82	33	-10.18
20	18700	1860	16QAM	1	0	21.26	23.15	33	-9.85
				1	17	21.09	22.98	33	-10.02
				18	0	20.88	22.77	33	-10.23
	18900	1880	16QAM	1	0	21.11	23.00	33	-10
				1	17	21.00	22.89	33	-10.11
				18	0	20.72	22.61	33	-10.39
	19100	1900	16QAM	1	0	21.04	22.93	33	-10.07
				1	17	20.93	22.82	33	-10.18
				18	0	20.79	22.68	33	-10.32

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Antenna gain (dBi)		1.83							
LTE Band 4_Uplink frequency band : 1710 to 1755 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
1.4	19957	1710.7	QPSK	1	0	21.24	23.07	30	-6.93
				1	5	21.83	23.66	30	-6.34
				3	2	21.97	23.80	30	-6.2
				6	0	20.90	22.73	30	-7.27
	20175	1732.5	QPSK	1	0	21.90	23.73	30	-6.27
				1	5	22.02	23.85	30	-6.15
				3	2	21.97	23.80	30	-6.2
				6	0	20.76	22.59	30	-7.41
	20393	1754.3	QPSK	1	0	22.45	24.28	30	-5.72
				1	5	21.70	23.53	30	-6.47
				3	2	21.98	23.81	30	-6.19
				6	0	20.89	22.72	30	-7.28
1.4	19957	1710.7	16QAM	1	0	20.44	22.27	30	-7.73
				1	5	20.47	22.30	30	-7.7
				3	2	20.27	22.10	30	-7.9
				6	0	19.67	21.50	30	-8.5
	20175	1732.5	16QAM	1	0	20.18	22.01	30	-7.99
				1	5	20.69	22.52	30	-7.48
				3	2	20.87	22.70	30	-7.3
				6	0	19.82	21.65	30	-8.35
	20393	1754.3	16QAM	1	0	20.38	22.21	30	-7.79
				1	5	20.44	22.27	30	-7.73
				3	2	21.03	22.86	30	-7.14
				6	0	20.01	21.84	30	-8.16

Antenna gain (dBi)		1.83							
LTE Band 4_Uplink frequency band : 1710 to 1755 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
3	19965	1711.5	QPSK	1	0	21.92	23.75	30	-6.25
				1	14	20.73	22.56	30	-7.44
				8	4	21.05	22.88	30	-7.12
				15	0	20.99	22.82	30	-7.18
	20175	1732.5	QPSK	1	0	21.88	23.71	30	-6.29
				1	14	21.17	23.00	30	-7
				8	4	20.91	22.74	30	-7.26
				15	0	20.90	22.73	30	-7.27
	20385	1753.5	QPSK	1	0	21.96	23.79	30	-6.21
				1	14	22.23	24.06	30	-5.94
				8	4	20.81	22.64	30	-7.36
				15	0	20.83	22.66	30	-7.34
3	19965	1711.5	16QAM	1	0	20.49	22.32	30	-7.68
				1	14	20.35	22.18	30	-7.82
				8	4	20.12	21.95	30	-8.05
				15	0	19.94	21.77	30	-8.23
	20175	1732.5	16QAM	1	0	20.49	22.32	30	-7.68
				1	14	20.62	22.45	30	-7.55
				8	4	19.87	21.70	30	-8.3
				15	0	19.73	21.56	30	-8.44
	20385	1753.5	16QAM	1	0	20.40	22.23	30	-7.77
				1	14	20.74	22.57	30	-7.43
				8	4	19.74	21.57	30	-8.43
				15	0	19.87	21.70	30	-8.3

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Antenna gain (dBi)		1.83							
LTE Band 4_Uplink frequency band : 1710 to 1755 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
5	19975	1712.5	QPSK	1	0	22.10	23.93	30	-6.07
				1	24	22.14	23.97	30	-6.03
				12	6	21.17	23.00	30	-7
				25	0	20.96	22.79	30	-7.21
	20175	1732.5	QPSK	1	0	22.14	23.97	30	-6.03
				1	24	22.30	24.13	30	-5.87
				12	6	21.01	22.84	30	-7.16
				25	0	21.06	22.89	30	-7.11
	20375	1752.5	QPSK	1	0	22.12	23.95	30	-6.05
				1	24	22.43	24.26	30	-5.74
				12	6	20.73	22.56	30	-7.44
				25	0	20.92	22.75	30	-7.25
5	19975	1712.5	16QAM	1	0	20.71	22.54	30	-7.46
				1	24	20.66	22.49	30	-7.51
				12	6	19.61	21.44	30	-8.56
				25	0	19.94	21.77	30	-8.23
	20175	1732.5	16QAM	1	0	20.12	21.95	30	-8.05
				1	24	20.44	22.27	30	-7.73
				12	6	19.94	21.77	30	-8.23
				25	0	20.00	21.83	30	-8.17
	20375	1752.5	16QAM	1	0	21.46	23.29	30	-6.71
				1	24	20.67	22.50	30	-7.5
				12	6	19.85	21.68	30	-8.32
				25	0	20.18	22.01	30	-7.99

Antenna gain (dBi)		1.83							
LTE Band 4_Uplink frequency band : 1710 to 1755 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
10	20000	1715	QPSK	1	0	21.89	23.72	30	-6.28
				1	49	22.05	23.88	30	-6.12
				25	12	20.88	22.71	30	-7.29
				50	0	21.06	22.89	30	-7.11
	20175	1732.5	QPSK	1	0	21.98	23.81	30	-6.19
				1	49	21.04	22.87	30	-7.13
				25	12	20.94	22.77	30	-7.23
				50	0	20.80	22.63	30	-7.37
	20350	1750	QPSK	1	0	22.18	24.01	30	-5.99
				1	49	22.66	24.49	30	-5.51
				25	12	21.01	22.84	30	-7.16
				50	0	20.91	22.74	30	-7.26
10	20000	1715	16QAM	1	0	20.71	22.54	30	-7.46
				1	15	20.62	22.45	30	-7.55
				12	0	20.49	22.32	30	-7.68
				16	0	20.31	22.14	30	-7.86
	20175	1732.5	16QAM	1	0	20.37	22.20	30	-7.8
				1	15	20.25	22.08	30	-7.92
				12	0	20.18	22.01	30	-7.99
				16	0	20.00	21.83	30	-8.17
	20350	1750	16QAM	1	0	20.27	22.10	30	-7.9
				1	15	20.12	21.95	30	-8.05
				12	0	20.13	21.96	30	-8.04
				16	0	20.02	21.85	30	-8.15

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Antenna gain (dBi)		1.83							
LTE Band 4_Uplink frequency band : 1710 to 1755 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
15	20025	1717.5	QPSK	1	0	22.09	23.92	30	-6.08
				1	74	22.05	23.88	30	-6.12
				36	18	20.96	22.79	30	-7.21
				75	0	20.88	22.71	30	-7.29
	20175	1732.5	QPSK	1	0	20.22	22.05	30	-7.95
				1	74	22.14	23.97	30	-6.03
				36	18	20.90	22.73	30	-7.27
				75	0	20.86	22.69	30	-7.31
	20325	1747.5	QPSK	1	0	22.48	24.31	30	-5.69
				1	74	22.60	24.43	30	-5.57
				36	18	21.11	22.94	30	-7.06
				75	0	20.96	22.79	30	-7.21
15	20025	1717.5	16QAM	1	0	20.88	22.71	30	-7.29
				1	15	20.70	22.53	30	-7.47
				16	0	20.63	22.46	30	-7.54
	20175	1732.5	16QAM	1	0	20.65	22.48	30	-7.52
				1	15	20.55	22.38	30	-7.62
				16	0	20.49	22.32	30	-7.68
	20325	1747.5	16QAM	1	0	20.43	22.26	30	-7.74
				1	15	20.38	22.21	30	-7.79
				16	0	20.33	22.16	30	-7.84

Antenna gain (dBi)		1.83							
LTE Band 4_Uplink frequency band : 1710 to 1755 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
20	20050	1720	QPSK	1	0	22.12	23.95	30	-6.05
				1	99	22.24	24.07	30	-5.93
				50	25	20.99	22.82	30	-7.18
				100	0	20.97	22.80	30	-7.2
	20175	1732.5	QPSK	1	0	22.05	23.88	30	-6.12
				1	99	22.25	24.08	30	-5.92
				50	25	20.90	22.73	30	-7.27
				100	0	21.00	22.83	30	-7.17
	20300	1745	QPSK	1	0	22.53	24.36	30	-5.64
				1	99	20.49	22.32	30	-7.68
				50	25	21.06	22.89	30	-7.11
				100	0	21.18	23.01	30	-6.99
20	20050	1720	16QAM	1	0	20.83	22.66	30	-7.34
				1	17	20.80	22.63	30	-7.37
				18	0	20.68	22.51	30	-7.49
	20175	1732.5	16QAM	1	0	20.39	22.22	30	-7.78
				1	17	20.15	21.98	30	-8.02
				18	0	20.00	21.83	30	-8.17
	20300	1745	16QAM	1	0	21.13	22.96	30	-7.04
				1	17	20.73	22.56	30	-7.44
				18	0	20.55	22.38	30	-7.62

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Antenna gain (dBi)		-0.63								
LTE Band 12_Uplink frequency band : 699 to 716 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	ERP Limit (dBm)	Margin (dB)
1.4	23017	699.7	QPSK	1	0	22.24	19.46	21.61	34.77	-15.31
				1	5	22.23	19.45	21.60	34.77	-15.32
				3	2	22.28	19.50	21.65	34.77	-15.27
				6	0	21.28	18.50	20.65	34.77	-16.27
	23095	707.5	QPSK	1	0	22.30	19.52	21.67	34.77	-15.25
				1	5	22.29	19.51	21.66	34.77	-15.26
				3	2	22.23	19.45	21.60	34.77	-15.32
				6	0	21.37	18.59	20.74	34.77	-16.18
	23173	715.5	QPSK	1	0	22.37	19.59	21.74	34.77	-15.18
				1	5	22.38	19.60	21.75	34.77	-15.17
				3	2	22.41	19.63	21.78	34.77	-15.14
				6	0	21.36	18.58	20.73	34.77	-16.19
1.4	23017	699.7	16QAM	1	0	21.10	18.32	20.47	34.77	-16.45
				1	5	21.02	18.24	20.39	34.77	-16.53
				3	2	20.97	18.19	20.34	34.77	-16.58
				6	0	19.88	17.10	19.25	34.77	-17.67
	23095	707.5	16QAM	1	0	20.74	17.96	20.11	34.77	-16.81
				1	5	20.89	18.11	20.26	34.77	-16.66
				3	2	20.74	17.96	20.11	34.77	-16.81
				6	0	20.18	17.40	19.55	34.77	-17.37
	23173	715.5	16QAM	1	0	20.90	18.12	20.27	34.77	-16.65
				1	5	20.70	17.92	20.07	34.77	-16.85
				3	2	20.96	18.18	20.33	34.77	-16.59
				6	0	20.29	17.51	19.66	34.77	-17.26

Antenna gain (dBi)		-0.63								
LTE Band 12_Uplink frequency band : 699 to 716 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	ERP Limit (dBm)	Margin (dB)
3	23025	700.5	QPSK	1	0	22.40	19.62	21.77	34.77	-15.15
				1	14	22.42	19.64	21.79	34.77	-15.13
				8	4	21.29	18.51	20.66	34.77	-16.26
				15	0	21.23	18.45	20.60	34.77	-16.32
	23095	707.5	QPSK	1	0	22.36	19.58	21.73	34.77	-15.19
				1	14	22.33	19.55	21.70	34.77	-15.22
				8	4	21.30	18.52	20.67	34.77	-16.25
				15	0	21.25	18.47	20.62	34.77	-16.30
	23165	714.5	QPSK	1	0	22.36	19.58	21.73	34.77	-15.19
				1	14	22.30	19.52	21.67	34.77	-15.25
				8	4	21.09	18.31	20.46	34.77	-16.46
				15	0	21.01	18.23	20.38	34.77	-16.54
3	23025	700.5	16QAM	1	0	21.11	18.33	20.48	34.77	-16.44
				1	14	21.48	18.70	20.85	34.77	-16.07
				8	4	20.16	17.38	19.53	34.77	-17.39
				15	0	20.19	17.41	19.56	34.77	-17.36
	23095	707.5	16QAM	1	0	20.93	18.15	20.30	34.77	-16.62
				1	14	21.02	18.24	20.39	34.77	-16.53
				8	4	20.15	17.37	19.52	34.77	-17.40
				15	0	20.34	17.56	19.71	34.77	-17.21
	23165	714.5	16QAM	1	0	20.97	18.19	20.34	34.77	-16.58
				1	14	21.11	18.33	20.48	34.77	-16.44
				8	4	20.28	17.50	19.65	34.77	-17.27
				15	0	20.33	17.55	19.70	34.77	-17.22

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Antenna gain (dBi)		-0.63								
LTE Band 12_Uplink frequency band : 699 to 716 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	ERP Limit (dBm)	Margin (dB)
5	23035	701.5	QPSK	1	0	22.30	19.52	21.67	34.77	-15.25
				1	24	22.43	19.65	21.80	34.77	-15.12
				12	6	21.50	18.72	20.87	34.77	-16.05
				25	0	21.42	18.64	20.79	34.77	-16.13
	23095	707.5	QPSK	1	0	22.38	19.60	21.75	34.77	-15.17
				1	24	22.41	19.63	21.78	34.77	-15.14
				12	6	21.32	18.54	20.69	34.77	-16.23
				25	0	21.27	18.49	20.64	34.77	-16.28
	23155	713.5	QPSK	1	0	22.35	19.57	21.72	34.77	-15.20
				1	24	22.15	19.37	21.52	34.77	-15.40
				12	6	21.26	18.48	20.63	34.77	-16.29
				25	0	21.28	18.50	20.65	34.77	-16.27
5	23035	701.5	16QAM	1	0	20.66	17.88	20.03	34.77	-16.89
				1	24	20.88	18.10	20.25	34.77	-16.67
				12	6	20.23	17.45	19.60	34.77	-17.32
				25	0	20.38	17.60	19.75	34.77	-17.17
	23095	707.5	16QAM	1	0	20.38	17.60	19.75	34.77	-17.17
				1	24	20.43	17.65	19.80	34.77	-17.12
				12	6	20.00	17.22	19.37	34.77	-17.55
				25	0	20.31	17.53	19.68	34.77	-17.24
	23155	713.5	16QAM	1	0	20.56	17.78	19.93	34.77	-16.99
				1	24	20.94	18.16	20.31	34.77	-16.61
				12	6	20.11	17.33	19.48	34.77	-17.44
				25	0	20.24	17.46	19.61	34.77	-17.31

Antenna gain (dBi)		-0.63								
LTE Band 12_Uplink frequency band : 699 to 716 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	ERP Limit (dBm)	Margin (dB)
10	23060	704	QPSK	1	0	22.17	19.39	21.54	34.77	-15.38
				1	49	22.48	19.70	21.85	34.77	-15.07
				25	12	21.35	18.57	20.72	34.77	-16.20
				50	0	21.28	18.50	20.65	34.77	-16.27
	23095	707.5	QPSK	1	0	22.23	19.45	21.60	34.77	-15.32
				1	49	21.69	18.91	21.06	34.77	-15.86
				25	12	21.31	18.53	20.68	34.77	-16.24
				50	0	21.28	18.50	20.65	34.77	-16.27
	23130	711	QPSK	1	0	22.30	19.52	21.67	34.77	-15.25
				1	49	22.31	19.53	21.68	34.77	-15.24
				25	12	21.50	18.72	20.87	34.77	-16.05
				50	0	21.29	18.51	20.66	34.77	-16.26
10	23060	704	16QAM	1	0	20.86	18.08	20.23	34.77	-16.69
				1	15	20.72	17.94	20.09	34.77	-16.83
				12	0	20.68	17.90	20.05	34.77	-16.87
				16	0	20.70	17.92	20.07	34.77	-16.85
	23095	707.5	16QAM	1	0	21.01	18.23	20.38	34.77	-16.54
				1	15	20.83	18.05	20.20	34.77	-16.72
				12	0	20.89	18.11	20.26	34.77	-16.66
				16	0	20.45	17.67	19.82	34.77	-17.10
	23130	711	16QAM	1	0	20.91	18.13	20.28	34.77	-16.64
				1	15	20.73	17.95	20.10	34.77	-16.82
				12	0	20.65	17.87	20.02	34.77	-16.90
				16	0	20.44	17.66	19.81	34.77	-17.11

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Antenna gain (dBi)		-0.63								
LTE Band 17_Uplink frequency band : 704 to 716 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	ERP Limit (dBm)	Margin (dB)
5	23755	706.5	QPSK	1	0	22.03	19.25	21.40	34.77	-15.52
				1	24	22.24	19.46	21.61	34.77	-15.31
				12	6	21.37	18.59	20.74	34.77	-16.18
				25	0	21.31	18.53	20.68	34.77	-16.24
	23790	710	QPSK	1	0	22.12	19.34	21.49	34.77	-15.43
				1	24	22.54	19.76	21.91	34.77	-15.01
				12	6	21.37	18.59	20.74	34.77	-16.18
				25	0	21.34	18.56	20.71	34.77	-16.21
	23825	713.5	QPSK	1	0	22.41	19.63	21.78	34.77	-15.14
				1	24	22.35	19.57	21.72	34.77	-15.20
				12	6	21.35	18.57	20.72	34.77	-16.20
				25	0	21.35	18.57	20.72	34.77	-16.20
5	23755	706.5	16QAM	1	0	20.75	17.97	20.12	34.77	-16.80
				1	24	20.69	17.91	20.06	34.77	-16.86
				12	6	20.22	17.44	19.59	34.77	-17.33
				25	0	20.24	17.46	19.61	34.77	-17.31
	23790	710	16QAM	1	0	20.98	18.20	20.35	34.77	-16.57
				1	24	21.22	18.44	20.59	34.77	-16.33
				12	6	20.22	17.44	19.59	34.77	-17.33
				25	0	20.18	17.40	19.55	34.77	-17.37
	23825	713.5	16QAM	1	0	21.28	18.50	20.65	34.77	-16.27
				1	24	21.04	18.26	20.41	34.77	-16.51
				12	6	20.25	17.47	19.62	34.77	-17.30
				25	0	20.28	17.50	19.65	34.77	-17.27

Antenna gain (dBi)		-0.63								
LTE Band 17_Uplink frequency band : 704 to 716 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	ERP Limit (dBm)	Margin (dB)
10	23780	709	QPSK	1	0	22.60	19.82	21.97	34.77	-14.95
				1	49	22.66	19.88	22.03	34.77	-14.89
				25	12	21.39	18.61	20.76	34.77	-16.16
				50	0	21.43	18.65	20.80	34.77	-16.12
	23790	710	QPSK	1	0	22.28	19.50	21.65	34.77	-15.27
				1	49	22.28	19.50	21.65	34.77	-15.27
				25	12	21.41	18.63	20.78	34.77	-16.14
				50	0	21.40	18.62	20.77	34.77	-16.15
	23800	711	QPSK	1	0	22.53	19.75	21.90	34.77	-15.02
				1	49	22.45	19.67	21.82	34.77	-15.10
				25	12	21.38	18.60	20.75	34.77	-16.17
				50	0	21.34	18.56	20.71	34.77	-16.21
10	23780	709	16QAM	1	0	21.48	18.70	20.85	34.77	-16.07
				1	15	21.20	18.42	20.57	34.77	-16.35
				12	0	20.89	18.11	20.26	34.77	-16.66
				16	0	20.92	18.14	20.29	34.77	-16.63
	23790	710	16QAM	1	0	20.04	17.26	19.41	34.77	-17.51
				1	15	20.15	17.37	19.52	34.77	-17.40
				12	0	20.10	17.32	19.47	34.77	-17.45
				16	0	19.92	17.14	19.29	34.77	-17.63
	23800	711	16QAM	1	0	20.96	18.18	20.33	34.77	-16.59
				1	15	20.82	18.04	20.19	34.77	-16.73
				12	0	20.68	17.90	20.05	34.77	-16.87
				16	0	20.59	17.81	19.96	34.77	-16.96

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Antenna gain (dBi)		1.83							
LTE Band 66_Uplink frequency band : 1710 to 1780 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
1.4	131979	1710.7	QPSK	1	0	21.93	23.76	30	-6.24
				1	5	21.92	23.75	30	-6.25
				3	2	21.90	23.73	30	-6.27
				6	0	20.84	22.67	30	-7.33
	132322	1745	QPSK	1	0	21.76	23.59	30	-6.41
				1	5	21.84	23.67	30	-6.33
				3	2	21.92	23.75	30	-6.25
				6	0	21.02	22.85	30	-7.15
	132665	1779.3	QPSK	1	0	21.71	23.54	30	-6.46
				1	5	21.70	23.53	30	-6.47
				3	2	21.71	23.54	30	-6.46
				6	0	20.57	22.40	30	-7.6
1.4	131979	1710.7	16QAM	1	0	20.66	22.49	30	-7.51
				1	5	20.59	22.42	30	-7.58
				3	2	20.83	22.66	30	-7.34
				6	0	19.77	21.60	30	-8.4
	132322	1745	16QAM	1	0	20.64	22.47	30	-7.53
				1	5	20.66	22.49	30	-7.51
				3	2	20.50	22.33	30	-7.67
				6	0	20.01	21.84	30	-8.16
	132665	1779.3	16QAM	1	0	20.21	22.04	30	-7.96
				1	5	20.28	22.11	30	-7.89
				3	2	20.28	22.11	30	-7.89
				6	0	19.47	21.30	30	-8.7

Antenna gain (dBi)		1.83							
LTE Band 66_Uplink frequency band : 1710 to 1780 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
3	131987	1711.5	QPSK	1	0	21.85	23.68	30	-6.32
				1	14	21.64	23.47	30	-6.53
				8	4	20.90	22.73	30	-7.27
				15	0	20.91	22.74	30	-7.26
	132322	1745	QPSK	1	0	22.13	23.96	30	-6.04
				1	14	21.84	23.67	30	-6.33
				8	4	21.08	22.91	30	-7.09
				15	0	21.06	22.89	30	-7.11
	132657	1778.5	QPSK	1	0	21.72	23.55	30	-6.45
				1	14	21.70	23.53	30	-6.47
				8	4	20.67	22.50	30	-7.5
				15	0	20.69	22.52	30	-7.48
3	131987	1711.5	16QAM	1	0	20.52	22.35	30	-7.65
				1	14	20.85	22.68	30	-7.32
				8	4	19.66	21.49	30	-8.51
				15	0	19.78	21.61	30	-8.39
	132322	1745	16QAM	1	0	21.03	22.86	30	-7.14
				1	14	21.00	22.83	30	-7.17
				8	4	20.06	21.89	30	-8.11
				15	0	20.03	21.86	30	-8.14
	132657	1778.5	16QAM	1	0	20.58	22.41	30	-7.59
				1	14	20.33	22.16	30	-7.84
				8	4	19.53	21.36	30	-8.64
				15	0	19.44	21.27	30	-8.73

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LTE Band 66_Uplink frequency band : 1710 to 1780 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
5	131997	1712.5	QPSK	1	0	21.72	23.55	30	-6.45
				1	24	22.06	23.89	30	-6.11
				12	6	20.96	22.79	30	-7.21
				25	0	21.08	22.91	30	-7.09
	132322	1745	QPSK	1	0	22.19	24.02	30	-5.98
				1	24	21.87	23.70	30	-6.3
				12	6	21.04	22.87	30	-7.13
				25	0	21.11	22.94	30	-7.06
	132647	1777.5	QPSK	1	0	21.89	23.72	30	-6.28
				1	24	21.47	23.30	30	-6.7
				12	6	20.61	22.44	30	-7.56
				25	0	20.57	22.40	30	-7.6
5	131997	1712.5	16QAM	1	0	20.73	22.56	30	-7.44
				1	24	20.68	22.51	30	-7.49
				12	6	20.04	21.87	30	-8.13
				25	0	19.99	21.82	30	-8.18
	132322	1745	16QAM	1	0	20.84	22.67	30	-7.33
				1	24	20.34	22.17	30	-7.83
				12	6	19.95	21.78	30	-8.22
				25	0	20.32	22.15	30	-7.85
	132647	1777.5	16QAM	1	0	20.27	22.10	30	-7.9
				1	24	20.20	22.03	30	-7.97
				12	6	19.47	21.30	30	-8.7
				25	0	19.60	21.43	30	-8.57

Antenna gain (dBi)		1.83							
LTE Band 66_Uplink frequency band : 1710 to 1780 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
10	132022	1715	QPSK	1	0	21.84	23.67	30	-6.33
				1	49	22.13	23.96	30	-6.04
				25	12	20.99	22.82	30	-7.18
				50	0	20.97	22.80	30	-7.2
	132322	1745	QPSK	1	0	21.91	23.74	30	-6.26
				1	49	22.55	24.38	30	-5.62
				25	12	21.14	22.97	30	-7.03
				50	0	21.18	23.01	30	-6.99
	132622	1775	QPSK	1	0	20.49	22.32	30	-7.68
				1	49	21.76	23.59	30	-6.41
				25	12	20.67	22.50	30	-7.5
				50	0	20.66	22.49	30	-7.51
10	132022	1715	16QAM	1	0	20.95	22.78	30	-7.22
				1	15	20.67	22.50	30	-7.5
				12	0	20.73	22.56	30	-7.44
				16	0	20.53	22.36	30	-7.64
	132322	1745	16QAM	1	0	21.37	23.20	30	-6.8
				1	15	20.81	22.64	30	-7.36
				12	0	20.69	22.52	30	-7.48
				16	0	20.73	22.56	30	-7.44
	132622	1775	16QAM	1	0	20.93	22.76	30	-7.24
				1	15	20.88	22.71	30	-7.29
				12	0	20.72	22.55	30	-7.45
				16	0	20.69	22.52	30	-7.48

