

ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

OF

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: E2/2021/10020

FCC ID HFS-C501

FCC Rule Part: 2, 24E & 27 C

Issue Date: February 24, 2021

Date of Test: January 12, 2021 - February 2, 2021

Date of EUT Received: January 12, 2021

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 tested as described in this report is in compliance with conducted and radiated emission limits.

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

Approved By: _____

**Jim Chang / Manager**

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Revision History

Report Number	Revision	Description	Issue Date	Revised By
E2/2021/10020	Rev.00	Original.	February 24, 2021	Violetta Tang

Note:

1. Disclaimer

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

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1 GENERAL PRODUCT INFORMATION

1.1 Product Description

General:

Product Name:	Clover Station Solo
Brand Name:	clover
Model No.:	C501
Model Difference:	N/A
Hardware Version:	N/A
Software Version:	N/A
EUT Series No.:	C051UQ04920067 (Conducted) / C051UQ04920071 (Radiated)
Power Supply:	24Vdc from AC/DC Adapter

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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 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 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

1.3 Antenna Designation

Antenna Type	Antenna Part No.
PIFA	N/A

Operating Frequency (MHz)		Peak Gain (dBi)
LTE-Band 2	1850.0 ~ 1910.0	1.89
LTE-Band 4	1710.0 ~ 1755.0	1.83
LTE-Band 12	699.0 ~ 716.0	-0.63

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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	Frequency Tolerance (Hz)
2	1.4	QPSK	24.70	EIRP	0.295	1.0932	1M09G7D	21
		16QAM	24.80	EIRP	0.302	1.0906	1M09D7W	21
2	3	QPSK	24.78	EIRP	0.301	2.6897	2M69G7D	21
		16QAM	24.63	EIRP	0.290	2.6958	2M70D7W	21
2	5	QPSK	24.70	EIRP	0.295	4.4869	4M49G7D	21
		16QAM	24.23	EIRP	0.265	4.4884	4M49D7W	21
2	10	QPSK	24.84	EIRP	0.305	8.9920	8M99G7D	21
		16QAM	24.63	EIRP	0.290	8.9527	8M95D7W	21
2	15	QPSK	25.00	EIRP	0.316	13.490	13M5G7D	21
		16QAM	24.58	EIRP	0.287	13.479	13M5D7W	21
2	20	QPSK	24.92	EIRP	0.310	17.970	18M0G7D	21
		16QAM	24.40	EIRP	0.275	17.972	18M0D7W	21
LTE Band	BW	Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission	Frequency Tolerance (Hz)
4	1.4	QPSK	24.74	EIRP	0.298	1.0896	1M09G7D	14
		16QAM	24.24	EIRP	0.265	1.0879	1M09D7W	14
4	3	QPSK	24.65	EIRP	0.292	2.6888	2M69G7D	14
		16QAM	24.18	EIRP	0.262	2.6951	2M70D7W	14
4	5	QPSK	24.85	EIRP	0.305	4.4828	4M48G7D	14
		16QAM	24.19	EIRP	0.262	4.4825	4M48D7W	14
4	10	QPSK	25.02	EIRP	0.318	8.9884	8M99G7D	14
		16QAM	24.40	EIRP	0.275	8.9559	8M96D7W	14
4	15	QPSK	24.91	EIRP	0.310	13.4870	13M5G7D	14
		16QAM	24.71	EIRP	0.296	13.4690	13M5D7W	14
4	20	QPSK	24.85	EIRP	0.305	17.9520	18M0G7D	14
		16QAM	24.53	EIRP	0.284	17.9730	18M0D7W	14
LTE Band	BW	Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission	Frequency Tolerance (Hz)
12	1.4	QPSK	20.09	ERP	0.102	1.0899	1M09G7D	18
		16QAM	19.21	ERP	0.083	1.0914	1M09D7W	18
12	3	QPSK	19.96	ERP	0.099	2.6892	2M69G7D	18
		16QAM	19.38	ERP	0.087	2.7134	2M71D7W	18
12	5	QPSK	19.86	ERP	0.097	4.4874	4M49G7D	18
		16QAM	19.36	ERP	0.086	4.4898	4M49D7W	18
12	10	QPSK	20.15	ERP	0.104	9.0113	9M01G7D	18
		16QAM	20.05	ERP	0.101	8.9756	8M98D7W	18

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1.5 Test Methodology of Applied Standards

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

ANSI C63.26-2015

KDB971168 D01 Power Meas license Digital System v03r01

KDB412172 D01 Determining ERP and EIRP v01r01

1.6 Test Facility

Laboratory	Test Site Address		FCC Designation number
SGS Taiwan Ltd. Central RF Lab. (TAF code 3702)	☐	No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan.	TW0027
	☒	No.2, Keji 1st Rd., Guishan District, Taoyuan City, Taiwan 333	TW0028

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)	4.3	10	14.3
MB(1GHz - 2GHz)	4.3	10	14.3

2.5 Final Amplifier Voltage and Current Information:

Test Mode	DC voltage (V)	DC current (mA)
LTE Band 2	24	0.54
LTE Band 4		0.54
LTE Band 12		0.55

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2.6 Configuration of Tested System

Fig. 2-1 Configuration of Tested System (Fixed Channel-Conducted)

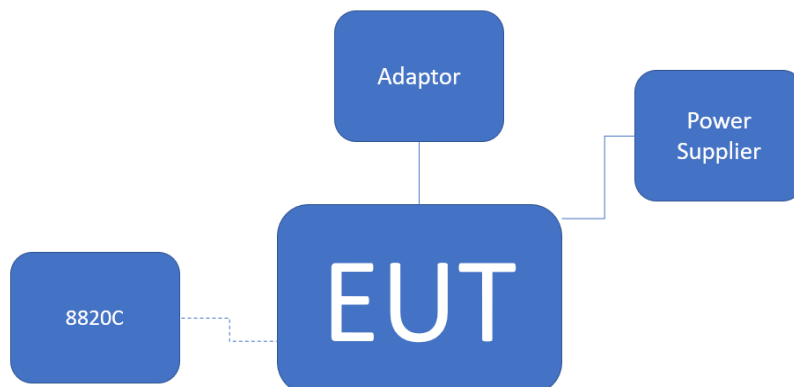


Fig. 2-2 Configuration of Tested System (Fixed Channel-Radiated)



Table 2-1 Equipment Used in

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.
1.	Radio Communication Analyzer	Anritsu	MT8820C	6201465316
2.	Radio Communication Analyzer	Anritsu	MT8820C	6201107337
3.	DC Power Supply	DHA	DPS-3003	9411005787

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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) §27.50(d)(4)	ERP/ EIRP measurement	Compliant
§2.1049(h)	99% & 26dB Occupied Bandwidth	Compliant
§2.1051 §24.238(a) §27.50(h) §27.53(g)	Out of Band Emissions at Antenna Terminals and Band Edge / Emission mask requirements	Compliant
§2.1053 §24.238(a) §27.53(g) §27.53(h)	Field Strength of Spurious Radiation	Compliant
§24.232(d) §27.50(B)	Peak to Average Ratio	Compliant
§2.1055(a)(1) §24.235 §27.54	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 PLAN	E1 PLAN	E2 PLAN
LTE Band 2	V		
LTE Band 4	V		
LTE Band 12	V		

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
Frequency Stability	2	-	V	-				V			V	-	-	-	V
	4	-	V	-				V			V	-	-	-	V
	12	-	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
Peak-to-Average Ratio	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
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	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
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	-	-

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5 MEASUREMENT UNCERTAINTY

Test Items	Uncertainty
RF Power Output	+/- 1 dB
ERP/ EIRP measurement	Vertical Polarization = +/- 3dB Horizontal Polarization = +/- 3dB
99% Occupied Bandwidth	+/- 1.54 Hz
Out of Band Emissions at Antenna Terminals and Band Edge	+/- 1.69 dB
Peak to Average Ratio	+/- 1 dB
Frequency Stability vs. Temperature	+/- 1.54 Hz
Frequency Stability vs. Voltage	+/- 1.54 Hz
Temperature	+/- 0.4 °C
Humidity	+/- 3.5 %
DC / AC Power Source	DC= +/- 1%, AC= +/- 1%

Radiated Spurious Emission Measurement Uncertainty			
Polarization: Vertical	+/- 2.64 dB	9kHz~30MHz: +/-2.3dB	
	+/- 4.93 dB	30MHz - 1000MHz: +/- 3.37dB	
	+/- 4.81 dB	1GHz - 18GHz: +/- 4.04dB	
	+/- 4.52 dB	18GHz - 40GHz: +/- 4.04dB	
Polarization: Horizontal	+/- 2.64 dB	9kHz~30MHz: +/-2.3dB	
	+/- 4.45 dB	30MHz - 1000MHz: +/- 4.22dB	
	+/- 4.81 dB	1GHz - 18GHz: +/- 4.08dB	
	+/- 4.52 dB	18GHz - 40GHz: +/- 4.08dB	

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) LTE 2

Mobile and portable stations are limited to 2 W EIRP.

FCC 27.50(c) LTE 12

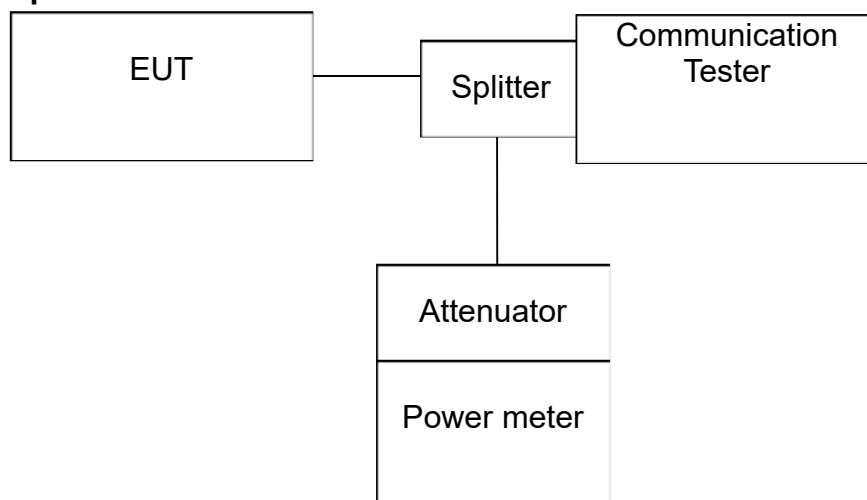
(9) Control and mobile stations in the 698-746 MHz band are limited to 30 watts ERP.

(10) Portable stations (hand-held devices) are limited to 3 watts ERP.

FCC 27.50(d) LTE 4

(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.

6.2 Test Set-up



Note: Measurement setup for testing on Antenna connector

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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. TS 151 010-1 is reference to conduct the test measurement of output power. The Procedure of KDB941225 (SAR Measurement Procedures for 3G devices, (WCDMA/HSPA) was used for EUT and Base station setting. RMC 12.2kps is used for this testing, and 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.

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)²), 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 A					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY57120290	02/20/2020	02/19/2021
Radio Communication Analyzer	Anritsu	MT8820C	6201465316	06/18/2020	06/17/2021
DC Power Supply	DHA	DPS-3003	9411005787	08/19/2020	08/18/2021
Attenuator	Marvelous	MVE2213-10	RF06	11/19/2020	11/18/2021
DC Block	PASTERNAK	PE8210	RF152	11/19/2020	11/18/2021
Splitter	Marvelous Microwave	MVE8586	RF259	11/19/2020	11/18/2021
Coaxial Cables	Woken	00100A1F1A185C	RF55	11/19/2020	11/18/2021

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6.6 LTE 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	22.61	24.50	33	-8.5
				1	5	22.54	24.43	33	-8.57
				3	2	22.71	24.60	33	-8.4
				6	0	21.74	23.63	33	-9.37
	18900	1880	QPSK	1	0	22.76	24.65	33	-8.35
				1	5	22.69	24.58	33	-8.42
				3	2	22.65	24.54	33	-8.46
				6	0	21.89	23.78	33	-9.22
	19193	1909.3	QPSK	1	0	22.81	24.70	33	-8.3
				1	5	22.69	24.58	33	-8.42
				3	2	22.66	24.55	33	-8.45
				6	0	21.81	23.70	33	-9.3
1.4	18607	1850.7	16QAM	1	0	22.91	24.80	33	-8.2
				1	5	22.84	24.73	33	-8.27
				3	2	22.86	24.75	33	-8.25
				6	0	21.70	23.59	33	-9.41
	18900	1880	16QAM	1	0	22.79	24.68	33	-8.32
				1	5	22.74	24.63	33	-8.37
				3	2	22.71	24.60	33	-8.4
				6	0	21.60	23.49	33	-9.51
	19193	1909.3	16QAM	1	0	22.78	24.67	33	-8.33
				1	5	22.85	24.74	33	-8.26
				3	2	22.76	24.65	33	-8.35
				6	0	21.74	23.63	33	-9.37

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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)
3	18615	1851.5	QPSK	1	0	22.68	24.57	33	-8.43
				1	14	22.74	24.63	33	-8.37
				8	4	22.35	24.24	33	-8.76
				15	0	21.98	23.87	33	-9.13
	18900	1880	QPSK	1	0	22.89	24.78	33	-8.22
				1	14	22.64	24.53	33	-8.47
				8	4	21.89	23.78	33	-9.22
				15	0	21.95	23.84	33	-9.16
	19185	1908.5	QPSK	1	0	22.76	24.65	33	-8.35
				1	14	22.67	24.56	33	-8.44
				8	4	21.67	23.56	33	-9.44
				15	0	21.86	23.75	33	-9.25
3	18615	1851.5	16QAM	1	0	22.68	24.57	33	-8.43
				1	14	22.59	24.48	33	-8.52
				8	4	21.98	23.87	33	-9.13
				15	0	21.79	23.68	33	-9.32
	18900	1880	16QAM	1	0	22.74	24.63	33	-8.37
				1	14	22.15	24.04	33	-8.96
				8	4	21.97	23.86	33	-9.14
				15	0	21.67	23.56	33	-9.44
	19185	1908.5	16QAM	1	0	22.45	24.34	33	-8.66
				1	14	22.35	24.24	33	-8.76
				8	4	21.79	23.68	33	-9.32
				15	0	21.74	23.63	33	-9.37

