

# ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT



**Applicant:** Laipac Technology Inc  
25 Valleywood Drive Unit11, Markham, Ontario, Canada, L3R 5L9

**Product Name:** Lola HT 2

**Brand Name:** LAIPAC

**Model No.:** Lola HT 2-N

**Model Difference:** N/A

**Report Number:** ER/2021/40008

**FCC ID** TET-LOLAHT2

**IC:** 11280A-LOLAHT2

**Issue Date:** May. 21, 2021

**Date of Test:** Apr. 13, 2021 ~ May. 14, 2021

**Date of EUT Received:** Apr. 13, 2021

*JJ Chen*  
**Approved By** \_\_\_\_\_  
**JJ Chen**

## 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 , 22H & 24E & 27 C and ISSED RSS-Gen, 130, 132, 133, 139.

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## Revision History

Report Number	Revision	Description	Issue Date	Revised By
ER/2021/40008	Rev.00	Original.	May 21, 2021	Yi-Shan Tsai

**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:	Lola HT 2
Brand Name:	LAIPAC
Model No.:	Lola HT 2-N
Model Difference:	N/A
Hardware Version:	V2.0
Firmware Version:	V1.14.02
EUT Series No.:	862632041426130 (Conducted) 866258042625407 (Radiated)
Power Supply:	Battery 3.7Vdc

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## 1.2 Operation Frequency Range

Operating Frequency (MHz)		
WCDMA / HSPA+ Band II	1852.4	1907.6
WCDMA / HSPA+ Band IV	1712.4	1752.6
WCDMA / HSPA+ Band V	826.4	846.6

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 5		
BW (MHz)	Operation Frequency (MHz)	
1.4	824.7	848.3
3	825.5	847.5
5	826.5	846.5
10	829.0	844.0

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 13		
BW (MHz)	Operation Frequency (MHz)	
5	779.5	784.5
10	782.0	

*Note: Operation frequency 814~824MHz is disabled in Canada.*

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### 1.3 Antenna Designation

Type	Modulation	Frequency (MHz)		Peak Antenna Gain (dBi)
Dipole	WCDMA / HSPA Band II	1852.4	~ 1907.6	-2.07
	WCDMA / HSPA Band IV	1712.4	~ 1752.6	-2.35
	WCDMA / HSPA Band V	826.4	~ 846.6	-1.04
	LTE Band 2	1850	~ 1910	-2.07
	LTE Band 4	1710	1755	-2.35
	LTE Band 5	824	849	-1.04
	LTE Band 12	699	716	-5.28
	LTE Band 13	777	787	-4.91

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

	ERP / EIRP (dBm)		W	99%	Type of Emission
WCDMA Band II	21.10	EIRP	0.129	4.7140	4M71F9W
HSDPA Band II	20.06	EIRP	0.101	4.1232	4M12F9W
HSUPA Band II	18.87	EIRP	0.077	4.1284	4M13F9W
WCDMA Band IV	20.83	EIRP	0.121	4.1312	4M13F9W
HSDPA Band IV	19.91	EIRP	0.098	4.1197	4M12F9W
HSUPA Band IV	19.88	EIRP	0.097	4.1133	4M11F9W
WCDMA Band V	20.27	ERP	0.106	4.1345	4M13F9W
HSDPA Band V	19.65	ERP	0.092	4.1541	4M15F9W
HSUPA Band V	19.65	ERP	0.092	4.1534	4M15F9W

LTE Band	BW	Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission	Frequency Tolerance (Hz)
2	1.4	QPSK	20.82	EIRP	0.121	1.0869	1M09G7D	11
		16QAM	19.48	EIRP	0.089	0.2577	0M26KD7W	11
2	3	QPSK	20.92	EIRP	0.124	2.6886	2M69G7D	11
		16QAM	19.49	EIRP	0.089	0.3270	0M33KD7W	11
2	5	QPSK	20.65	EIRP	0.116	4.4900	4M49G7D	11
		16QAM	19.56	EIRP	0.090	0.4628	0M46KD7W	11
2	10	QPSK	21.12	EIRP	<b>0.129</b>	8.9679	8M97G7D	11
		16QAM	19.41	EIRP	0.087	0.6658	0M67KD7W	11
2	15	QPSK	21.10	EIRP	0.129	13.428	13M4G7D	11
		16QAM	19.58	EIRP	<b>0.091</b>	1.028	1M03D7W	11
2	20	QPSK	20.71	EIRP	0.118	17.867	17M9G7D	11
		16QAM	19.34	EIRP	0.086	1.224	1M22D7W	11

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LTE Band	BW	Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission	Frequency Tolerance (Hz)
4	1.4	QPSK	21.10	EIRP	0.129	1.0872	1M09G7D	11
		16QAM	19.70	EIRP	<b>0.093</b>	0.2557	0M26KD7W	11
4	3	QPSK	20.19	EIRP	0.104	2.6858	2M69G7D	11
		16QAM	19.70	EIRP	<b>0.093</b>	0.3142	0M31KD7W	11
4	5	QPSK	20.18	EIRP	0.104	4.4861	4M49G7D	11
		16QAM	19.46	EIRP	0.088	0.4839	0M48KD7W	11
4	10	QPSK	20.56	EIRP	0.114	8.9560	8M96G7D	11
		16QAM	19.25	EIRP	0.084	0.6629	0M66KD7W	11
4	15	QPSK	21.08	EIRP	0.128	13.4310	13M4G7D	11
		16QAM	19.70	EIRP	<b>0.093</b>	1.0138	1M01D7W	11
4	20	QPSK	21.37	EIRP	<b>0.137</b>	17.8530	17M9G7D	11
		16QAM	19.60	EIRP	0.091	1.2449	1M24D7W	11

LTE Band	BW	Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission	Frequency Tolerance (Hz)
5	1.4	QPSK	19.41	ERP	0.087	1.0862	1M09G7D	11
		16QAM	18.79	ERP	<b>0.076</b>	0.2496	0M25KD7W	11
5	3	QPSK	19.57	ERP	0.091	2.6849	2M68G7D	11
		16QAM	18.39	ERP	0.069	0.4915	0M49KD7W	11
5	5	QPSK	19.62	ERP	0.092	4.4816	4M48G7D	11
		16QAM	18.76	ERP	0.075	0.4915	0M49KD7W	11
5	10	QPSK	19.69	ERP	<b>0.093</b>	8.9538	8M95G7D	11
		16QAM	18.72	ERP	0.074	0.6347	0M63KD7W	11

LTE Band	BW	Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission	Frequency Tolerance (Hz)
12	1.4	QPSK	15.52	ERP	<b>0.036</b>	1.0863	1M09G7D	9
		16QAM	14.48	ERP	0.028	0.2539	0M25KD7W	9
12	3	QPSK	15.15	ERP	0.033	2.6838	2M68G7D	9
		16QAM	14.07	ERP	0.026	0.3248	0M32KD7W	9
12	5	QPSK	15.07	ERP	0.032	4.4807	4M48G7D	9
		16QAM	14.02	ERP	0.025	0.4979	0M50KD7W	9
12	10	QPSK	15.18	ERP	0.033	8.9610	8M96G7D	9
		16QAM	14.51	ERP	<b>0.028</b>	0.6709	0M67KD7W	9

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LTE Band	BW	Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission	Frequency Tolerance (Hz)
13	5	QPSK	15.65	ERP	<b>0.037</b>	4.4867	4M49G7D	10
		16QAM	15.00	ERP	<b>0.032</b>	0.5064	0M51KD7W	10
13	10	QPSK	15.51	ERP	0.036	8.9580	8M96G7D	10
		16QAM	14.96	ERP	0.031	0.6847	0M68KD7W	10

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### 1.5 Test Methodology of Applied Standards

FCC 47 CFR Part 2, 22H, 24E, 27C.

ISED RSS-130 Issue 2 Feb. 2019,

ISED RSS-132 Issue 3 Jan. 2013

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

TS 151 010-1 is used to set, and measure the output power.

### 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 A	TW0028	
		SAC C		
		SAC D		
		SAC G		
		Conducted A		
		Conducted B		
		Conducted C		
		Conducted D		
		Conducted E		
Conducted F				
Conducted G				

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

### 1.7 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.

	RF cable loss (dB)	Attenuation factor(dB)	offset(dB)
LB(1GHz below)	4.13	10	14.13
MB(1GHz - 2GHz)	4.52	10	14.52
MB(2GHz - 3GHz)	4.8	10	14.8

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**2.5 Final Amplifier Voltage and Current Information:**

Test Mode	DC voltage (V)	DC current (mA)
WCDMA B2	3.7	834
HSUPA B2		768
HSDPA B2		792
WCDMA B4		813
HSUPA B4		736
HSDPA B4		850
WCDMA B5		822
HSUPA B5		776
HSDPA B5		798
LTE Band 2_20M QPSK		835
LTE Band 4_20M QPSK		788
LTE Band 5_10M QPSK		806
LTE Band 5_10M QPSK		870
LTE Band 13_10M QPSK		786

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## 2.6 Configuration of Tested System

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

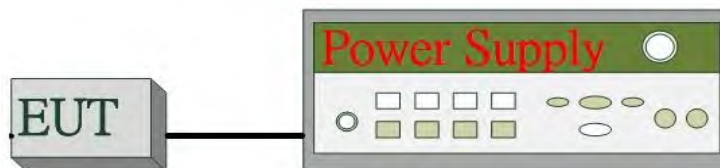


Fig. 2-2 Configuration of Tested System (Fixed Channel-Radiated)



Table 2-1 Equipment Used in

Item	Equipment	Mfr/Brand	Model/ Type No.	Series No.	Data Cable	Power Cord
1.	Radio Communication Analyer	Anritsu	MT8815B	6200711454	shielded	Un-shielded
2.	Radio Communication Analyer	Anritsu	MT8820C	6200995019	shielded	Un-shielded
3.	DC Power Supply	Agilent	E3640A	MY52410006	N/A	N/A

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### 3 SUMMARY OF TEST RESULTS

FCC Rules	IC Rules	Description Of Test	Result
§2.1046(a)	RSS-GEN §6.12	RF Power Output	Compliant
§22.913(a)(5) §24.232(c) §27.50(b)(10) §27.50(c)(10) §27.50(d)(4)	RSS-130 §4.6    RSS-132 §5.4 RSS-133 §6.4    RSS-139 §6.5	ERP/ EIRP measurement	Compliant
§2.1049(h)	RSS-GEN §6.7	99% & 26dB Occupied Bandwidth	Compliant
§2.1051 §22.917(a)(b) §24.238(a) §27.53(c) §27.53(g) §27.53(h)	RSS-GEN §6.13 RSS-130 §4.7    RSS-132 §5.5 RSS-133 §6.5    RSS-139 §6.6	Out of Band Emissions at Antenna Terminals and Band Edge / Emission mask requirements	Compliant
§2.1053 §22.917(a) §24.238(a) §27.53(c) §27.53(f) §27.53(g) §27.53(h)	RSS-GEN §6.13 RSS-130 §4.7    RSS-132 §5.5 RSS-133 §6.5    RSS-139 §6.6	Field Strength of Spurious Radiation	Compliant
§24.232(d) §27.50(B)	RSS-130 §4.6.1    RSS-132 §5.4 RSS-133 §6.4    RSS-139 §6.4	Peak to Average Ratio	Compliant
§2.1055(a)(1) §22.355 §24.235 §27.54	RSS-130 §4.5    RSS-132 §5.3 RSS-133 §6.3    RSS-139 §6.5	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
WCDMA/HSPA Band II			V
WCDMA/HSPA Band IV			V
WCDMA/HSPA Band V			V
LTE Band 2			V
LTE Band 4			V
LTE Band 5			V
LTE Band 12			V
LTE Band 13			V

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## 4.2 Measurement Configuration

Test Items	WCDMA / HSPA Bands	Test Channel		
		L	M	H
ERP	Band V	v	v	v
EIRP	Bnad II	v	v	v
	Band IV	v	v	v
FREQUENCY STABILITY	Bnad II	-	v	-
	Band IV	-	v	-
	Band V	-	v	-
OCCUPIED BANDWIDTH	Bnad II	v	v	v
	Band IV	v	v	v
	Band V	v	v	v
PEAK TO AVERAGE RATIO	Bnad II	v	v	v
	Band IV	v	v	v
	Band V	v	v	v
BAND EDGE	Bnad II	v	-	v
	Band IV	v	-	v
	Band V	v	-	v
CONDCUDED EMISSION	Bnad II	v	v	v
	Band IV	v	v	v
	Band V	v	v	v
RADIATED EMISSION	Bnad II	v	v	v
	Band IV	v	v	v
	Band V	v	v	v

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**QPSK**

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

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**16QAM**

Test Items	Band	Test Channel			Bandwidth (MHz)						Modul	RB #			
		L	M	H	1.4	3	5	10	15	20		16QAM	1	Half	Full
Max. Output Power	2	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	-
	5	v	v	v	v	v	v	v	v	-	-	v	v	v	-
	12	v	v	v	v	v	v	v	v	-	-	v	v	v	-
	13	v	v	v	-	-	v	v	-	-	-	v	v	v	-
Frequency Stability	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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
	5	v	v	v	v	v	v	v	v	-	-	v	-	-	v
	12	v	v	v	v	v	v	v	v	-	-	v	-	-	v
	13	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	-	-
	5	v	v	v	v	v	v	v	v	-	-	v	v	-	-
	12	v	v	v	v	v	v	v	v	-	-	v	v	-	-
	13	v	v	v	-	-	v	v	-	-	-	v	v	-	-
Band Edge	2	v	-	v	v	v	v	v	v	v	v	-	-	-	-
	4	v	-	v	v	v	v	v	v	v	v	-	-	-	-
	5	v	-	v	v	v	v	v	-	-	-	-	-	-	-
	12	v	-	v	v	v	v	v	-	-	-	-	-	-	-
	13	v	-	v	-	-	v	v	-	-	-	-	-	-	-
	2	v	v	v	-	-	-	v	-	-	-	-	v	-	-
Conducted Emission	4	v	v	v	-	-	-	-	-	v	-	-	v	-	-
	5	v	v	v	-	-	-	v	-	-	-	v	-	-	
	12	v	v	v	v	-	-	-	-	-	-	v	-	-	
	13	v	v	v	-	-	v	-	-	-	-	-	v	-	-
Radiated Emission	2	v	v	v				v				v			
	4	v	v	v						v		v			
	5	v	v	v				v	-	-		v			
	12	v	v	v	v					-	-	v			
	13	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		
<b>Polarization: Vertical</b>	+/- 2.64 dB	9kHz~30MHz
	+/- 4.93 dB	30MHz - 1000MHz
	+/- 4.81 dB	1GHz - 18GHz
	+/- 4.52 dB	18GHz - 40GHz
<b>Polarization: Horizontal</b>	+/- 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 22.913(a)

(5) mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

##### FCC 24.232(c)

Mobile and portable stations are limited to 2 W EIRP.