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Antenna gain (dBi)		1.83							
LTE Band 66_Uplink frequency band : 1710 to 1780 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
15	132047	1717.5	QPSK	1	0	21.86	23.69	30	-6.31
				1	74	22.24	24.07	30	-5.93
				36	18	21.08	22.91	30	-7.09
				75	0	20.78	22.61	30	-7.39
	132322	1745	QPSK	1	0	22.28	24.11	30	-5.89
				1	74	22.69	24.52	30	-5.48
				36	18	21.14	22.97	30	-7.03
				75	0	21.20	23.03	30	-6.97
	132597	1772.5	QPSK	1	0	22.10	23.93	30	-6.07
				1	74	21.65	23.48	30	-6.52
				36	18	20.72	22.55	30	-7.45
				75	0	20.66	22.49	30	-7.51
15	132047	1717.5	16QAM	1	0	20.85	22.68	30	-7.32
				1	15	20.73	22.56	30	-7.44
				16	0	20.61	22.44	30	-7.56
	132322	1745	16QAM	1	0	20.92	22.75	30	-7.25
				1	15	20.70	22.53	30	-7.47
				16	0	20.71	22.54	30	-7.46
	132597	1772.5	16QAM	1	0	20.82	22.65	30	-7.35
				1	15	20.70	22.53	30	-7.47
				16	0	20.57	22.40	30	-7.6

Antenna gain (dBi)		1.83							
LTE Band 66_Uplink frequency band : 1710 to 1780 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
20	132072	1720	QPSK	1	0	21.98	23.81	30	-6.19
				1	99	21.93	23.76	30	-6.24
				50	25	21.05	22.88	30	-7.12
				100	0	20.97	22.80	30	-7.2
	132322	1745	QPSK	1	0	22.14	23.97	30	-6.03
				1	99	22.33	24.16	30	-5.84
				50	25	21.07	22.90	30	-7.1
				100	0	21.18	23.01	30	-6.99
	132572	1770	QPSK	1	0	22.16	23.99	30	-6.01
				1	99	21.57	23.40	30	-6.6
				100	0	19.99	21.82	30	-8.18
20	132072	1720	16QAM	1	0	20.75	22.58	30	-7.42
				1	17	20.63	22.46	30	-7.54
				18	0	20.45	22.28	30	-7.72
	132322	1745	16QAM	1	0	21.14	22.97	30	-7.03
				1	17	20.81	22.64	30	-7.36
				18	0	20.60	22.43	30	-7.57
	132572	1770	16QAM	1	0	20.85	22.68	30	-7.32
				1	17	20.62	22.45	30	-7.55
				18	0	20.45	22.28	30	-7.72

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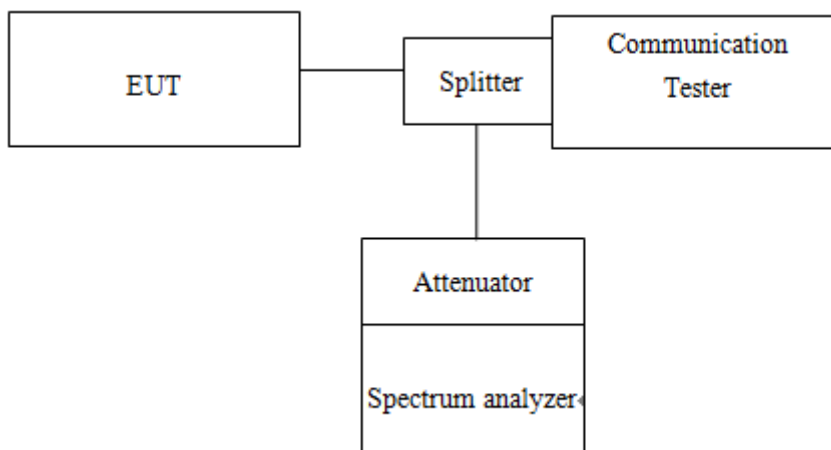


## 7 OCCUPIED BANDWIDTH MEASUREMENT

### 7.1 Standard Applicable

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.

### 7.2 Test Set-up



### 7.3 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%.

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## 7.4 Measurement Equipment Used

Conducted Emission Test Site: Conducted B					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	KEYSIGHT	N9010A	MY51440113	07/13/2021	07/12/2022
Radio Communication Analyzer	Anritsu	MT8820C	6201107337	07/28/2021	07/27/2022
Attenuator	Marvelous	MVE2213-10	RF05	11/19/2020	11/18/2021
DC Block	PASTER-NACK	PE8210	RF157	11/19/2020	11/18/2021
Splitter	Woken	DOM35LW1A2	RF255	11/19/2020	11/18/2021
Coaxial Cables	Woken	00100A1F1A185C	RF54	11/19/2020	11/18/2021
Coaxial Cables	Woken	00100A1F1A185C	RF55	11/19/2020	11/18/2021
Coaxial Cables	Woken	00100A1F1A185C	RF71	11/19/2020	11/18/2021
Coaxial Cables	Woken	00100A1F1A185C	RF72	11/19/2020	11/18/2021
DC Power Supply	Agilent	E3640A	MY53140006	05/28/2021	05/27/2022
Temperature Chamber	TERCHY	MHK-120LK	1020582	07/01/2021	06/30/2022
Test Software	SGS	Radio Test Software	Ver.21	N.C.R	N.C.R

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## 7.5 Measurement Result

LTE BAND 2 Channel bandwidth: 1.4MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1850.7	18607	1.0899	1.0897	1.269	1.292
1880.0	18900	1.0887	1.0893	1.263	1.290
1909.3	19193	1.0876	1.0884	1.264	1.287

LTE BAND 2 Channel bandwidth: 3MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1851.5	18615	2.6930	2.6878	2.934	2.962
1880.0	18900	2.6868	2.6922	2.939	2.964
1908.5	19185	2.6932	2.6918	2.947	2.946

LTE BAND 2 Channel bandwidth: 5MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1852.5	18625	4.4900	4.4944	4.946	5.011
1880.0	18900	4.4990	4.4945	5.020	5.024
1907.5	19175	4.5078	4.4873	5.048	5.009

LTE BAND 2 Channel bandwidth: 10MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1855.0	18650	8.9385	3.0906	9.774	4.124
1880.0	18900	8.9822	3.0623	9.865	4.005
1905.0	19150	8.9831	3.0531	9.924	4.103

LTE BAND 2 Channel bandwidth: 15MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1857.5	18675	13.329	3.227	14.36	4.60
1880.0	18900	13.445	3.210	14.52	4.27
1902.5	19125	13.369	3.179	14.48	4.57

LTE BAND 2 Channel bandwidth: 20MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1860.0	18700	17.714	3.775	18.97	5.26
1880.0	18900	17.940	3.740	19.51	5.15
1900.0	19100	17.684	3.745	19.10	5.26

LTE BAND 4 Channel bandwidth: 1.4MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1710.7	19957	1.0907	1.0884	1.274	1.281
1732.5	20175	1.0892	1.0857	1.299	1.279
1754.3	20393	1.0899	1.0876	1.285	1.284

LTE BAND 4 Channel bandwidth: 3MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1711.5	19965	2.6837	2.6925	2.942	2.949
1732.5	20175	2.7105	2.6937	2.888	2.961
1753.5	20385	2.6881	2.6924	2.964	2.963

LTE BAND 4 Channel bandwidth: 5MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1712.5	19975	4.5000	4.4925	5.010	5.017
1732.5	20175	4.5062	4.4866	4.984	4.996
1752.5	20375	4.5010	4.4938	4.980	4.999

LTE BAND 4 Channel bandwidth: 10MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1715.0	20000	8.9608	3.0635	9.809	4.053
1732.5	20175	8.9578	3.0463	9.850	3.766
1750.0	20350	8.9784	3.0519	9.878	4.131

LTE BAND 4 Channel bandwidth: 15MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1717.5	20025	13.357	3.216	14.41	4.57
1732.5	20175	13.405	3.165	14.55	4.33
1747.5	20325	13.438	3.176	14.55	4.35

LTE BAND 4 Channel bandwidth: 20MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1720.0	20050	17.771	3.773	19.04	5.43
1732.5	20175	17.870	3.705	19.19	5.22
1745.0	20300	17.906	3.777	19.31	5.34

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LTE BAND 12 Channel bandwidth: 1.4MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
699.7	23017	1.0905	1.0856	1.270	1.264
707.5	23095	1.0896	1.0887	1.274	1.255
715.3	23173	1.0905	1.0873	1.266	1.271

LTE BAND 12 Channel bandwidth: 3MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
700.5	23025	2.6892	2.6907	2.952	2.969
707.5	23095	2.6907	2.6924	2.951	2.956
714.5	23165	2.6874	2.6898	2.950	2.962

LTE BAND 12 Channel bandwidth: 5MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
701.5	23035	4.4925	4.4924	4.984	4.968
707.5	23095	4.4955	4.4845	4.984	4.948
713.5	23155	4.4967	4.4842	4.970	4.946

LTE BAND 12 Channel bandwidth: 10MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
704.0	23060	8.9509	3.0318	9.770	3.775
707.5	23095	8.9631	3.0185	9.801	3.691
711.0	23130	8.9803	3.0436	9.879	3.705

LTE BAND 17 Channel bandwidth: 5MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
706.5	23755	4.4889	4.4856	4.955	4.904
710.0	23790	4.4938	4.4941	4.994	4.986
713.5	23825	4.4999	4.4877	4.956	4.936

LTE BAND 17 Channel bandwidth: 10MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
709.0	23780	8.9892	3.0396	9.819	3.732
710.0	23790	8.9733	3.0291	9.871	3.762
711.0	23800	8.9907	3.0273	9.874	3.755

LTE BAND 66 Channel bandwidth: 1.4MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1710.7	131979	1.0893	1.0875	1.280	1.258
1745.0	132322	1.0901	1.0902	1.291	1.263
1779.3	132665	1.0905	1.0900	1.287	1.270

LTE BAND 66 Channel bandwidth: 3MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1711.5	131987	2.6904	2.6916	2.949	2.965
1745.0	132322	2.6962	2.6935	2.949	2.963
1778.5	132657	2.6945	2.6917	2.942	2.958

LTE BAND 66 Channel bandwidth: 5MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1712.5	131997	4.5034	4.4868	4.988	4.964
1745.0	132322	4.4951	4.4931	4.995	4.993
1777.5	132647	4.4992	4.4910	4.960	4.975

LTE BAND 66 Channel bandwidth: 10MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1715.0	132022	8.9573	3.0322	9.735	3.700
1745.0	132322	8.9544	3.0322	9.861	3.715
1775.0	132622	8.9558	3.0184	9.773	3.793

LTE BAND 66 Channel bandwidth: 15MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1717.5	132047	13.371	3.160	14.39	4.07
1745.0	132322	13.431	3.183	14.57	4.14
1772.5	132597	13.342	3.163	14.39	4.12

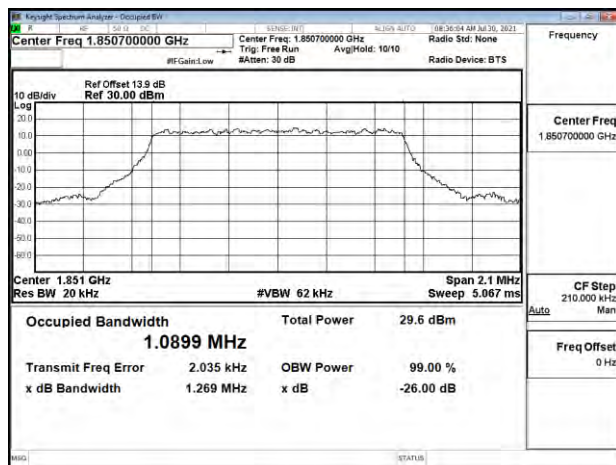
LTE BAND 66 Channel bandwidth: 20MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1720.0	132072	17.778	3.690	19.07	4.74
1745.0	132322	17.885	3.737	19.35	5.32
1770.0	132572	17.767	3.672	19.09	4.92

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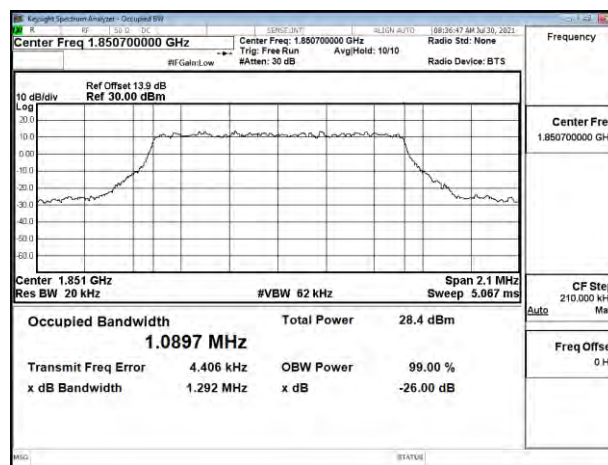
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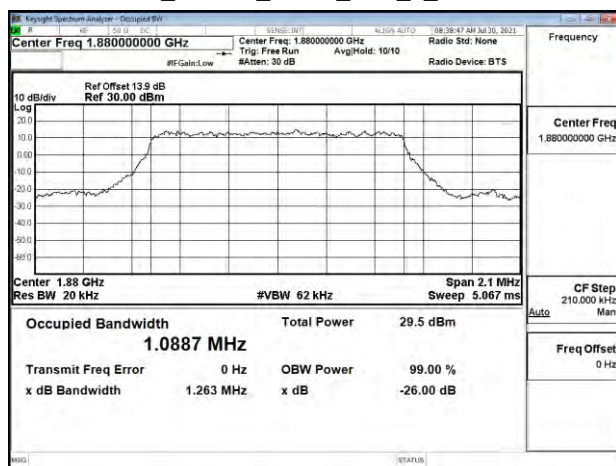
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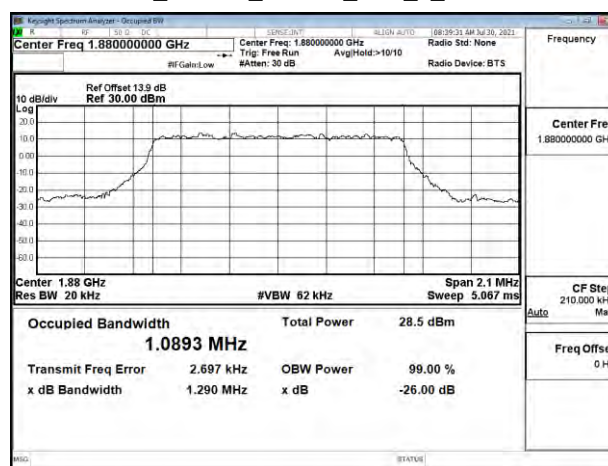
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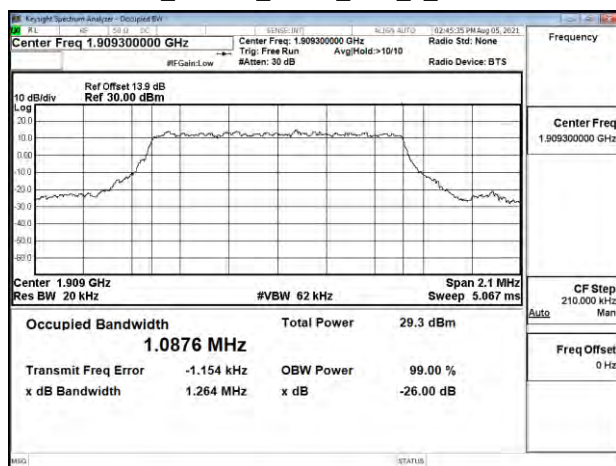
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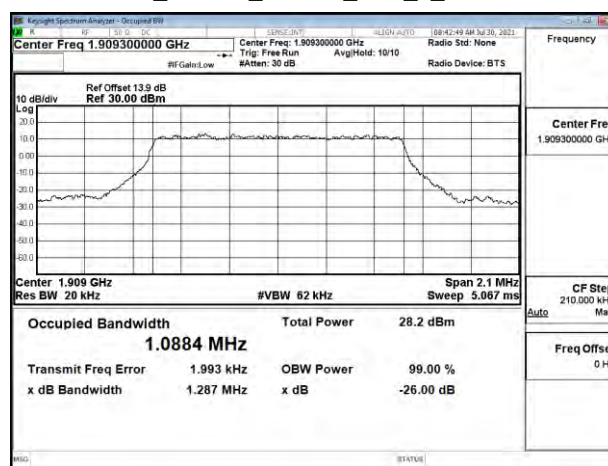
Band2\_1.4MHz\_16QAM\_RB6\_0\_CH18900



Band2\_1.4MHz\_QPSK\_RB6\_0\_CH19193



Band2\_1.4MHz\_16QAM\_RB6\_0\_CH19193



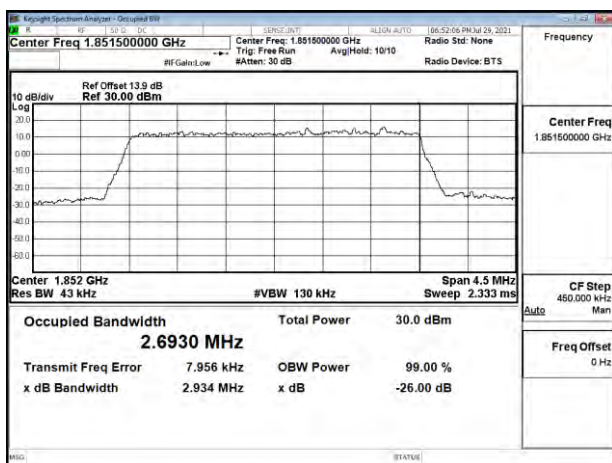
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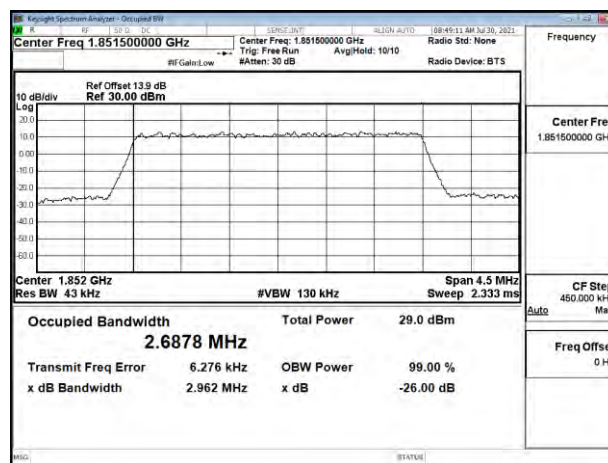
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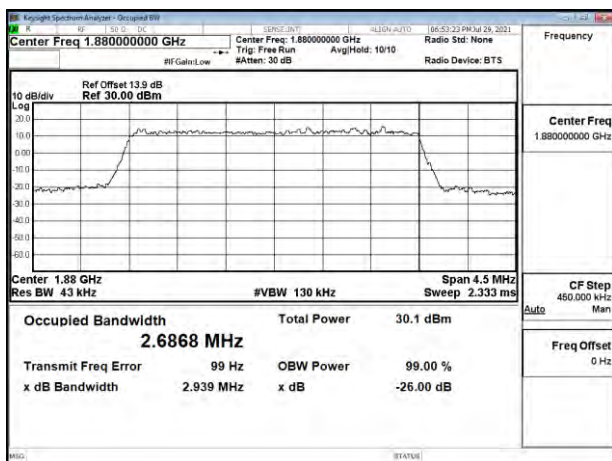
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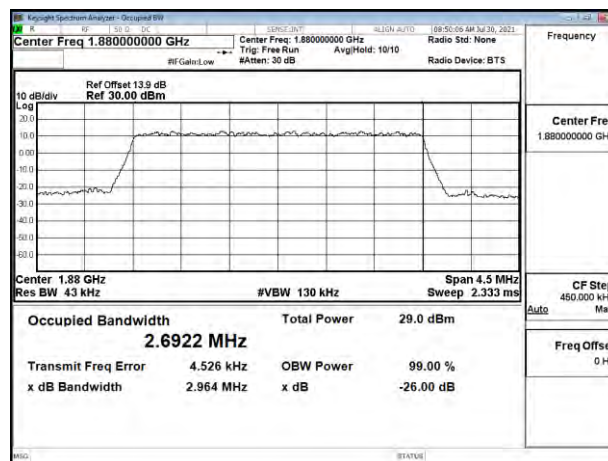
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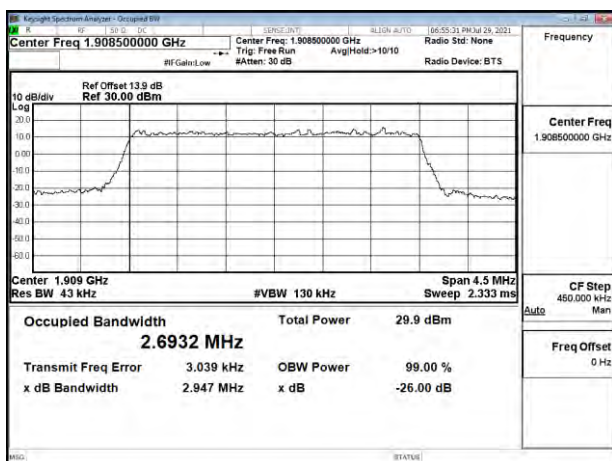
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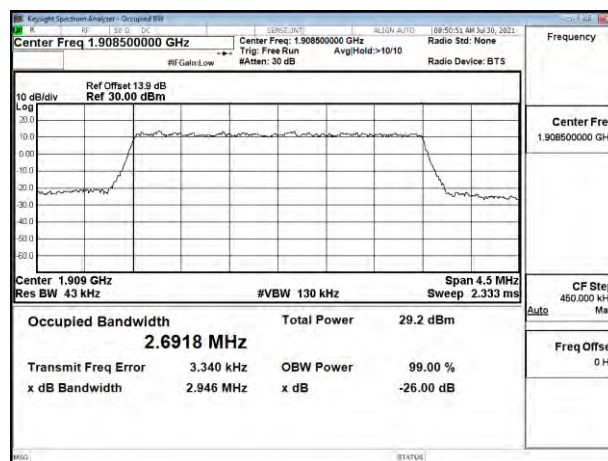
Band2\_3MHz\_16QAM\_RB15\_0\_CH18900



Band2\_3MHz\_QPSK\_RB15\_0\_CH19185



Band2\_3MHz\_16QAM\_RB15\_0\_CH19185

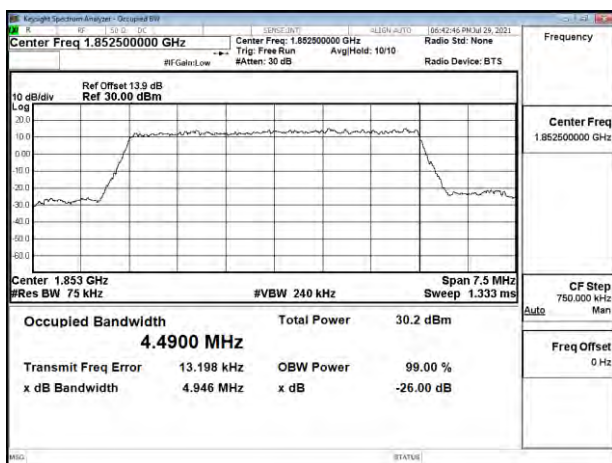


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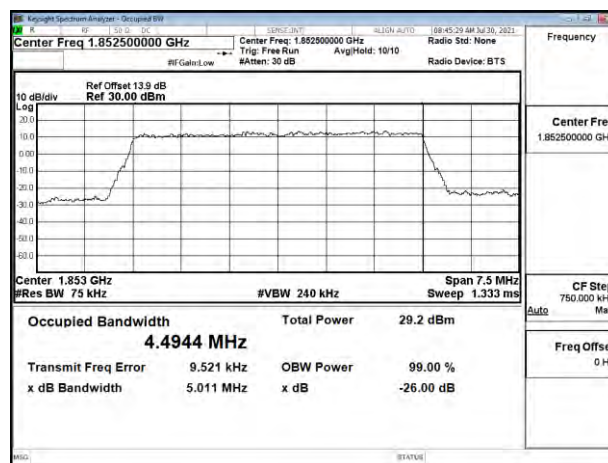
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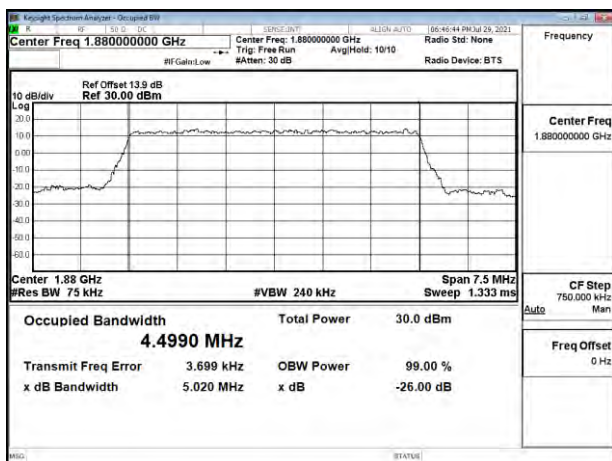
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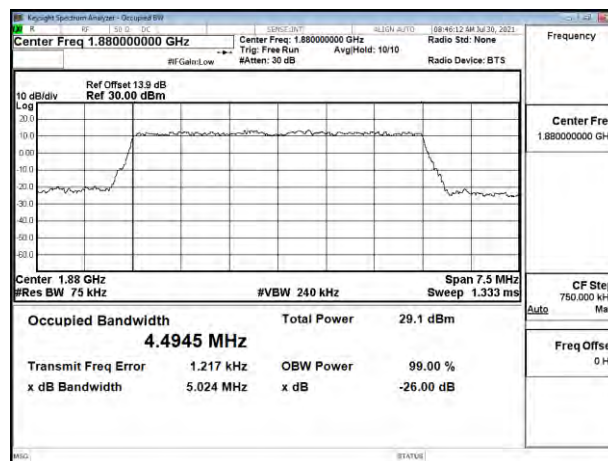
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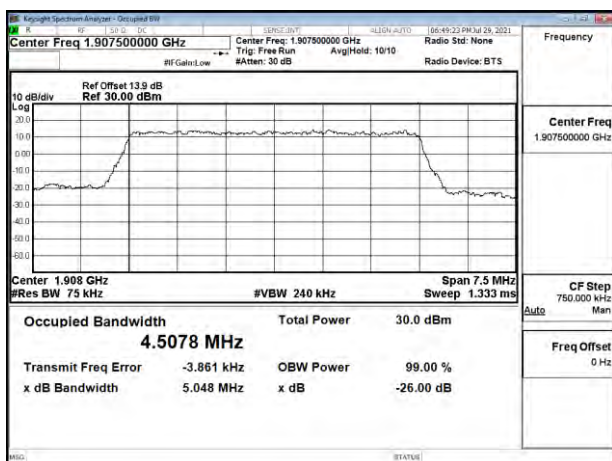
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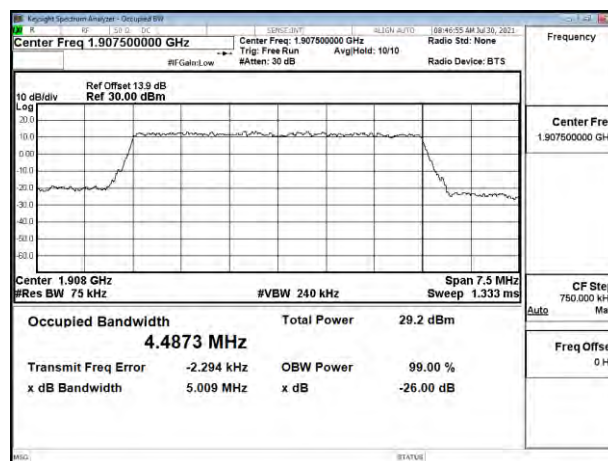
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Band2\_5MHz\_QPSK\_RB25\_0\_CH19175