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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	22.74	24.63	33	-8.37
				1	24	22.68	24.57	33	-8.43
				12	6	21.74	23.63	33	-9.37
				25	0	21.72	23.61	33	-9.39
	18900	1880	QPSK	1	0	22.81	24.70	33	-8.3
				1	24	22.62	24.51	33	-8.49
				12	6	21.65	23.54	33	-9.46
				25	0	21.63	23.52	33	-9.48
	19175	1907.5	QPSK	1	0	22.64	24.53	33	-8.47
				1	24	22.34	24.23	33	-8.77
				12	6	21.74	23.63	33	-9.37
				25	0	21.68	23.57	33	-9.43
5	18625	1852.5	16QAM	1	0	22.11	24.00	33	-9
				1	24	21.88	23.77	33	-9.23
				12	6	21.23	23.12	33	-9.88
				25	0	21.01	22.90	33	-10.1
	18900	1880	16QAM	1	0	22.34	24.23	33	-8.77
				1	24	22.04	23.93	33	-9.07
				12	6	21.16	23.05	33	-9.95
				25	0	20.98	22.87	33	-10.13
	19175	1907.5	16QAM	1	0	22.17	24.06	33	-8.94
				1	24	21.72	23.61	33	-9.39
				12	6	20.97	22.86	33	-10.14
				25	0	20.87	22.76	33	-10.24

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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	22.95	24.84	33	-8.16
				1	49	22.69	24.58	33	-8.42
				25	12	21.71	23.60	33	-9.4
				50	0	21.68	23.57	33	-9.43
	18900	1880	QPSK	1	0	22.88	24.77	33	-8.23
				1	49	22.62	24.51	33	-8.49
				25	12	21.69	23.58	33	-9.42
				50	0	21.50	23.39	33	-9.61
	19150	1905	QPSK	1	0	22.78	24.67	33	-8.33
				1	49	22.60	24.49	33	-8.51
				25	12	21.70	23.59	33	-9.41
				50	0	21.43	23.32	33	-9.68
10	18650	1855	16QAM	1	0	22.32	24.21	33	-8.79
				1	49	22.11	24.00	33	-9
				25	12	22.74	24.63	33	-8.37
				50	0	21.95	23.84	33	-9.16
	18900	1880	16QAM	1	0	22.37	24.26	33	-8.74
				1	49	21.95	23.84	33	-9.16
				25	12	21.91	23.80	33	-9.2
				50	0	21.11	23.00	33	-10
	19150	1905	16QAM	1	0	22.22	24.11	33	-8.89
				1	49	21.87	23.76	33	-9.24
				25	12	21.75	23.64	33	-9.36
				50	0	21.03	22.92	33	-10.08

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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	23.06	24.95	33	-8.05
				1	74	22.59	24.48	33	-8.52
				36	18	21.82	23.71	33	-9.29
				75	0	21.60	23.49	33	-9.51
	18900	1880	QPSK	1	0	23.04	24.93	33	-8.07
				1	74	22.46	24.35	33	-8.65
				36	18	21.94	23.83	33	-9.17
				75	0	21.71	23.60	33	-9.4
	19125	1902.5	QPSK	1	0	23.11	25.00	33	-8
				1	74	22.95	24.84	33	-8.16
				36	18	21.98	23.87	33	-9.13
				75	0	21.70	23.59	33	-9.41
15	18675	1857.5	16QAM	1	0	22.68	24.57	33	-8.43
				1	74	21.98	23.87	33	-9.13
				36	18	21.22	23.11	33	-9.89
				75	0	21.07	22.96	33	-10.04
	18900	1880	16QAM	1	0	22.60	24.49	33	-8.51
				1	74	22.32	24.21	33	-8.79
				36	18	21.16	23.05	33	-9.95
				75	0	21.07	22.96	33	-10.04
	19125	1902.5	16QAM	1	0	22.69	24.58	33	-8.42
				1	74	22.11	24.00	33	-9
				36	18	21.71	23.60	33	-9.4
				75	0	21.22	23.11	33	-9.89

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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	23.02	24.91	33	-8.09
				1	99	22.29	24.18	33	-8.82
				50	25	21.78	23.67	33	-9.33
				100	0	21.85	23.74	33	-9.26
	18900	1880	QPSK	1	0	23.00	24.89	33	-8.11
				1	99	22.31	24.20	33	-8.8
				50	25	21.64	23.53	33	-9.47
				100	0	21.79	23.68	33	-9.32
	19100	1900	QPSK	1	0	23.03	24.92	33	-8.08
				1	99	22.28	24.17	33	-8.83
				50	25	21.51	23.40	33	-9.6
				100	0	21.65	23.54	33	-9.46
20	18700	1860	16QAM	1	0	22.31	24.20	33	-8.8
				1	99	22.07	23.96	33	-9.04
				50	25	21.40	23.29	33	-9.71
				100	0	21.51	23.40	33	-9.6
	18900	1880	16QAM	1	0	22.51	24.40	33	-8.6
				1	99	22.22	24.11	33	-8.89
				50	25	21.14	23.03	33	-9.97
				100	0	21.36	23.25	33	-9.75
	19100	1900	16QAM	1	0	22.26	24.15	33	-8.85
				1	99	21.94	23.83	33	-9.17
				50	25	21.20	23.09	33	-9.91
				100	0	21.28	23.17	33	-9.83

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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	22.72	24.55	30	-5.45
				1	5	22.71	24.54	30	-5.46
				3	2	22.69	24.52	30	-5.48
				6	0	21.85	23.68	30	-6.32
	20175	1732.5	QPSK	1	0	22.59	24.42	30	-5.58
				1	5	22.65	24.48	30	-5.52
				3	2	22.77	24.60	30	-5.4
				6	0	21.87	23.70	30	-6.3
	20393	1754.3	QPSK	1	0	22.85	24.68	30	-5.32
				1	5	22.83	24.66	30	-5.34
				3	2	22.91	24.74	30	-5.26
				6	0	22.00	23.83	30	-6.17
1.4	19957	1710.7	16QAM	1	0	22.17	24.00	30	-6
				1	5	22.06	23.89	30	-6.11
				3	2	22.05	23.88	30	-6.12
				6	0	21.18	23.01	30	-6.99
	20175	1732.5	16QAM	1	0	22.03	23.86	30	-6.14
				1	5	21.96	23.79	30	-6.21
				3	2	21.94	23.77	30	-6.23
				6	0	21.18	23.01	30	-6.99
	20393	1754.3	16QAM	1	0	22.41	24.24	30	-5.76
				1	5	22.38	24.21	30	-5.79
				3	2	21.98	23.81	30	-6.19
				6	0	21.35	23.18	30	-6.82

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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)
3	19965	1711.5	QPSK	1	0	22.78	24.61	30	-5.39
				1	14	22.62	24.45	30	-5.55
				8	4	21.93	23.76	30	-6.24
				15	0	21.88	23.71	30	-6.29
	20175	1732.5	QPSK	1	0	22.66	24.49	30	-5.51
				1	14	22.56	24.39	30	-5.61
				8	4	21.88	23.71	30	-6.29
				15	0	21.81	23.64	30	-6.36
	20385	1753.5	QPSK	1	0	22.82	24.65	30	-5.35
				1	14	22.70	24.53	30	-5.47
				8	4	22.02	23.85	30	-6.15
				15	0	21.97	23.80	30	-6.2
3	19965	1711.5	16QAM	1	0	22.03	23.86	30	-6.14
				1	14	21.95	23.78	30	-6.22
				8	4	21.22	23.05	30	-6.95
				15	0	21.15	22.98	30	-7.02
	20175	1732.5	16QAM	1	0	21.81	23.64	30	-6.36
				1	14	21.84	23.67	30	-6.33
				8	4	21.13	22.96	30	-7.04
				15	0	21.15	22.98	30	-7.02
	20385	1753.5	16QAM	1	0	22.35	24.18	30	-5.82
				1	14	22.33	24.16	30	-5.84
				8	4	21.35	23.18	30	-6.82
				15	0	21.34	23.17	30	-6.83

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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	22.90	24.73	30	-5.27
				1	24	22.61	24.44	30	-5.56
				12	6	21.79	23.62	30	-6.38
				25	0	21.81	23.64	30	-6.36
	20175	1732.5	QPSK	1	0	22.76	24.59	30	-5.41
				1	24	22.64	24.47	30	-5.53
				12	6	21.81	23.64	30	-6.36
				25	0	21.70	23.53	30	-6.47
	20375	1752.5	QPSK	1	0	23.02	24.85	30	-5.15
				1	24	22.76	24.59	30	-5.41
				12	6	21.96	23.79	30	-6.21
				25	0	21.93	23.76	30	-6.24
5	19975	1712.5	16QAM	1	0	22.13	23.96	30	-6.04
				1	24	21.97	23.80	30	-6.2
				12	6	21.30	23.13	30	-6.87
				25	0	20.95	22.78	30	-7.22
	20175	1732.5	16QAM	1	0	22.36	24.19	30	-5.81
				1	24	22.29	24.12	30	-5.88
				12	6	21.37	23.20	30	-6.8
				25	0	21.04	22.87	30	-7.13
	20375	1752.5	16QAM	1	0	22.20	24.03	30	-5.97
				1	24	22.09	23.92	30	-6.08
				12	6	21.17	23.00	30	-7
				25	0	21.36	23.19	30	-6.81

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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)
10	20000	1715	QPSK	1	0	23.13	24.96	30	-5.04
				1	49	22.72	24.55	30	-5.45
				25	12	22.22	24.05	30	-5.95
				50	0	22.07	23.90	30	-6.1
	20175	1732.5	QPSK	1	0	23.01	24.84	30	-5.16
				1	49	22.82	24.65	30	-5.35
				25	12	22.31	24.14	30	-5.86
				50	0	22.13	23.96	30	-6.04
	20350	1750	QPSK	1	0	23.19	25.02	30	-4.98
				1	49	22.98	24.81	30	-5.19
				25	12	22.49	24.32	30	-5.68
				50	0	22.28	24.11	30	-5.89
10	20000	1715	16QAM	1	0	22.57	24.40	30	-5.6
				1	49	22.29	24.12	30	-5.88
				25	12	21.59	23.42	30	-6.58
				50	0	21.05	22.88	30	-7.12
	20175	1732.5	16QAM	1	0	22.46	24.29	30	-5.71
				1	49	22.34	24.17	30	-5.83
				25	12	21.80	23.63	30	-6.37
				50	0	21.12	22.95	30	-7.05
	20350	1750	16QAM	1	0	22.53	24.36	30	-5.64
				1	49	22.38	24.21	30	-5.79
				25	12	21.93	23.76	30	-6.24
				50	0	21.28	23.11	30	-6.89

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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	23.00	24.83	30	-5.17
				1	74	22.34	24.17	30	-5.83
				36	18	22.06	23.89	30	-6.11
				75	0	21.86	23.69	30	-6.31
	20175	1732.5	QPSK	1	0	23.02	24.85	30	-5.15
				1	74	22.69	24.52	30	-5.48
				36	18	22.11	23.94	30	-6.06
				75	0	21.96	23.79	30	-6.21
	20325	1747.5	QPSK	1	0	23.08	24.91	30	-5.09
				1	74	22.57	24.40	30	-5.6
				36	18	22.24	24.07	30	-5.93
				75	0	21.95	23.78	30	-6.22
15	20025	1717.5	16QAM	1	0	22.38	24.21	30	-5.79
				1	74	21.72	23.55	30	-6.45
				36	18	21.22	23.05	30	-6.95
				75	0	21.05	22.88	30	-7.12
	20175	1732.5	16QAM	1	0	22.53	24.36	30	-5.64
				1	74	22.16	23.99	30	-6.01
				36	18	21.27	23.10	30	-6.9
				75	0	20.99	22.82	30	-7.18
	20325	1747.5	16QAM	1	0	22.88	24.71	30	-5.29
				1	74	22.48	24.31	30	-5.69
				36	18	21.39	23.22	30	-6.78
				75	0	21.15	22.98	30	-7.02

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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)
20	20050	1720	QPSK	1	0	23.02	24.85	30	-5.15
				1	99	22.44	24.27	30	-5.73
				50	25	22.02	23.85	30	-6.15
				100	0	21.85	23.68	30	-6.32
	20175	1732.5	QPSK	1	0	22.90	24.73	30	-5.27
				1	99	22.53	24.36	30	-5.64
				50	25	22.11	23.94	30	-6.06
				100	0	21.90	23.73	30	-6.27
	20300	1745	QPSK	1	0	23.00	24.83	30	-5.17
				1	99	22.53	24.36	30	-5.64
				50	25	22.15	23.98	30	-6.02
				100	0	21.95	23.78	30	-6.22
20	20050	1720	16QAM	1	0	22.24	24.07	30	-5.93
				1	99	21.64	23.47	30	-6.53
				50	25	21.09	22.92	30	-7.08
				100	0	20.87	22.70	30	-7.3
	20175	1732.5	16QAM	1	0	22.49	24.32	30	-5.68
				1	99	22.05	23.88	30	-6.12
				50	25	21.24	23.07	30	-6.93
				100	0	20.97	22.80	30	-7.2
	20300	1745	16QAM	1	0	22.70	24.53	30	-5.47
				1	99	22.16	23.99	30	-6.01
				50	25	21.28	23.11	30	-6.89
				100	0	21.09	22.92	30	-7.08