##### FCC 27.50(b)

(10) Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP.

##### FCC 27.50(c)

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

##### RSS-130 §4.6

The e.r.p. shall not exceed 3 watts for portable equipment and indoor fixed subscriber equipment operating in 698-756 and 777-787 MHz.

##### RSS-132 §5.4

The equivalent isotropically radiated power (e.i.r.p.) for mobile equipment in operating in the Bands 824-849 and 869-894MHz shall not exceed 11.5 watts.

##### RSS-133 §6.4

The equivalent isotropically radiated power (e.i.r.p.) for transmitters shall not exceed the limits given in SRSP-510.

According to section 5.1.2 of SRSP-510, Mobile stations and hand-held portables are limited to 2 watts maximum e.i.r.p. The equipment shall employ means to limit the power to the minimum necessary for successful communication.

##### RSS-139 §6.5

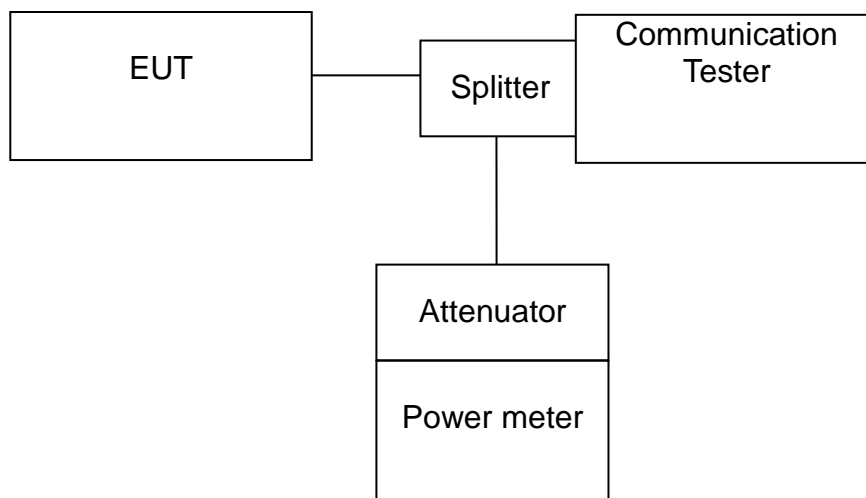
The equivalent isotropically radiated power (e.i.r.p.) for mobile and portable transmitters in the Bands 1710-1780MHz shall not exceed one watt.

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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. 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.

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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 4					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
DC Power Supply	Agilent	E3640A	MY52410006	12/17/2020	12/16/2021
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY51440113	07/23/2020	07/22/2021
Radio Communication Analyser	Anritsu	MT8815B	6200711454	04/07/2021	04/06/2022
Attenuator	Mini-Circuit	BW-S10W2+	2	12/16/2020	12/15/2021
DC Block	Mini-Circuits	BLK-18-S+	1	12/16/2020	12/15/2021
Power Divider	RF-LAMBAD	RFLT2W1G18G	11-JSPF412-020	12/16/2020	12/15/2021

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## 6.6 WCDMA & HSPA Measurement Results:

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 specification. The EUT supports power Class 3, which has a nominal maximum output power of 24 dBm. RMC 12.2kps is used for this testing.

### WCDMA/HSUPA/HSDPA Band II Result:

EUT Mode	Freq. (MHz)	CH	Conducted Avg. Power (dBm)	Antenna Gain (dBi)	ERP (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
WCDMA	1852.4	9262	23.17	-2.07	18.95	21.10	33.00	-11.90
	1880.0	9400	23.10	-2.07	18.88	21.03	33.00	-11.97
	1907.6	9538	23.06	-2.07	18.84	20.99	33.00	-12.01
HSDPA	1852.4	9262	22.13	-2.07	17.91	20.06	33.00	-12.94
	1880.0	9400	21.99	-2.07	17.77	19.92	33.00	-13.08
	1907.6	9538	21.58	-2.07	17.36	19.51	33.00	-13.49
HSUPA	1852.4	9262	20.94	-2.07	16.72	18.87	33.00	-14.13
	1880.0	9400	20.78	-2.07	16.56	18.71	33.00	-14.29
	1907.6	9538	20.68	-2.07	16.46	18.61	33.00	-14.39

### WCDMA/HSUPA/HSDPA Band IV Result:

EUT Mode	Freq. (MHz)	CH	Conducted Avg. Power (dBm)	Antenna Gain (dBi)	ERP (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
WCDMA	1712.4	1312	23.18	-2.35	18.68	20.83	30.00	-9.17
	1732.6	1413	23.03	-2.35	18.53	20.68	30.00	-9.32
	1752.6	1513	22.87	-2.35	18.37	20.52	30.00	-9.48
HSDPA	1712.4	1312	22.19	-2.35	17.69	19.84	30.00	-10.16
	1732.6	1413	22.26	-2.35	17.76	19.91	30.00	-10.09
	1752.6	1513	22.26	-2.35	17.76	19.91	30.00	-10.09
HSUPA	1712.4	1312	22.23	-2.35	17.73	19.88	30.00	-10.12
	1732.6	1413	22.13	-2.35	17.63	19.78	30.00	-10.22
	1752.6	1513	22.02	-2.35	17.52	19.67	30.00	-10.33

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**WCDMA/HSUPA/HSDPA Band V Result:**

EUT Mode	Freq. (MHz)	CH	Conducted Avg. Power (dBm)	Antenna Gain (dBi)	ERP (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
WCDMA	826.4	4132	23.42	-1.04	20.23	22.38	38.50	-16.12
	836.6	4183	23.45	-1.04	20.26	22.41	38.50	-16.09
	846.6	4233	23.46	-1.04	20.27	<b>22.42</b>	38.50	-16.08
HSDPA	826.4	4132	22.35	-1.04	19.16	21.31	38.50	-17.19
	836.6	4183	22.76	-1.04	19.57	21.72	38.50	-16.78
	846.6	4233	22.84	-1.04	19.65	<b>21.80</b>	38.50	-16.70
HSUPA	826.4	4132	22.60	-1.04	19.41	21.56	38.50	-16.94
	836.6	4183	22.72	-1.04	19.53	21.68	38.50	-16.82
	846.6	4233	22.84	-1.04	19.65	<b>21.80</b>	38.50	-16.70

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**6.6.1 HSPA (HSDPA & HSUPA) Release 6:**

The following 4 Sub-Tests were completed according to the test requirements outlined in section 5.2A of the 3GPP TS34.121-1 specification. All TX RMS power requirements for Power Class 3 were met according to table 5.2AA.5 and 5.2B.5 All UE channels and power ratio's are set according to table C10.1.4 & C11.1.3 in the 3GPP TS34.121-1. RMC 12.2kps is used for this testing.

**6.6.2 HSDPA SUB-TEST Setting**

Table C.10.1.4:  $\beta$  values for transmitter characteristics tests with HS-DPCCH(FOR HSDPA)

Sub-test	$\beta_c$	$\beta_d$	$\beta_d$ (SF)	$\beta_c/\beta_d$	$\beta_{HS}$ (Note 1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)	RMC (Kbps)
1	2/15	15/15	64	2/15	4/15	0.0	0.0	12.2
2	12/15 (Note 4)	15/15 (Note 4)	64	12/15 (Note 4)	24/15	1.0	0.0	12.2
3	15/15	8/15	64	15/8	30/15	1.5	0.5	12.2
4	15/15	4/15	64	15/4	30/15	1.5	0.5	12.2

**Note:** The recommended HSDPA MPRs are implemented as per following sub-tests.

Mode	Sub test	Avg. Power (dBm) Channel		
		9262.00	9400.00	9538.00
HSDPA II	1	22.13	21.99	21.58
	2	21.89	21.65	21.22
	3	21.47	21.12	20.64
	4	21.46	21.01	20.58
Mode	Sub test	Avg. Power (dBm) Channel		
		1312.00	1413.00	1513.00
HSDPA IV	1	22.19	22.26	22.26
	2	22.15	22.13	22.18
	3	21.64	21.67	21.72
	4	21.57	21.70	21.73

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Mode	Sub test	Avg. Power (dBm)		
		Channel		
		4132.00	4183.00	4233.00
HSDPA V	1	22.35	22.76	22.84
	2	22.23	22.75	22.80
	3	21.79	22.29	22.31
	4	21.83	22.13	22.34

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### 6.6.3 HSPA SUB-TEST Setting

Table C.11.1.3:  $\beta$  values for transmitter characteristics tests with HS-DPCCH and E-DCH(FOR HSUPA)

Sub-test	$\beta_c$	$\beta_d$	$\beta_d$ (SF)	$\beta_c/\beta_d$	$\beta_{HS}$	$\beta_{ec}$	$\beta_{ed}$	$\beta_{ed}$ (SF)	$\beta_{ed}$ (Code s)	CM (dB)	MPR (dB)	AG Index	E-TFCI	RMC (Kbps)
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/225	1309/225	4	1	1.0	0.0	20	75	12.2
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67	12.2
3	15/15	9/15	64	15/9	30/15	30/15	$\beta_{ed1}$ : 47/15 $\beta_{ed2}$ : 47/15	4 4	2	2.0	1.0	15	92	12.2
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71	12.2
5	15/15 (Note 4)	15/15 (Note 4)	64	15/15 (Note 4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81	12.2

**Note:** The recommended HSUPA MPRs are implemented as per following sub-tests.

Mode	Sub test	Avg. Power (dBm) Channel		
		9262.00	9400.00	9538.00
HSUPA II	1	20.94	20.78	20.68
	2	20.60	20.34	20.32
	3	21.03	20.81	20.59
	4	21.21	20.95	20.81
	5	21.10	20.71	20.62
Mode	Sub test	Avg. Power (dBm) Channel		
		1312.00	1413.00	1513.00
HSUPA IV	1	22.23	22.13	22.02
	2	21.76	21.66	21.54
	3	22.16	22.09	21.99
	4	22.11	22.15	22.07
	5	22.04	22.13	22.00

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Mode	Sub test	Avg. Power (dBm)		
		Channel		
		4132.00	4183.00	4233.00
HSUPA V	1	22.60	22.72	22.84
	2	22.14	22.17	22.38
	3	22.64	22.68	22.89
	4	22.66	22.73	22.93
	5	22.50	22.64	22.85

### 6.6.4 WCDMA/HSDPA/HSUPA band II, IV, V

The EUT output power was controlled by simulator and enter max rated power 24dBm. The EUT is going to be set to max output power to 24dBm then record the read. The min. power was measures by a function key “minimum power” then record the read. It is -52.3dBm. The power variation can be 0.1dB step by setting.

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6.7 LTE Measurement Results:

Antenna gain (dBi)	-2.07								
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	22.89	<b>20.82</b>	33	-12.18
				1	5	22.61	20.54	33	-12.46
				3	2	22.66	20.59	33	-12.41
				6	0	21.69	19.62	33	-13.38
	18900	1880	QPSK	1	0	22.43	20.36	33	-12.64
				1	5	22.38	20.31	33	-12.69
				3	2	22.65	20.58	33	-12.42
				6	0	21.59	19.52	33	-13.48
	19193	1909.3	QPSK	1	0	22.51	20.44	33	-12.56
				1	5	22.55	20.48	33	-12.52
				3	2	22.32	20.25	33	-12.75
				6	0	21.22	19.15	33	-13.85
1.4	18607	1850.7	16QAM	1	0	21.55	<b>19.48</b>	33	-13.52
				1	5	21.41	19.34	33	-13.66
Antenna gain (dBi)	-2.07								
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	22.99	<b>20.92</b>	33	-12.08
				1	14	22.83	20.76	33	-12.24
				8	4	21.86	19.79	33	-13.21
				15	0	21.80	19.73	33	-13.27
	18900	1880	QPSK	1	0	22.74	20.67	33	-12.33
				1	14	22.83	20.76	33	-12.24
				8	4	21.65	19.58	33	-13.42
				15	0	21.60	19.53	33	-13.47
	19185	1908.5	QPSK	1	0	22.60	20.53	33	-12.47
				1	14	22.72	20.65	33	-12.35
				8	4	21.57	19.50	33	-13.5
				15	0	21.35	19.28	33	-13.72
3	18615	1851.5	16QAM	1	0	21.45	19.38	33	-13.62
				1	14	21.56	<b>19.49</b>	33	-13.51