Band2\_5MHz\_16QAM\_RB25\_0\_CH19175



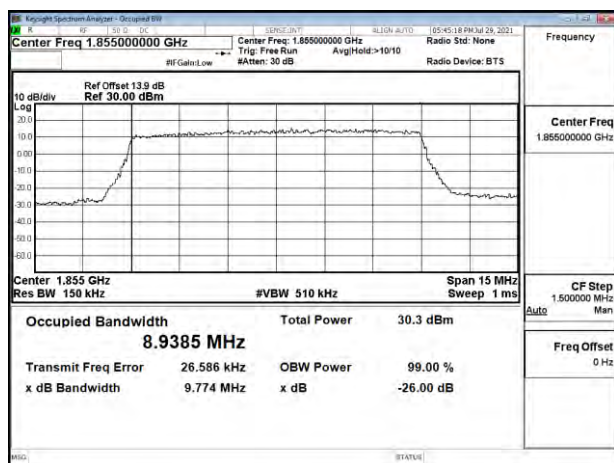
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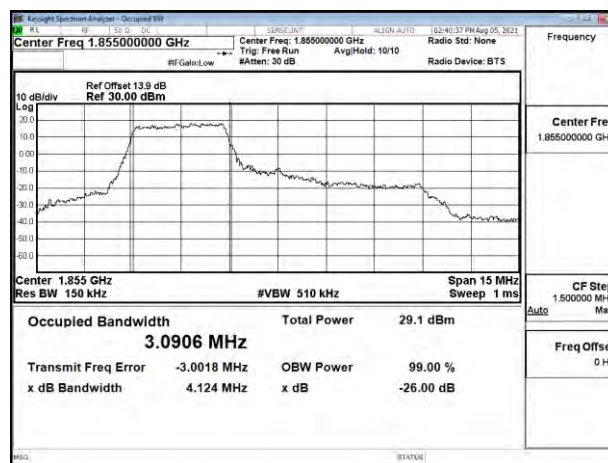
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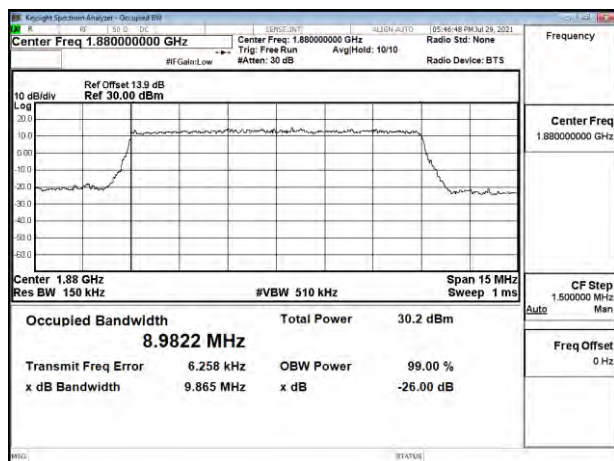
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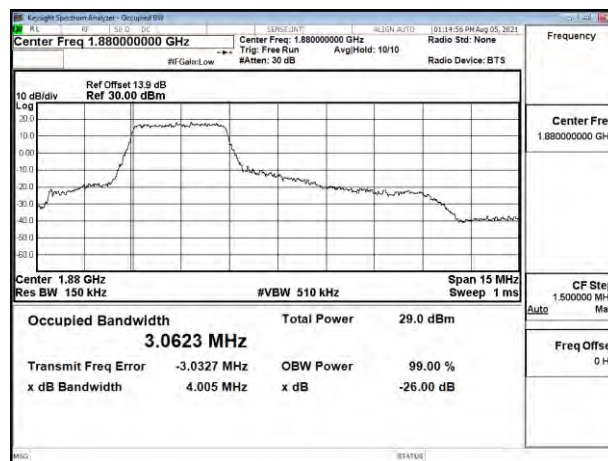
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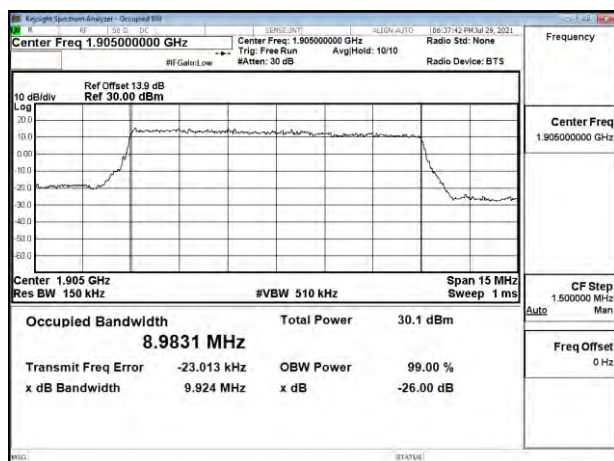
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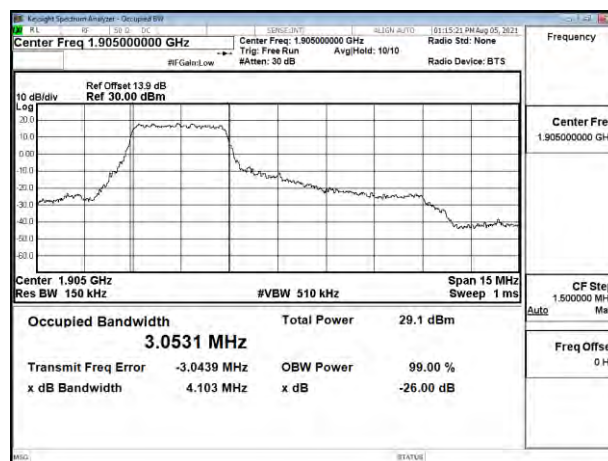
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Band2\_10MHz\_QPSK\_RB50\_0\_CH19150



Band2\_10MHz\_16QAM\_RB16\_0\_CH19150



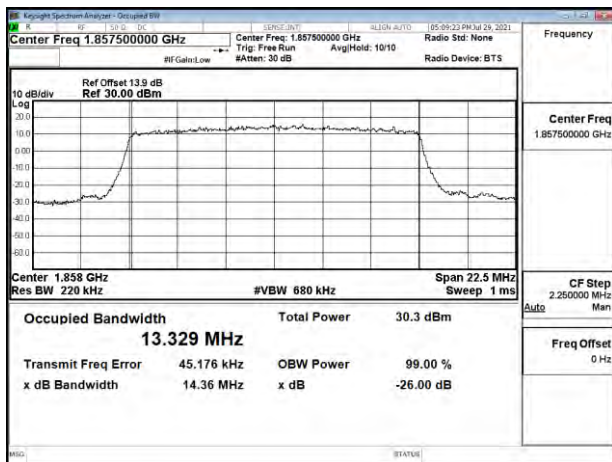
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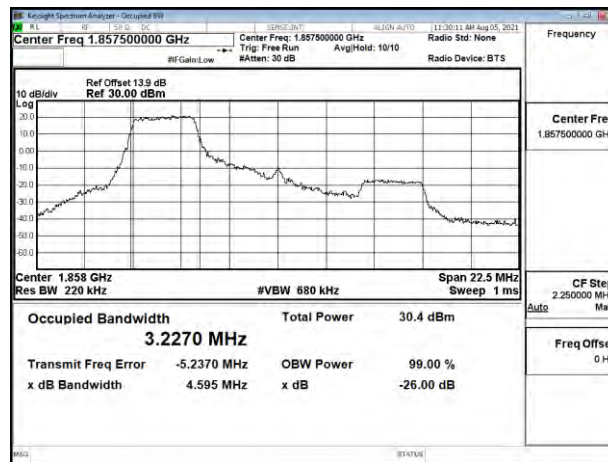
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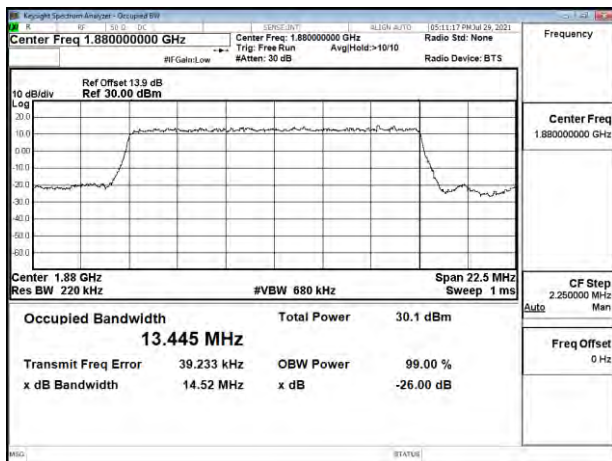
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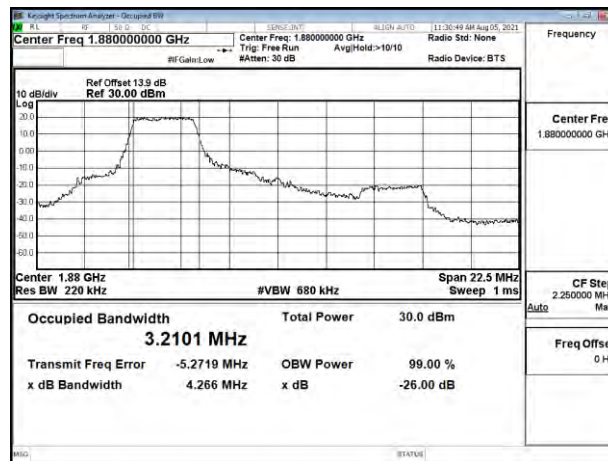
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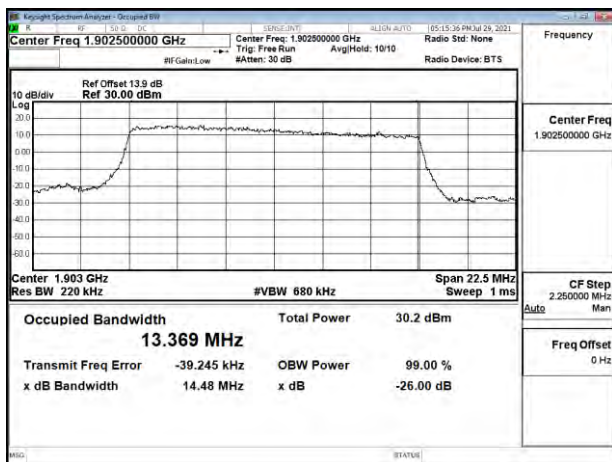
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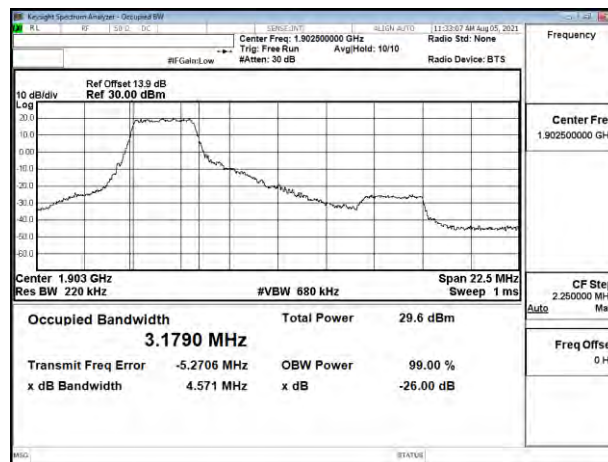
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Band2\_15MHz\_QPSK\_RB75\_0\_CH19125



Band2\_15MHz\_16QAM\_RB16\_0\_CH19125

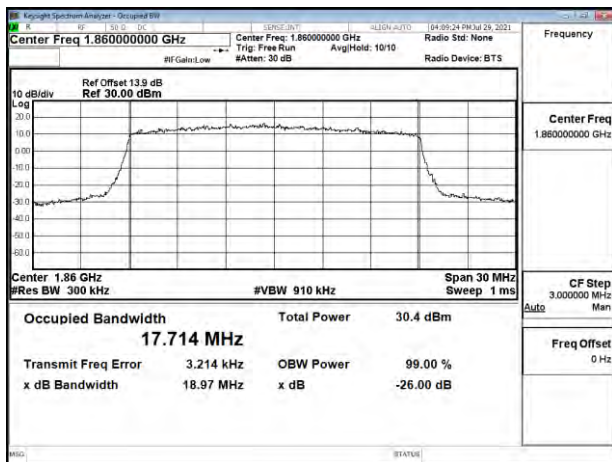


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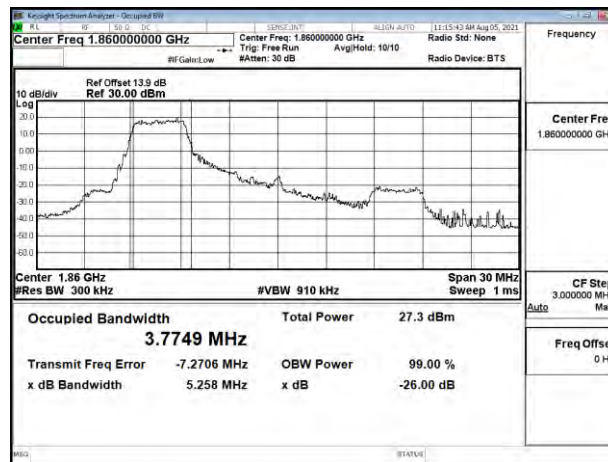
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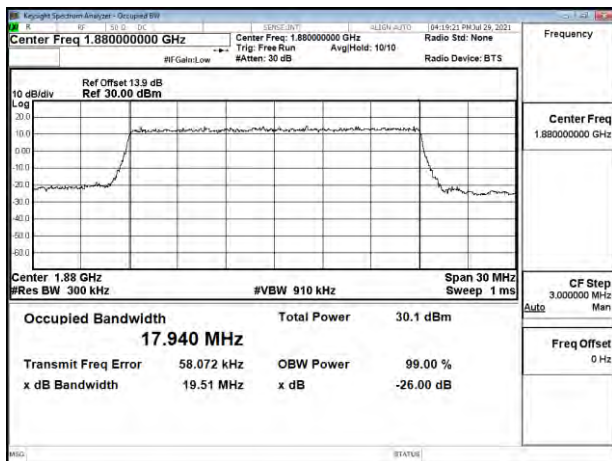
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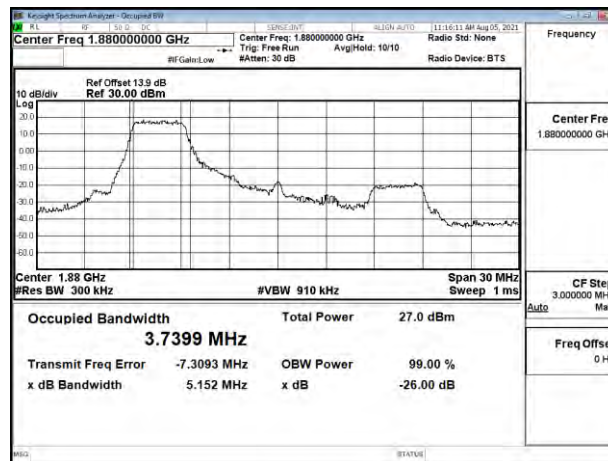
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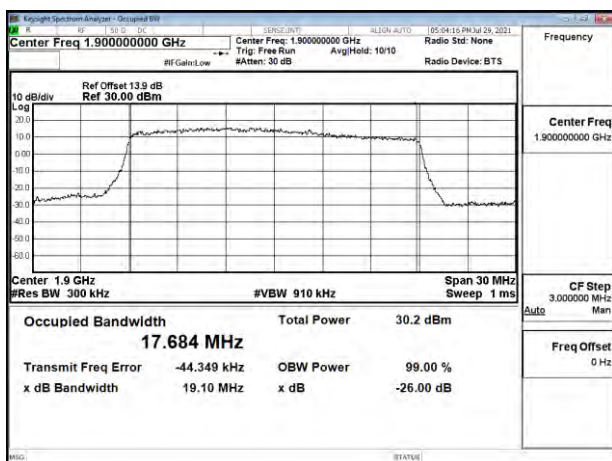
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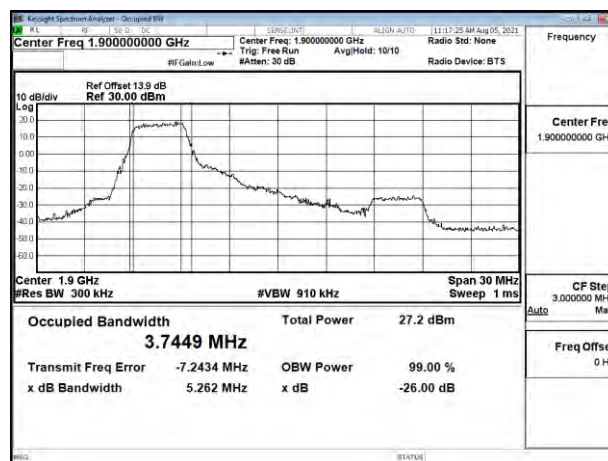
Band2\_20MHz\_16QAM\_RB18\_0\_CH18900



Band2\_20MHz\_QPSK\_RB100\_0\_CH19100



Band2\_20MHz\_16QAM\_RB18\_0\_CH19100



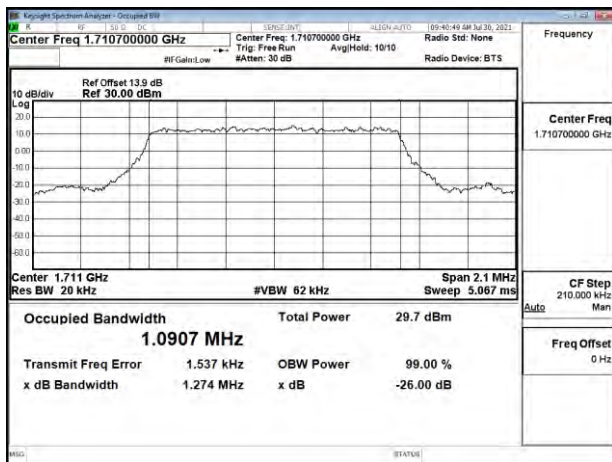
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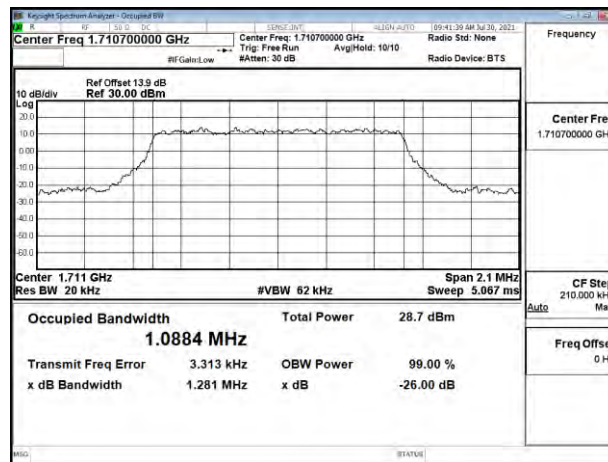
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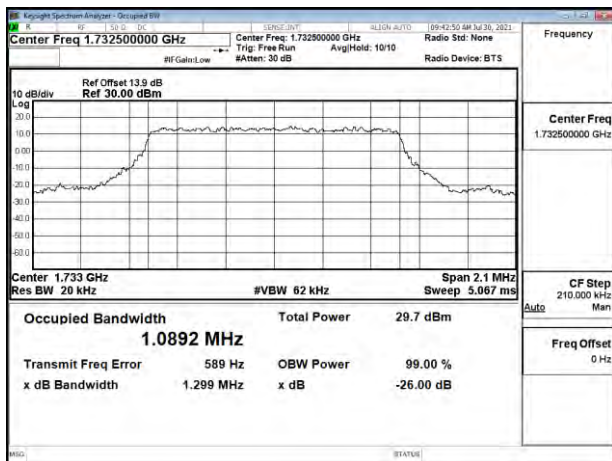
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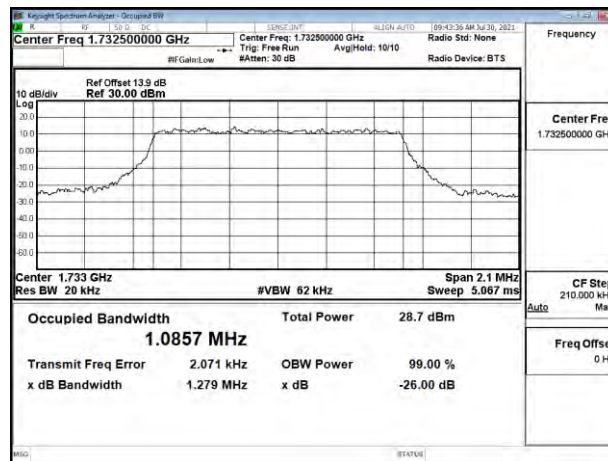
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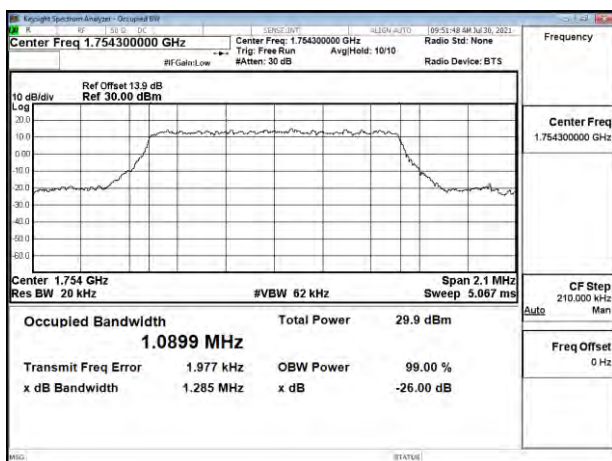
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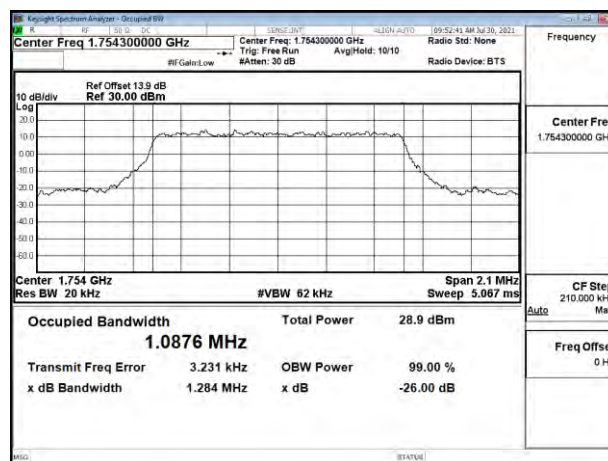
Band4\_1.4MHz\_16QAM\_RB6\_0\_CH20175