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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	22.87	20.09	22.24	34.77	-14.68
				1	5	22.76	19.98	22.13	34.77	-14.79
				3	2	22.53	19.75	21.90	34.77	-15.02
				6	0	21.67	18.89	21.04	34.77	-15.88
	23095	707.5	QPSK	1	0	22.69	19.91	22.06	34.77	-14.86
				1	5	22.46	19.68	21.83	34.77	-15.09
				3	2	22.70	19.92	22.07	34.77	-14.85
				6	0	21.55	18.77	20.92	34.77	-16.00
	23173	715.5	QPSK	1	0	22.79	20.01	22.16	34.77	-14.76
				1	5	22.69	19.91	22.06	34.77	-14.86
				3	2	22.73	19.95	22.10	34.77	-14.82
				6	0	21.78	19.00	21.15	34.77	-15.77
1.4	23017	699.7	16QAM	1	0	21.99	19.21	21.36	34.77	-15.56
				1	5	21.72	18.94	21.09	34.77	-15.83
				3	2	21.84	19.06	21.21	34.77	-15.71
				6	0	20.93	18.15	20.30	34.77	-16.62
	23095	707.5	16QAM	1	0	21.28	18.50	20.65	34.77	-16.27
				1	5	21.24	18.46	20.61	34.77	-16.31
				3	2	21.20	18.42	20.57	34.77	-16.35
				6	0	20.93	18.15	20.30	34.77	-16.62
	23173	715.5	16QAM	1	0	21.76	18.98	21.13	34.77	-15.79
				1	5	21.39	18.61	20.76	34.77	-16.16
				3	2	21.72	18.94	21.09	34.77	-15.83
				6	0	20.91	18.13	20.28	34.77	-16.64

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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)
3	23025	700.5	QPSK	1	0	22.68	19.90	22.05	34.77	-14.87
				1	14	22.56	19.78	21.93	34.77	-14.99
				8	4	21.71	18.93	21.08	34.77	-15.84
				15	0	21.67	18.89	21.04	34.77	-15.88
	23095	707.5	QPSK	1	0	22.46	19.68	21.83	34.77	-15.09
				1	14	22.60	19.82	21.97	34.77	-14.95
				8	4	21.64	18.86	21.01	34.77	-15.91
				15	0	21.67	18.89	21.04	34.77	-15.88
	23165	714.5	QPSK	1	0	22.64	19.86	22.01	34.77	-14.91
				1	14	22.74	19.96	22.11	34.77	-14.81
				8	4	21.77	18.99	21.14	34.77	-15.78
				15	0	21.83	19.05	21.20	34.77	-15.72
3	23025	700.5	16QAM	1	0	22.01	19.23	21.38	34.77	-15.54
				1	14	21.89	19.11	21.26	34.77	-15.66
				8	4	21.18	18.40	20.55	34.77	-16.37
				15	0	21.00	18.22	20.37	34.77	-16.55
	23095	707.5	16QAM	1	0	22.16	19.38	21.53	34.77	-15.39
				1	14	21.35	18.57	20.72	34.77	-16.20
				8	4	21.22	18.44	20.59	34.77	-16.33
				15	0	20.74	17.96	20.11	34.77	-16.81
	23165	714.5	16QAM	1	0	21.97	19.19	21.34	34.77	-15.58
				1	14	21.61	18.83	20.98	34.77	-15.94
				8	4	21.36	18.58	20.73	34.77	-16.19
				15	0	21.15	18.37	20.52	34.77	-16.40

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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	22.60	19.82	21.97	34.77	-14.95
				1	24	22.58	19.80	21.95	34.77	-14.97
				12	6	21.96	19.18	21.33	34.77	-15.59
				25	0	21.68	18.90	21.05	34.77	-15.87
	23095	707.5	QPSK	1	0	22.42	19.64	21.79	34.77	-15.13
				1	24	22.49	19.71	21.86	34.77	-15.06
				12	6	21.88	19.10	21.25	34.77	-15.67
				25	0	21.57	18.79	20.94	34.77	-15.98
	23155	713.5	QPSK	1	0	22.52	19.74	21.89	34.77	-15.03
				1	24	22.64	19.86	22.01	34.77	-14.91
				12	6	21.89	19.11	21.26	34.77	-15.66
				25	0	21.84	19.06	21.21	34.77	-15.71
5	23035	701.5	16QAM	1	0	22.14	19.36	21.51	34.77	-15.41
				1	24	21.92	19.14	21.29	34.77	-15.63
				12	6	21.24	18.46	20.61	34.77	-16.31
				25	0	20.77	17.99	20.14	34.77	-16.78
	23095	707.5	16QAM	1	0	21.89	19.11	21.26	34.77	-15.66
				1	24	21.83	19.05	21.20	34.77	-15.72
				12	6	21.16	18.38	20.53	34.77	-16.39
				25	0	20.84	18.06	20.21	34.77	-16.71
	23155	713.5	16QAM	1	0	22.00	19.22	21.37	34.77	-15.55
				1	24	21.26	18.48	20.63	34.77	-16.29
				12	6	21.14	18.36	20.51	34.77	-16.41
				25	0	20.89	18.11	20.26	34.77	-16.66

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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)
10	23060	704	QPSK	1	0	22.86	20.08	22.23	34.77	-14.69
				1	49	22.82	20.04	22.19	34.77	-14.73
				25	12	21.80	19.02	21.17	34.77	-15.75
				50	0	21.77	18.99	21.14	34.77	-15.78
	23095	707.5	QPSK	1	0	22.93	20.15	22.30	34.77	-14.62
				1	49	22.65	19.87	22.02	34.77	-14.90
				25	12	21.78	19.00	21.15	34.77	-15.77
				50	0	21.78	19.00	21.15	34.77	-15.77
	23130	711	QPSK	1	0	22.73	19.95	22.10	34.77	-14.82
				1	49	22.56	19.78	21.93	34.77	-14.99
				25	12	21.92	19.14	21.29	34.77	-15.63
				50	0	21.89	19.11	21.26	34.77	-15.66
10	23060	704	16QAM	1	0	22.17	19.39	21.54	34.77	-15.38
				1	49	22.13	19.35	21.50	34.77	-15.42
				25	12	21.26	18.48	20.63	34.77	-16.29
				50	0	20.70	17.92	20.07	34.77	-16.85
	23095	707.5	16QAM	1	0	21.97	19.19	21.34	34.77	-15.58
				1	49	21.81	19.03	21.18	34.77	-15.74
				25	12	21.12	18.34	20.49	34.77	-16.43
				50	0	20.68	17.90	20.05	34.77	-16.87
	23130	711	16QAM	1	0	22.83	20.05	22.20	34.77	-14.72
				1	49	21.67	18.89	21.04	34.77	-15.88
				25	12	21.37	18.59	20.74	34.77	-16.18
				50	0	20.71	17.93	20.08	34.77	-16.84

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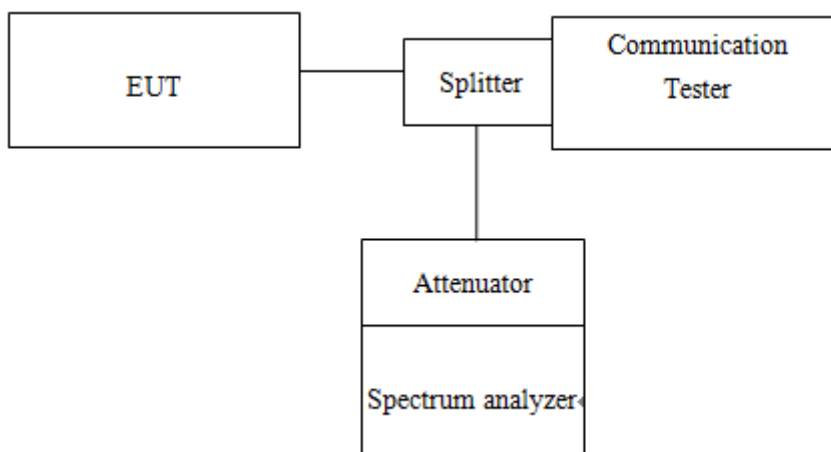
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7 OCCUPIED BANDWIDTH MEASUREMENT

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%.

7.4 Measurement Equipment Used

Conducted Emission Test Site: Conducted A					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY57120290	02/20/2020	02/19/2021
Radio Communication Analyzer	Anritsu	MT8820C	6201465316	06/18/2020	06/17/2021
DC Power Supply	DHA	DPS-3003	9411005787	08/19/2020	08/18/2021
Attenuator	Marvelous	MVE2213-10	RF06	11/19/2020	11/18/2021
DC Block	PASTERNAK	PE8210	RF152	11/19/2020	11/18/2021
Splitter	Marvelous Microwave	MVE8586	RF259	11/19/2020	11/18/2021
Coaxial Cables	Woken	00100A1F1A185 C	RF55	11/19/2020	11/18/2021

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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	1.0879	1.322	1.300
1880.0	18900	1.0899	1.0892	1.358	1.317
1909.3	19193	1.0932	1.0906	1.601	1.356

LTE BAND 2 Channel bandwidth: 3MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1851.5	18615	2.6877	2.6941	2.940	2.988
1880.0	18900	2.6897	2.6958	2.954	3.002
1908.5	19185	2.6893	2.6922	2.957	3.004

LTE BAND 2 Channel bandwidth: 5MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1852.5	18625	4.4794	4.4834	4.971	5.017
1880.0	18900	4.4869	4.4838	5.016	5.015
1907.5	19175	4.4825	4.4884	5.068	5.016

LTE BAND 2 Channel bandwidth: 10MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1855.0	18650	8.9704	8.9399	10.230	9.940
1880.0	18900	8.9920	8.9527	10.210	10.040
1905.0	19150	8.9853	8.9489	10.200	10.070

LTE BAND 2 Channel bandwidth: 15MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1857.5	18675	13.454	13.438	15.34	15.59
1880.0	18900	13.490	13.479	15.43	15.79
1902.5	19125	13.489	13.468	15.37	15.63

LTE BAND 2 Channel bandwidth: 20MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1860.0	18700	17.894	17.923	20.08	20.05
1880.0	18900	17.970	17.972	20.32	20.33
1900.0	19100	17.920	17.930	20.21	20.08

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LTE BAND 4 Channel bandwidth: 1.4MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1710.7	19957	1.0887	1.0874	1.310	1.293
1732.5	20175	1.0896	1.0877	1.306	1.302
1754.3	20393	1.0889	1.0879	1.315	1.320

LTE BAND 4 Channel bandwidth: 3MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1711.5	19965	2.6872	2.6930	2.959	2.974
1732.5	20175	2.6861	2.6951	2.940	2.976
1753.5	20385	2.6888	2.6906	2.961	2.994

LTE BAND 4 Channel bandwidth: 5MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1712.5	19975	4.4819	4.4797	5.006	4.971
1732.5	20175	4.4824	4.4824	5.011	4.999
1752.5	20375	4.4828	4.4825	5.040	4.985

LTE BAND 4 Channel bandwidth: 10MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1715.0	20000	8.9872	8.9428	10.240	10.010
1732.5	20175	8.9820	8.9436	10.170	9.982
1750.0	20350	8.9884	8.9559	10.250	10.010

LTE BAND 4 Channel bandwidth: 15MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1717.5	20025	13.475	13.464	15.48	15.74
1732.5	20175	13.455	13.464	15.30	15.64
1747.5	20325	13.487	13.469	15.39	15.64

LTE BAND 4 Channel bandwidth: 20MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1720.0	20050	17.952	17.973	20.47	20.46
1732.5	20175	17.911	17.933	20.32	20.10
1745.0	20300	17.926	17.918	20.30	20.06

LTE BAND 12 Channel bandwidth: 1.4MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
699.7	23017	1.0899	1.0886	1.348	1.317
707.5	23095	1.0892	1.0914	1.299	1.354
715.3	23173	1.0890	1.0852	1.310	1.251

LTE BAND 12 Channel bandwidth: 3MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
700.5	23025	2.6827	2.7134	2.940	2.854
707.5	23095	2.6876	2.6934	2.939	3.003
714.5	23165	2.6892	2.6935	2.985	2.978

LTE BAND 12 Channel bandwidth: 5MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
701.5	23035	4.4718	4.4765	4.995	4.985
707.5	23095	4.4874	4.4898	5.012	5.026
713.5	23155	4.4770	4.4656	4.996	4.950

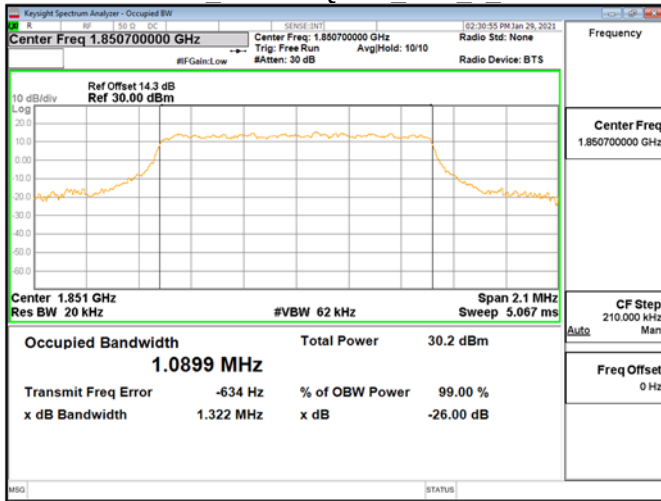
LTE BAND 12 Channel bandwidth: 10MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
704.0	23060	8.9775	8.9560	10.220	10.060
707.5	23095	9.0113	8.9756	10.260	9.978
711.0	23130	8.9479	8.8659	10.060	9.344