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Antenna gain (dBi)		-2.07							
<b>LTE Band 2_Uplink frequency band : 1850 to 1910 MHz</b>									
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	22.66	20.59	33	-12.41
				1	24	22.50	20.43	33	-12.57
				12	6	21.53	19.46	33	-13.54
				25	0	21.61	19.54	33	-13.46
	18900	1880	QPSK	1	0	22.60	20.53	33	-12.47
				1	24	22.72	<b>20.65</b>	33	-12.35
				12	6	21.53	19.46	33	-13.54
				25	0	21.59	19.52	33	-13.48
	19175	1907.5	QPSK	1	0	22.45	20.38	33	-12.62
				1	24	22.52	20.45	33	-12.55
				12	6	21.51	19.44	33	-13.56
				25	0	21.53	19.46	33	-13.54
5	18625	1852.5	16QAM	1	0	21.63	<b>19.56</b>	33	-13.44
				1	24	21.56	19.49	33	-13.51
Antenna gain (dBi)		-2.07							
<b>LTE Band 2_Uplink frequency band : 1850 to 1910 MHz</b>									
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	23.19	<b>21.12</b>	33	-11.88
				1	49	23.01	20.94	33	-12.06
				25	12	21.90	19.83	33	-13.17
				50	0	22.02	19.95	33	-13.05
	18900	1880	QPSK	1	0	22.79	20.72	33	-12.28
				1	49	23.01	20.94	33	-12.06
				25	12	21.94	19.87	33	-13.13
				50	0	21.85	19.78	33	-13.22
	19150	1905	QPSK	1	0	23.00	20.93	33	-12.07
				1	49	22.73	20.66	33	-12.34
				25	12	21.69	19.62	33	-13.38
				50	0	21.61	19.54	33	-13.46
10	18650	1855	16QAM	1	0	21.31	19.24	33	-13.76
				1	49	21.48	<b>19.41</b>	33	-13.59

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Antenna gain (dBi)		-2.07							
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	23.17	21.10	33	-11.9
				1	74	22.89	20.82	33	-12.18
				36	18	21.95	19.88	33	-13.12
				75	0	22.09	20.02	33	-12.98
	18900	1880	QPSK	1	0	22.87	20.80	33	-12.2
				1	74	22.97	20.90	33	-12.1
				36	18	21.98	19.91	33	-13.09
				75	0	21.89	19.82	33	-13.18
	19125	1902.5	QPSK	1	0	22.22	20.15	33	-12.85
				1	74	22.83	20.76	33	-12.24
				36	18	21.94	19.87	33	-13.13
				75	0	22.00	19.93	33	-13.07
15	18675	1857.5	16QAM	1	0	21.65	19.58	33	-13.42
				1	74	21.13	19.06	33	-13.94
Antenna gain (dBi)		-2.07							
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	22.78	20.71	33	-12.29
				1	99	22.37	20.30	33	-12.7
				50	25	21.37	19.30	33	-13.7
				100	0	21.32	19.25	33	-13.75
	18900	1880	QPSK	1	0	22.51	20.44	33	-12.56
				1	99	22.54	20.47	33	-12.53
				50	25	21.32	19.25	33	-13.75
				100	0	21.36	19.29	33	-13.71
	19100	1900	QPSK	1	0	22.43	20.36	33	-12.64
				1	99	22.22	20.15	33	-12.85
				50	25	21.28	19.21	33	-13.79
				100	0	21.36	19.29	33	-13.71
20	18700	1860	16QAM	1	0	21.41	19.34	33	-13.66
				1	99	20.98	18.91	33	-14.09

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Antenna gain (dBi)		-2.35							
<b>LTE Band 4_Uplink frequency band : 1710 to 1755 MHz</b>									
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	23.32	20.97	30	-9.03
				1	5	23.45	<b>21.10</b>	30	-8.9
				3	2	23.44	21.09	30	-8.91
				6	0	22.27	19.92	30	-10.08
	20175	1732.5	QPSK	1	0	23.37	21.02	30	-8.98
				1	5	23.24	20.89	30	-9.11
				3	2	23.37	21.02	30	-8.98
				6	0	22.19	19.84	30	-10.16
	20393	1754.3	QPSK	1	0	23.25	20.90	30	-9.1
				1	5	23.18	20.83	30	-9.17
				3	2	23.26	20.91	30	-9.09
				6	0	22.16	19.81	30	-10.19
1.4	19957	1710.7	16QAM	1	0	22.05	<b>19.70</b>	30	-10.3
				1	5	22.03	19.68	30	-10.32
Antenna gain (dBi)		-2.35							
<b>LTE Band 4_Uplink frequency band : 1710 to 1755 MHz</b>									
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	22.48	20.13	30	-9.87
				1	14	22.44	20.09	30	-9.91
				8	4	21.39	19.04	30	-10.96
				15	0	21.36	19.01	30	-10.99
	20175	1732.5	QPSK	1	0	22.54	<b>20.19</b>	30	-9.81
				1	14	22.35	20.00	30	-10
				8	4	21.33	18.98	30	-11.02
				15	0	21.30	18.95	30	-11.05
	20385	1753.5	QPSK	1	0	22.24	19.89	30	-10.11
				1	14	22.20	19.85	30	-10.15
				8	4	21.22	18.87	30	-11.13
				15	0	21.26	18.91	30	-11.09
3	19965	1711.5	16QAM	1	0	22.05	<b>19.70</b>	30	-10.3
				1	14	21.40	19.05	30	-10.95

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Antenna gain (dBi)		-2.35							
<b>LTE Band 4_Uplink frequency band : 1710 to 1755 MHz</b>									
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	22.53	<b>20.18</b>	30	-9.82
				1	24	22.39	20.04	30	-9.96
				12	6	21.36	19.01	30	-10.99
				25	0	21.38	19.03	30	-10.97
	20175	1732.5	QPSK	1	0	22.09	19.74	30	-10.26
				1	24	22.17	19.82	30	-10.18
				12	6	21.28	18.93	30	-11.07
				25	0	21.38	19.03	30	-10.97
	20375	1752.5	QPSK	1	0	22.14	19.79	30	-10.21
				1	24	22.39	20.04	30	-9.96
				12	6	21.38	19.03	30	-10.97
				25	0	21.31	18.96	30	-11.04
5	19975	1712.5	16QAM	1	0	21.81	<b>19.46</b>	30	-10.54
				1	24	21.67	19.32	30	-10.68
Antenna gain (dBi)		-2.35							
<b>LTE Band 4_Uplink frequency band : 1710 to 1755 MHz</b>									
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	22.91	<b>20.56</b>	30	-9.44
				1	49	22.58	20.23	30	-9.77
				25	12	21.59	19.24	30	-10.76
				50	0	21.52	19.17	30	-10.83
	20175	1732.5	QPSK	1	0	22.71	20.36	30	-9.64
				1	49	22.55	20.20	30	-9.8
				25	12	21.50	19.15	30	-10.85
				50	0	21.48	19.13	30	-10.87
	20350	1750	QPSK	1	0	22.54	20.19	30	-9.81
				1	49	22.61	20.26	30	-9.74
				25	12	21.26	18.91	30	-11.09
				50	0	21.41	19.06	30	-10.94
10	20000	1715	16QAM	1	0	21.51	19.16	30	-10.84
				1	49	21.60	<b>19.25</b>	30	-10.75

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Antenna gain (dBi)		-2.35							
<b>LTE Band 4_Uplink frequency band : 1710 to 1755 MHz</b>									
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	23.43	<b>21.08</b>	30	-8.92
				1	74	21.90	19.55	30	-10.45
				36	18	21.95	19.60	30	-10.4
				75	0	21.93	19.58	30	-10.42
	20175	1732.5	QPSK	1	0	22.94	20.59	30	-9.41
				1	74	22.83	20.48	30	-9.52
				36	18	21.74	19.39	30	-10.61
				75	0	21.82	19.47	30	-10.53
	20325	1747.5	QPSK	1	0	23.37	21.02	30	-8.98
				1	74	23.19	20.84	30	-9.16
				36	18	21.82	19.47	30	-10.53
				75	0	21.93	19.58	30	-10.42
15	20025	1717.5	16QAM	1	0	22.05	<b>19.70</b>	30	-10.3
				1	74	21.69	19.34	30	-10.66
Antenna gain (dBi)		-2.35							
<b>LTE Band 4_Uplink frequency band : 1710 to 1755 MHz</b>									
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	23.62	21.27	30	-8.73
				1	99	23.32	20.97	30	-9.03
				50	25	22.42	20.07	30	-9.93
				100	0	22.31	19.96	30	-10.04
	20175	1732.5	QPSK	1	0	23.54	21.19	30	-8.81
				1	99	23.28	20.93	30	-9.07
				50	25	22.46	20.11	30	-9.89
				100	0	22.39	20.04	30	-9.96
	20300	1745	QPSK	1	0	23.72	<b>21.37</b>	30	-8.63
				1	99	23.34	20.99	30	-9.01
				50	25	22.18	19.83	30	-10.17
				100	0	22.21	19.86	30	-10.14
20	20050	1720	16QAM	1	0	21.89	19.54	30	-10.46
				1	99	21.95	<b>19.60</b>	30	-10.4

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Antenna gain (dBi)		-1.04								
LTE Band 5_Uplink frequency band : 824 to 849 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	20407	824.7	QPSK	1	0	22.57	19.38	21.53	38.45	-19.07
				1	5	22.60	<b>19.41</b>	21.56	38.45	-19.04
				3	2	22.54	19.35	21.50	38.45	-19.10
				6	0	21.43	18.24	20.39	38.45	-20.21
	20525	836.5	QPSK	1	0	22.56	19.37	21.52	38.45	-19.08
				1	5	22.51	19.32	21.47	38.45	-19.13
				3	2	22.49	19.30	21.45	38.45	-19.15
				6	0	21.50	18.31	20.46	38.45	-20.14
	20643	848.3	QPSK	1	0	22.48	19.29	21.44	38.45	-19.16
				1	5	22.48	19.29	21.44	38.45	-19.16
				3	2	22.46	19.27	21.42	38.45	-19.18
				6	0	21.29	18.10	20.25	38.45	-20.35
1.4	20407	824.7	16QAM	1	0	21.98	<b>18.79</b>	20.94	38.45	-19.66
				1	5	21.77	18.58	20.73	38.45	-19.87
Antenna gain (dBi)		-1.04								

LTE Band 5_Uplink frequency band : 824 to 849 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	20415	825.5	QPSK	1	0	22.60	19.41	21.56	38.45	-19.04	
				1	14	22.74	19.55	21.70	38.45	-18.90	
				8	4	21.40	18.21	20.36	38.45	-20.24	
				15	0	21.39	18.20	20.35	38.45	-20.25	
	20525	836.5	QPSK	1	0	22.56	19.37	21.52	38.45	-19.08	
				1	14	22.62	19.43	21.58	38.45	-19.02	
				8	4	21.49	18.30	20.45	38.45	-20.15	
				15	0	21.39	18.20	20.35	38.45	-20.25	
	20635	847.5	QPSK	1	0	22.76	<b>19.57</b>	21.72	38.45	-18.88	
				1	14	22.64	19.45	21.60	38.45	-19.00	
				8	4	21.47	18.28	20.43	38.45	-20.17	
				15	0	21.45	18.26	20.41	38.45	-20.19	
	3	20415	825.5	16QAM	1	0	21.57	18.38	20.53	38.45	-20.07
					1	14	21.58	<b>18.39</b>	20.54	38.45	-20.06

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Antenna gain (dBi)		-1.04								
LTE Band 5_Uplink frequency band : 824 to 849 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	20425	826.5	QPSK	1	0	22.63	19.44	21.59	38.45	-19.01
				1	24	22.81	19.62	21.77	38.45	-18.83
				12	6	21.46	18.27	20.42	38.45	-20.18
				25	0	21.46	18.27	20.42	38.45	-20.18
	20525	836.5	QPSK	1	0	22.50	19.31	21.46	38.45	-19.14
				1	24	22.36	19.17	21.32	38.45	-19.28
				12	6	21.42	18.23	20.38	38.45	-20.22
				25	0	21.41	18.22	20.37	38.45	-20.23
	20625	846.5	QPSK	1	0	22.58	19.39	21.54	38.45	-19.06
				1	24	22.42	19.23	21.38	38.45	-19.22
				12	6	21.43	18.24	20.39	38.45	-20.21
				25	0	21.52	18.33	20.48	38.45	-20.12
5	20425	826.5	16QAM	1	0	21.95	18.76	20.91	38.45	-19.69
				1	24	21.61	18.42	20.57	38.45	-20.03
Antenna gain (dBi)		-1.04								
LTE Band 5_Uplink frequency band : 824 to 849 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	20450	829	QPSK	1	0	22.84	19.65	21.80	38.45	-18.80
				1	49	22.86	19.67	21.82	38.45	-18.78
				25	12	21.66	18.47	20.62	38.45	-19.98
				50	0	21.54	18.35	20.50	38.45	-20.10
	20525	836.5	QPSK	1	0	22.88	19.69	21.84	38.45	-18.76
				1	49	22.69	19.50	21.65	38.45	-18.95
				25	12	21.63	18.44	20.59	38.45	-20.01
				50	0	21.57	18.38	20.53	38.45	-20.07
	20600	844	QPSK	1	0	22.77	19.58	21.73	38.45	-18.87
				1	49	21.73	18.54	20.69	38.45	-19.91
				25	12	21.56	18.37	20.52	38.45	-20.08
				50	0	21.62	18.43	20.58	38.45	-20.02
10	20450	829	16QAM	1	0	21.91	18.72	20.87	38.45	-19.73
				1	49	21.62	18.43	20.58	38.45	-20.02