Band4\_1.4MHz\_QPSK\_RB6\_0\_CH20393



Band4\_1.4MHz\_16QAM\_RB6\_0\_CH20393

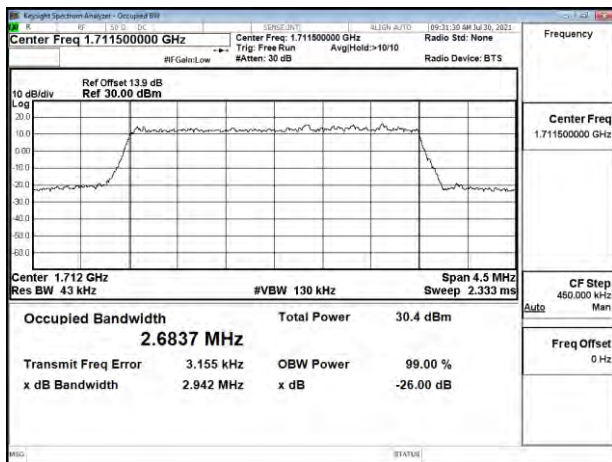


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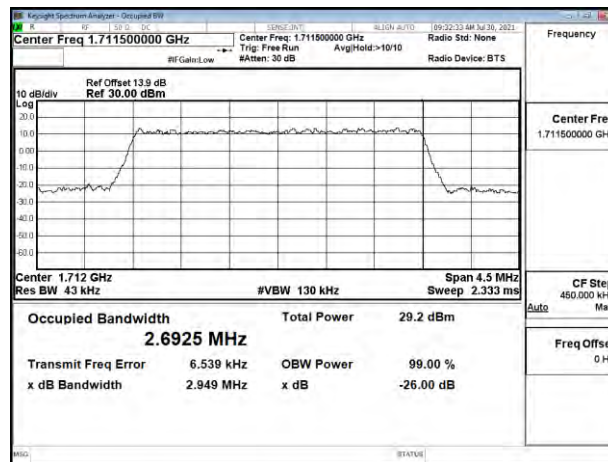
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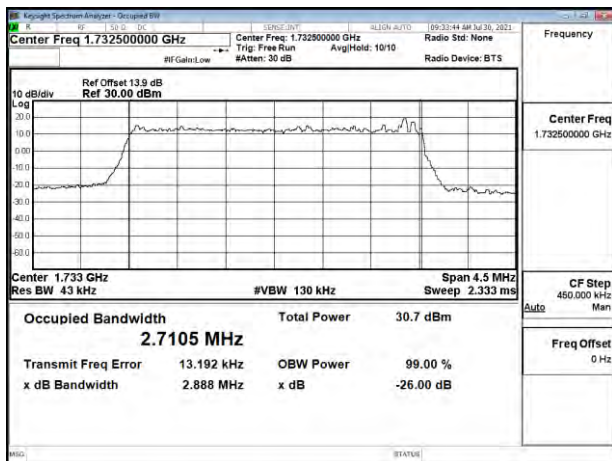
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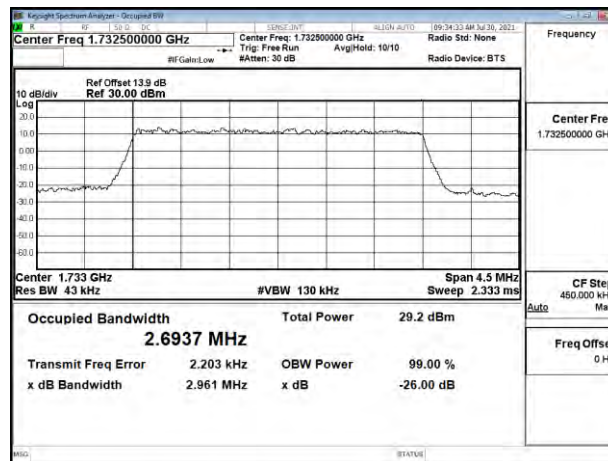
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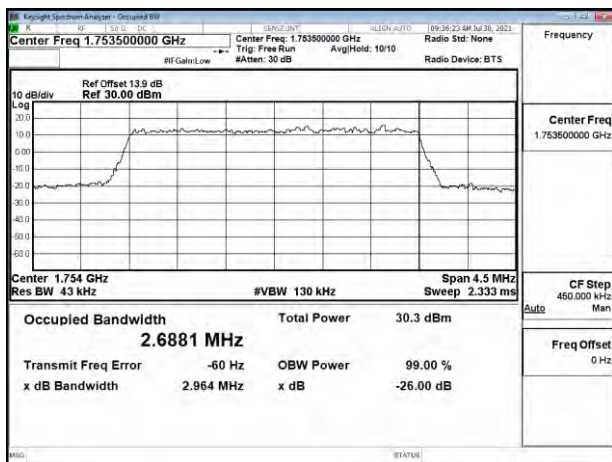
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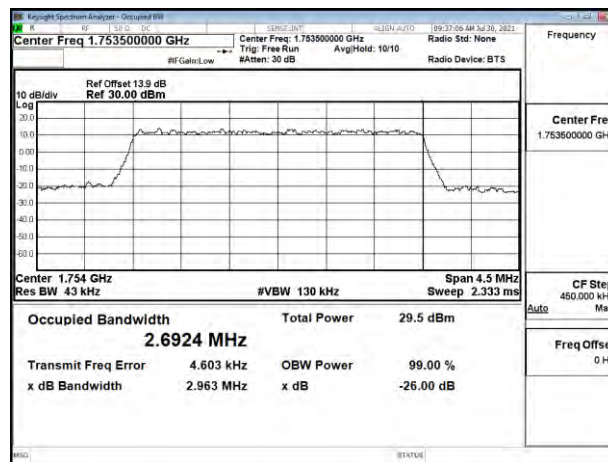
Band4\_3MHz\_16QAM\_RB15\_0\_CH20175



Band4\_3MHz\_QPSK\_RB15\_0\_CH20385



Band4\_3MHz\_16QAM\_RB15\_0\_CH20385



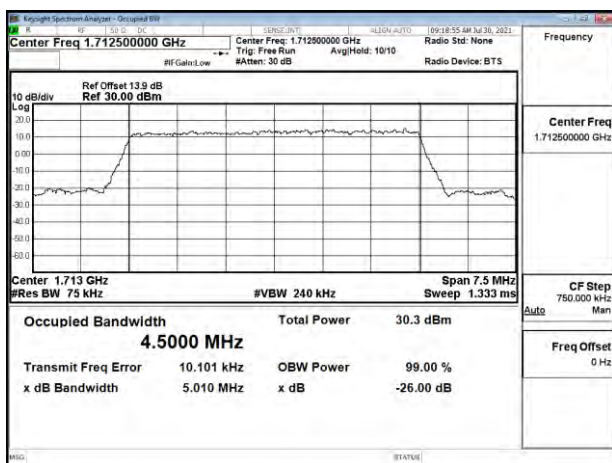
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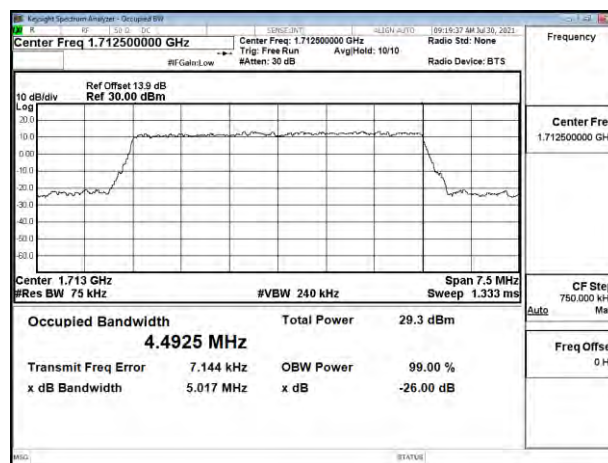
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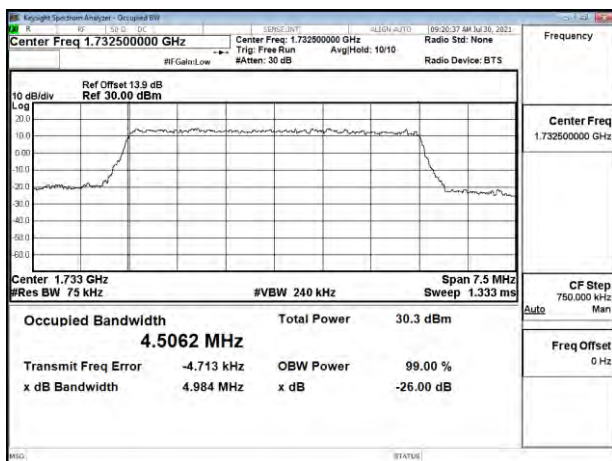
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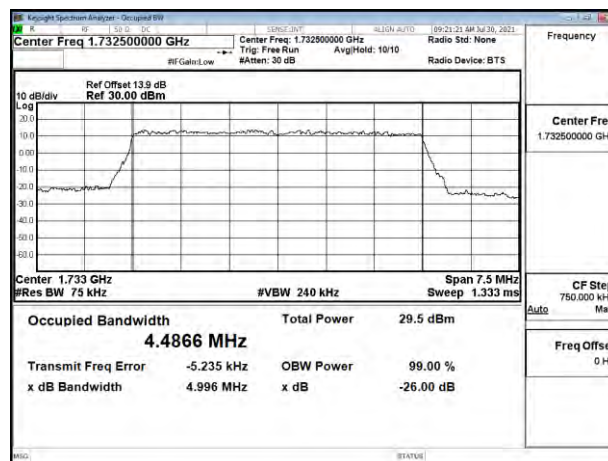
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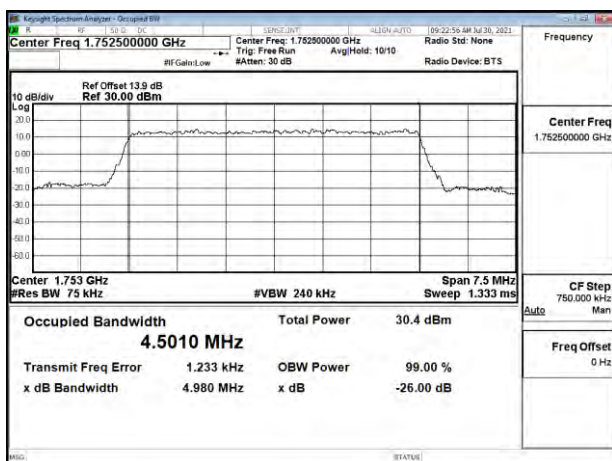
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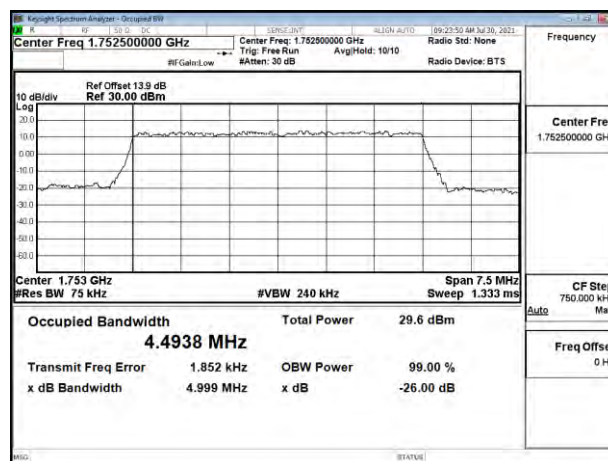
Band4\_5MHz\_16QAM\_RB25\_0\_CH20175



Band4\_5MHz\_QPSK\_RB25\_0\_CH20375



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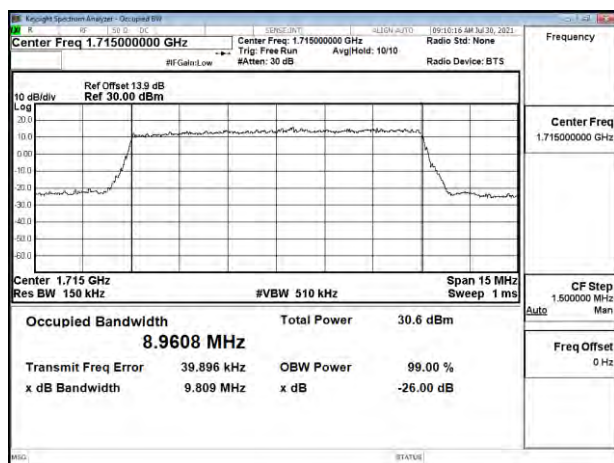


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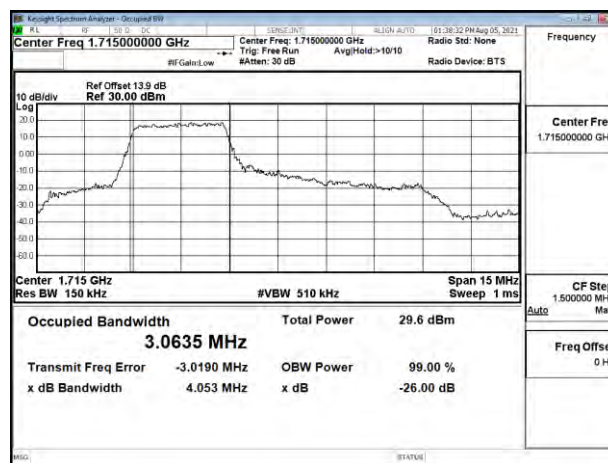
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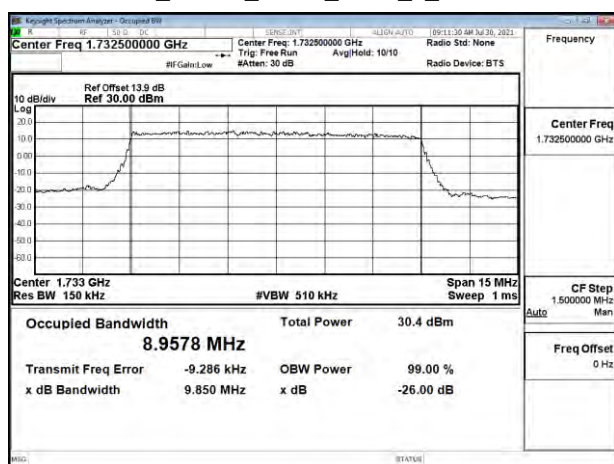
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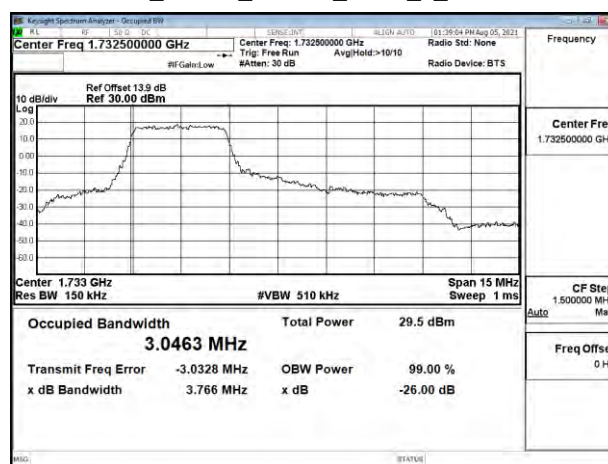
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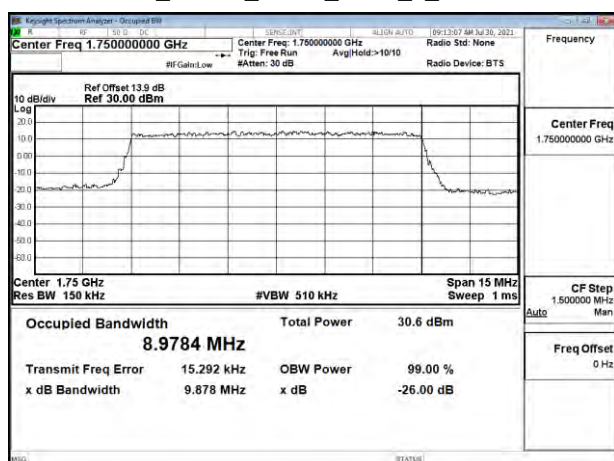
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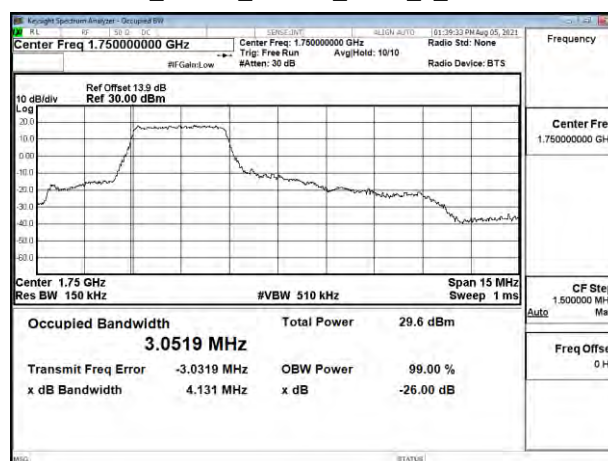
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Band4\_10MHz\_QPSK\_RB50\_0\_CH20350



Band4\_10MHz\_16QAM\_RB16\_0\_CH20350



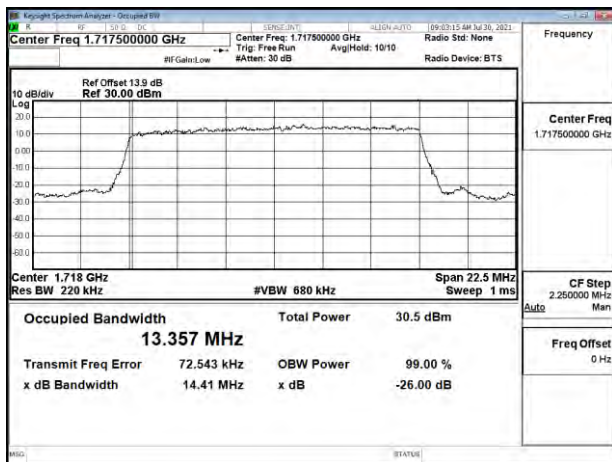
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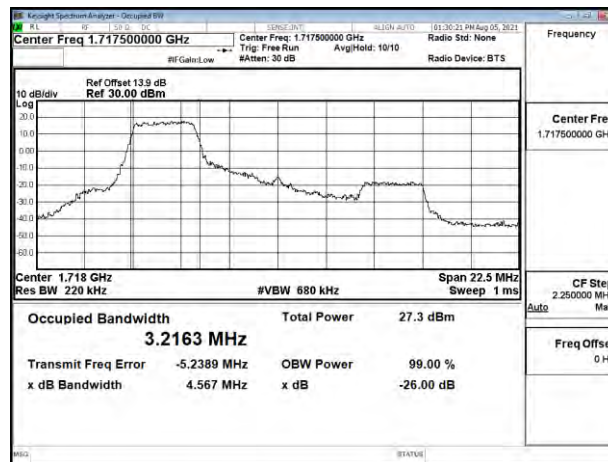
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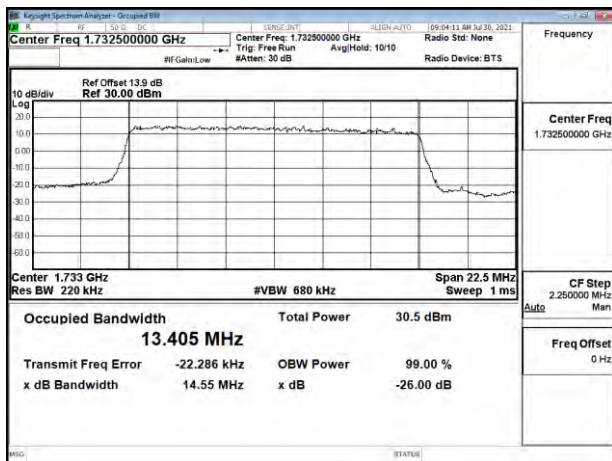
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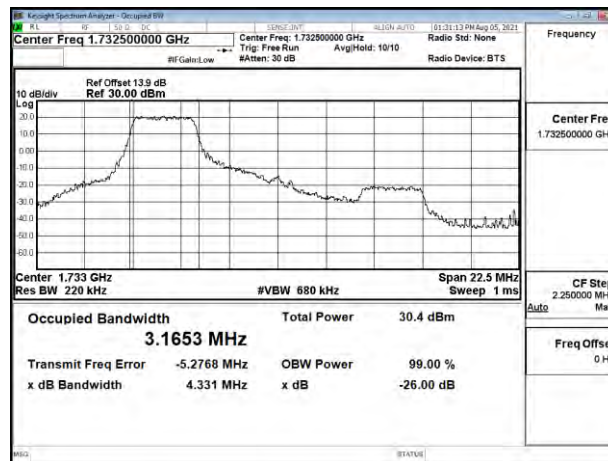
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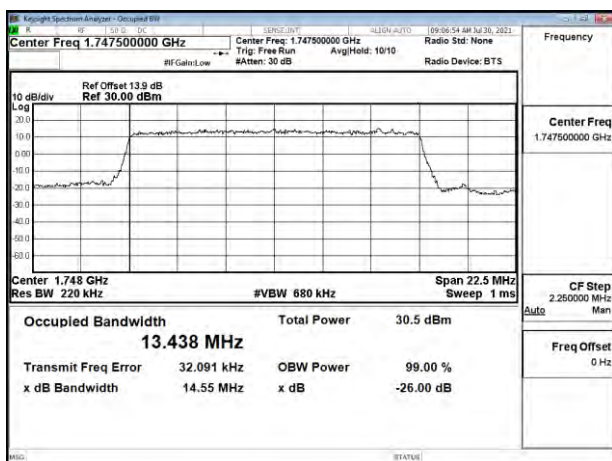
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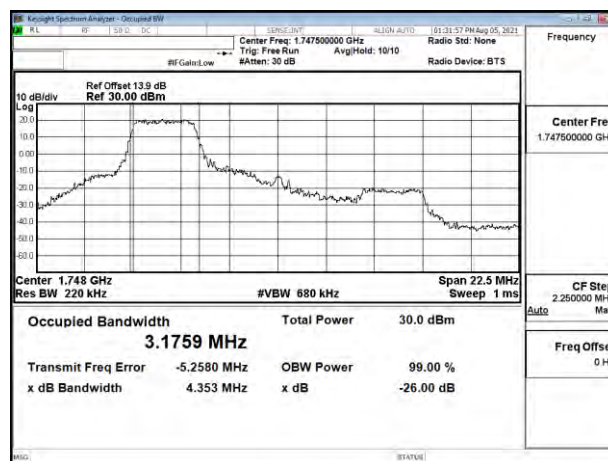
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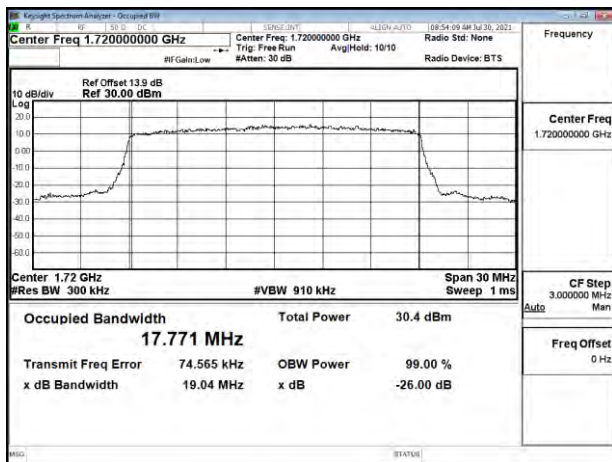