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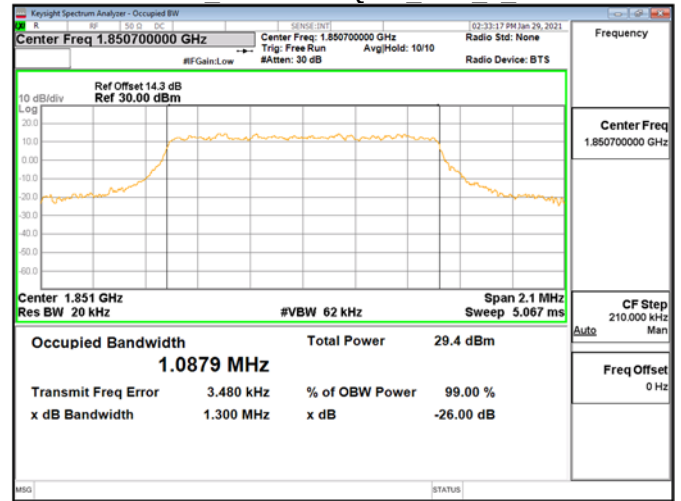
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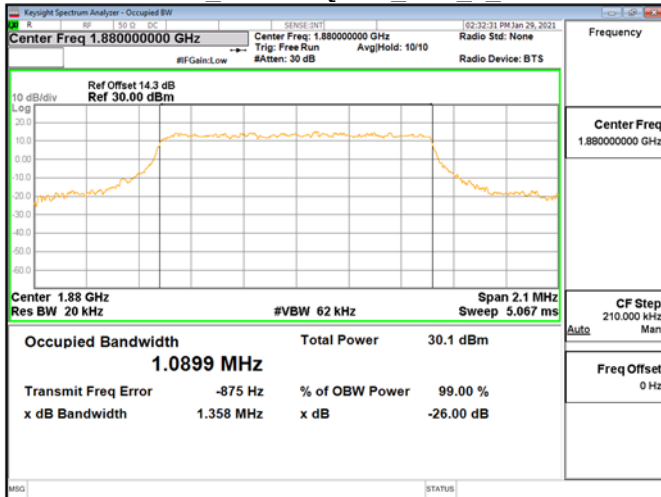
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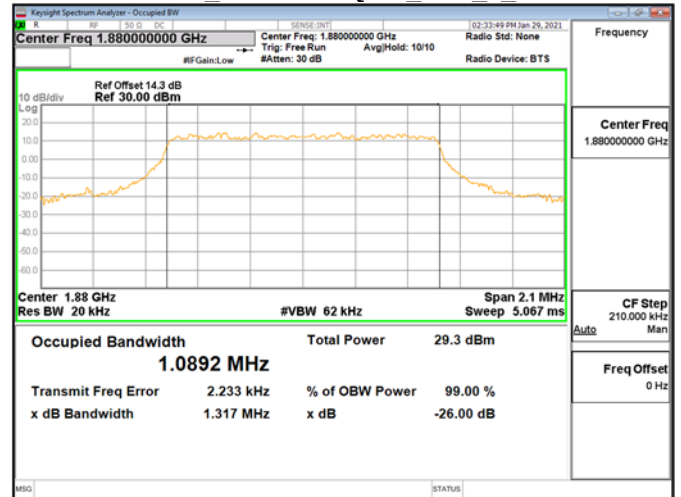
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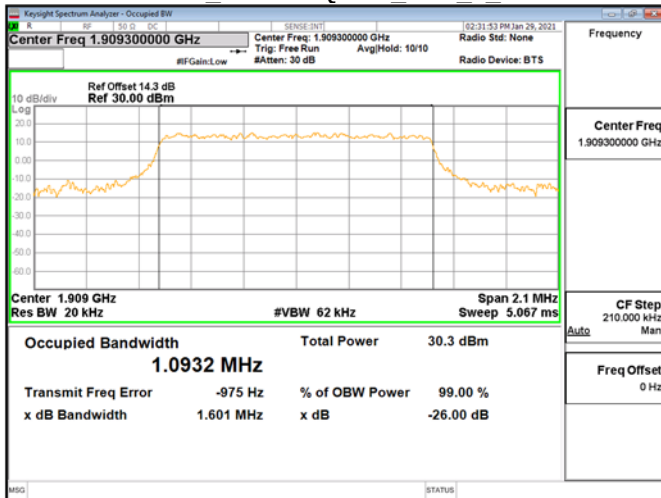
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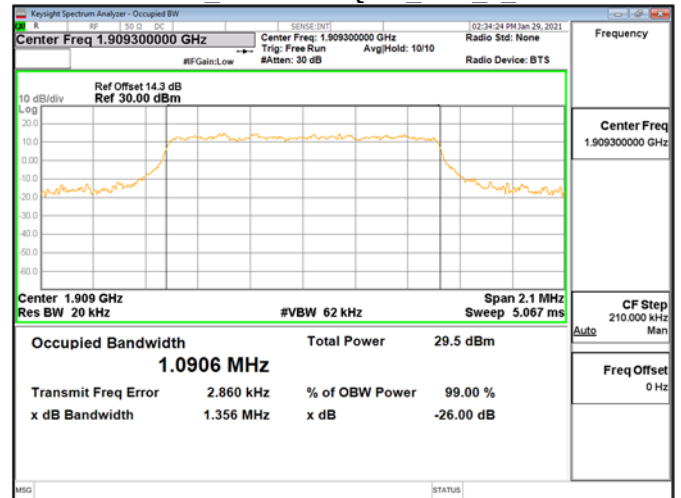
OBW\Band2 1.4MHz\16QAM RB6 0 CH18900



OBW\Band2 1.4MHz\QPSK RB6 0 CH19193



OBW\Band2 1.4MHz\16QAM RB6 0 CH19193

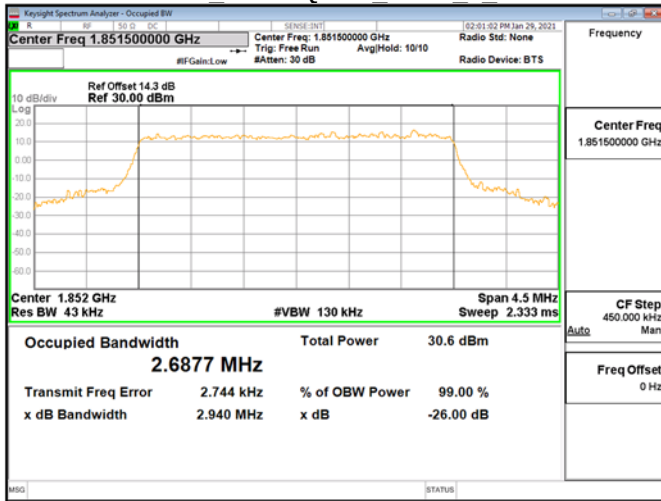


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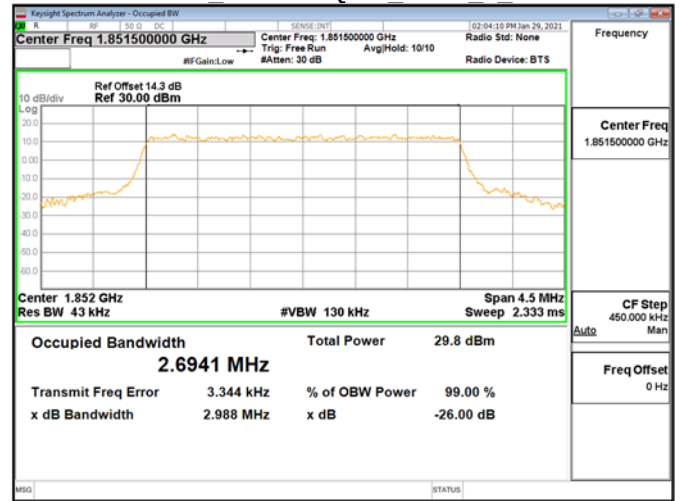
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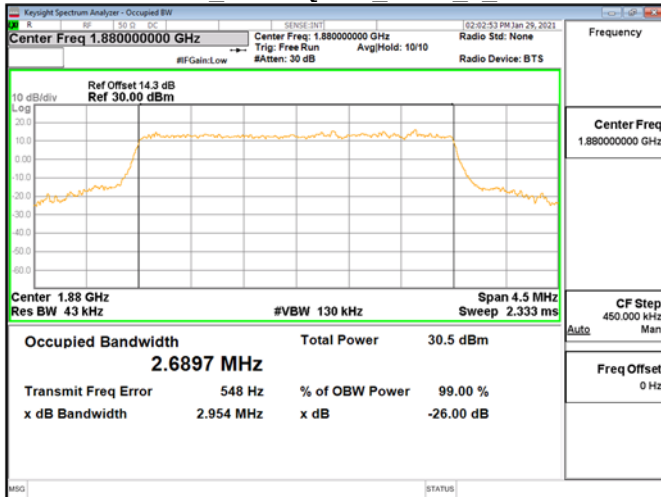
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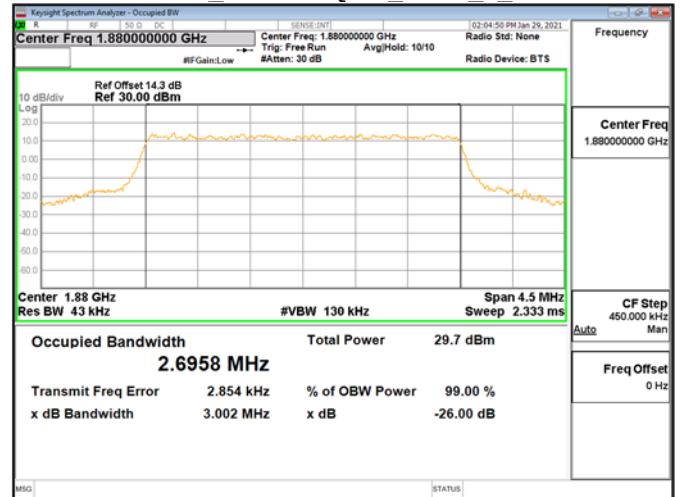
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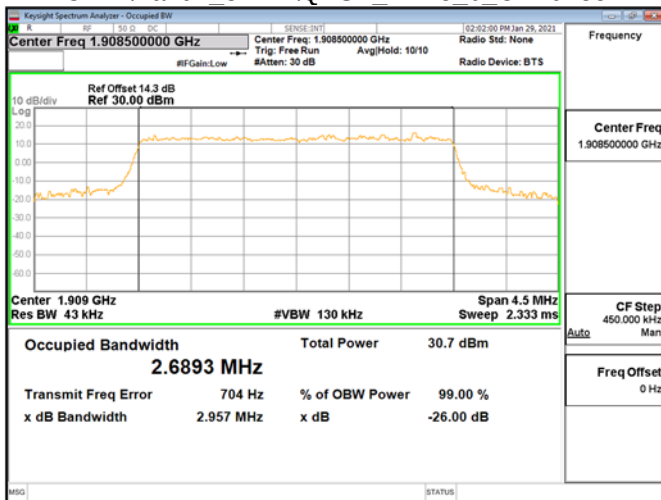
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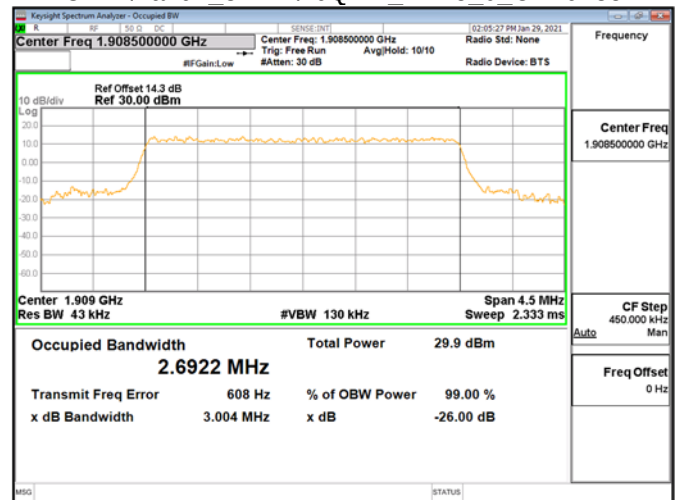
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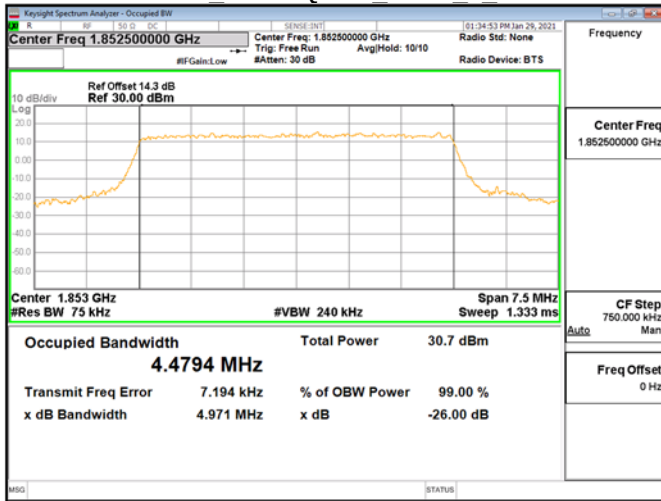