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Antenna gain (dBi)		-5.28								
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	22.95	15.52	17.67	34.77	-19.25
				1	5	22.78	15.35	17.50	34.77	-19.42
				3	2	22.70	15.27	17.42	34.77	-19.50
				6	0	21.67	14.24	16.39	34.77	-20.53
	23095	707.5	QPSK	1	0	22.75	15.32	17.47	34.77	-19.45
				1	5	22.61	15.18	17.33	34.77	-19.59
				3	2	22.65	15.22	17.37	34.77	-19.55
				6	0	21.53	14.10	16.25	34.77	-20.67
	23173	715.5	QPSK	1	0	22.50	15.07	17.22	34.77	-19.70
				1	5	22.49	15.06	17.21	34.77	-19.71
				3	2	22.43	15.00	17.15	34.77	-19.77
				6	0	21.34	13.91	16.06	34.77	-20.86
1.4	23017	699.7	16QAM	1	0	21.91	14.48	16.63	34.77	-20.29
				1	5	21.89	14.46	16.61	34.77	-20.31
Antenna gain (dBi)		-5.28								
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	22.51	15.08	17.23	34.77	-19.69
				1	14	22.32	14.89	17.04	34.77	-19.88
				8	4	21.35	13.92	16.07	34.77	-20.85
				15	0	21.39	13.96	16.11	34.77	-20.81
	23095	707.5	QPSK	1	0	22.58	15.15	17.30	34.77	-19.62
				1	14	22.43	15.00	17.15	34.77	-19.77
				8	4	21.48	14.05	16.20	34.77	-20.72
				15	0	21.44	14.01	16.16	34.77	-20.76
	23165	714.5	QPSK	1	0	22.47	15.04	17.19	34.77	-19.73
				1	14	22.36	14.93	17.08	34.77	-19.84
				8	4	21.33	13.90	16.05	34.77	-20.87
				15	0	21.23	13.80	15.95	34.77	-20.97
3	23025	700.5	16QAM	1	0	21.32	13.89	16.04	34.77	-20.88
				1	14	21.50	14.07	16.22	34.77	-20.70

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Antenna gain (dBi)		-5.28									
<b>LTE Band 12_Uplink frequency band : 699 to 716 MHz</b>											
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	22.47	15.04	17.19	34.77	-19.73	
				1	24	22.50	<b>15.07</b>	17.22	34.77	-19.70	
				12	6	21.30	13.87	16.02	34.77	-20.90	
				25	0	21.31	13.88	16.03	34.77	-20.89	
	23095	707.5	QPSK	1	0	22.43	15.00	17.15	34.77	-19.77	
				1	24	22.32	14.89	17.04	34.77	-19.88	
				12	6	21.45	14.02	16.17	34.77	-20.75	
				25	0	21.40	13.97	16.12	34.77	-20.80	
	23155	713.5	QPSK	1	0	22.47	15.04	17.19	34.77	-19.73	
				1	24	22.24	14.81	16.96	34.77	-19.96	
				12	6	21.34	13.91	16.06	34.77	-20.86	
				25	0	21.29	13.86	16.01	34.77	-20.91	
5	23035	701.5	16QAM	1	0	21.33	13.90	16.05	34.77	-20.87	
				1	24	21.45	<b>14.02</b>	16.17	34.77	-20.75	
Antenna gain (dBi)		-5.28									
<b>LTE Band 12_Uplink frequency band : 699 to 716 MHz</b>											
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	22.60	15.17	17.32	34.77	-19.60	
				1	49	21.88	14.45	16.60	34.77	-20.32	
				25	12	21.62	14.19	16.34	34.77	-20.58	
				50	0	21.51	14.08	16.23	34.77	-20.69	
	23095	707.5	QPSK	1	0	22.48	15.05	17.20	34.77	-19.72	
				1	49	22.57	15.14	17.29	34.77	-19.63	
				25	12	21.51	14.08	16.23	34.77	-20.69	
				50	0	21.44	14.01	16.16	34.77	-20.76	
	23130	711	QPSK	1	0	22.61	<b>15.18</b>	17.33	34.77	-19.59	
				1	49	21.54	14.11	16.26	34.77	-20.66	
				25	12	21.52	14.09	16.24	34.77	-20.68	
				50	0	21.39	13.96	16.11	34.77	-20.81	
	10	23060	704	16QAM	1	0	21.94	<b>14.51</b>	16.66	34.77	-20.26
					1	49	21.78	14.35	16.50	34.77	-20.42

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Antenna gain (dBi)		-4.91									
LTE Band 13_Uplink frequency band : 777 to 787 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	23205	779.5	QPSK	1	0	22.64	15.58	17.73	34.77	-19.19	
				1	24	22.65	15.59	17.74	34.77	-19.18	
				12	6	21.57	14.51	16.66	34.77	-20.26	
				25	0	21.63	14.57	16.72	34.77	-20.20	
	23230	782	QPSK	1	0	22.31	15.25	17.40	34.77	-19.52	
				1	24	22.71	15.65	17.80	34.77	-19.12	
				12	6	21.56	14.50	16.65	34.77	-20.27	
				25	0	21.44	14.38	16.53	34.77	-20.39	
	23255	784.5	QPSK	1	0	22.66	15.60	17.75	34.77	-19.17	
				1	24	22.58	15.52	17.67	34.77	-19.25	
				12	6	21.47	14.41	16.56	34.77	-20.36	
				25	0	21.39	14.33	16.48	34.77	-20.44	
5	23205	779.5	16QAM	1	0	21.83	14.77	16.92	34.77	-20.00	
				1	24	22.06	15.00	17.15	34.77	-19.77	
Antenna gain (dBi)		-4.91									
LTE Band 13_Uplink frequency band : 777 to 787 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	23230	782	QPSK	1	0	22.57	15.51	17.66	34.77	-19.26	
				1	49	22.56	15.50	17.65	34.77	-19.27	
				25	12	21.59	14.53	16.68	34.77	-20.24	
				50	0	21.43	14.37	16.52	34.77	-20.40	
10	23230	782	16QAM	1	0	22.02	14.96	17.11	34.77	-19.81	
				1	49	21.91	14.85	17.00	34.77	-19.92	

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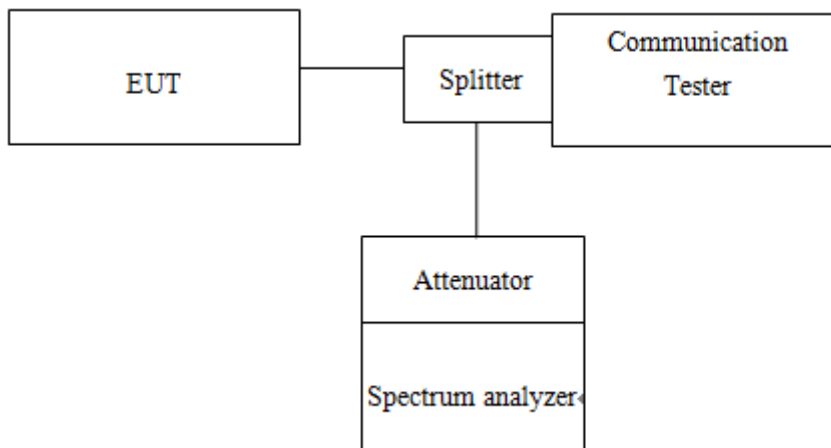
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## 7 OCCUPIED BANDWIDTH MEASUREMENT

### 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%.

#### **99% Bandwidth with detector sample**

The EUT's output RF connector was connected with a short cable to the spectrum analyzer, RBW was set to about 1% ~ 5% of emission BW, VBW= 3 times RBW. Set RBW= 1% ~ 5%, 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 4					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY51440113	07/23/2020	07/22/2021
Radio Communication Analyser	Anritsu	MT8815B	6200711454	04/07/2021	04/06/2022
Attenuator	Mini-Circuit	BW-S10W2+	2	12/16/2020	12/15/2021
DC Block	Mini-Circuits	BLK-18-S+	1	12/16/2020	12/15/2021
Power Divider	RF-LAMBAD	RFLT2W1G18G	11-JSPF412-020	12/16/2020	12/15/2021
Temperature Chamber	TERCHY	MHG-120LF	911009	05/20/2020	05/19/2021
DC Power Supply	Agilent	E3640A	MY52410006	12/17/2020	12/16/2021

## 7.5 Measurement Result

Freq. (MHz)	CH	99% BW (MHz)			26 dB BW (MHz)		
		WCDMA II	HSDPA II	HSUPA II	WCDMA II	HSDPA II	HSUPA II
1852.40	9262	<b>4.71400</b>	4.11630	4.11380	4.127	<b>4.673</b>	<b>4.672</b>
1880.00	9400	4.12600	<b>4.12320</b>	<b>4.12840</b>	4.710	4.670	4.667
1907.60	9538	4.12600	4.11490	4.12420	<b>4.722</b>	4.666	4.668
Freq. (MHz)	CH	99% BW (MHz)			26 dB BW (MHz)		
		WCDMA IV	HSDPA IV	HSUPA IV	WCDMA IV	HSDPA IV	HSUPA IV
1712.40	1312	<b>4.13120</b>	<b>4.11970</b>	4.11260	4.710	4.658	<b>4.666</b>
1732.60	1413	4.12460	4.11710	4.09860	4.705	<b>4.673</b>	<b>4.666</b>
1752.60	1513	4.12400	4.11320	<b>4.11330</b>	<b>4.721</b>	4.665	4.659
Freq. (MHz)	CH	99% BW (MHz)			26 dB BW (MHz)		
		WCDMA V	HSDPA V	HSUPA V	WCDMA V	HSDPA V	HSUPA V
826.40	4132	4.13330	4.14760	4.14420	4.727	4.983	5.026
836.60	4183	4.12670	<b>4.15410</b>	<b>4.15340</b>	4.720	<b>5.125</b>	<b>5.085</b>
846.60	4233	<b>4.13450</b>	4.15030	4.14320	<b>4.728</b>	4.997	4.977

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LTE BAND 2 Channel bandwidth: 1.4MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1850.7	18607	1.0865	<b>0.25767</b>	1.266	0.3637
1880.0	18900	<b>1.0869</b>	0.25419	1.266	0.3658
1909.3	19193	1.0855	0.25219	<b>1.271</b>	<b>0.4709</b>

LTE BAND 2 Channel bandwidth: 3MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1851.5	18615	2.6823	<b>0.327</b>	2.950	<b>0.5104</b>
1880.0	18900	2.6833	0.25419	2.935	0.466
1908.5	19185	<b>2.6886</b>	0.30146	<b>2.977</b>	0.4905

LTE BAND 2 Channel bandwidth: 5MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1852.5	18625	4.4776	0.45558	<b>4.966</b>	0.7063
1880.0	18900	4.4862	<b>0.46275</b>	4.957	<b>0.7092</b>
1907.5	19175	<b>4.4900</b>	0.45549	4.964	0.6682

LTE BAND 2 Channel bandwidth: 10MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1855.0	18650	8.9521	<b>0.66577</b>	9.700	<b>0.9886</b>
1880.0	18900	<b>8.9679</b>	0.65853	9.707	0.8705
1905.0	19150	8.9420	0.64229	<b>9.788</b>	0.8826

LTE BAND 2 Channel bandwidth: 15MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1857.5	18675	13.380	1.0243	14.50	1.44
1880.0	18900	<b>13.428</b>	1.0245	14.50	<b>1.45</b>
1902.5	19125	13.395	<b>1.0277</b>	<b>14.53</b>	1.39

LTE BAND 2 Channel bandwidth: 20MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1860.0	18700	17.831	<b>1.22</b>	<b>19.25</b>	1.71
1880.0	18900	<b>17.867</b>	1.21	19.21	<b>1.78</b>
1900.0	19100	17.817	1.21	19.18	1.74

LTE BAND 4 Channel bandwidth: 1.4MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1710.7	19957	1.0855	0.25216	1.250	0.3951
1732.5	20175	<b>1.0872</b>	0.25241	1.267	0.4103
1754.3	20393	1.0870	<b>0.25568</b>	<b>1.269</b>	<b>0.421</b>

LTE BAND 4 Channel bandwidth: 3MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1711.5	19965	2.6852	0.30843	2.945	<b>0.5079</b>
1732.5	20175	<b>2.6858</b>	0.31054	<b>2.959</b>	0.4688
1753.5	20385	2.6850	<b>0.31422</b>	2.937	0.5032

LTE BAND 4 Channel bandwidth: 5MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1712.5	19975	<b>4.4861</b>	0.45764	<b>5.009</b>	0.6806
1732.5	20175	4.4846	<b>0.48391</b>	4.944	0.6858
1752.5	20375	4.4808	0.48263	4.981	<b>0.7332</b>

LTE BAND 4 Channel bandwidth: 10MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1715.0	20000	<b>8.9560</b>	0.64855	<b>9.778</b>	0.9189
1732.5	20175	8.9412	0.64172	9.732	0.8993
1750.0	20350	8.9419	<b>0.66293</b>	9.739	<b>0.9411</b>

LTE BAND 4 Channel bandwidth: 15MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1717.5	20025	<b>13.431</b>	0.9763	14.43	<b>1.46</b>
1732.5	20175	13.396	<b>1.014</b>	<b>14.53</b>	1.33
1747.5	20325	13.380	1.009	14.50	1.45

LTE BAND 4 Channel bandwidth: 20MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1720.0	20050	<b>17.853</b>	1.209	<b>19.30</b>	1.71
1732.5	20175	17.834	<b>1.245</b>	19.20	1.69
1745.0	20300	17.793	1.223	19.23	<b>1.73</b>