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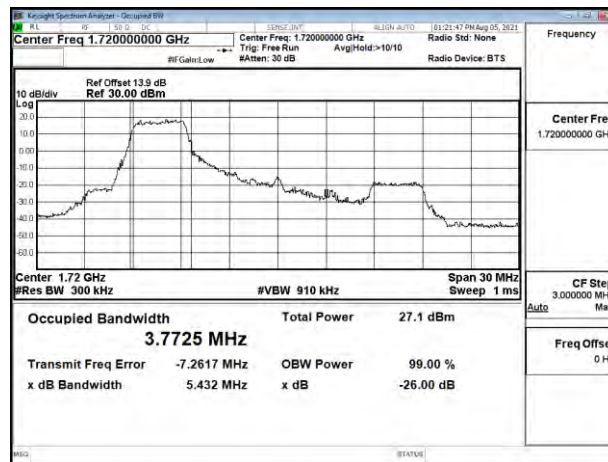
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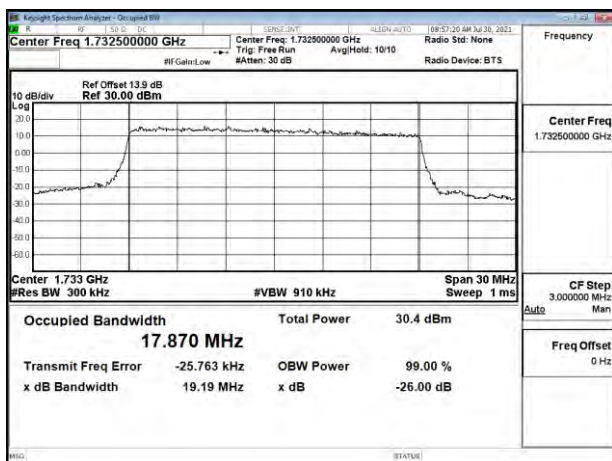
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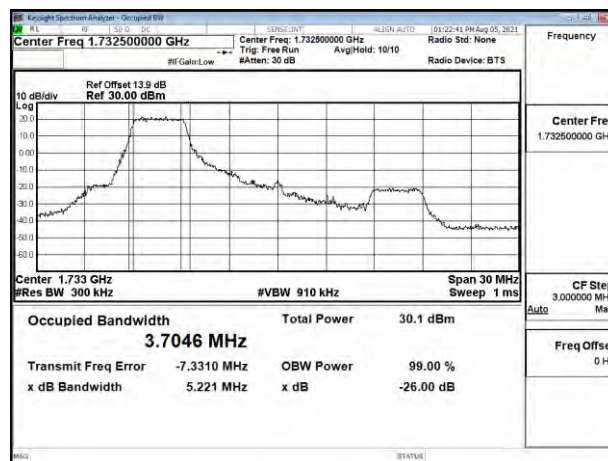
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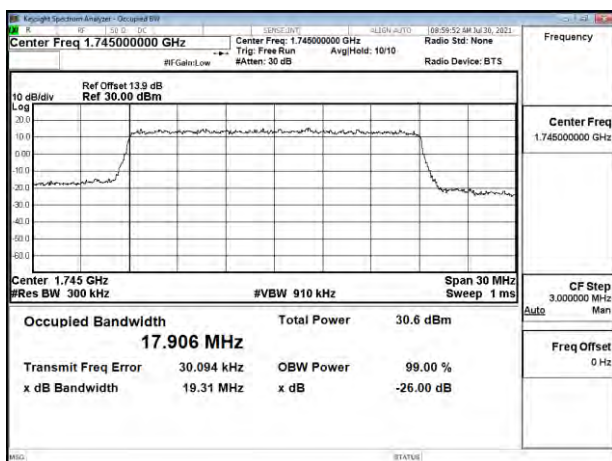
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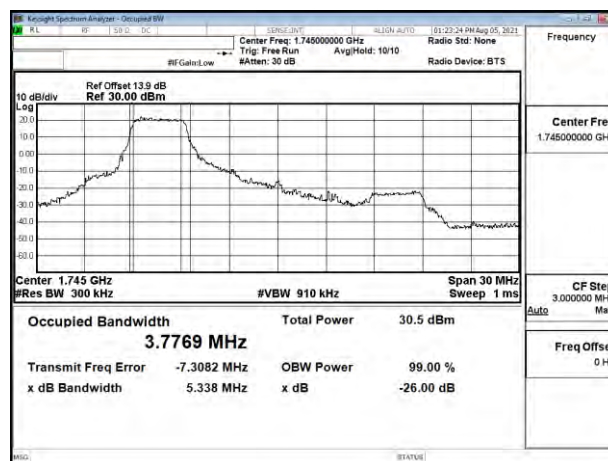
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Band4\_20MHz\_QPSK\_RB100\_0\_CH20300



Band4\_20MHz\_16QAM\_RB18\_0\_CH20300



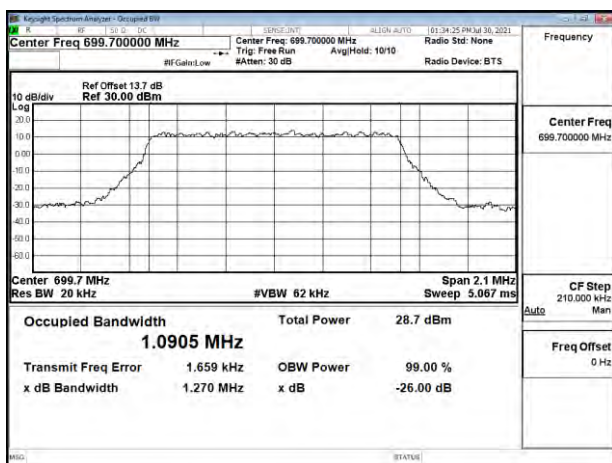
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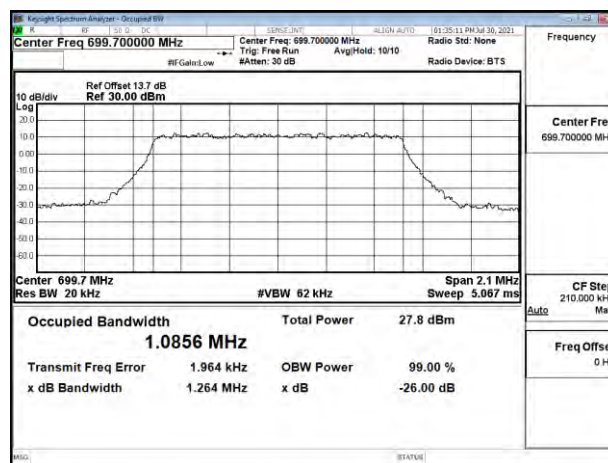
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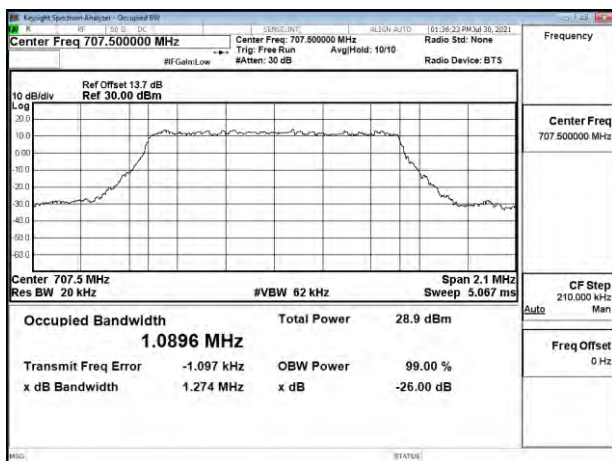
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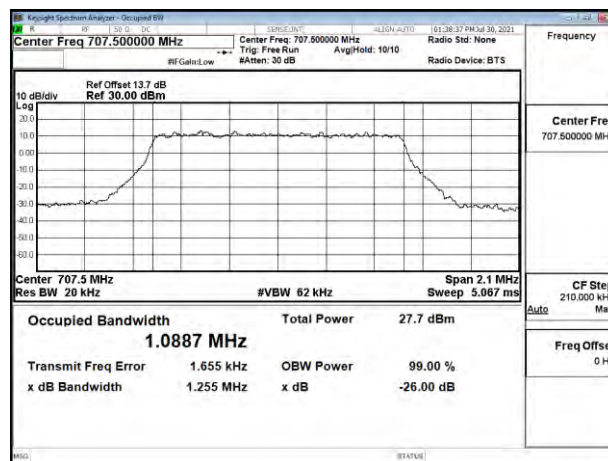
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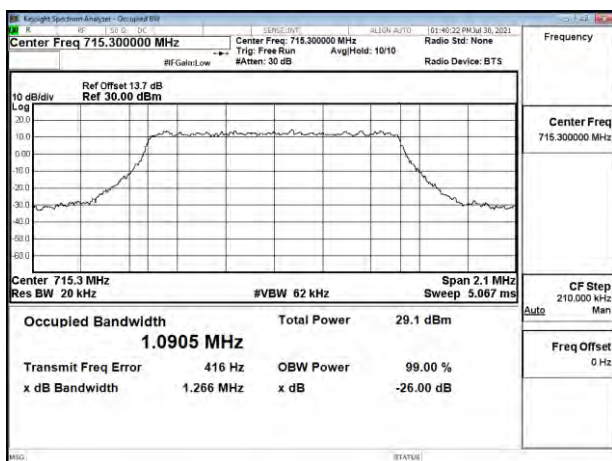
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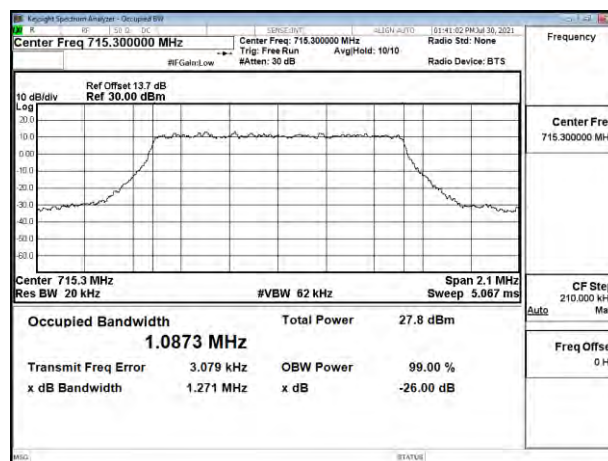
Band12\_1.4MHz\_16QAM\_RB6\_0\_CH23095



Band12\_1.4MHz\_QPSK\_RB6\_0\_CH23173



Band12\_1.4MHz\_16QAM\_RB6\_0\_CH23173

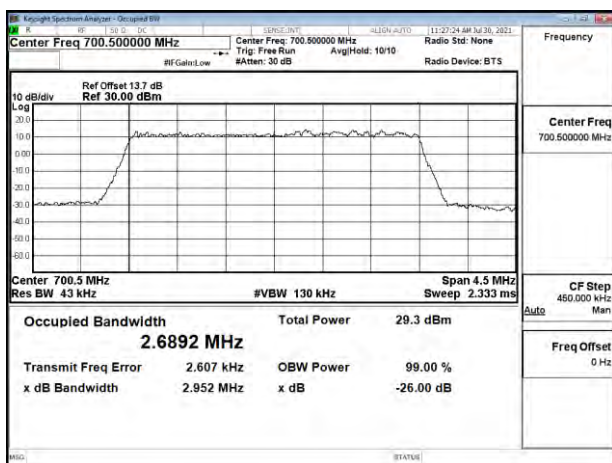


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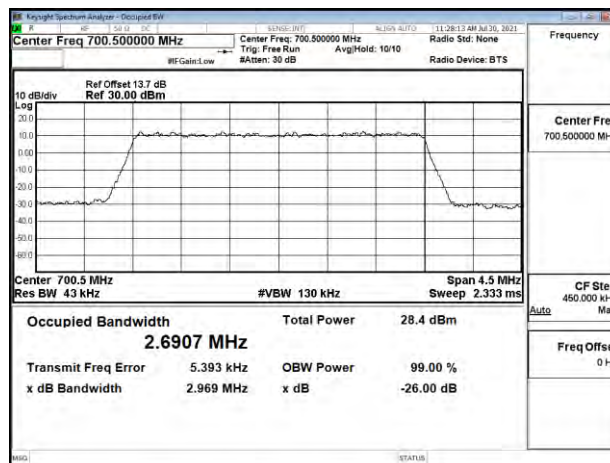
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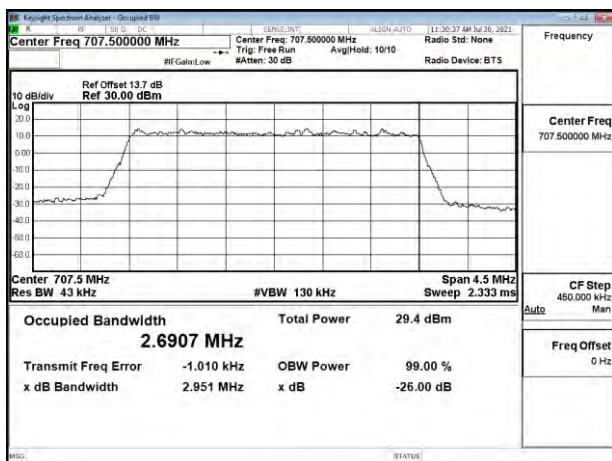
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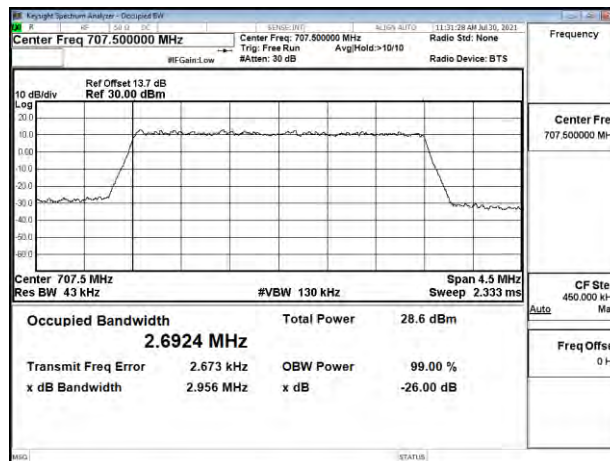
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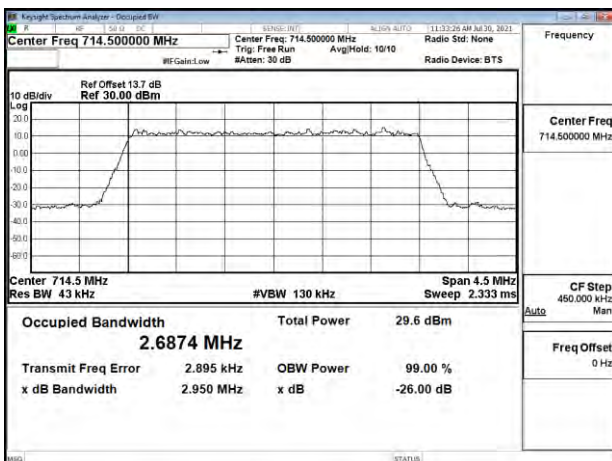
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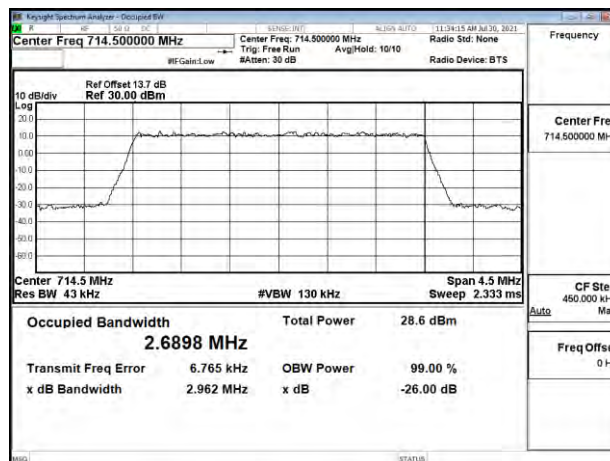
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Band12\_3MHz\_QPSK\_RB15\_0\_CH23165



Band12\_3MHz\_16QAM\_RB15\_0\_CH23165



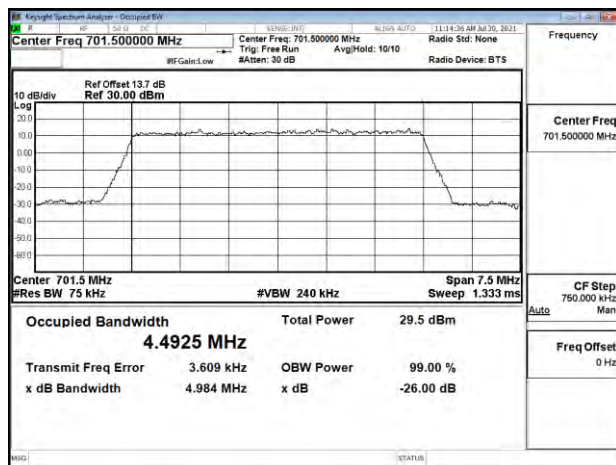
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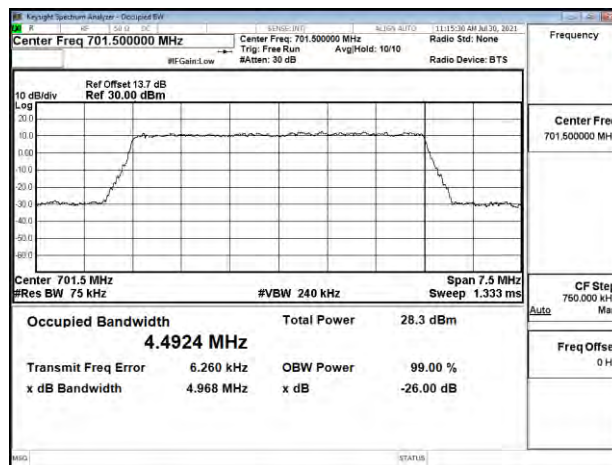
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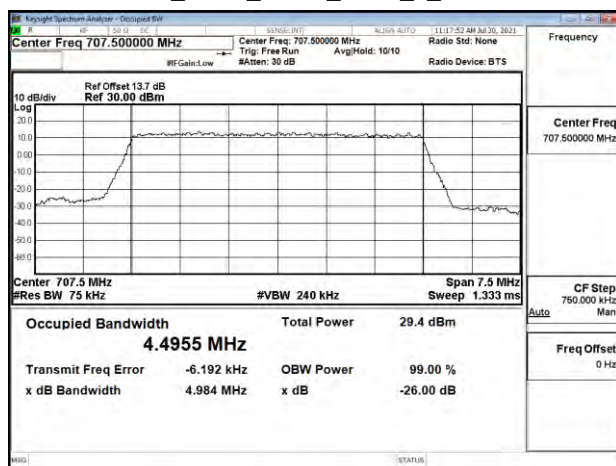
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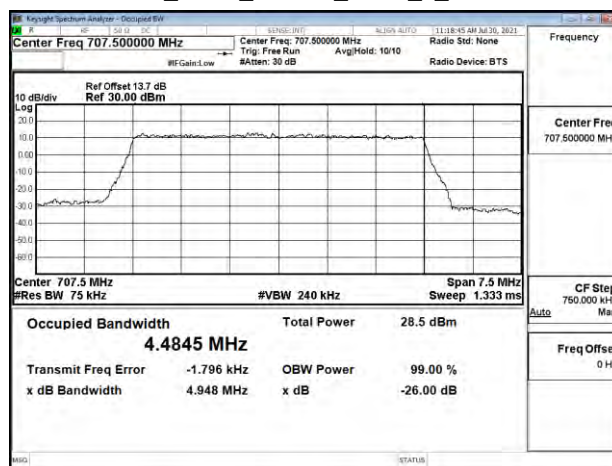
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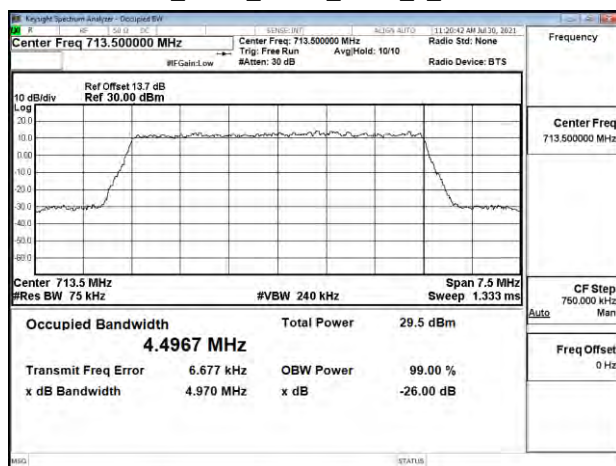
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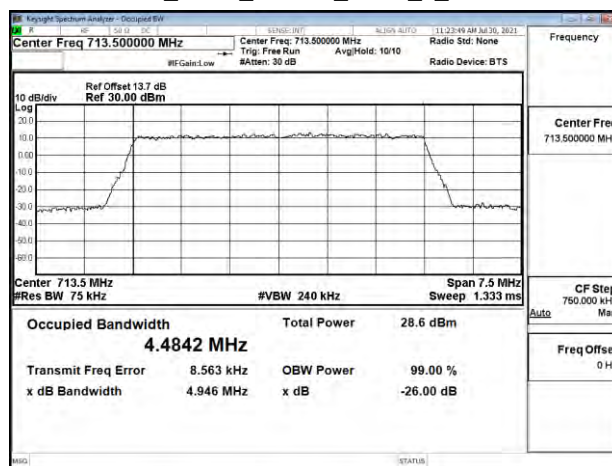
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Band12\_5MHz\_QPSK\_RB25\_0\_CH23155