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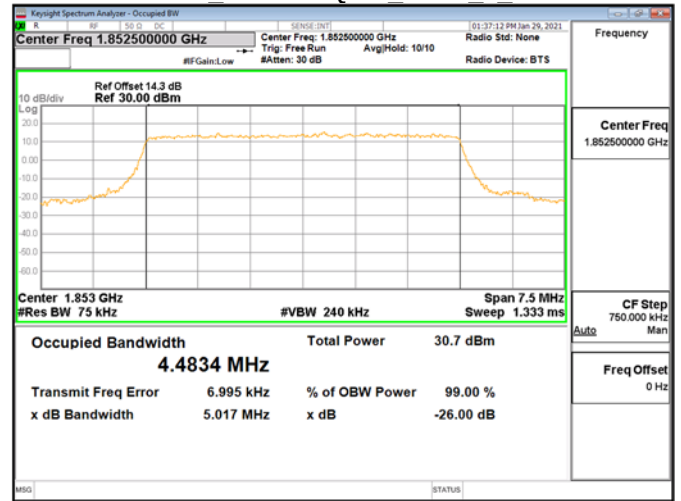
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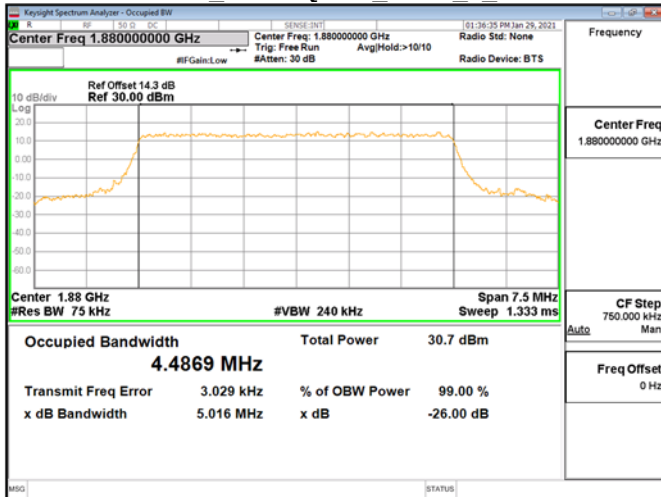
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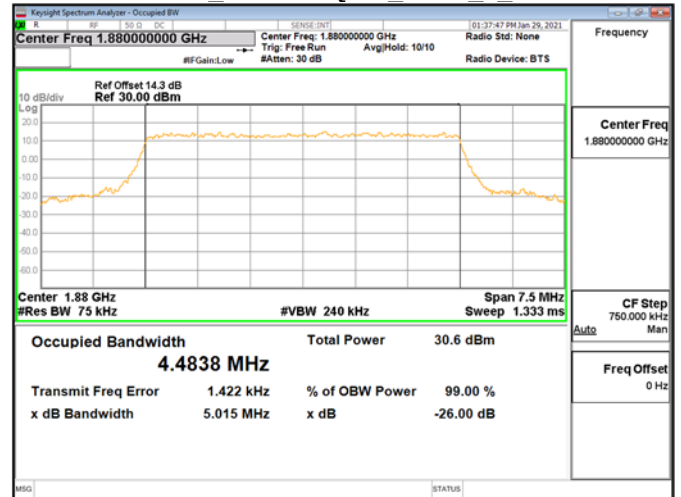
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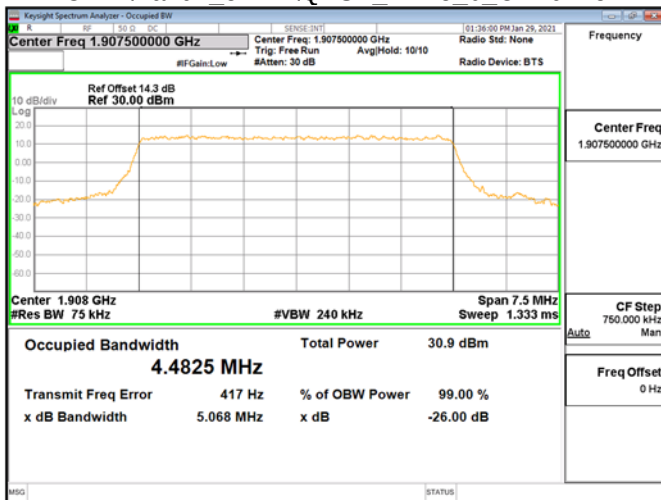
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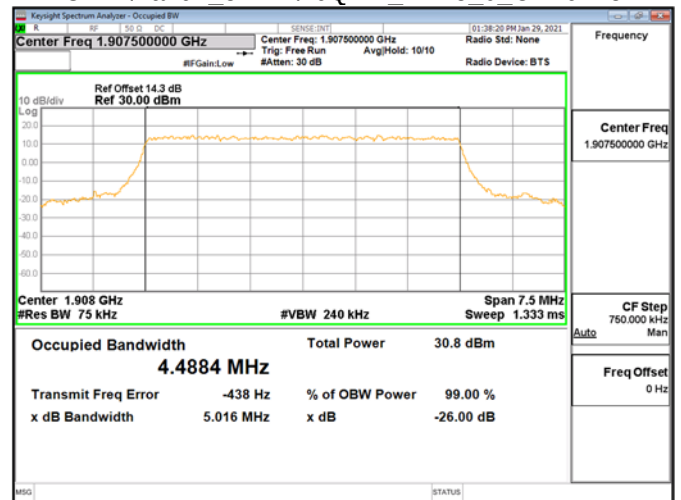
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OBW\Band2 5MHz\16QAM RB25 0 CH19175

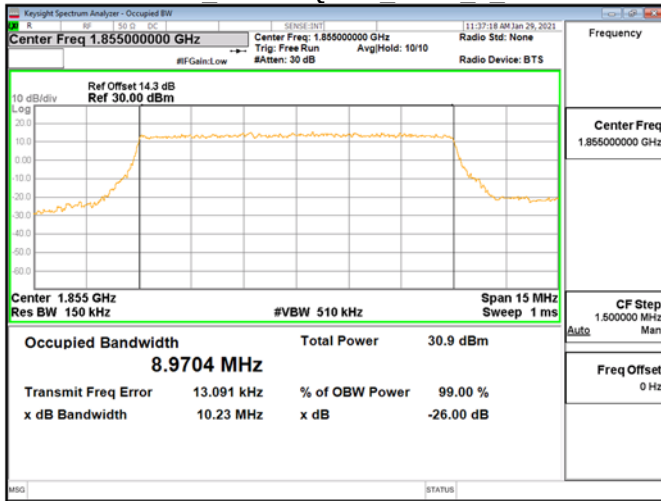


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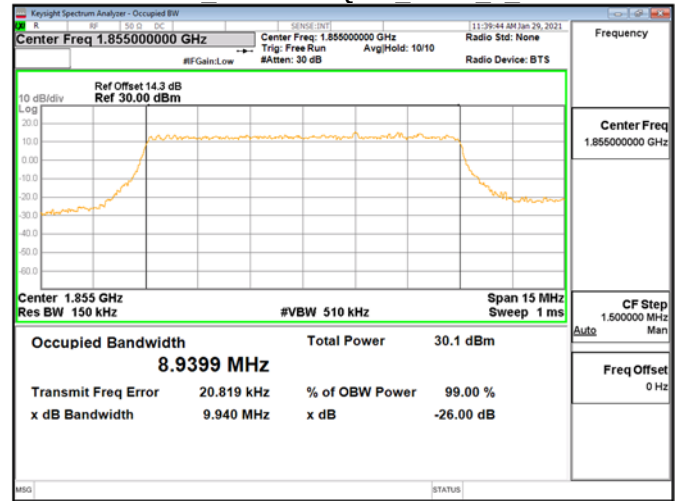
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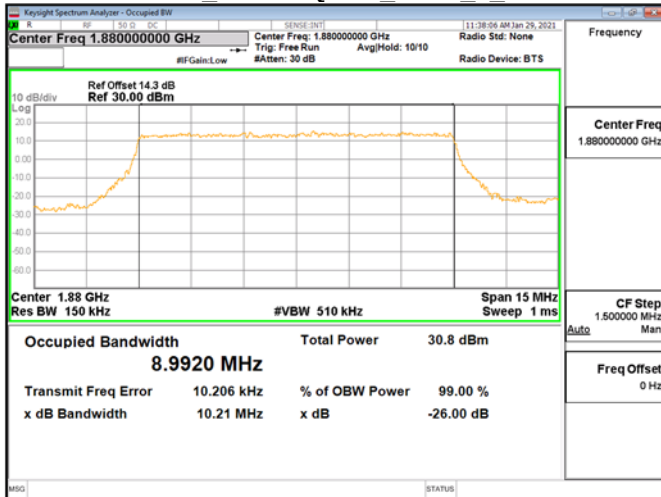
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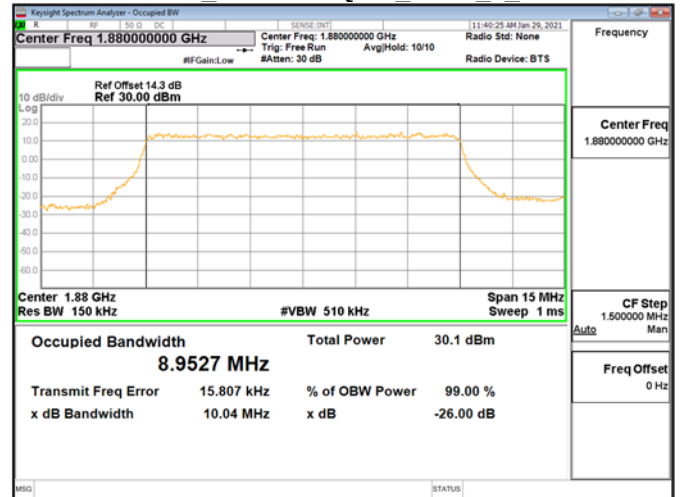
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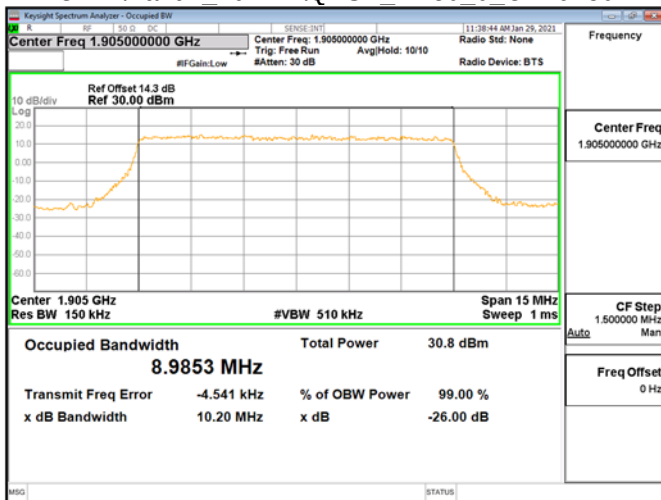
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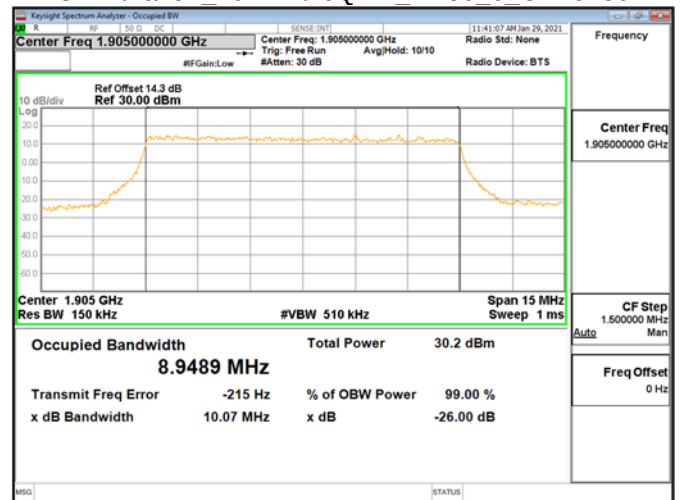
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OBW\Band2 10MHz\QPSK RB50 0 CH19150