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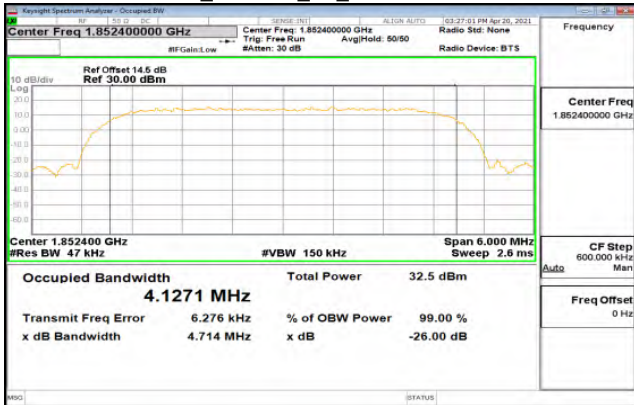
LTE BAND 5 Channel bandwidth: 1.4MHz						LTE BAND 5 Channel bandwidth: 3MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)		Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM			QPSK	16QAM	QPSK	16QAM
824.7	20407	1.0854	0.24695	1.264	0.4015	825.5	20415	2.6827	<b>0.49152</b>	2.951	<b>0.7222</b>
836.5	20525	<b>1.0862</b>	0.24748	<b>1.275</b>	0.3682	836.5	20525	2.6847	0.47214	2.946	0.6867
848.3	20643	1.0850	<b>0.24962</b>	1.257	<b>0.4662</b>	847.5	20635	<b>2.6849</b>	0.47778	<b>2.954</b>	0.6726
LTE BAND 5 Channel bandwidth: 5MHz						LTE BAND 5 Channel bandwidth: 10MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)		Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM			QPSK	16QAM	QPSK	16QAM
826.5	20425	4.4810	<b>0.49152</b>	<b>4.978</b>	<b>0.7222</b>	829.0	20450	8.9445	<b>0.63466</b>	<b>9.845</b>	0.8805
836.5	20525	<b>4.4816</b>	0.47214	4.975	0.6867	836.5	20525	8.9471	0.62056	9.688	0.9193
846.5	20625	4.4808	0.47778	4.938	0.6726	844.0	20600	<b>8.9538</b>	0.6247	9.755	<b>0.9372</b>
LTE BAND 12 Channel bandwidth: 1.4MHz						LTE BAND 12 Channel bandwidth: 3MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)		Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM			QPSK	16QAM	QPSK	16QAM
699.7	23017	1.0854	0.25305	1.261	0.4056	700.5	23025	2.6820	<b>0.3248</b>	2.938	<b>0.521</b>
707.5	23095	<b>1.0863</b>	0.25224	1.271	0.4077	707.5	23095	<b>2.6838</b>	0.3134	2.930	0.495
715.3	23173	1.0851	<b>0.2539</b>	<b>1.279</b>	<b>0.409</b>	714.5	23165	2.6831	0.31394	<b>2.951</b>	0.4986
LTE BAND 12 Channel bandwidth: 5MHz						LTE BAND 12 Channel bandwidth: 10MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)		Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM			QPSK	16QAM	QPSK	16QAM
701.5	23035	4.4788	<b>0.49787</b>	<b>4.986</b>	<b>0.7297</b>	704.0	23060	<b>8.9610</b>	0.66717	9.789	<b>0.9618</b>
707.5	23095	<b>4.4807</b>	0.49124	<b>4.986</b>	0.671	707.5	23095	8.9597	<b>0.67087</b>	<b>9.819</b>	0.955
713.5	23155	4.4764	0.49251	4.968	0.6566	711.0	23130	8.9394	0.65509	9.744	0.9441
LTE BAND 13 Channel bandwidth: 5MHz						LTE BAND 13 Channel bandwidth: 10MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)		Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM			QPSK	16QAM	QPSK	16QAM
779.5	23205	4.4718	<b>0.50639</b>	4.961	0.7005	782.0	23230	<b>8.9580</b>	<b>0.68466</b>	<b>9.740</b>	<b>0.9613</b>
782.0	23230	<b>4.4867</b>	0.48366	<b>5.004</b>	<b>0.7078</b>						
784.5	23255	4.4724	0.49348	4.969	0.6912						

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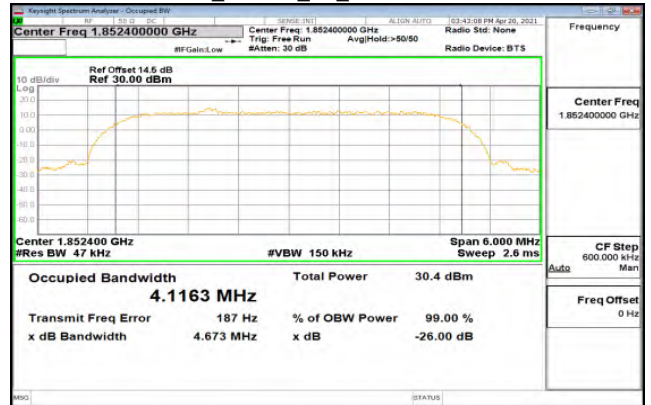
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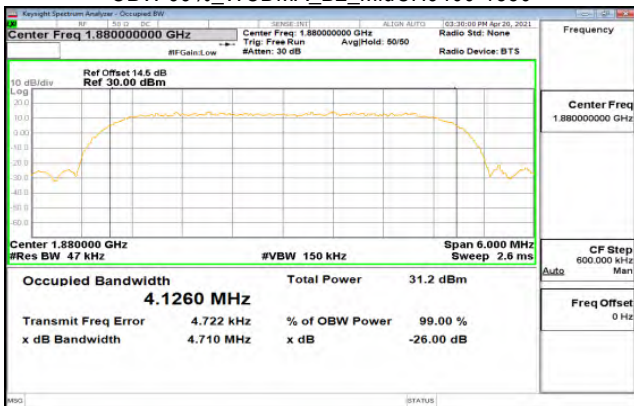
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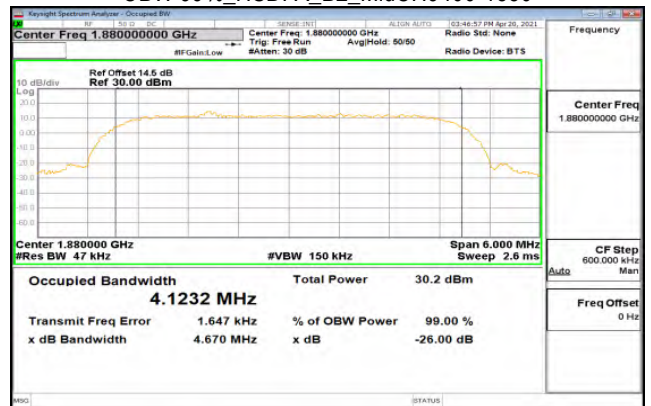
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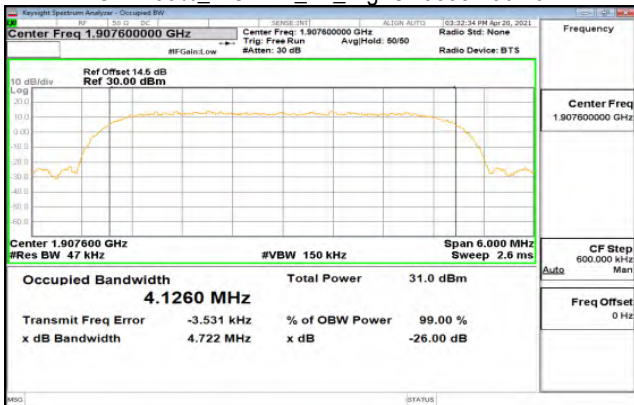
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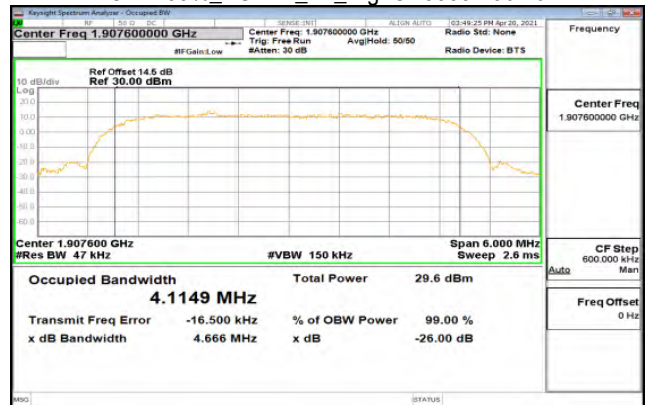
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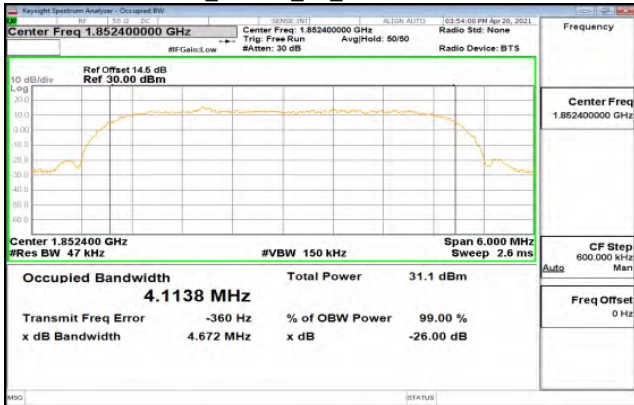


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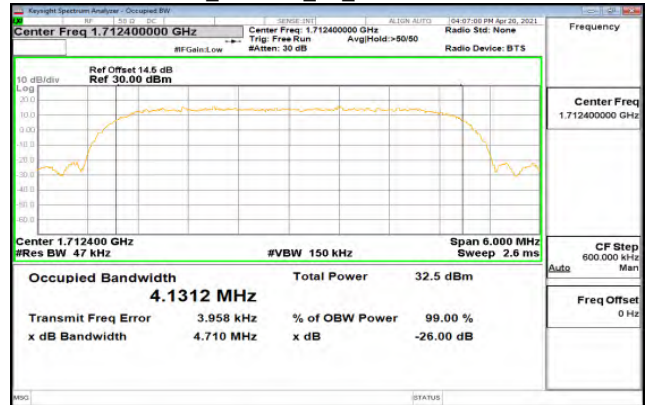
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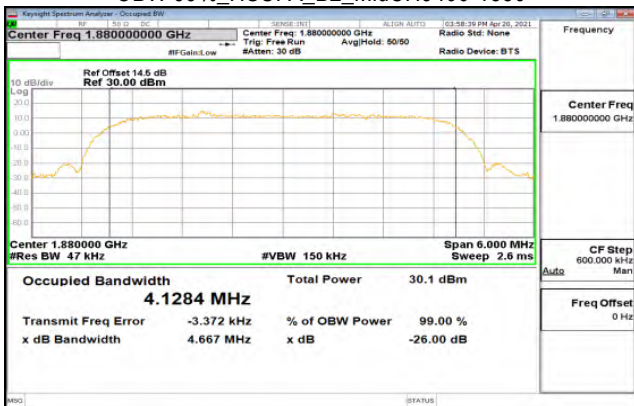
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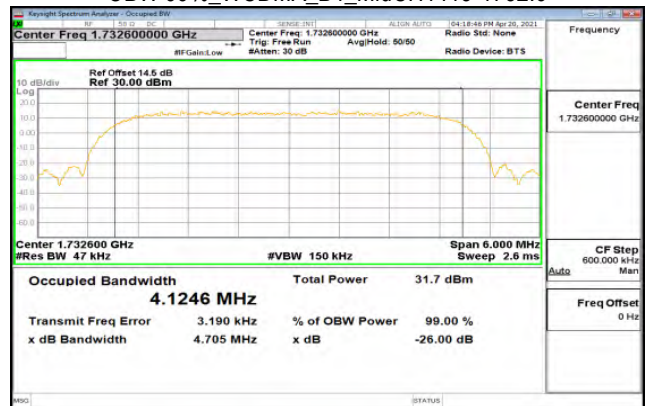
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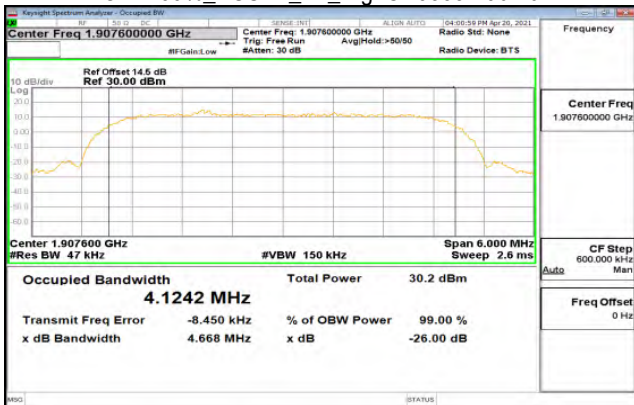
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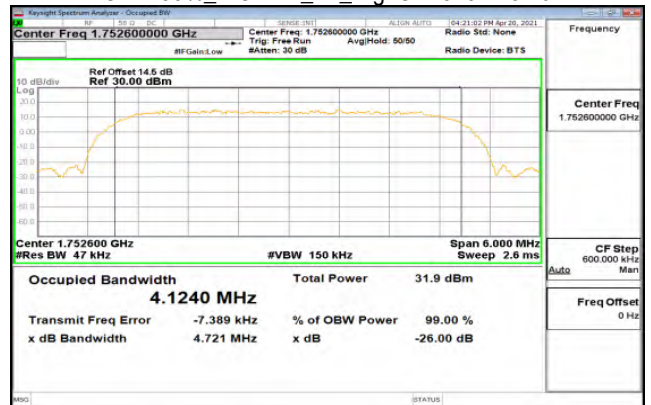
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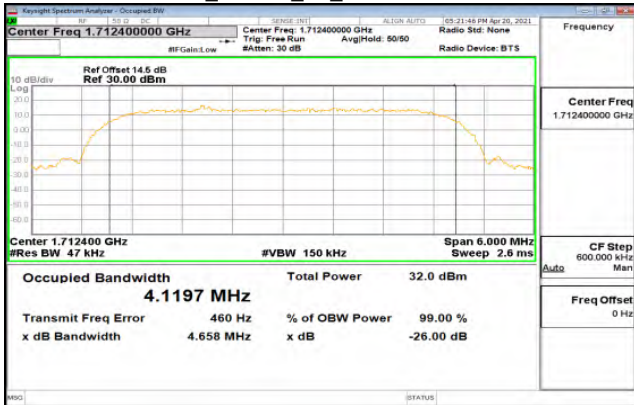