Band12\_5MHz\_16QAM\_RB25\_0\_CH23155

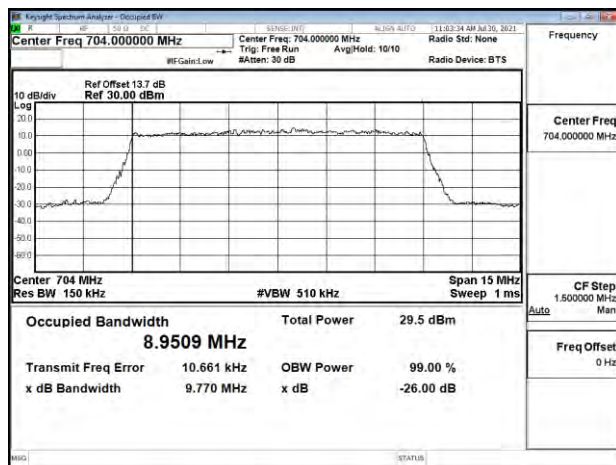


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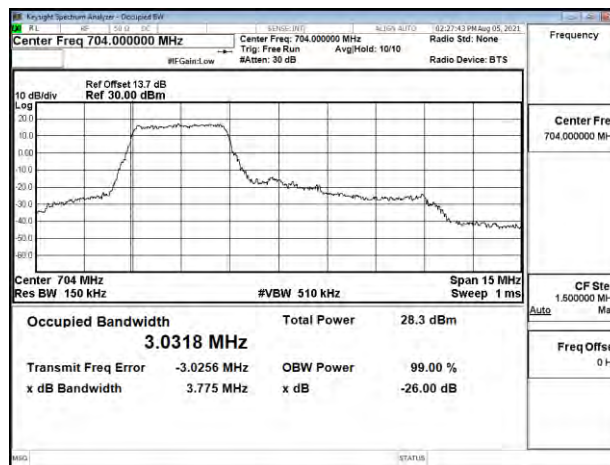
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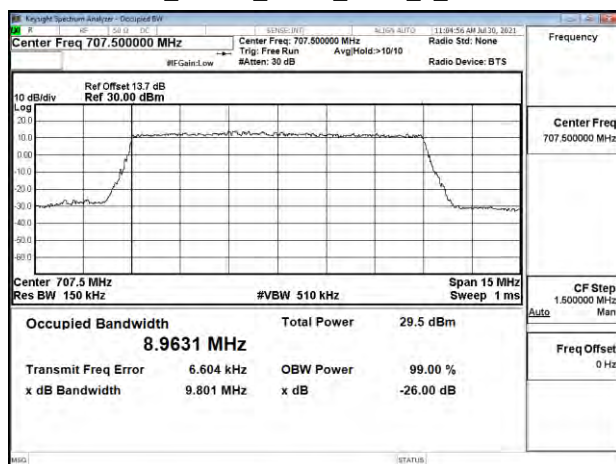
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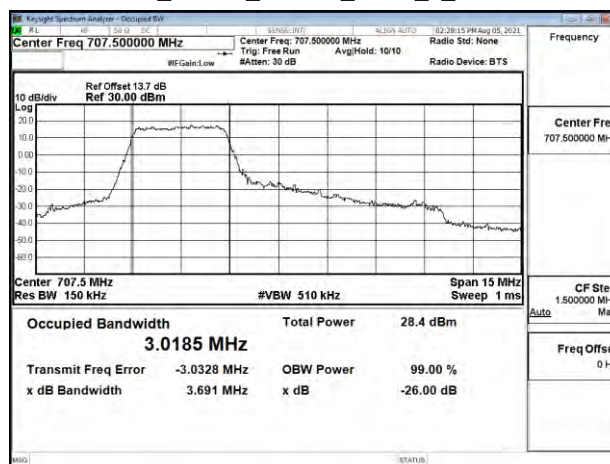
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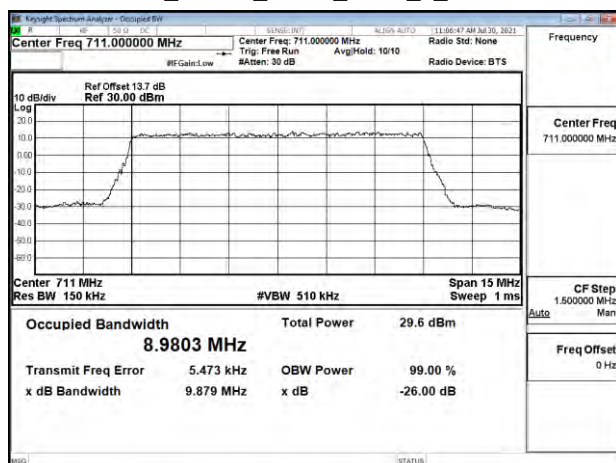
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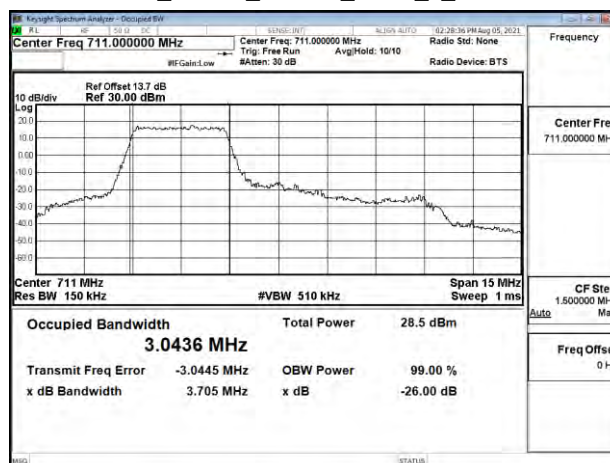
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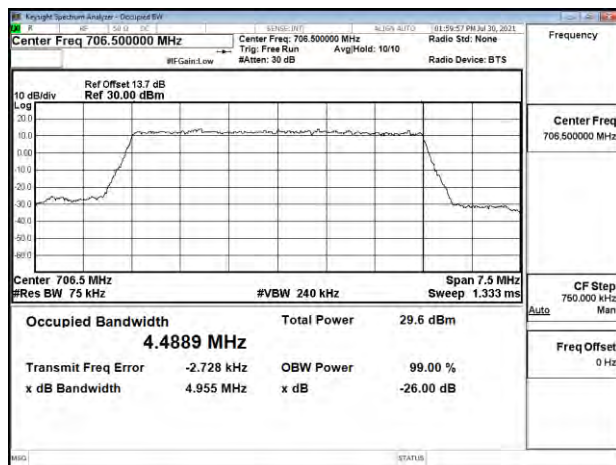
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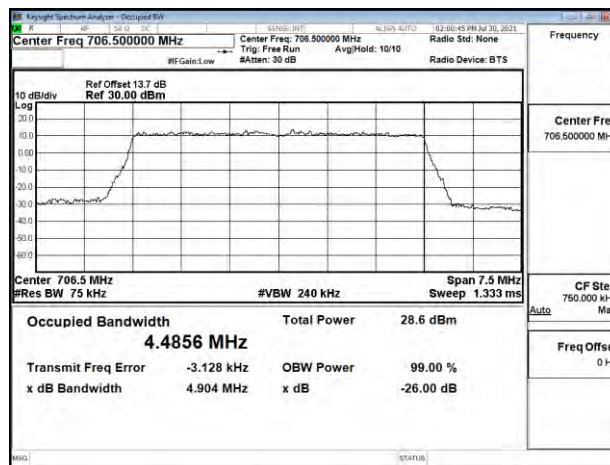
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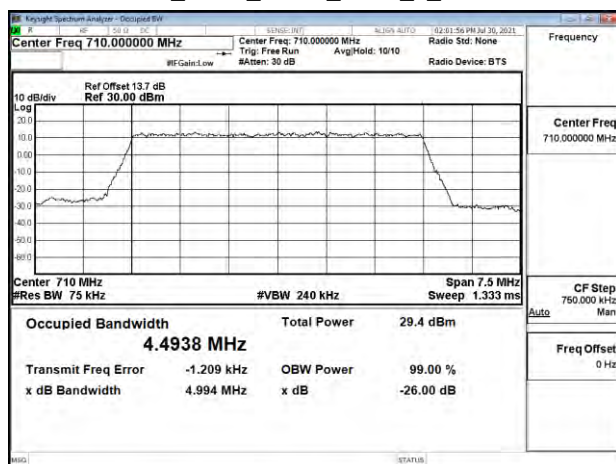
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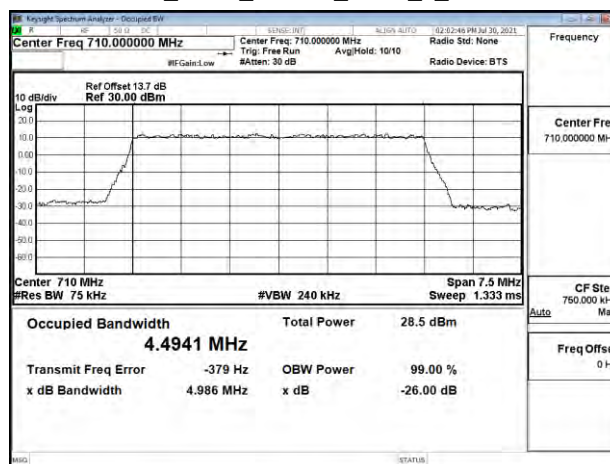
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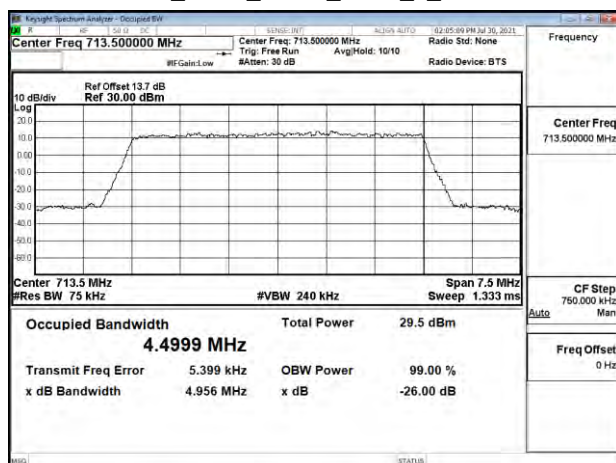
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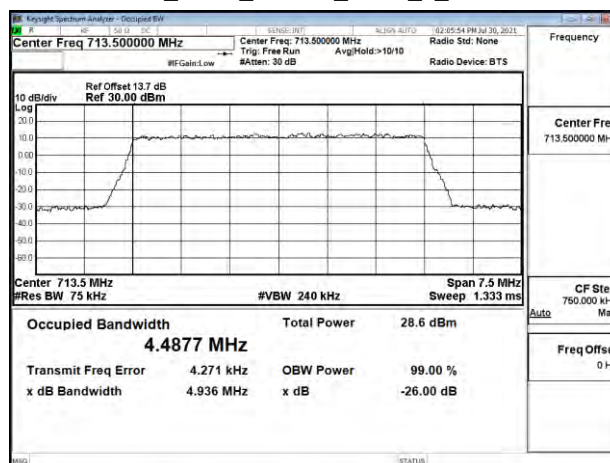
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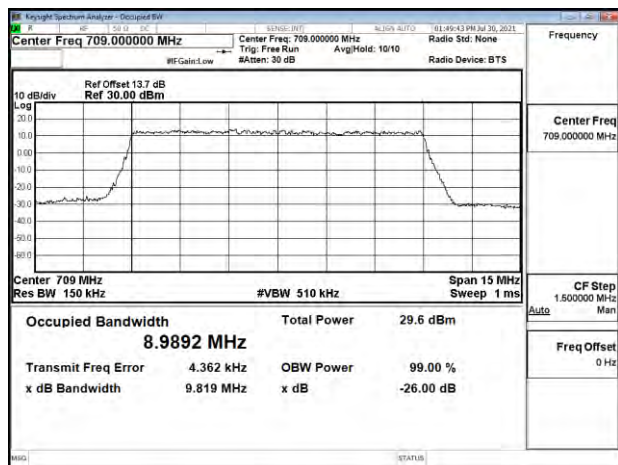


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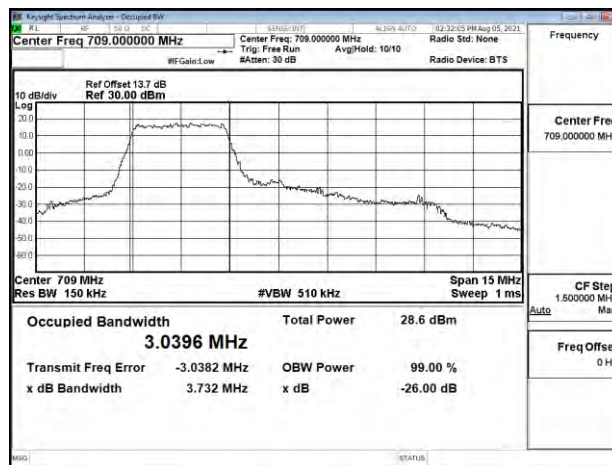
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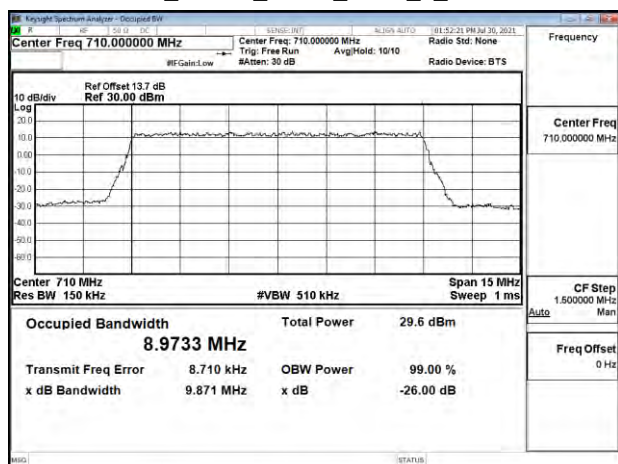
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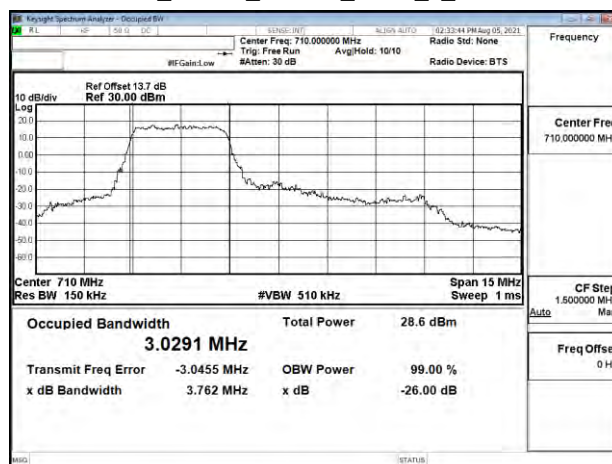
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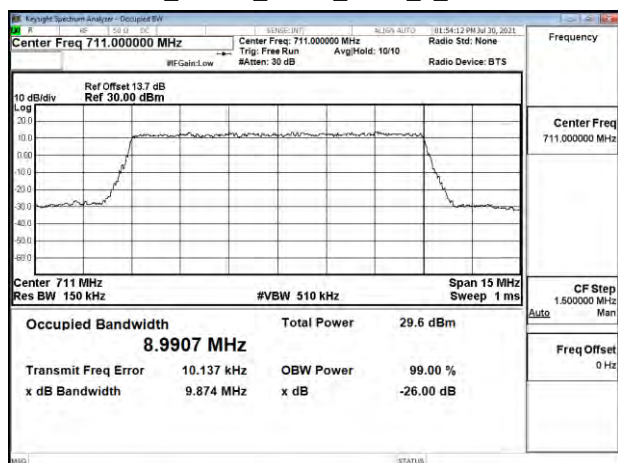
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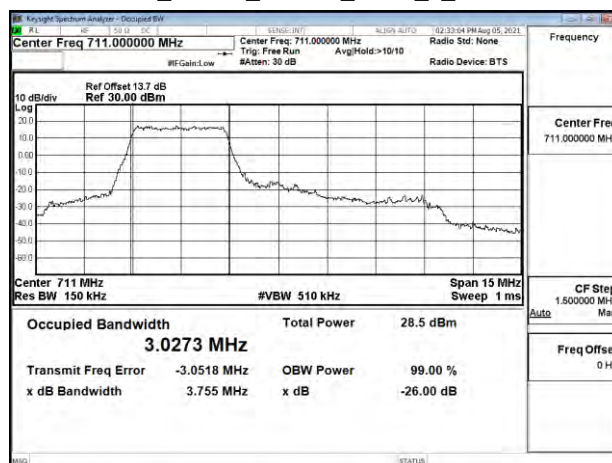
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Band17\_10MHz\_16QAM\_RB16\_0\_CH23800



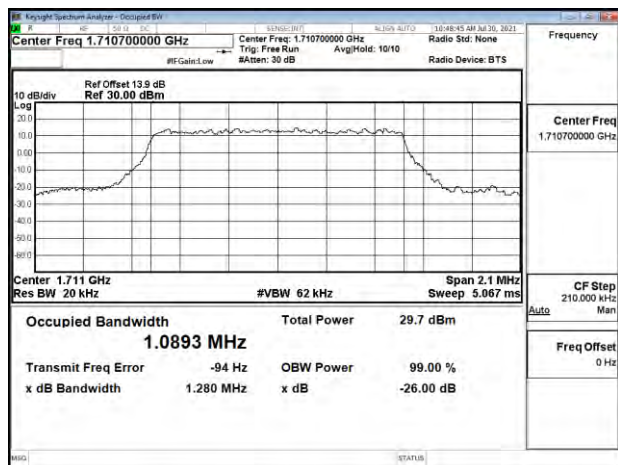
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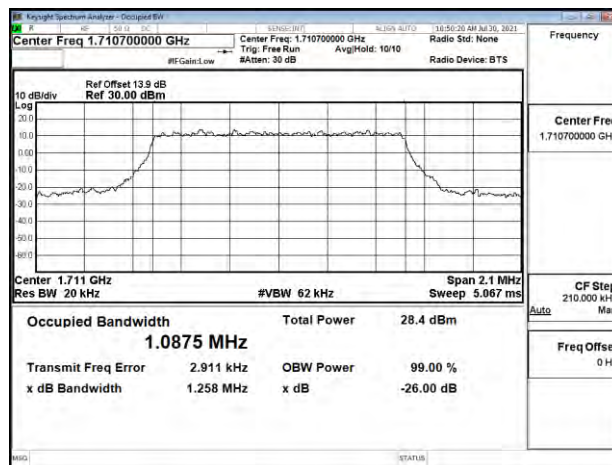
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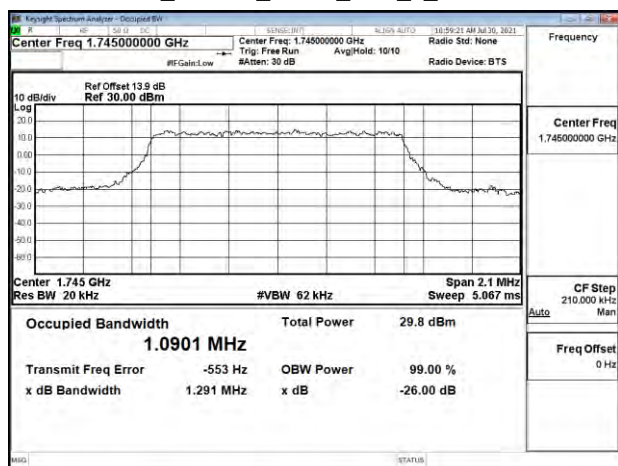
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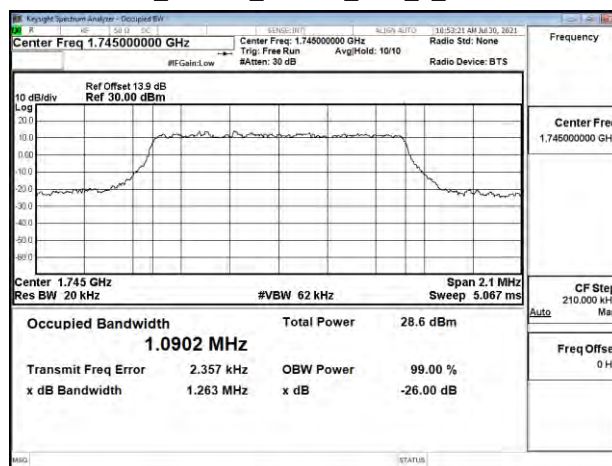
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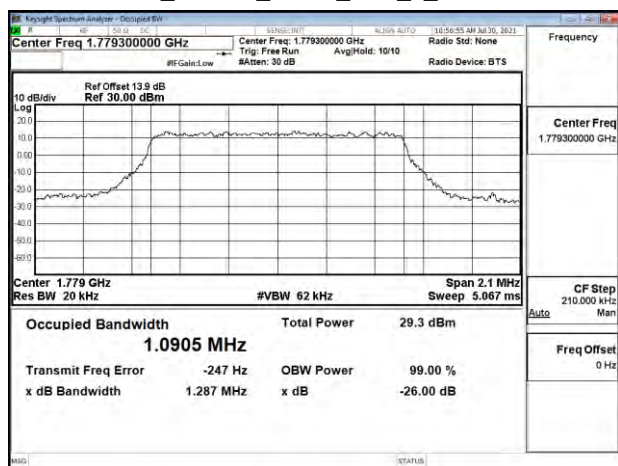
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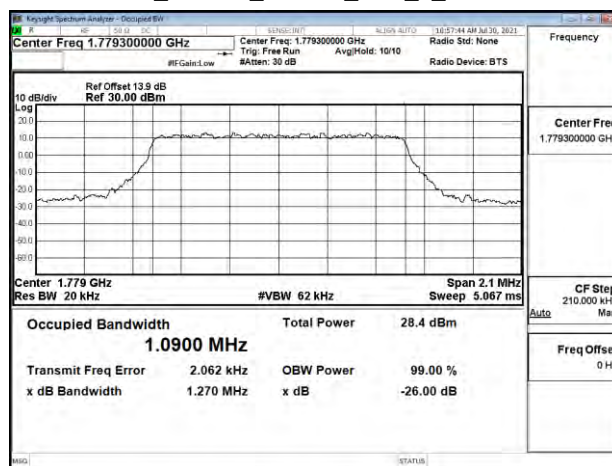
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Band66\_1.4MHz\_QPSK\_RB6\_0\_CH132665



Band66\_1.4MHz\_16QAM\_RB6\_0\_CH132665

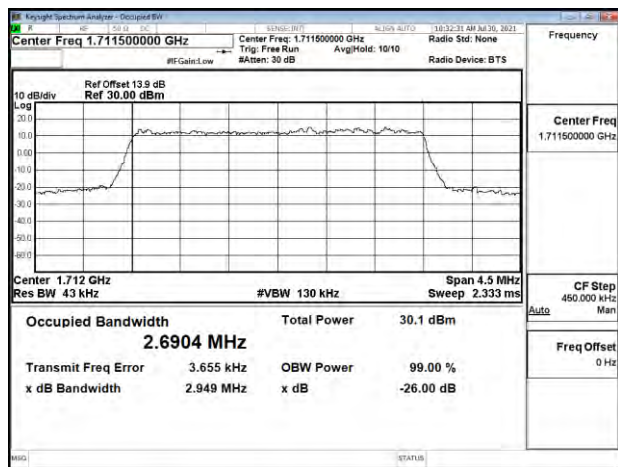


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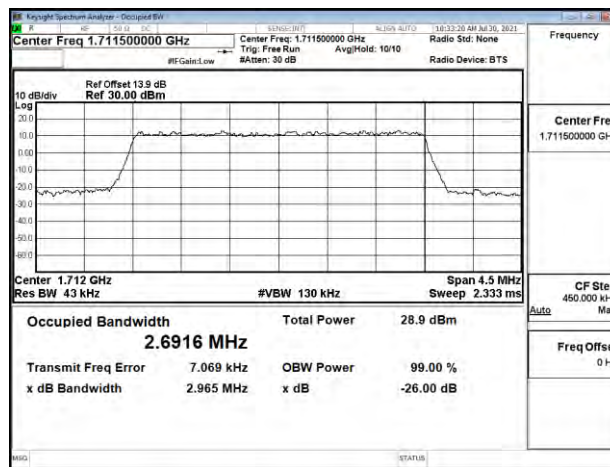
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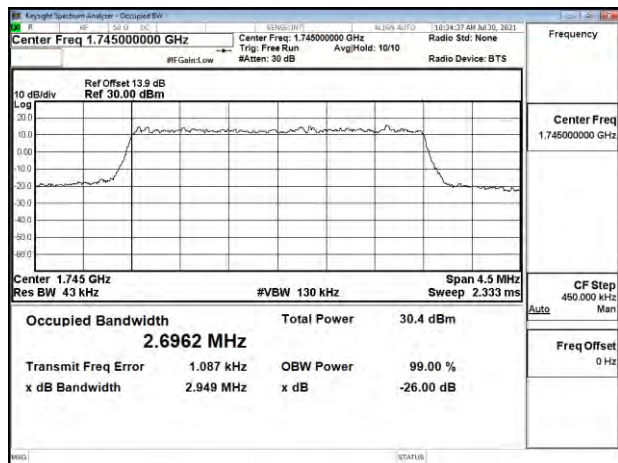
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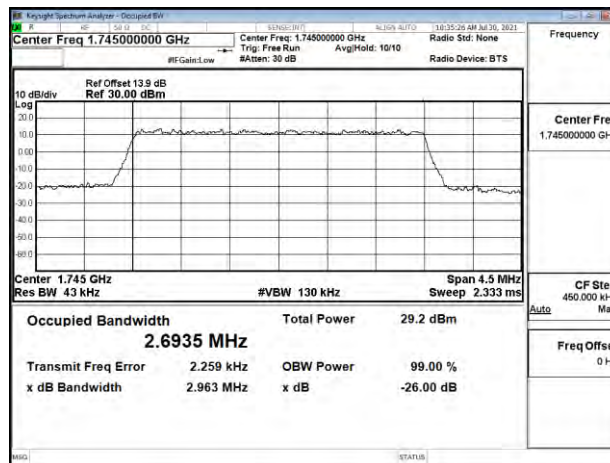
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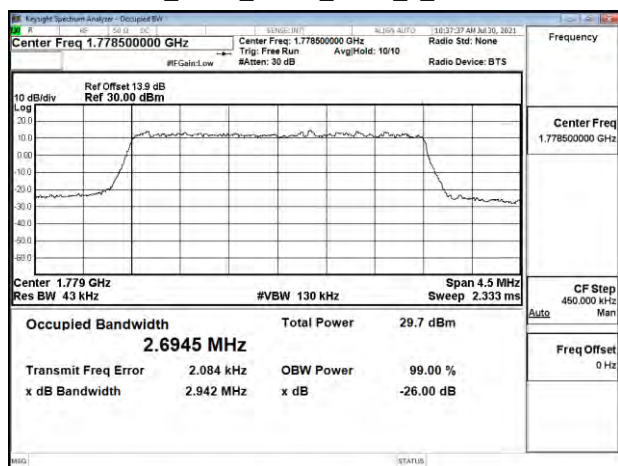
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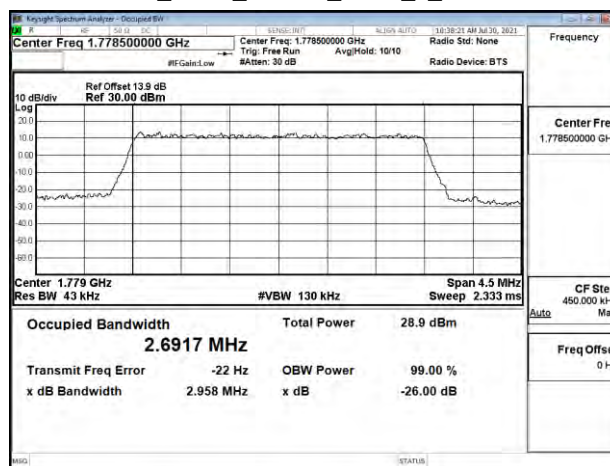
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Band66\_3MHz\_QPSK\_RB15\_0\_CH132657



Band66\_3MHz\_16QAM\_RB15\_0\_CH132657



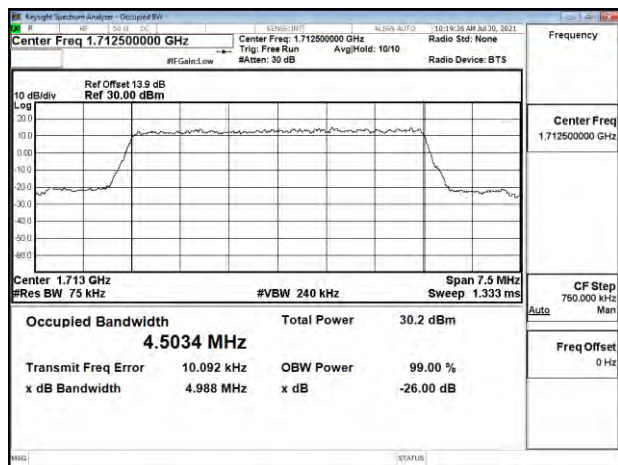
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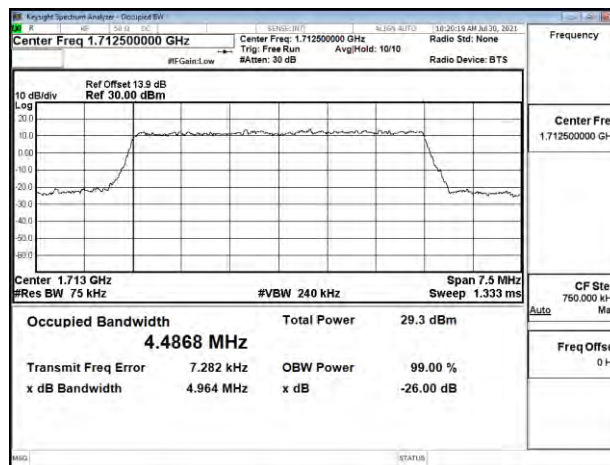
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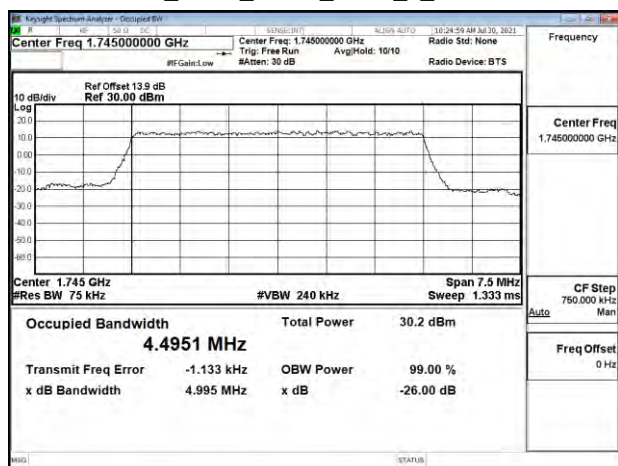
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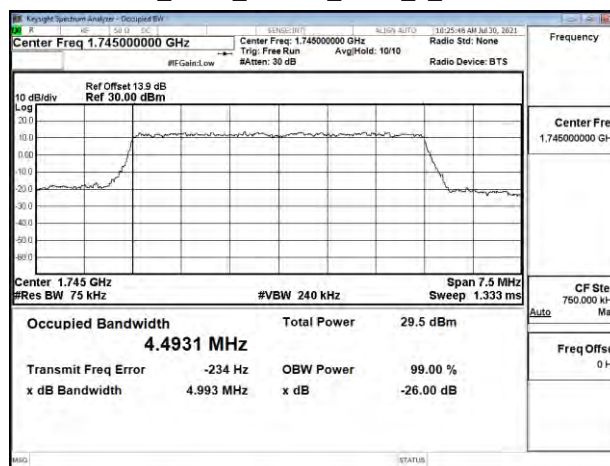
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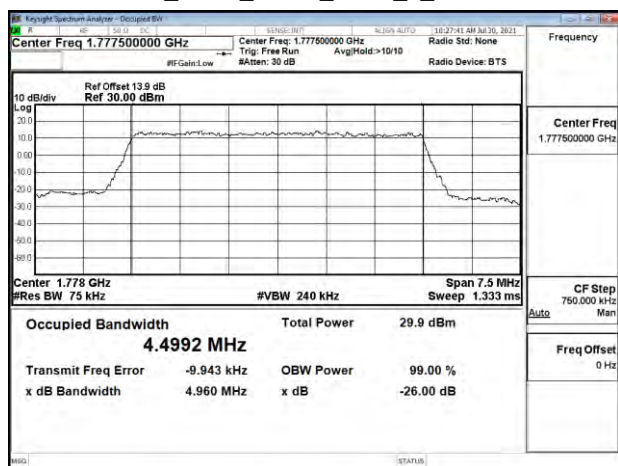
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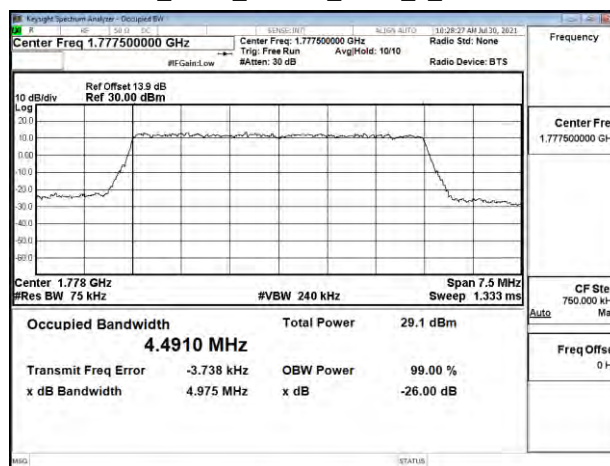
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Band66\_5MHz\_16QAM\_RB25\_0\_CH132647