OBW\Band2 10MHz\16QAM RB50 0 CH19150

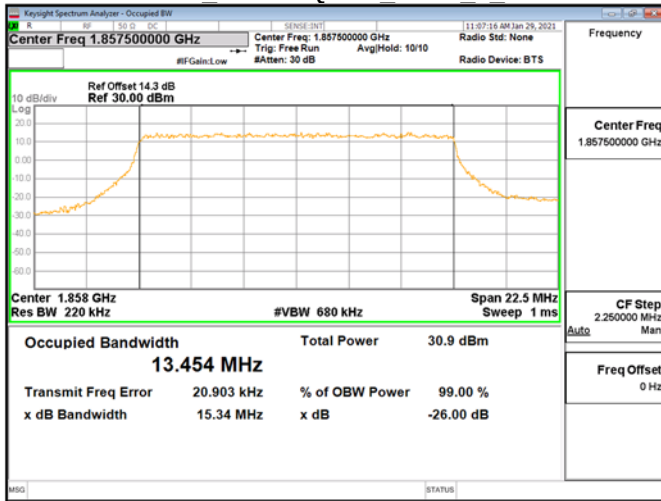


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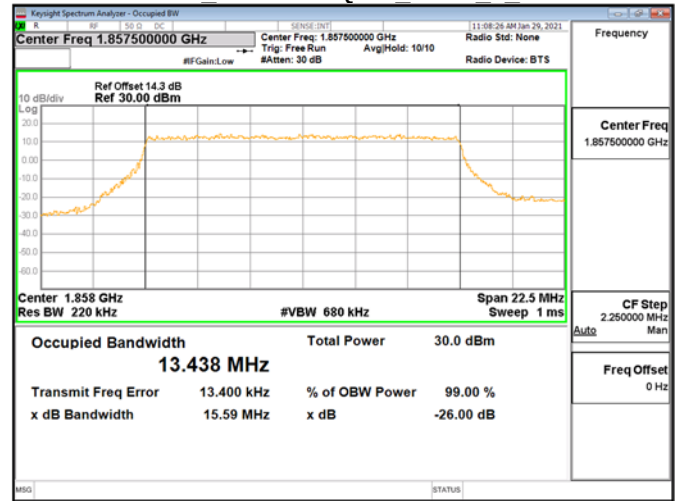
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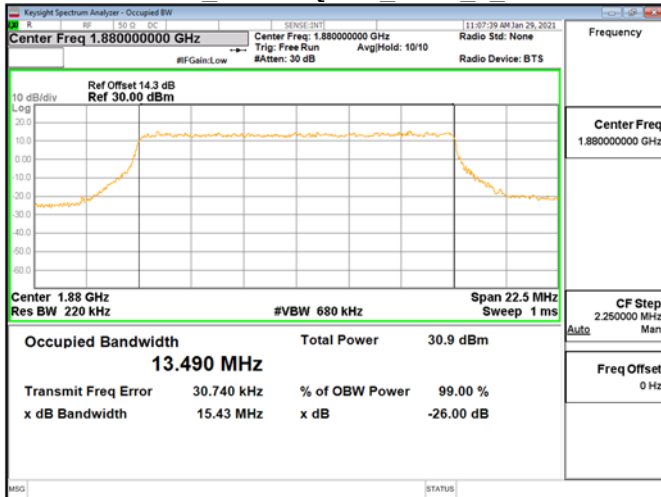
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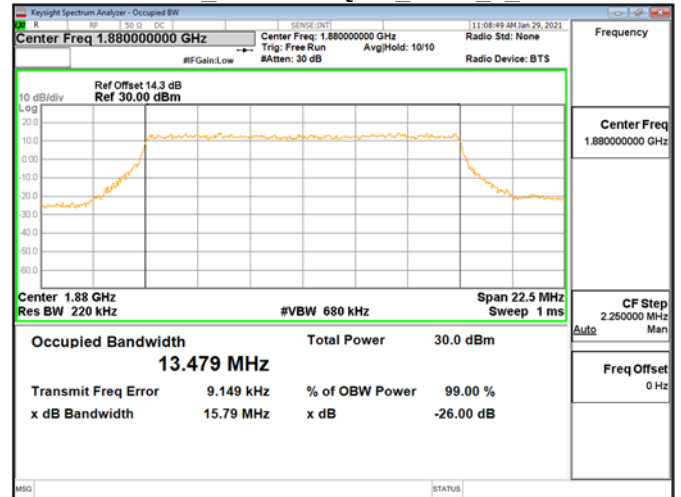
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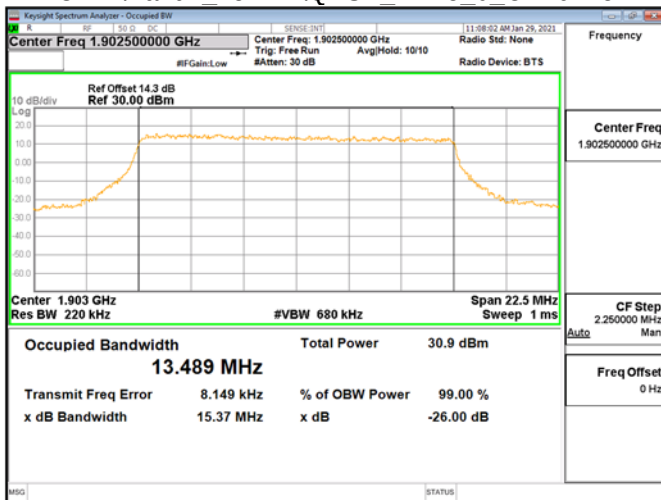
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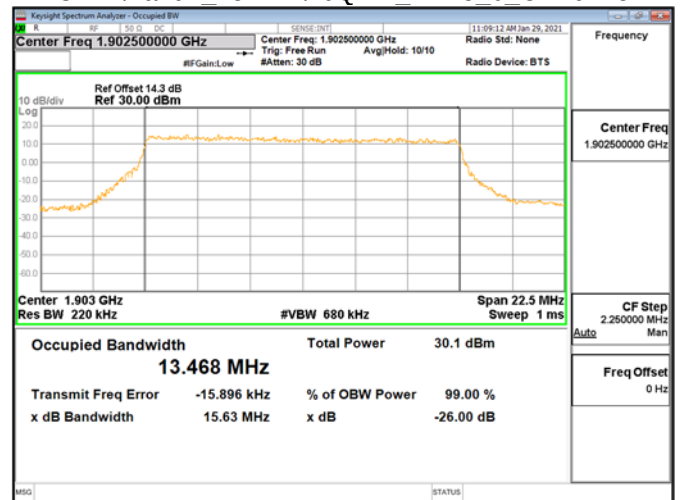
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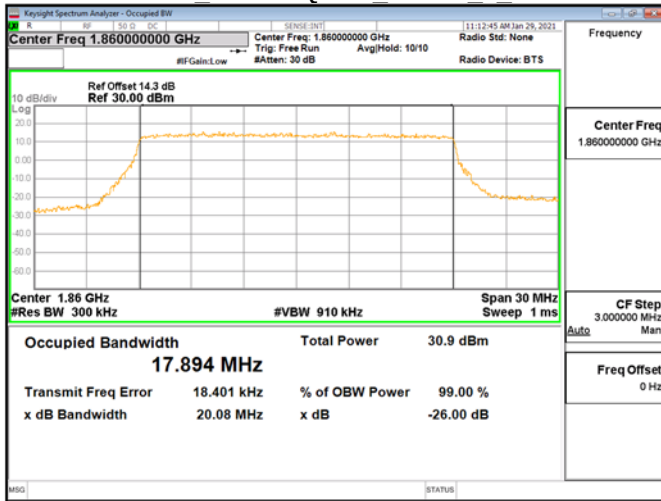


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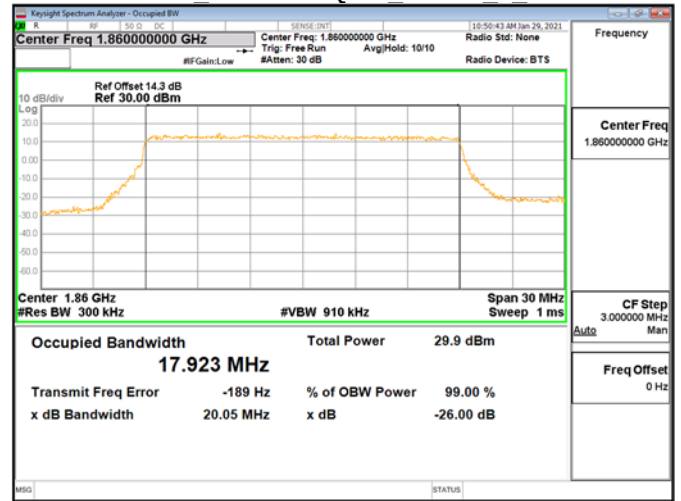
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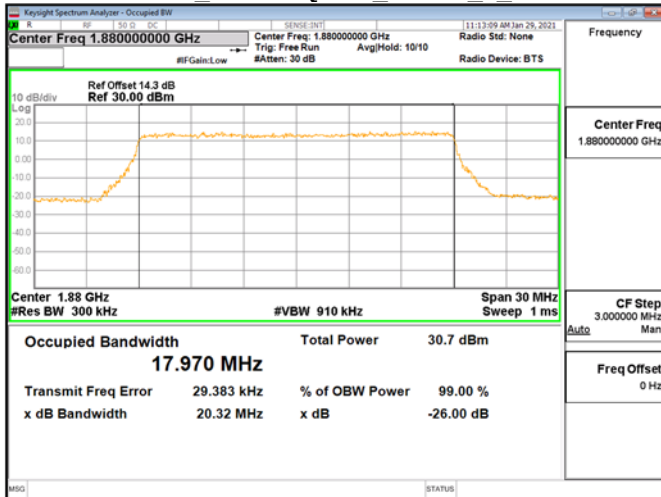
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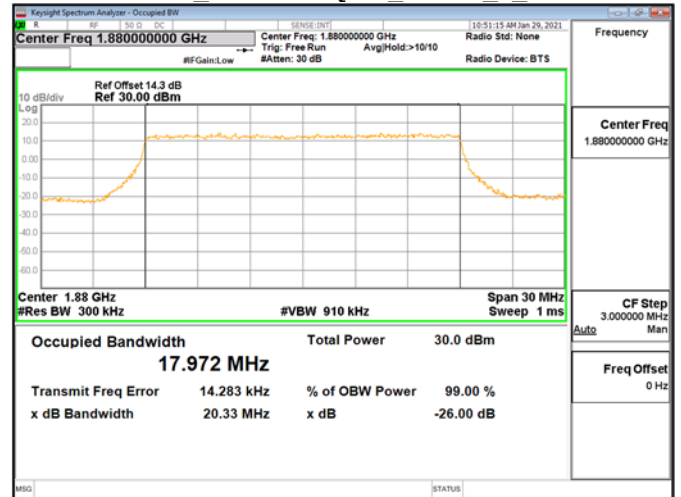
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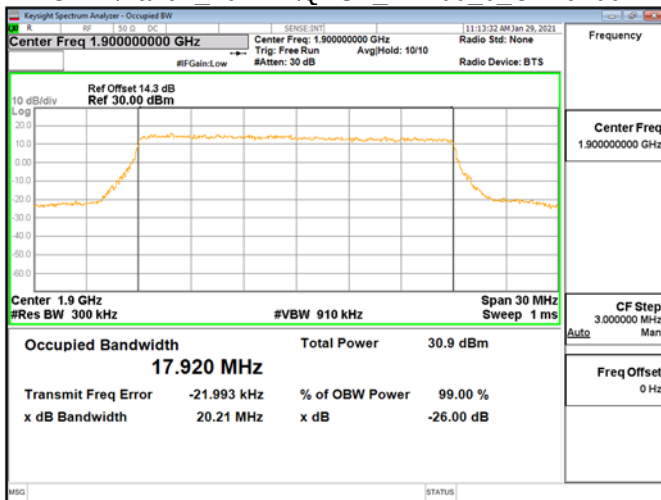
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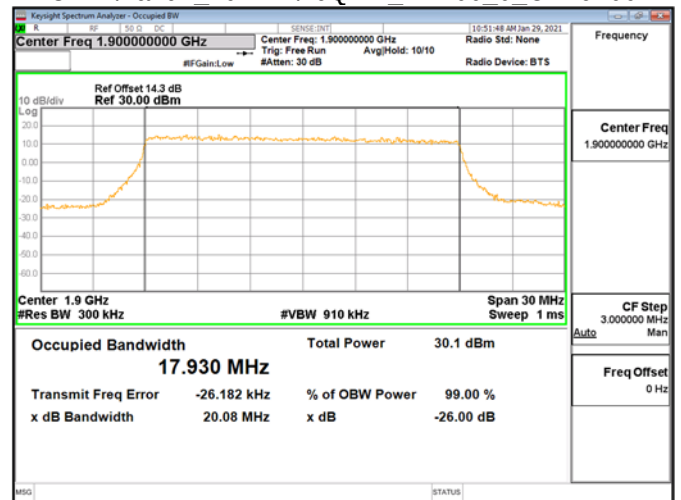
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OBW\Band2 20MHz\QPSK RB100 0 CH19100



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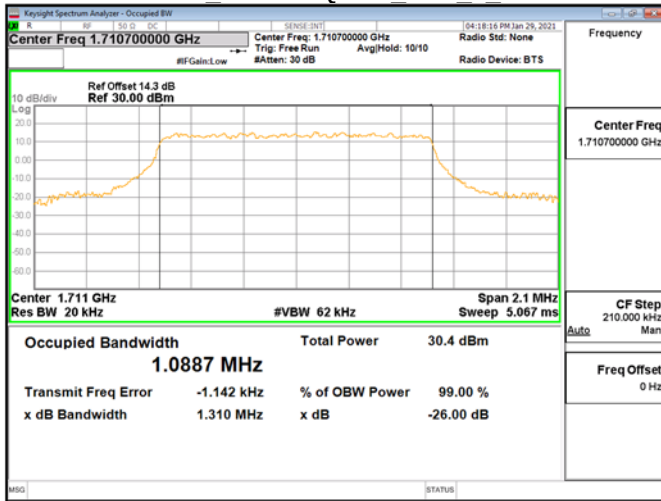


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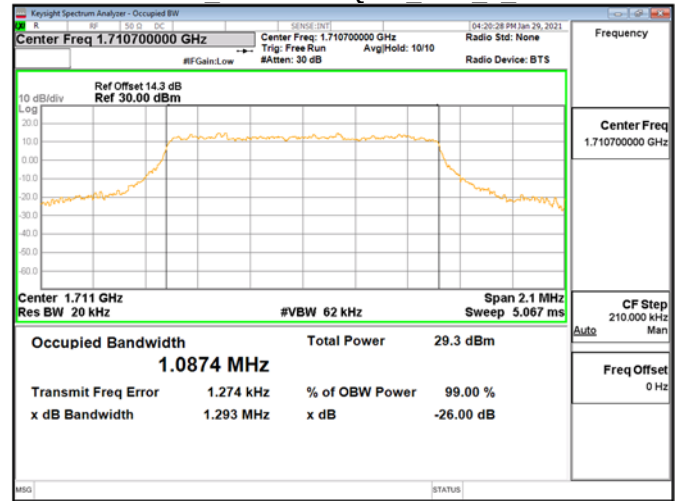
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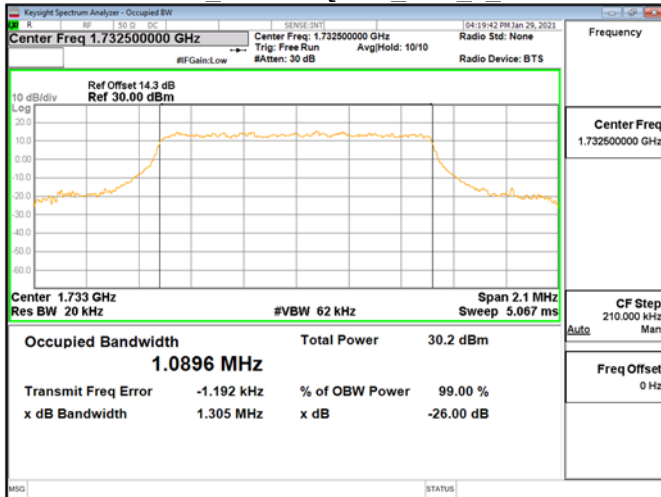
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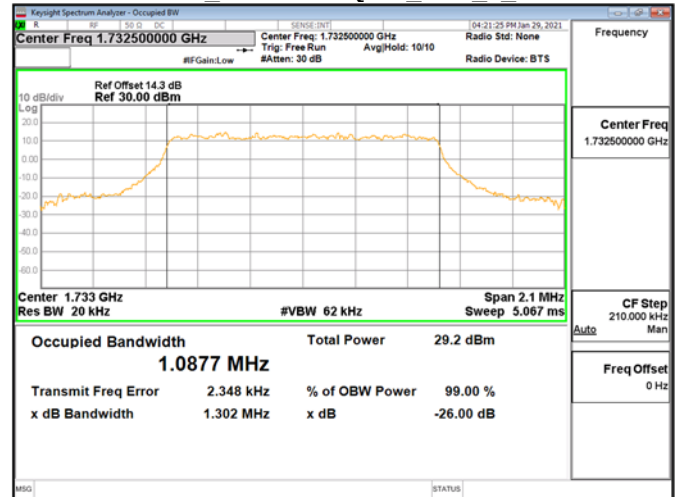
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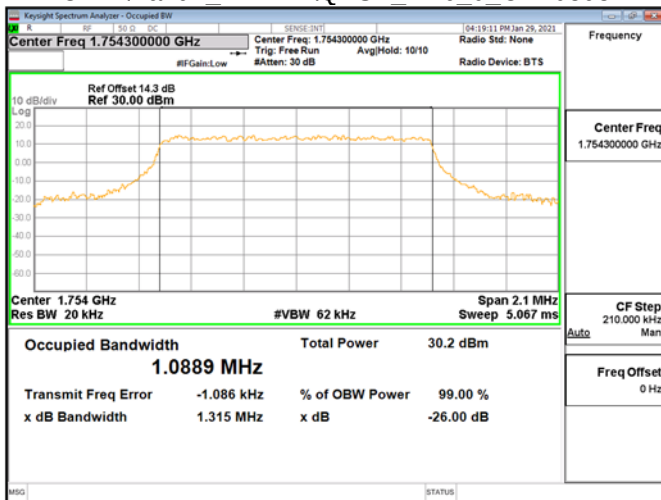
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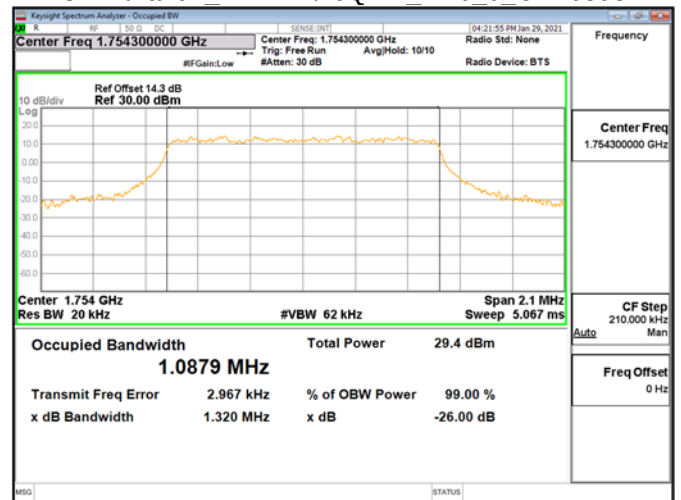
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OBW\Band4 1.4MHz\QPSK RB6 0 CH20393