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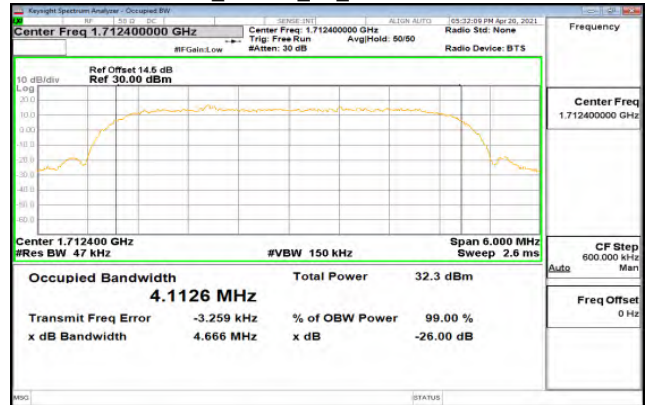
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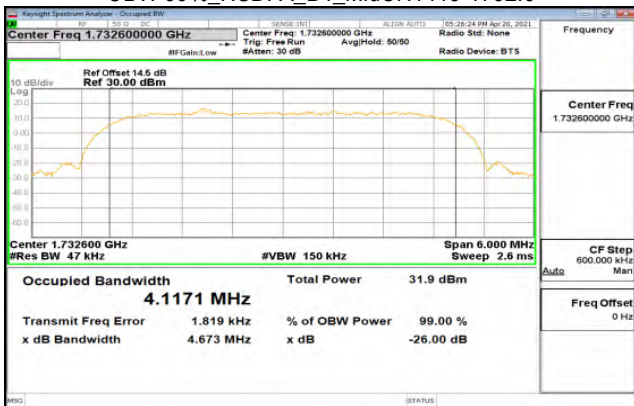
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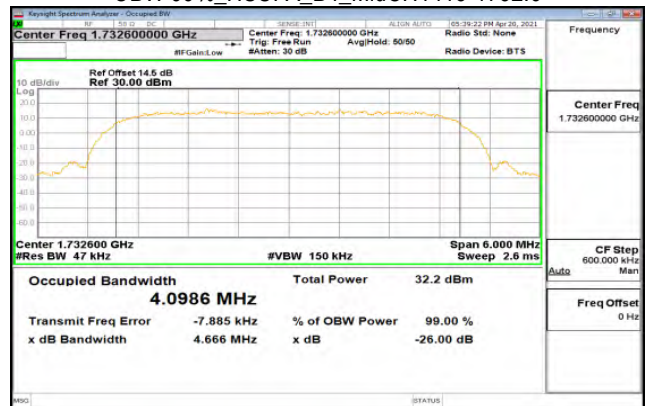
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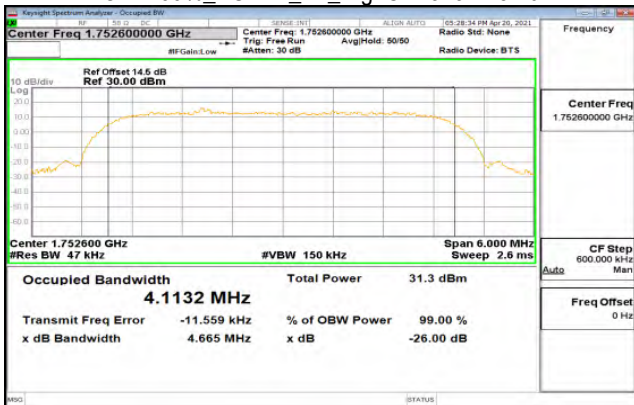
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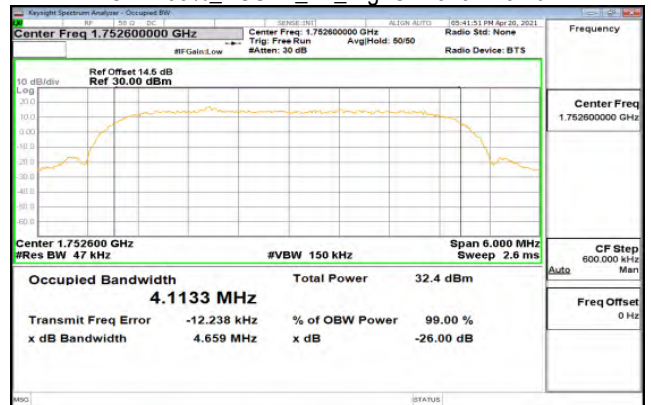
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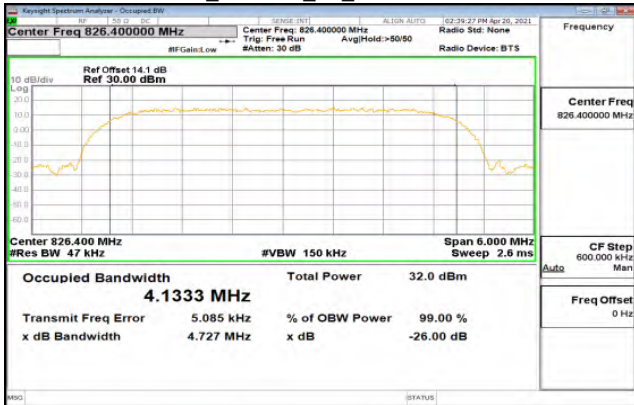


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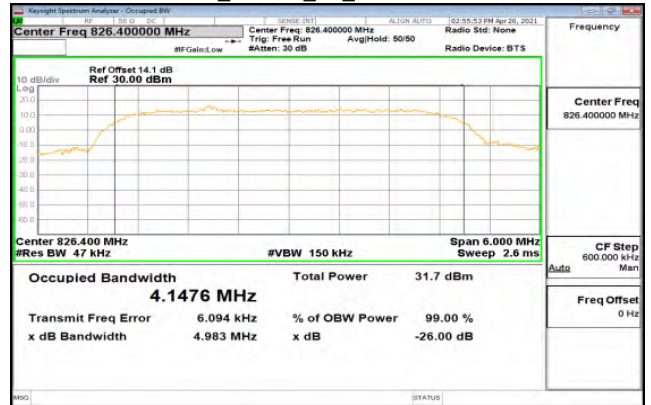
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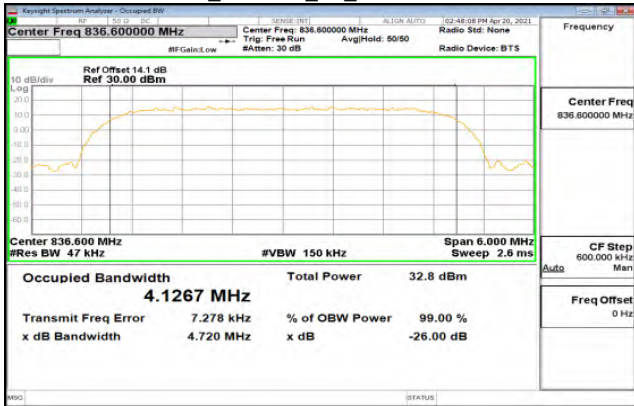
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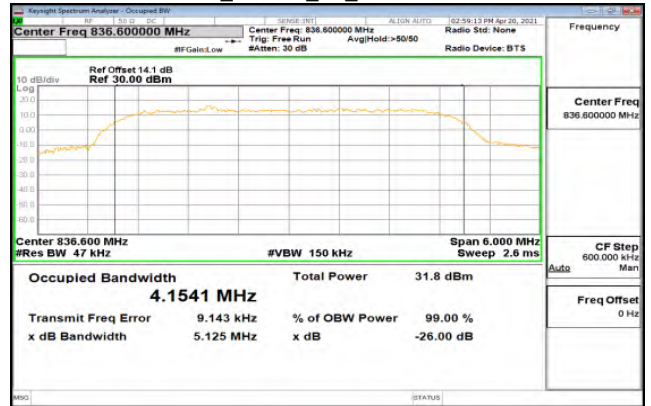
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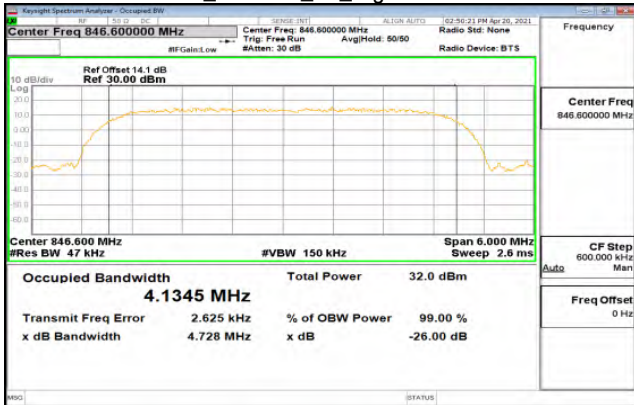
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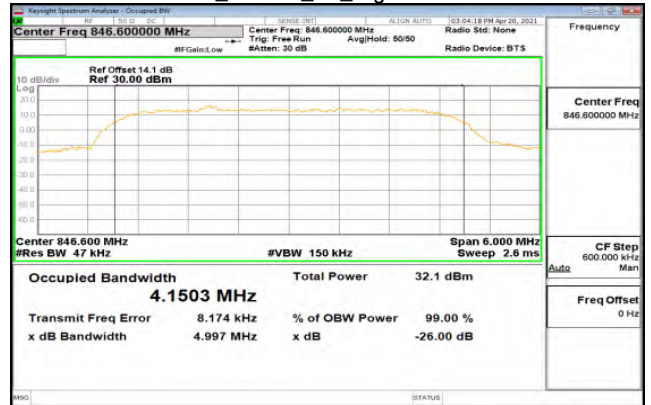
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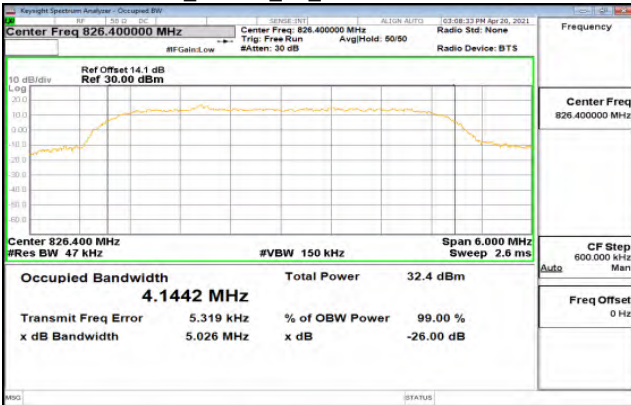


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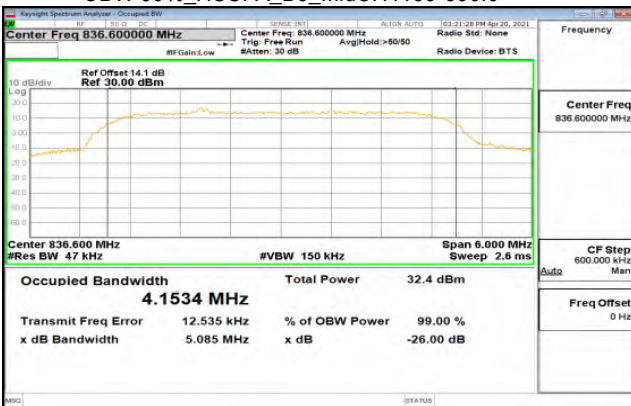
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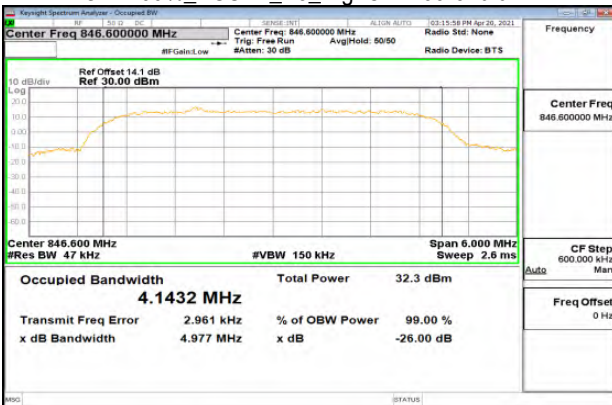
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OBW 99%\_HSUPA\_B5\_HighCH4233-846.6