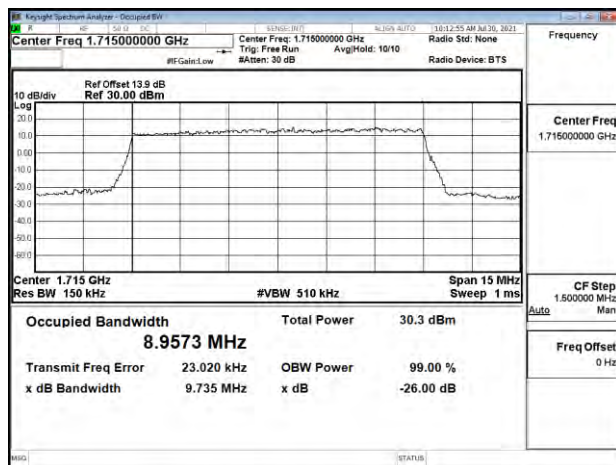


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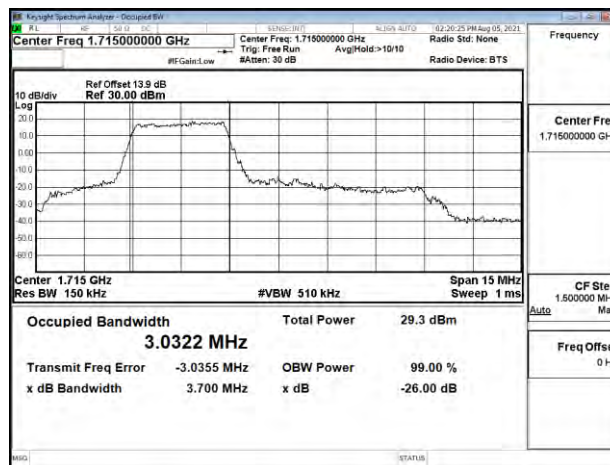
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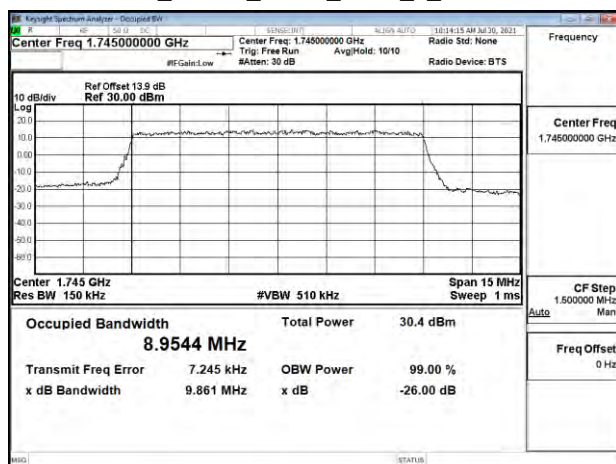
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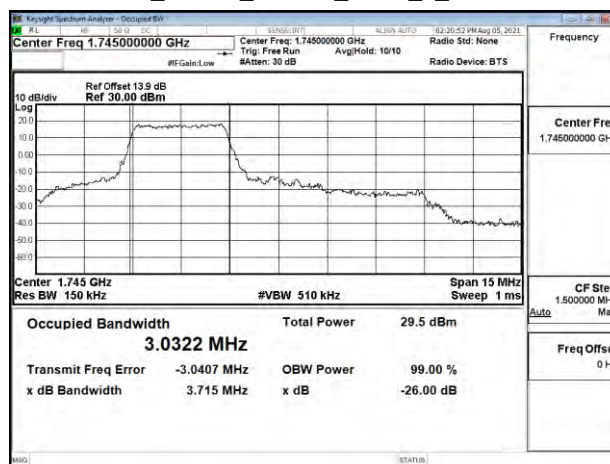
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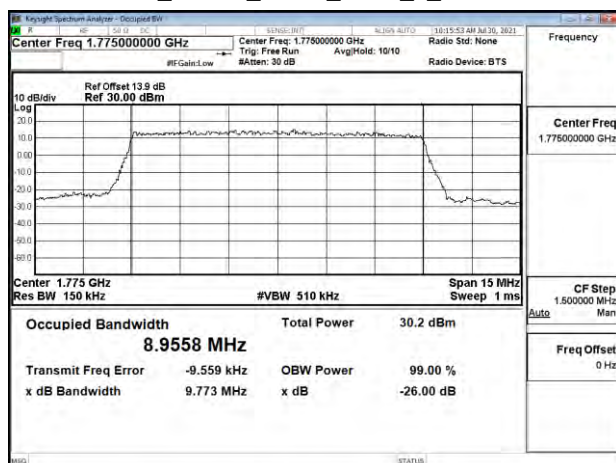
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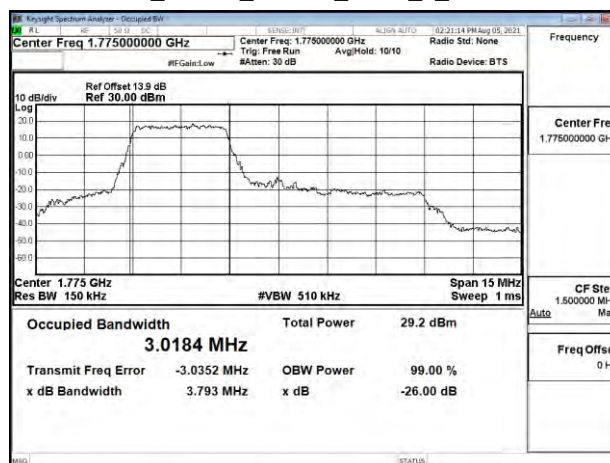
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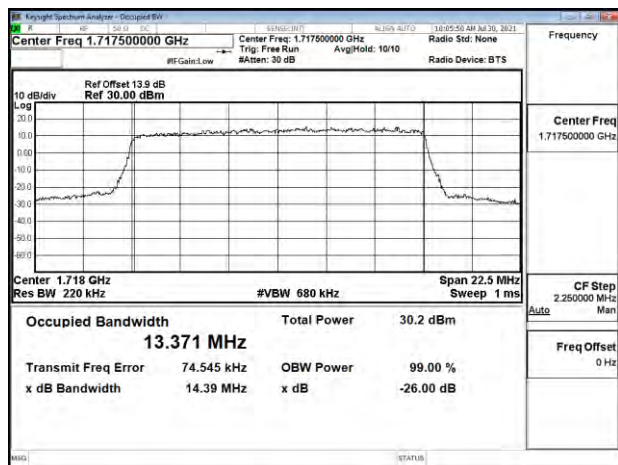
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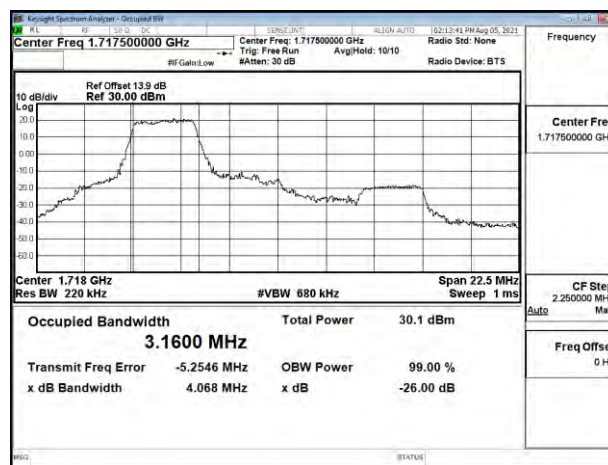
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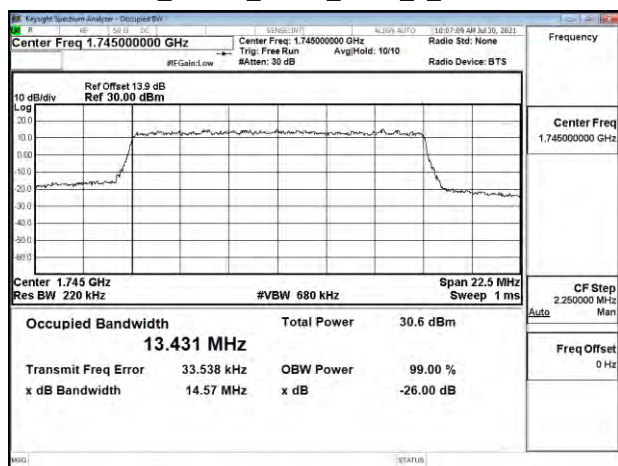
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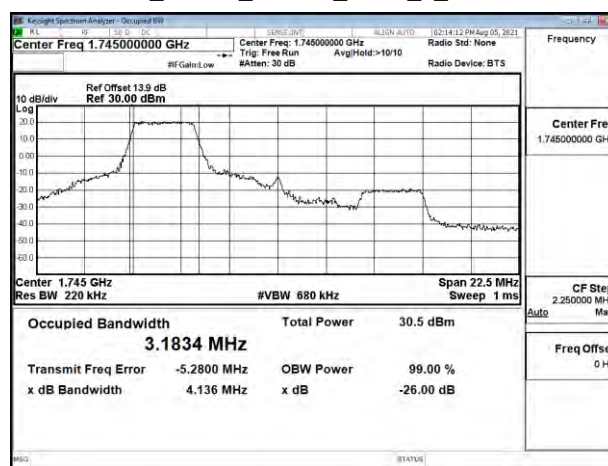
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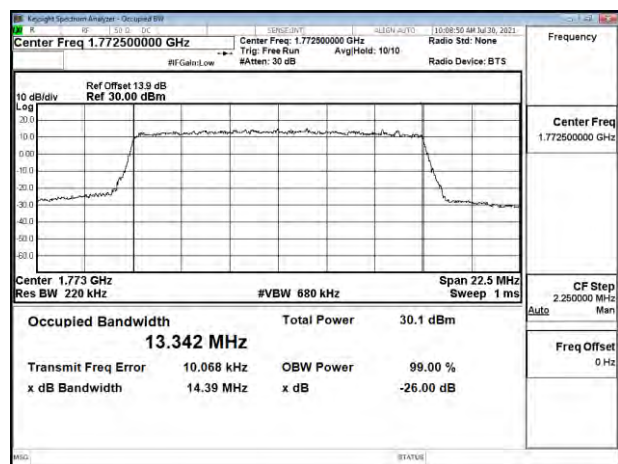
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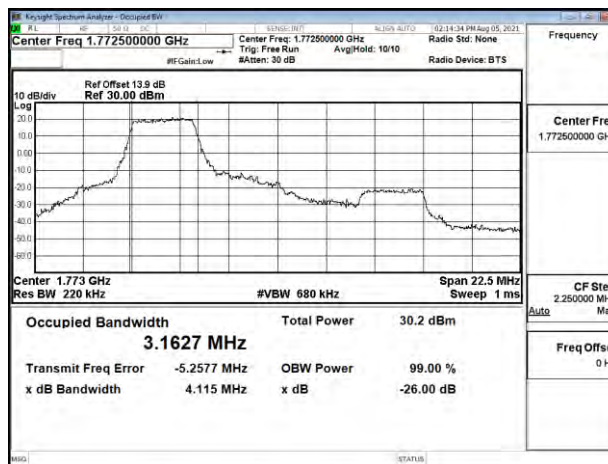
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Band66\_15MHz\_QPSK\_RB75\_0\_CH132597



Band66\_15MHz\_16QAM\_RB16\_0\_CH132597

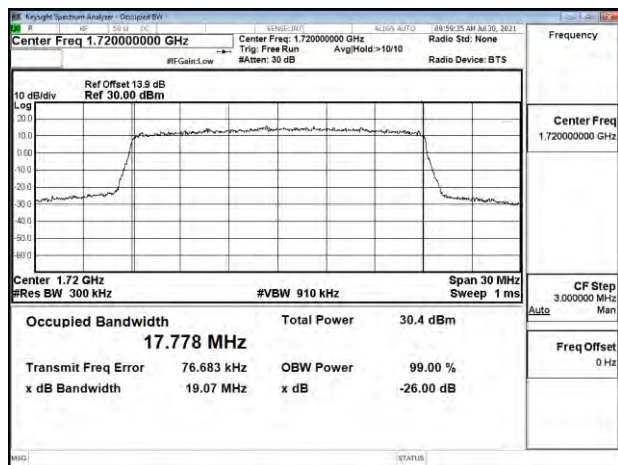


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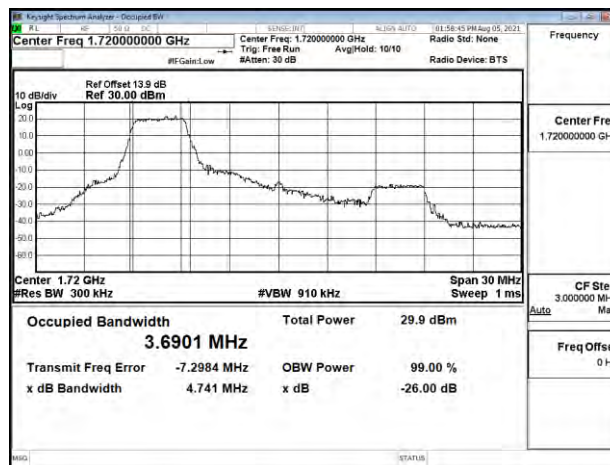
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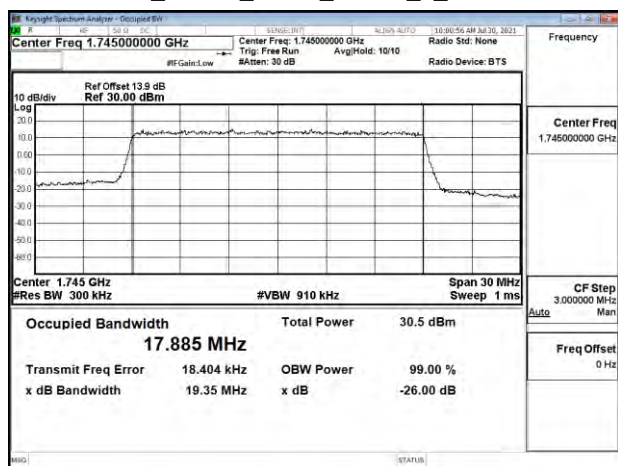
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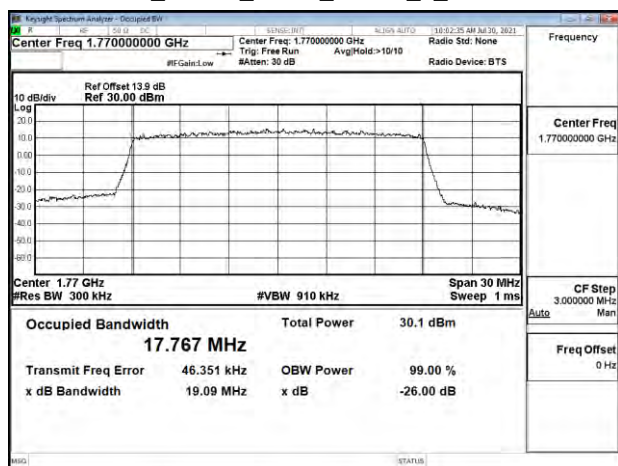
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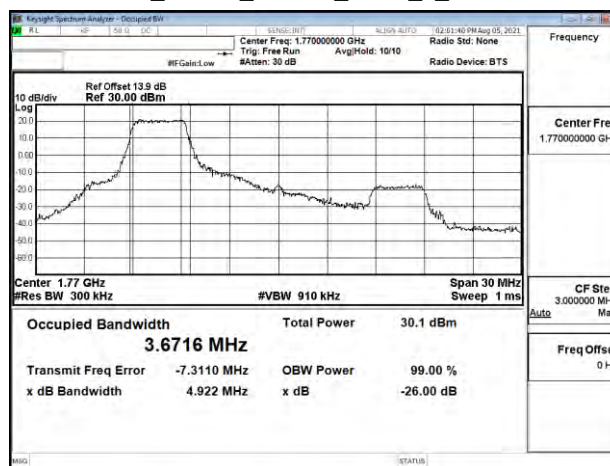
Band66\_20MHz\_16QAM\_RB18\_0\_CH132322



Band66\_20MHz\_QPSK\_RB100\_0\_CH132572



Band66\_20MHz\_16QAM\_RB18\_0\_CH132572



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## 8 OUT OF BAND EMISSION AT ANTENNA TERMINALS

### 8.1 Standard Applicable

#### FCC §24.238(a), §27.53(h)

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

#### FCC §27.53(g)

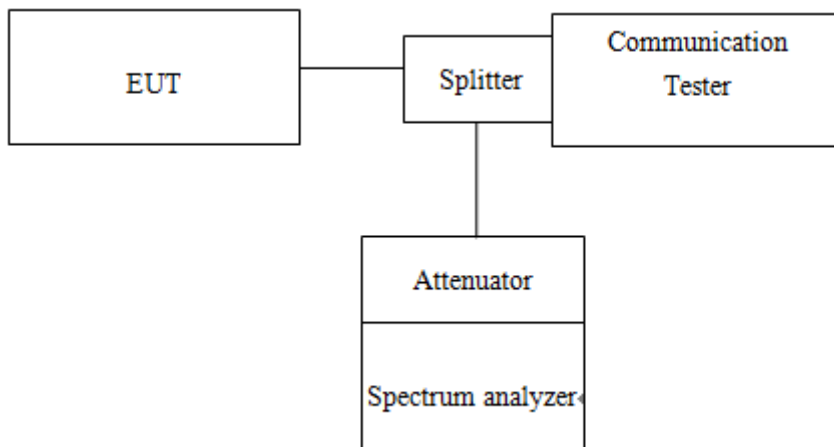
Compliance for operations in the 600 MHz, 698-746 MHz, 746-758 MHz and the 776-788 MHz band with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

- (2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least  $43 + 10 \log(P)$  dB;
- (3) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than  $76 + 10 \log(P)$  dB in a 6.25 kHz band segment, for base and fixed stations;
- (4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than  $65 + 10 \log(P)$  dB in a 6.25 kHz band segment, for mobile and portable stations;

#### FCC §27.53(h)(1)

(h) *AWS emission limits*—(1) *General protection levels*. Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least  $43 + 10 \log_{10}(P)$  dB.

### 8.2 Test SET-UP



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### 8.3 Measurement Procedure

#### 8.3.1 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.

1. To connect Antenna Port of EUT to Spectrum.
2. Set RBW = 1MHz & VBW = 1MHz on Spectrum.
3. Allow trace to fully stabilize
4. Repeat above procedures until all default test channel measured were complete.

#### 8.3.2 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.

### 8.4 Measurement Equipment Used

Conducted Emission Test Site: Conducted B					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	KEYSIGHT	N9010A	MY51440113	07/13/2021	07/12/2022
Radio Communication Analyzer	Anritsu	MT8820C	6201107337	07/28/2021	07/27/2022
Attenuator	Marvelous	MVE2213-10	RF05	11/19/2020	11/18/2021
DC Block	PASTER-NACK	PE8210	RF157	11/19/2020	11/18/2021
Splitter	Woken	DOM35LW1A2	RF255	11/19/2020	11/18/2021
Coaxial Cables	Woken	00100A1F1A185C	RF54	11/19/2020	11/18/2021
Coaxial Cables	Woken	00100A1F1A185C	RF55	11/19/2020	11/18/2021
Coaxial Cables	Woken	00100A1F1A185C	RF71	11/19/2020	11/18/2021
Coaxial Cables	Woken	00100A1F1A185C	RF72	11/19/2020	11/18/2021
DC Power Supply	Agilent	E3640A	MY53140006	05/28/2021	05/27/2022
Temperature Chamber	TERCHY	MHK-120LK	1020582	07/01/2021	06/30/2022
Test Software	SGS	Radio Test Software	Ver.21	N.C.R	N.C.R

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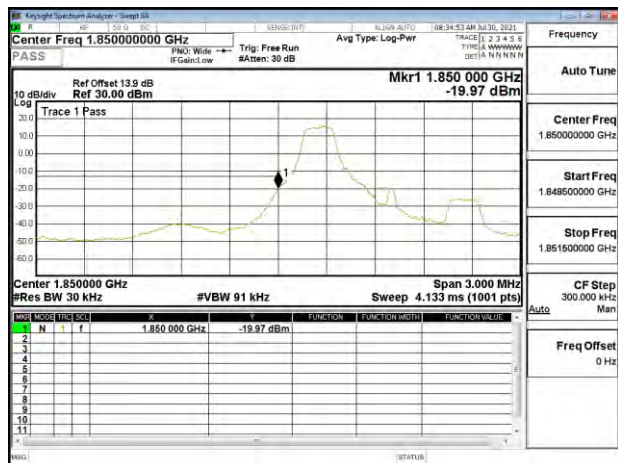
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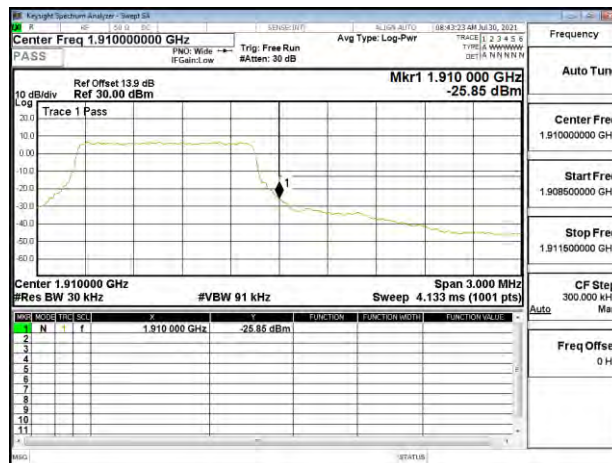
## 8.5 Measurement Result:

### Band Edge

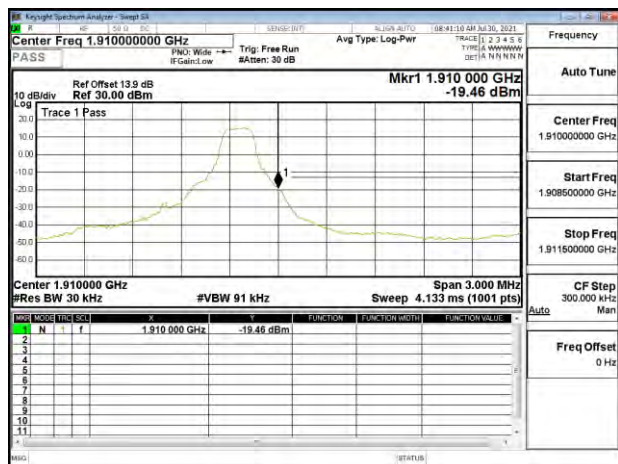
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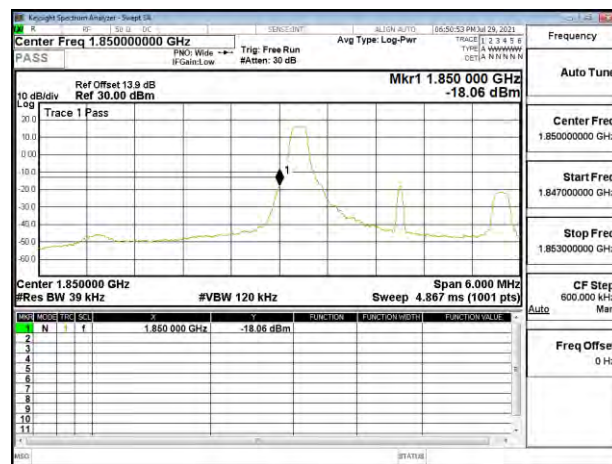
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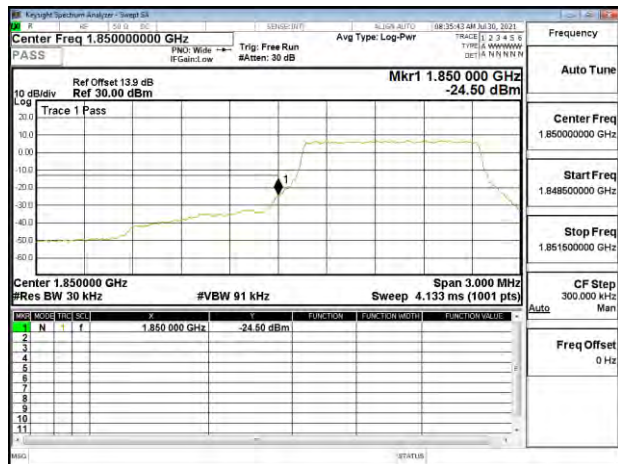
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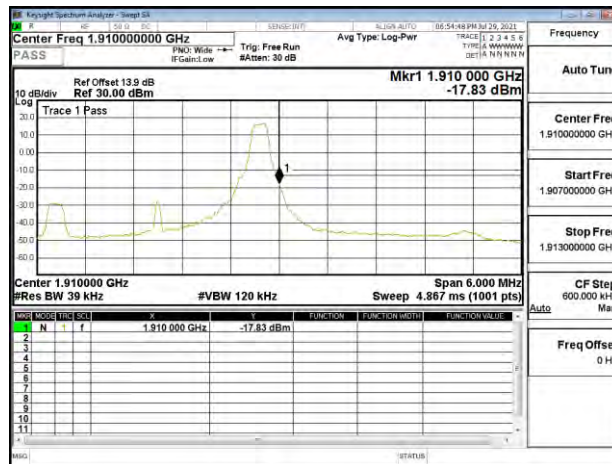
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Band Edge\_Band2\_1.4MHz\_QPSK\_RB6\_0\_CH18607



Band Edge\_Band2\_3MHz\_QPSK\_RB1\_14\_CH19185



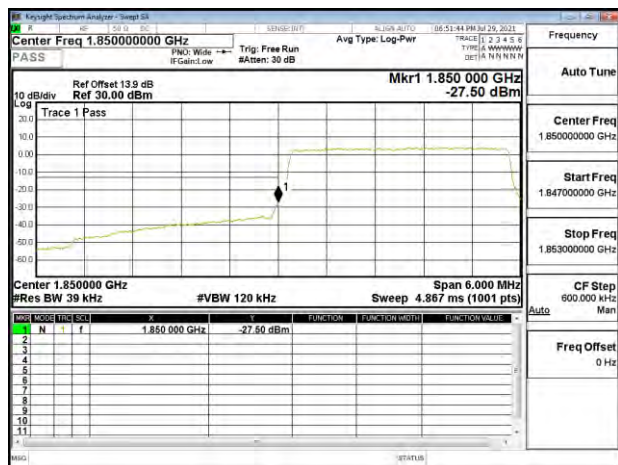
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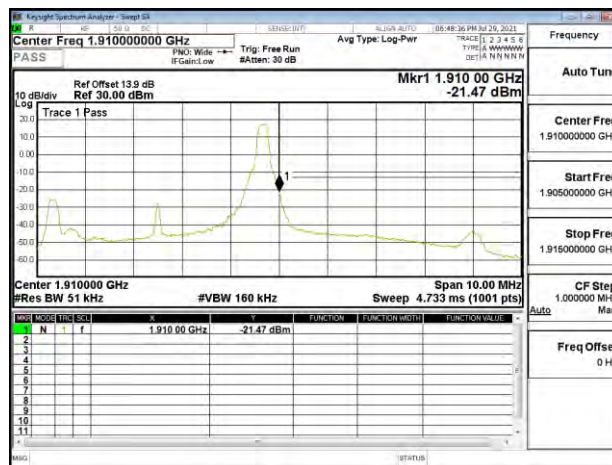
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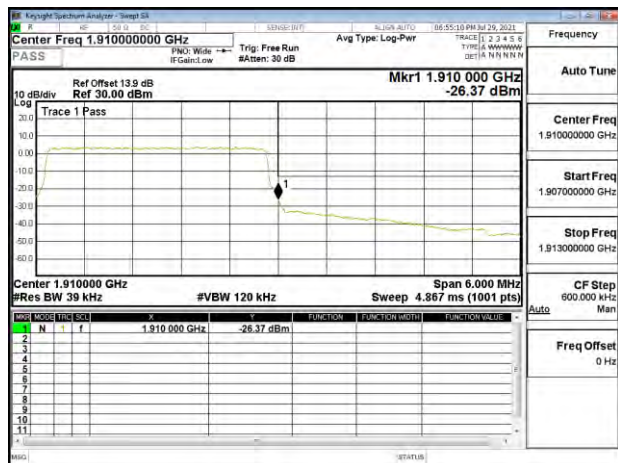
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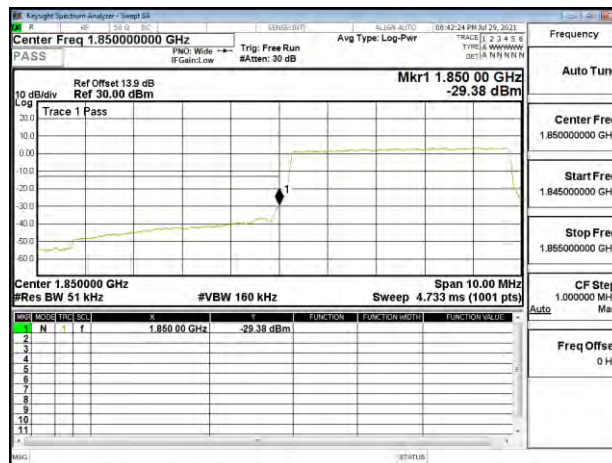
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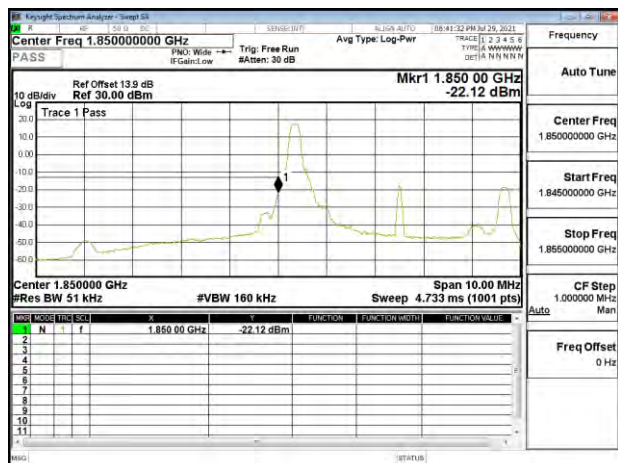
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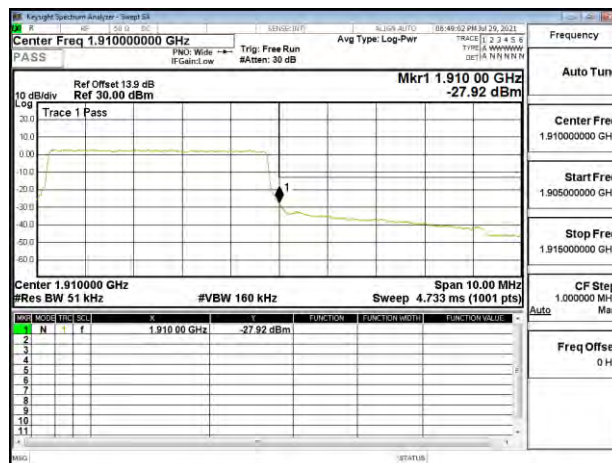
Band Edge\_Band2\_5MHz\_QPSK\_RB25\_0\_CH18625



Band Edge\_Band2\_5MHz\_QPSK\_RB1\_0\_CH18625



Band Edge\_Band2\_5MHz\_QPSK\_RB25\_0\_CH19175



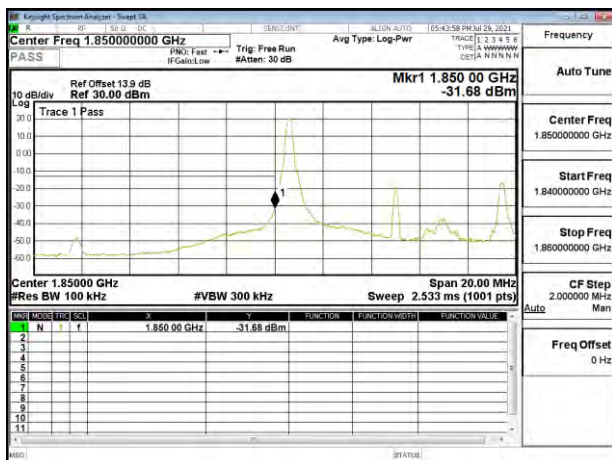
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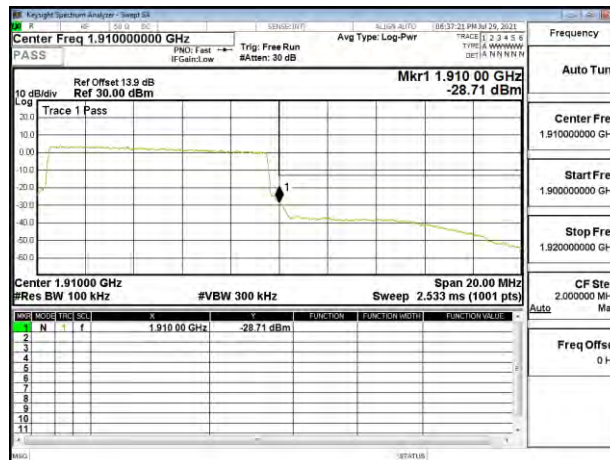
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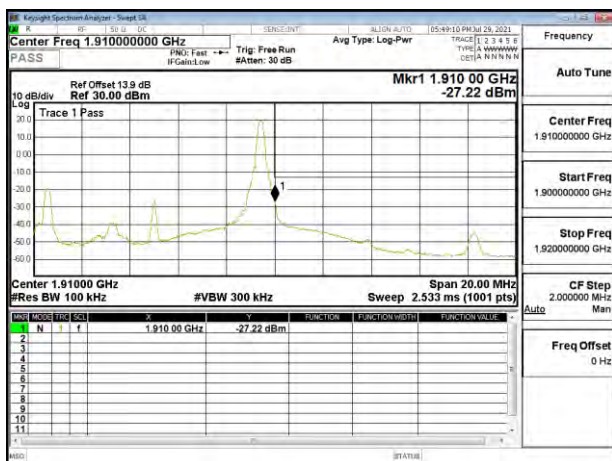
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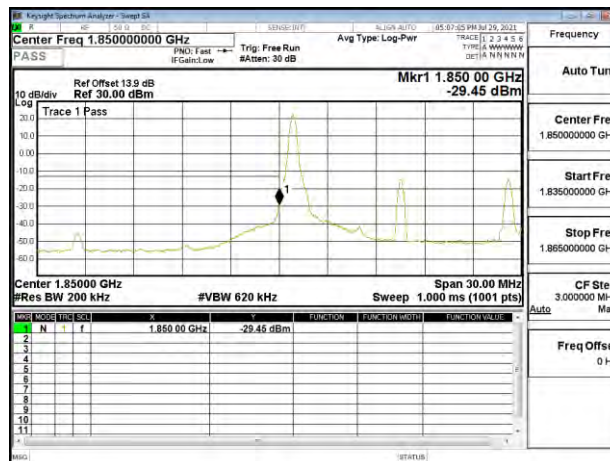
Band Edge\_Band2\_10MHz\_QPSK\_RB50\_0\_CH19150



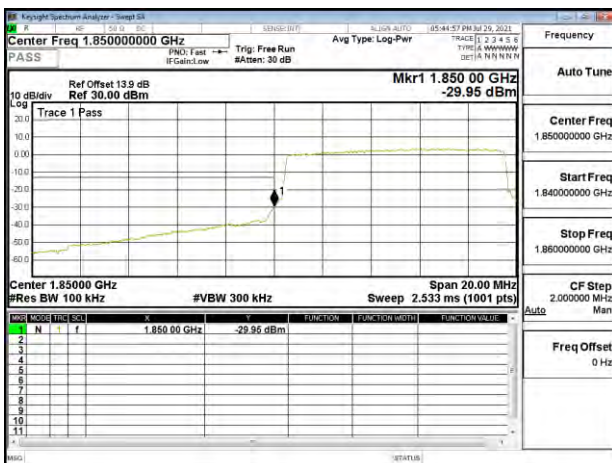
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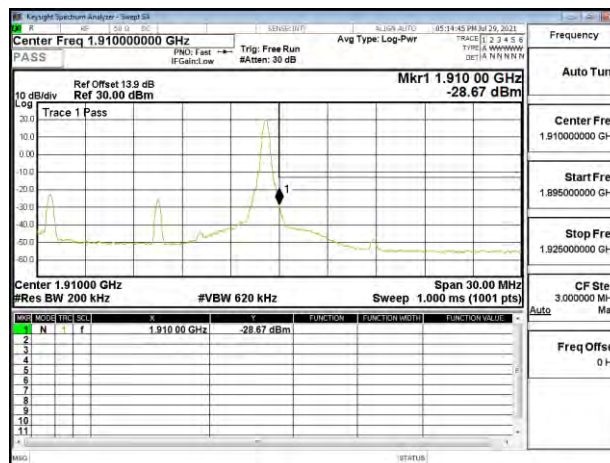
Band Edge\_Band2\_15MHz\_QPSK\_RB1\_0\_CH18675



Band Edge\_Band2\_10MHz\_QPSK\_RB50\_0\_CH18650



Band Edge\_Band2\_15MHz\_QPSK\_RB1\_74\_CH19125

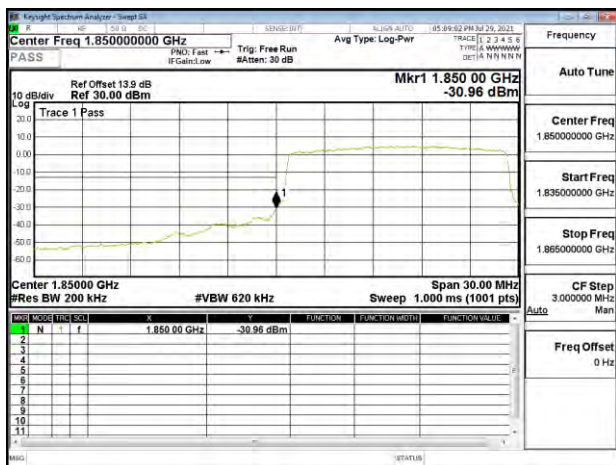


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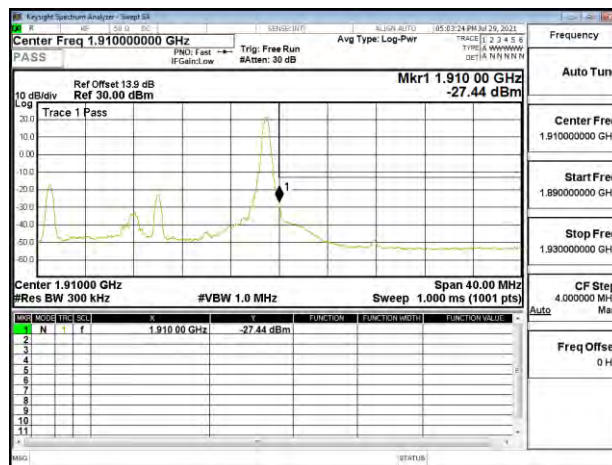
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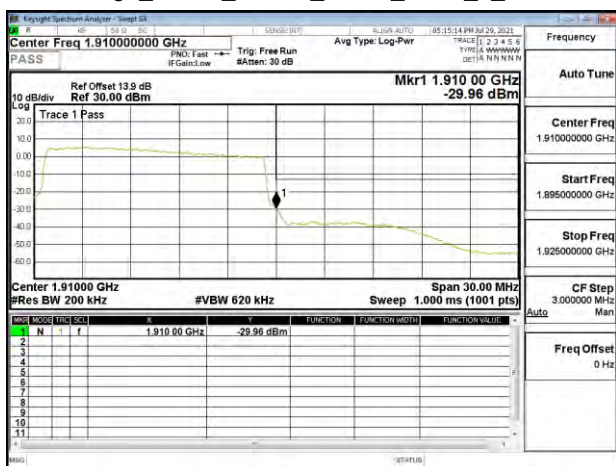
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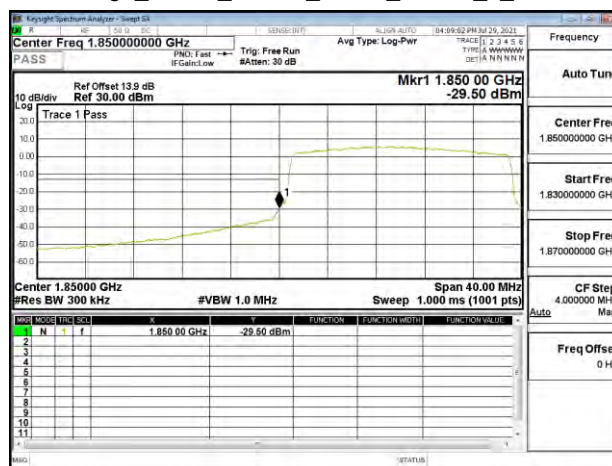
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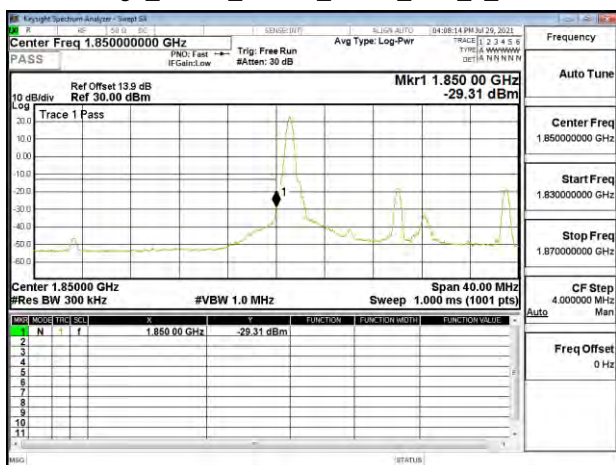
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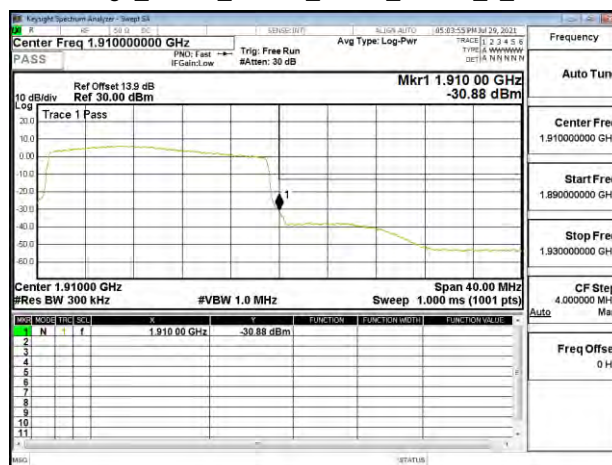
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Band Edge\_Band2\_20MHz\_QPSK\_RB1\_0\_CH18700



Band Edge\_Band2\_20MHz\_QPSK\_RB100\_0\_CH19100



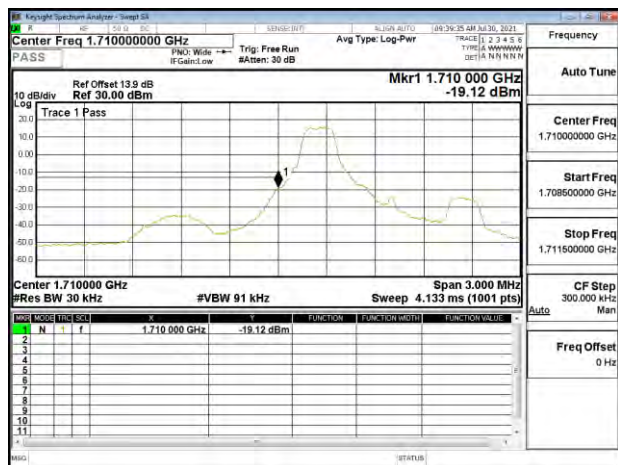
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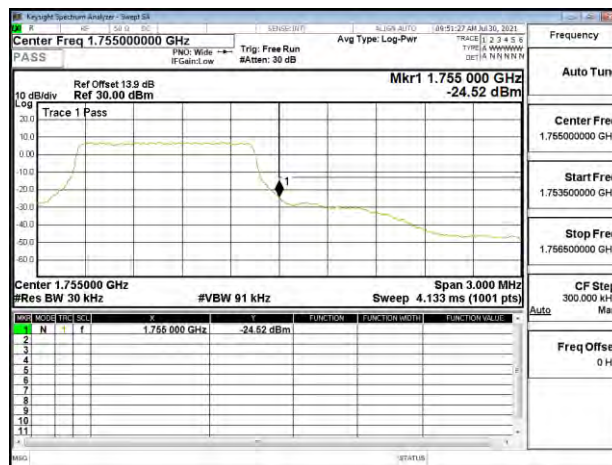
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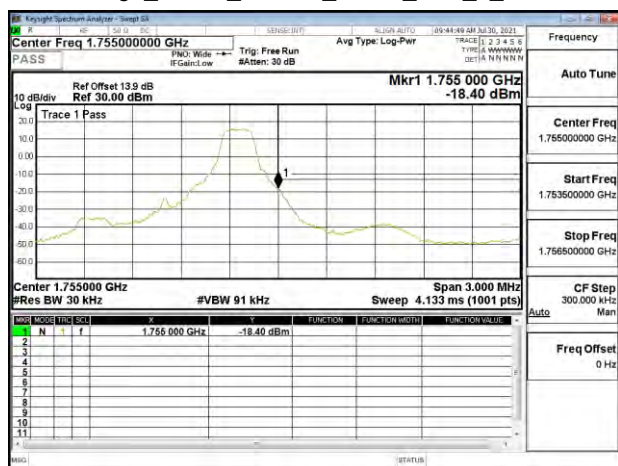
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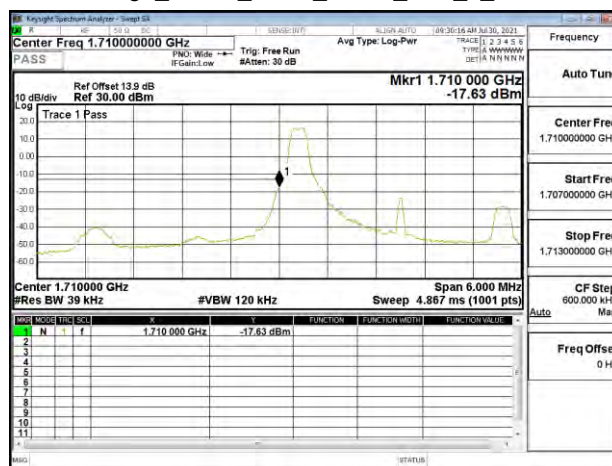
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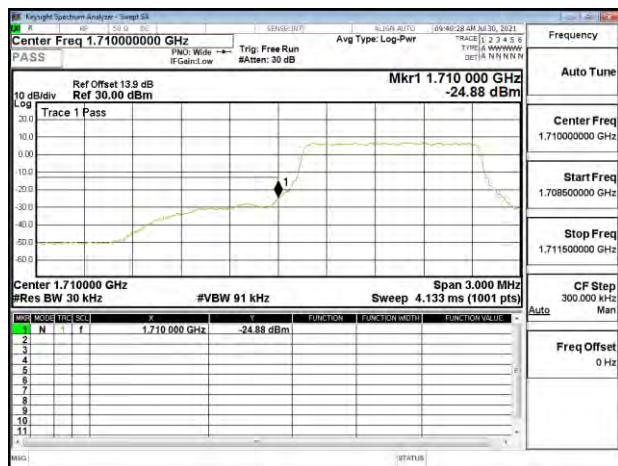
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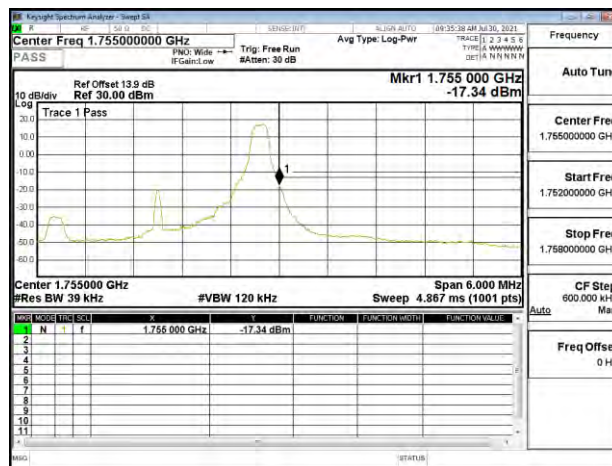
Band Edge\_Band4\_3MHz\_QPSK\_RB1\_0\_CH19965



Band Edge\_Band4\_1.4MHz\_QPSK\_RB6\_0\_CH19957



Band Edge\_Band4\_3MHz\_QPSK\_RB1\_14\_CH20385



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