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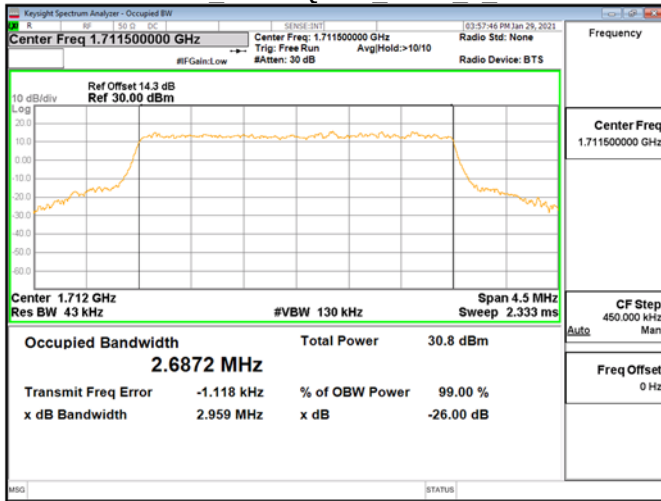


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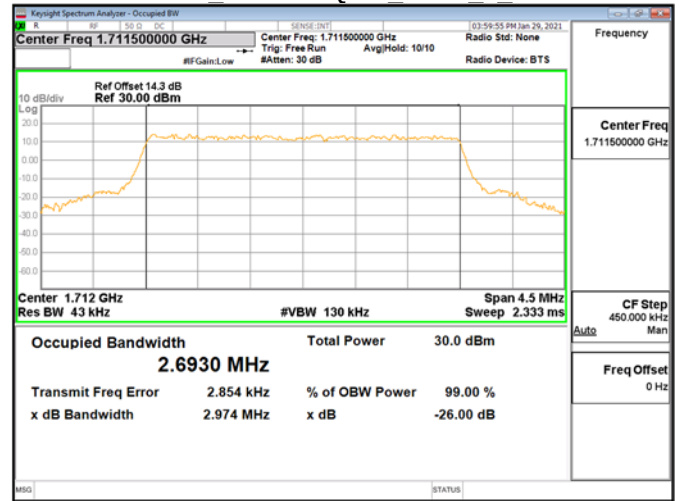
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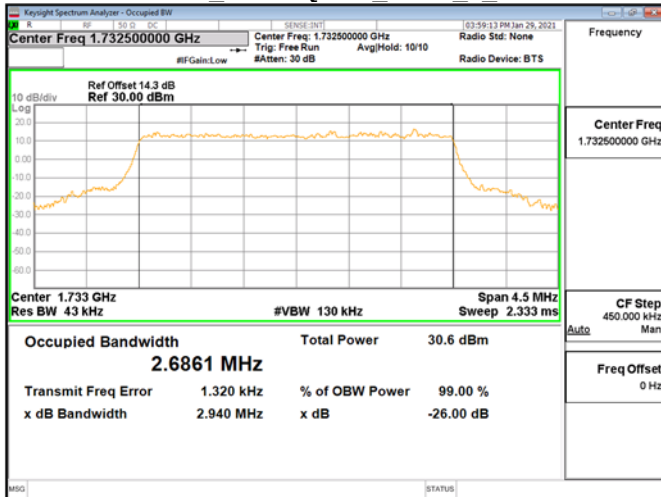
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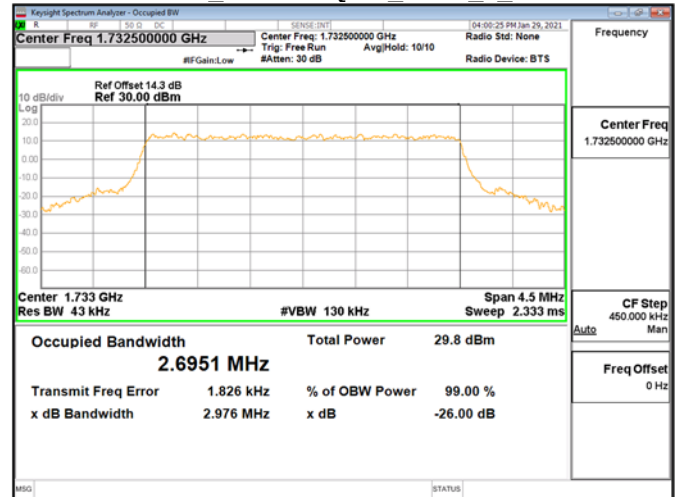
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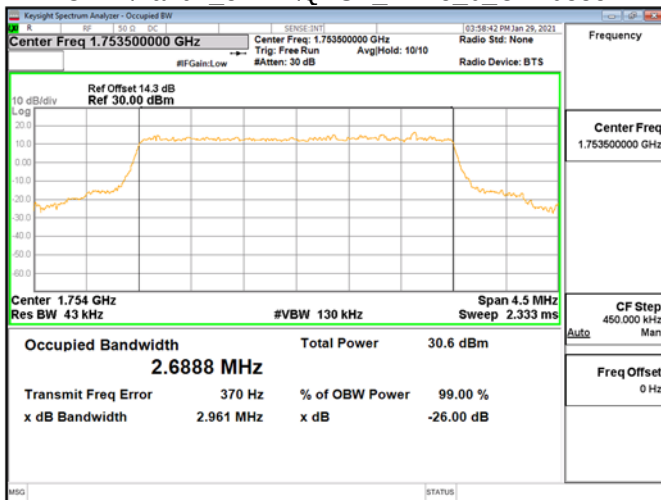
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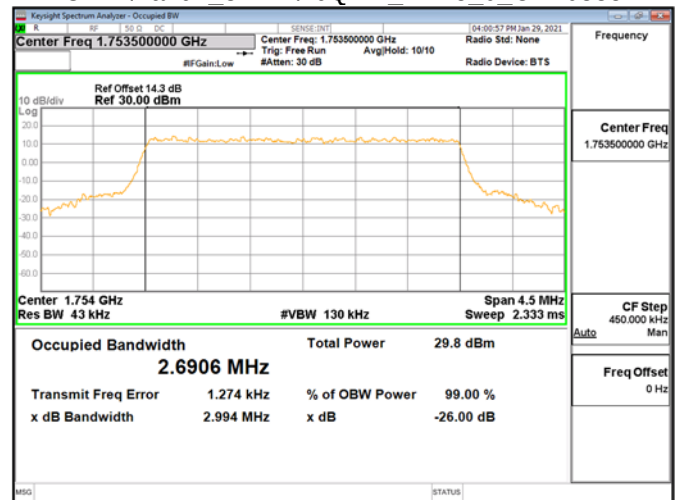
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OBW\Band4 3MHz\QPSK RB15 0 CH20385



OBW\Band4 3MHz\16QAM RB15 0 CH20385

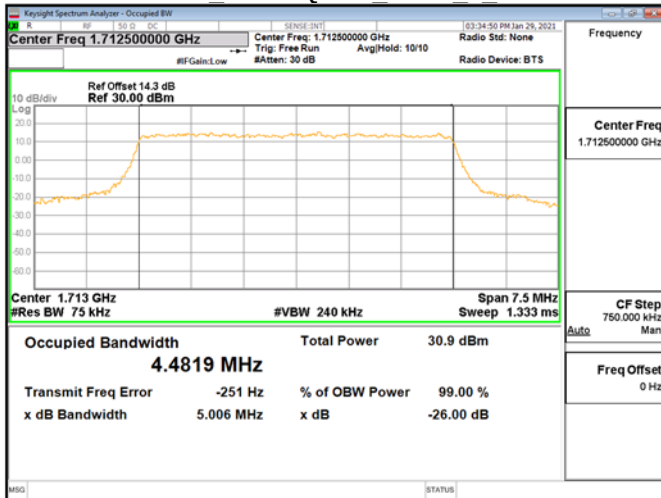


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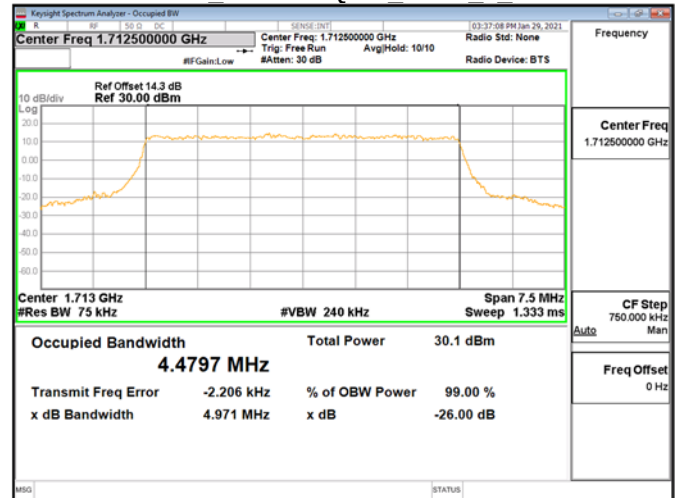
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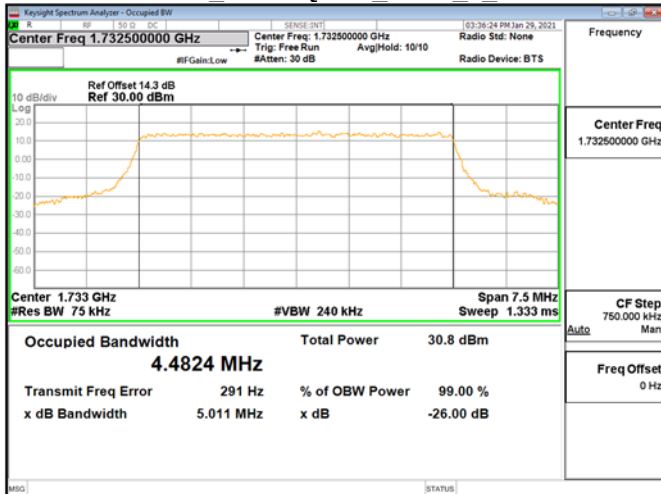
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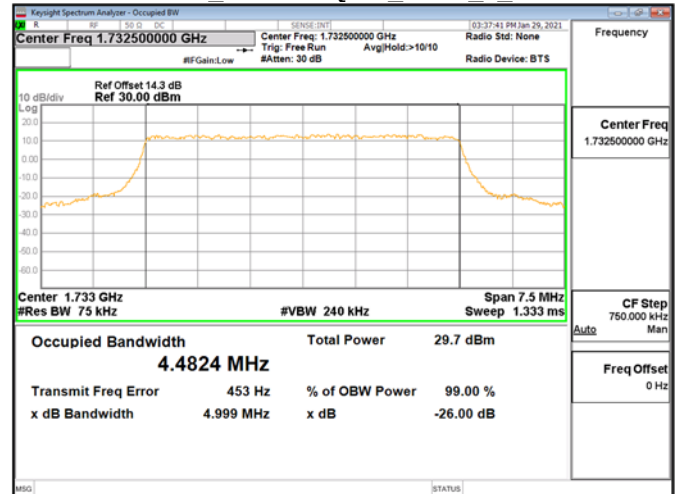
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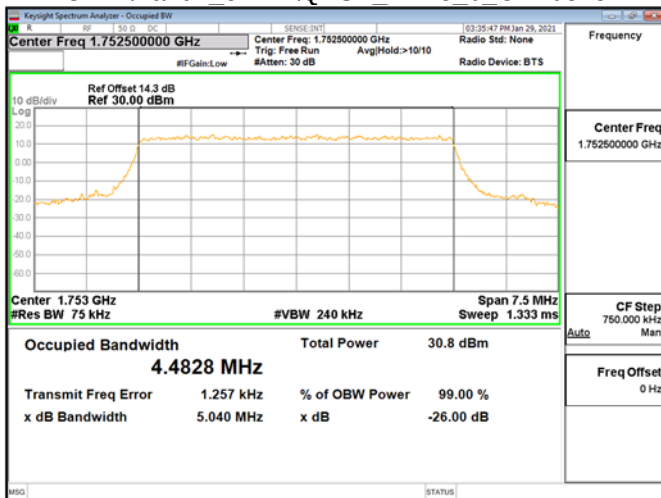
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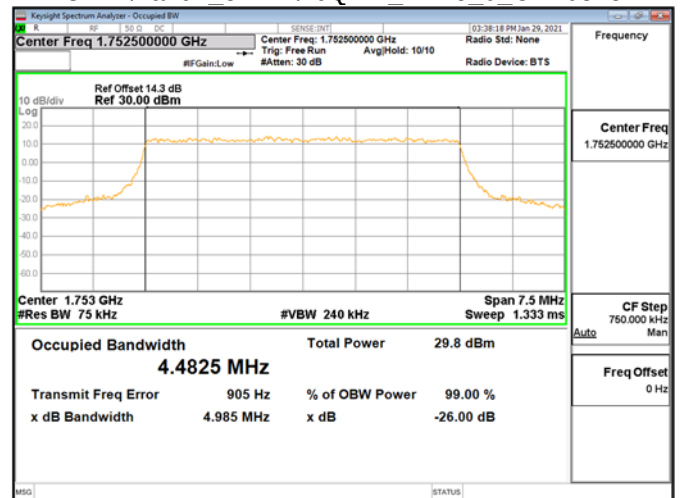
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OBW\Band4 5MHz\QPSK RB25 0 CH20375