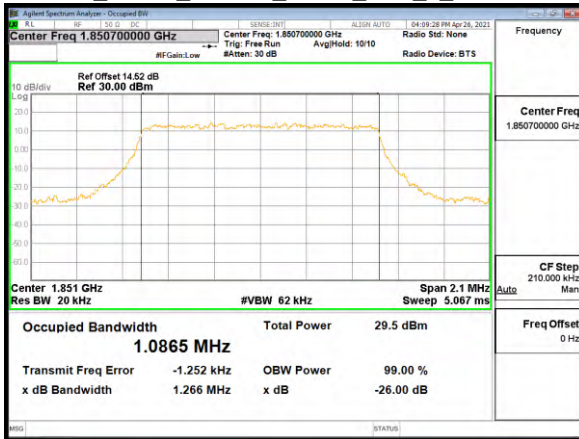
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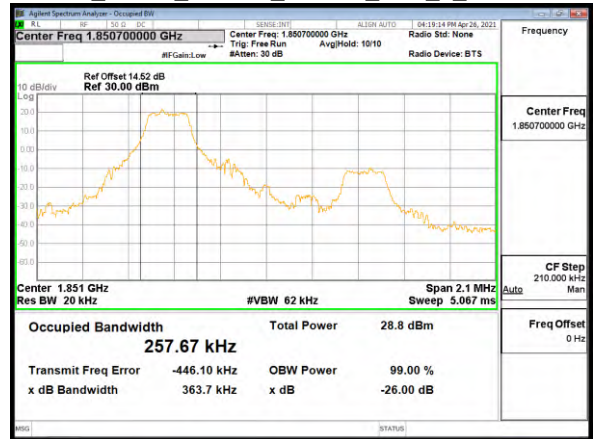
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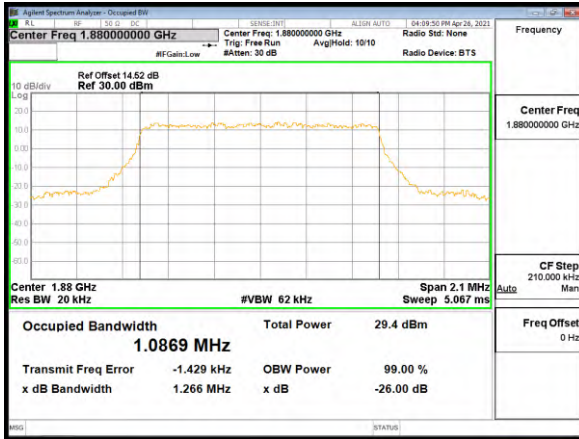
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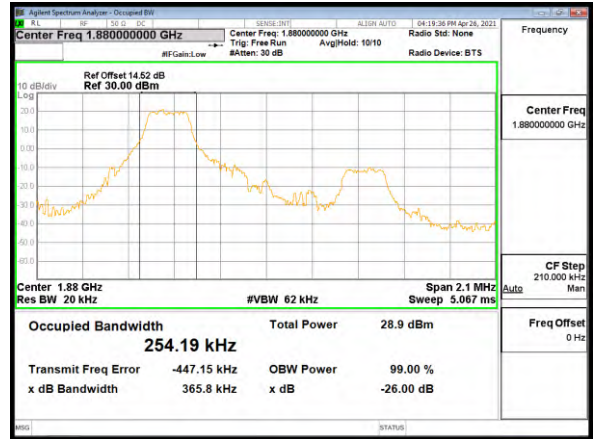
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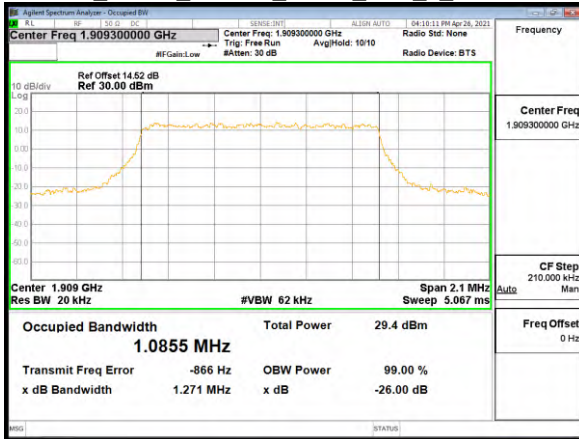
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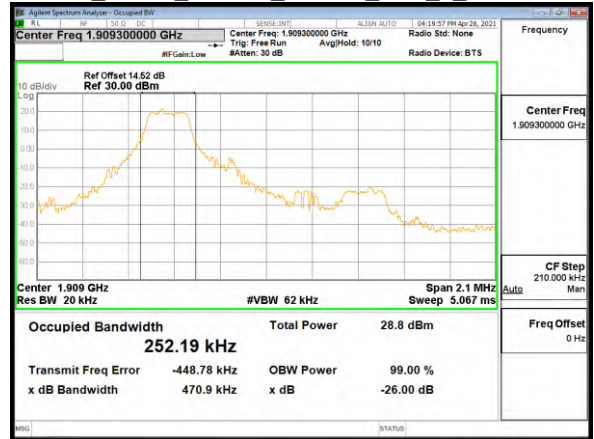
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OBW\_Band2\_1.4MHz\_QPSK\_RB6\_0\_CH19193



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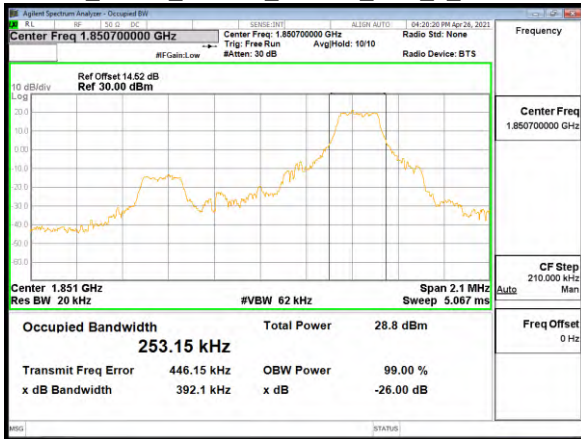


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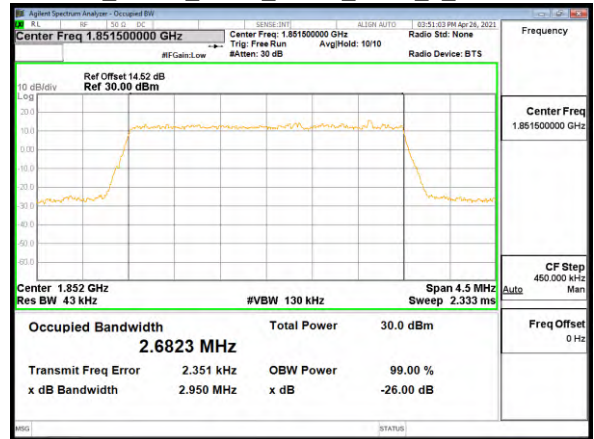
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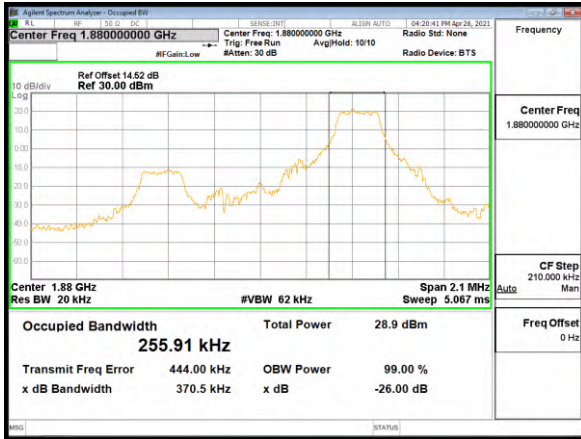
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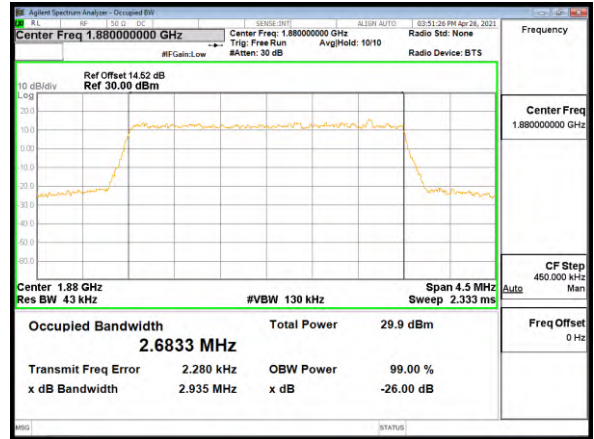
OBW\_Band2\_3MHz\_QPSK\_RB15\_0\_CH18615



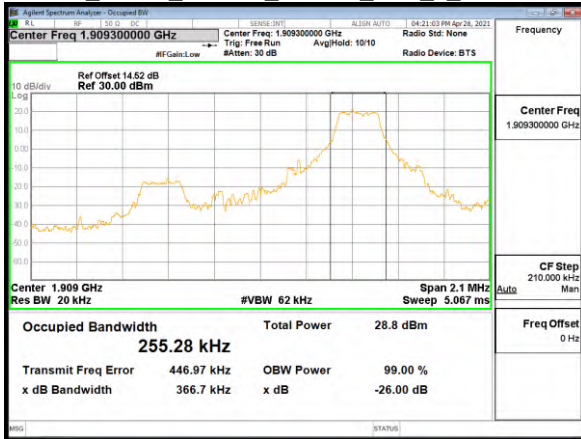
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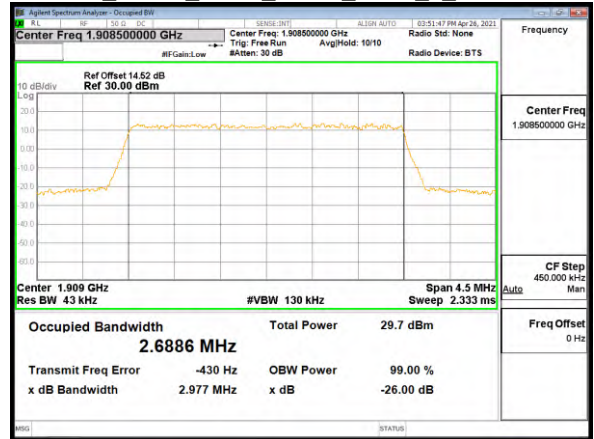
OBW\_Band2\_3MHz\_QPSK\_RB15\_0\_CH18900



OBW\_Band2\_1.4MHz\_16QAM\_RB1\_5\_CH19193



OBW\_Band2\_3MHz\_QPSK\_RB15\_0\_CH19185

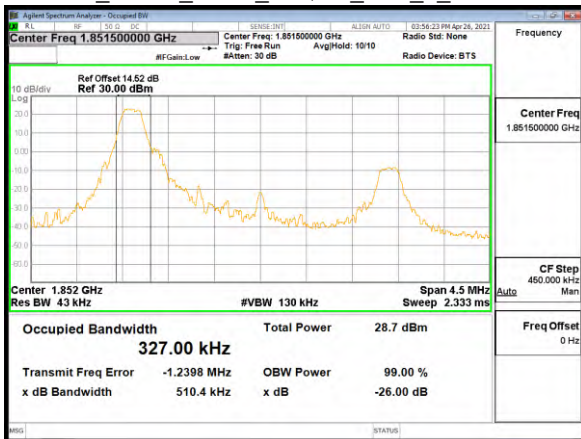


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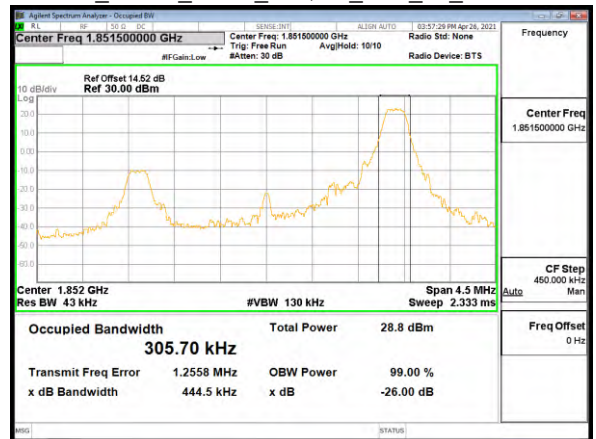
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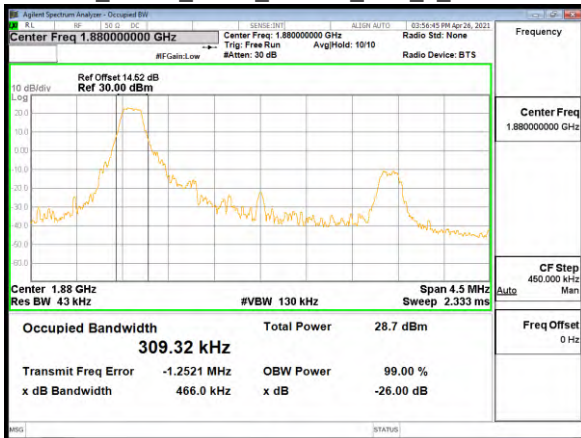
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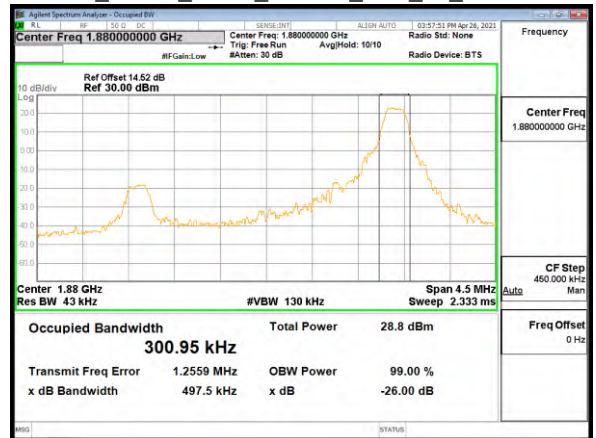
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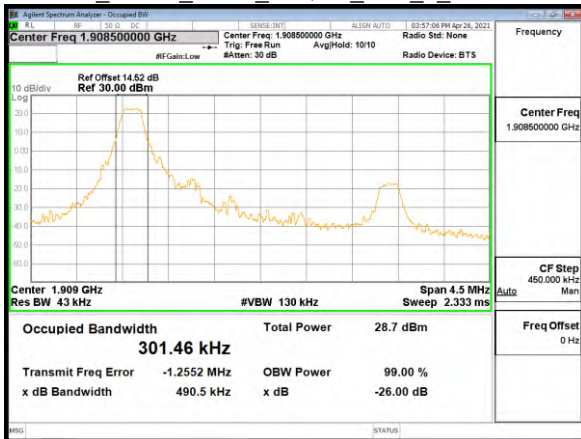
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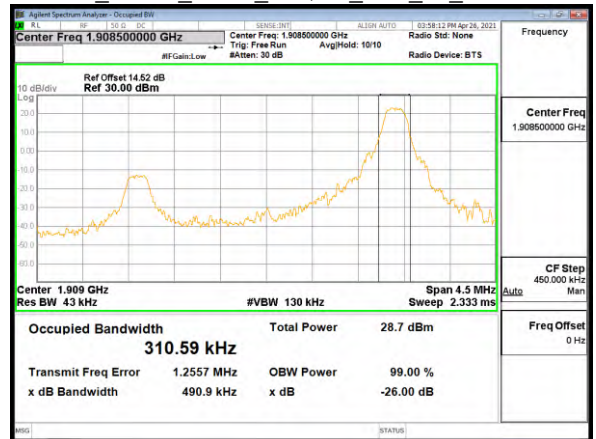
OBW\_Band2\_3MHz\_16QAM\_RB1\_14\_CH18900