OBW\Band4 5MHz\16QAM RB25 0 CH20375

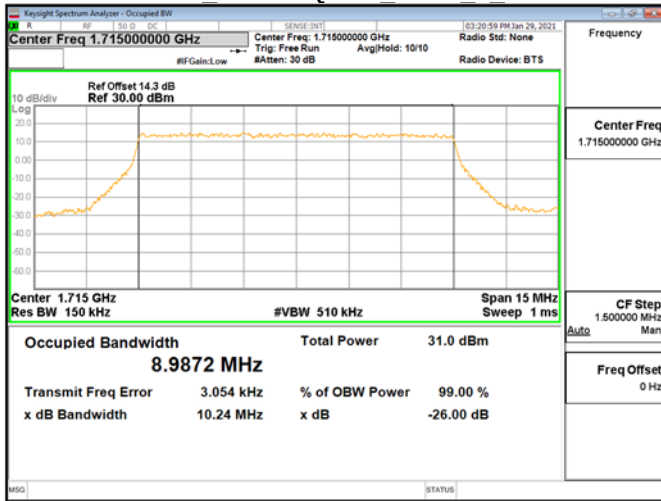


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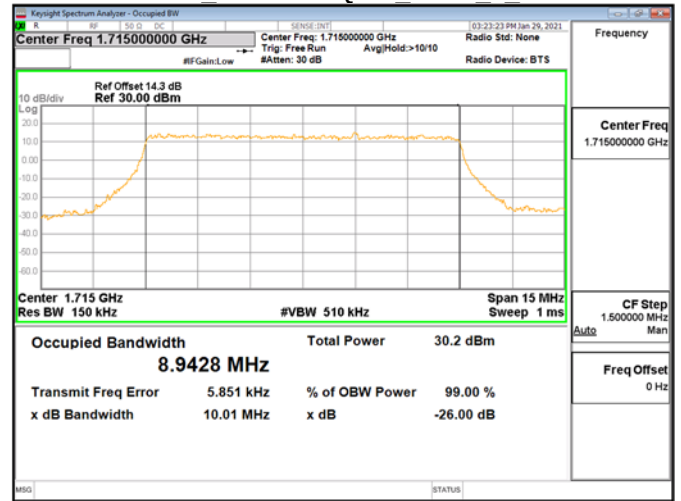
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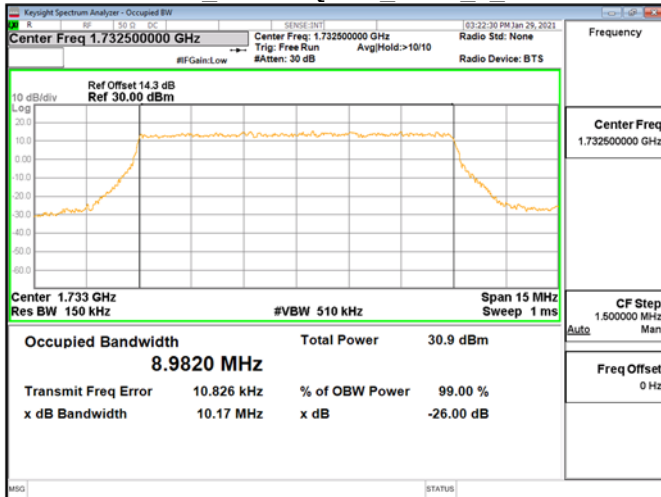
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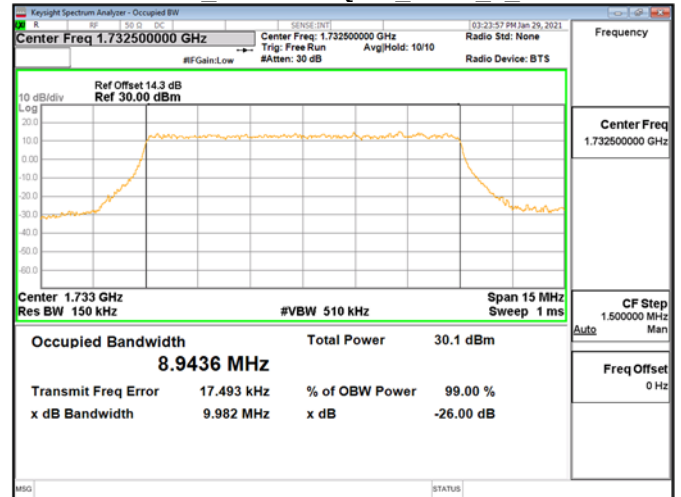
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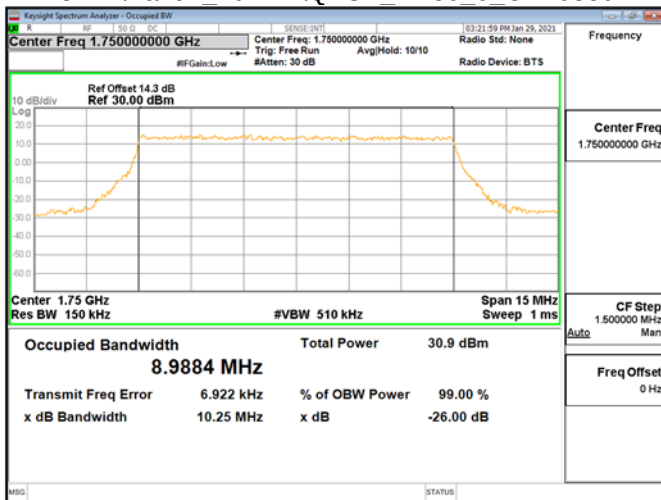
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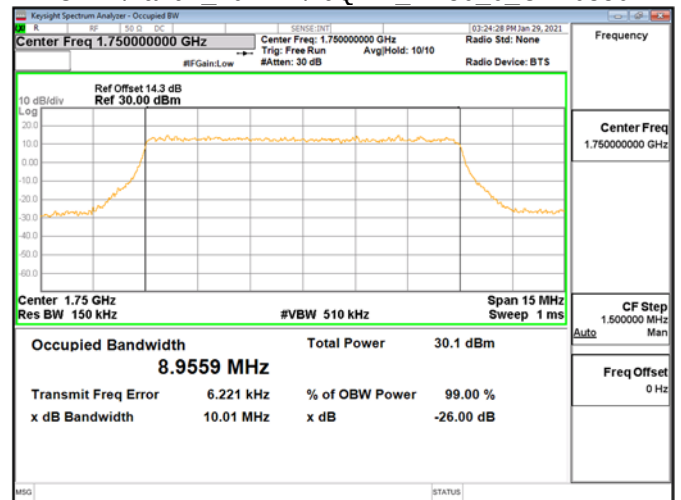
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OBW\Band4 10MHz\QPSK RB50 0 CH20350



OBW\Band4 10MHz\16QAM RB50 0 CH20350

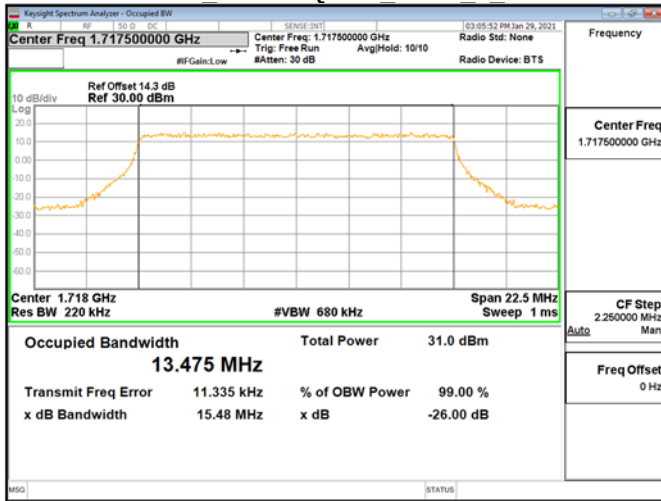


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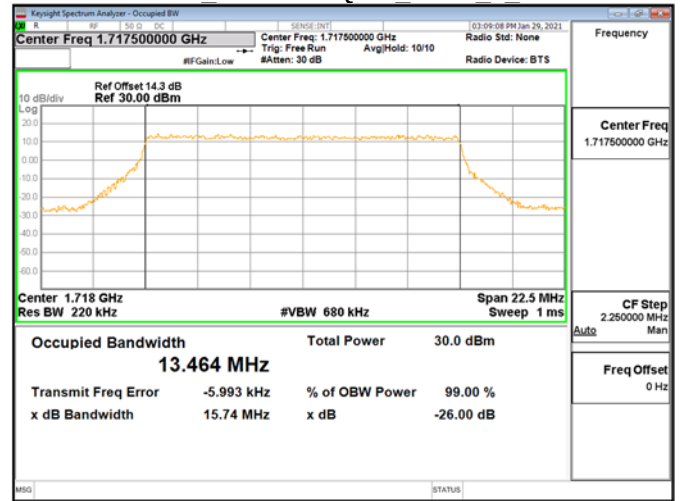
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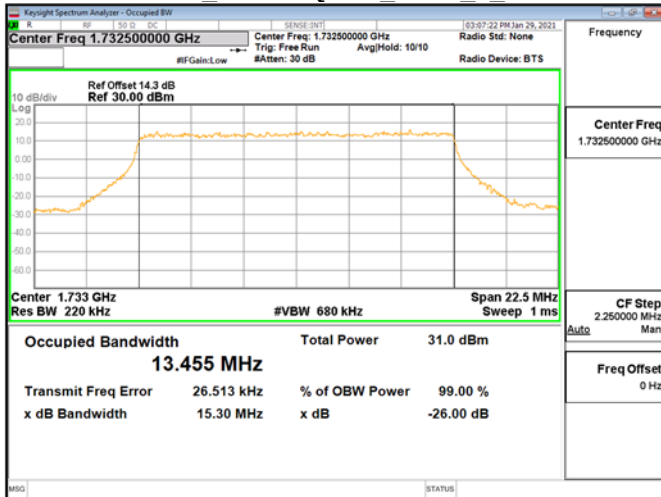
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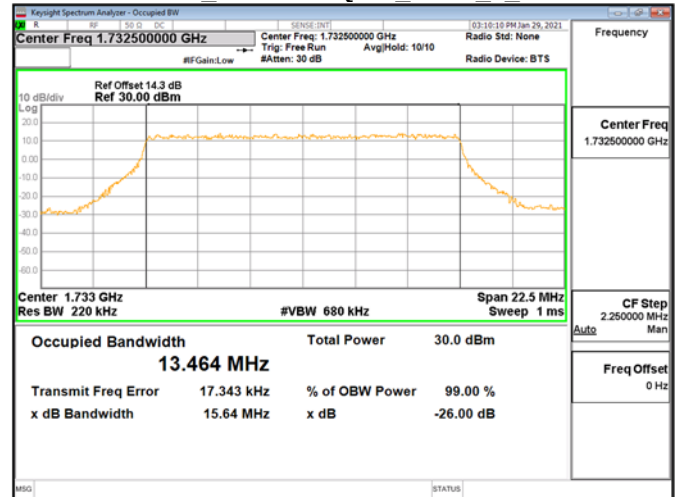
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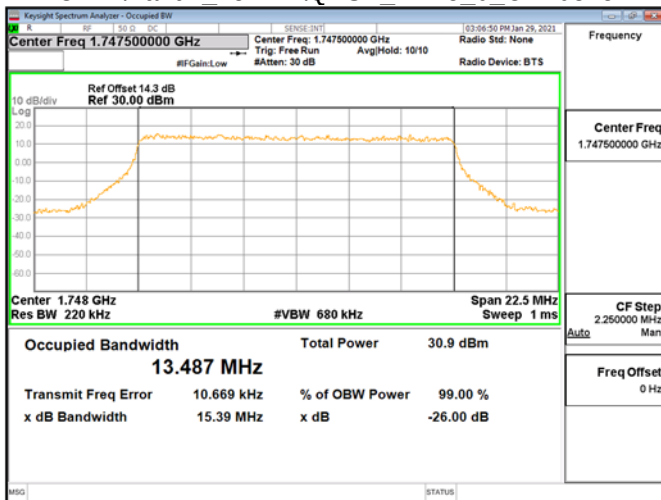
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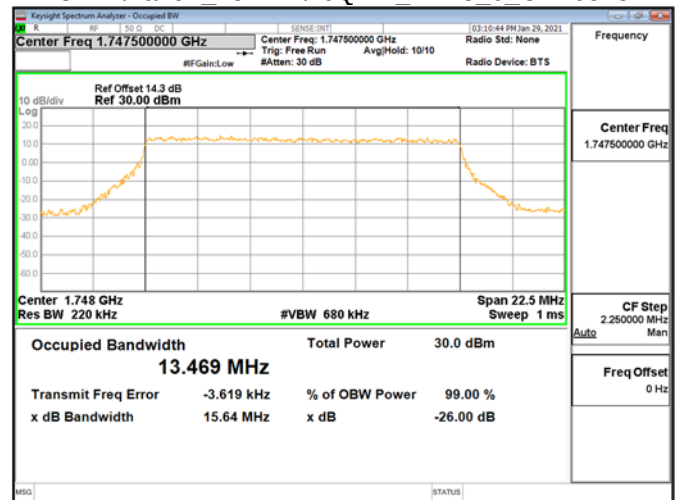
OBW\Band4 15MHz\16QAM RB75 0 CH20175



OBW\Band4 15MHz\QPSK RB75 0 CH20325



OBW\Band4 15MHz\16QAM RB75 0 CH20325



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