OBW\_Band2\_3MHz\_16QAM\_RB1\_0\_CH19185



OBW\_Band2\_3MHz\_16QAM\_RB1\_14\_CH19185

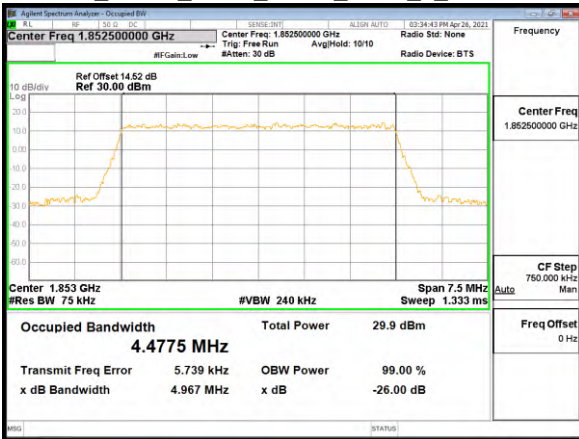


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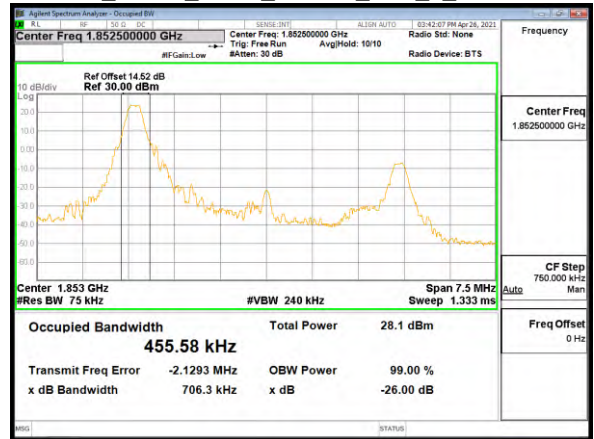
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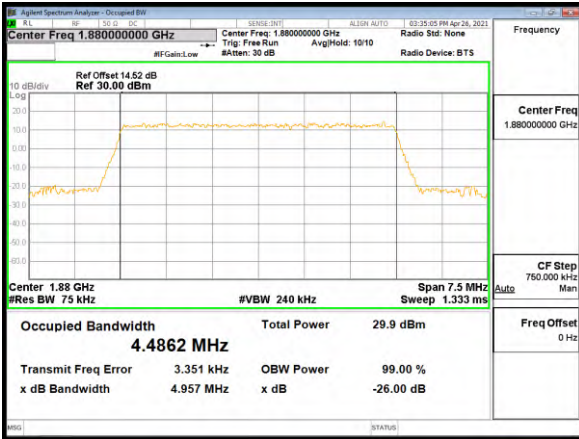
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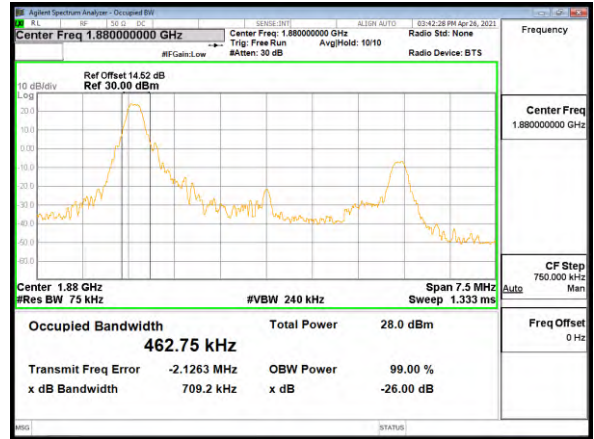
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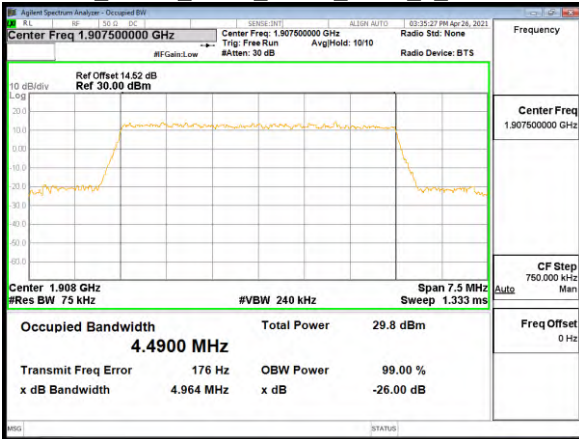
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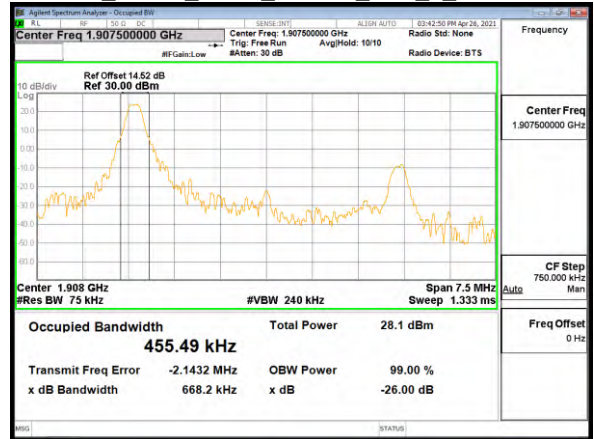
OBW\_Band2\_5MHz\_16QAM\_RB1\_0\_CH18900



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OBW\_Band2\_5MHz\_16QAM\_RB1\_0\_CH19175

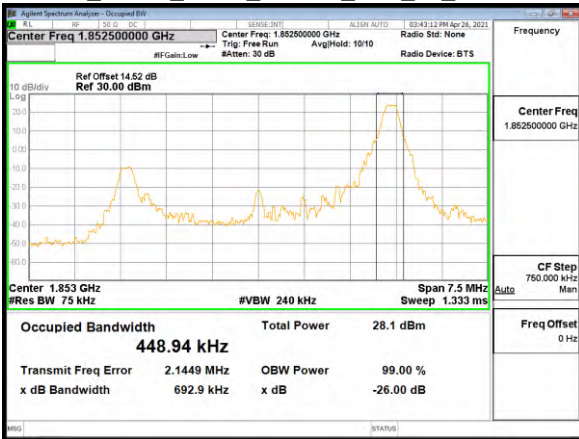


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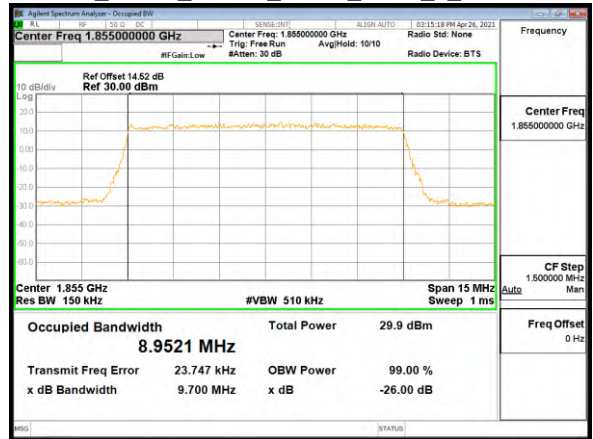
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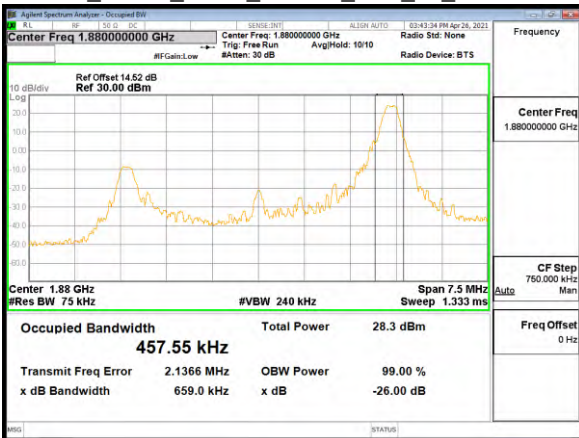
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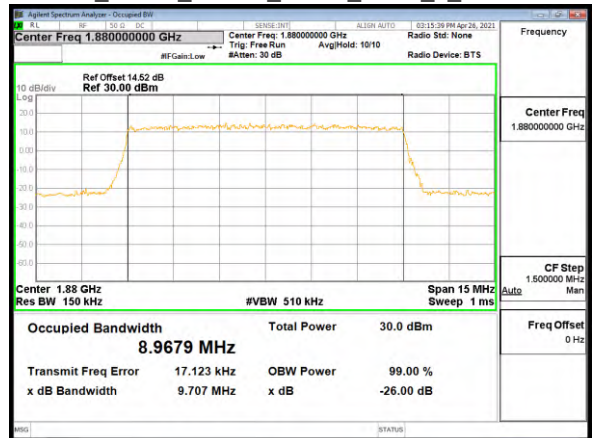
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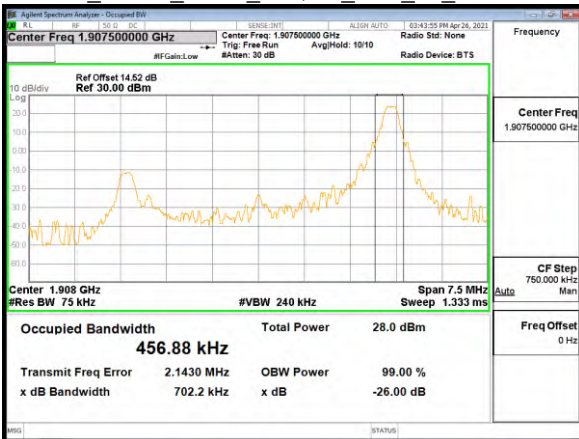
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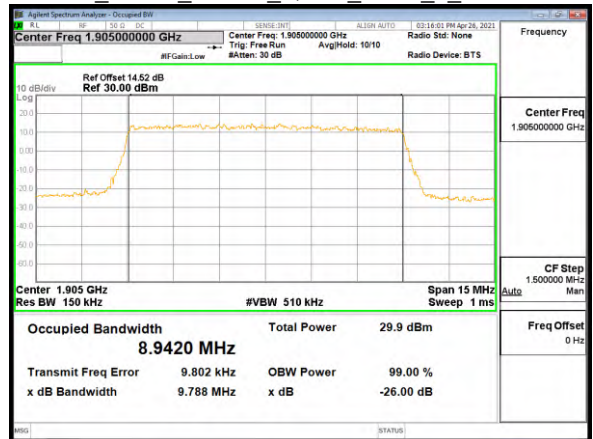
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OBW\_Band2\_10MHz\_QPSK\_RB50\_0\_CH19150

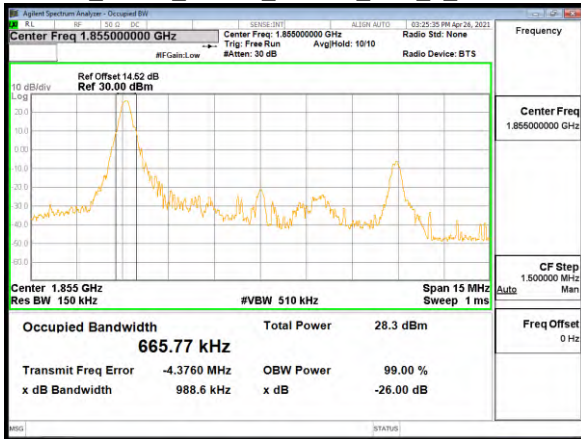


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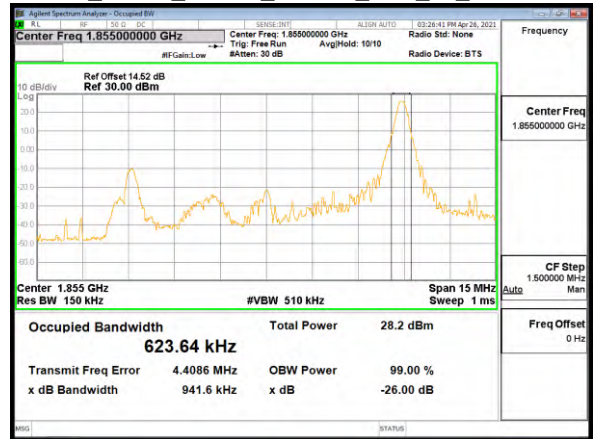
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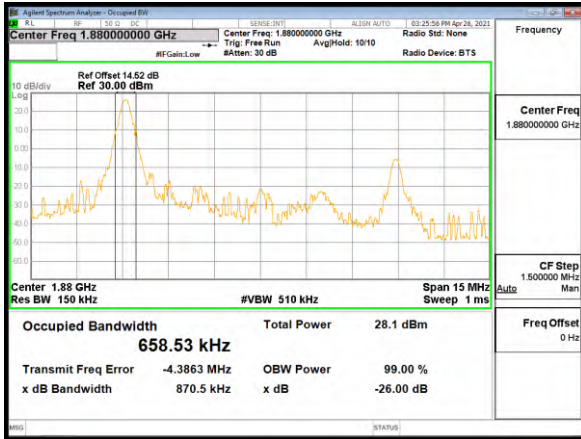
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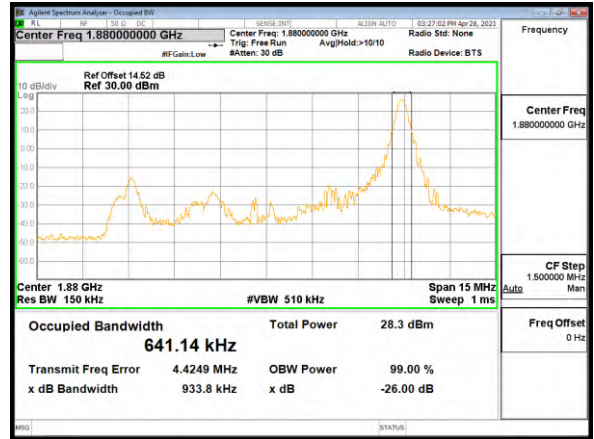
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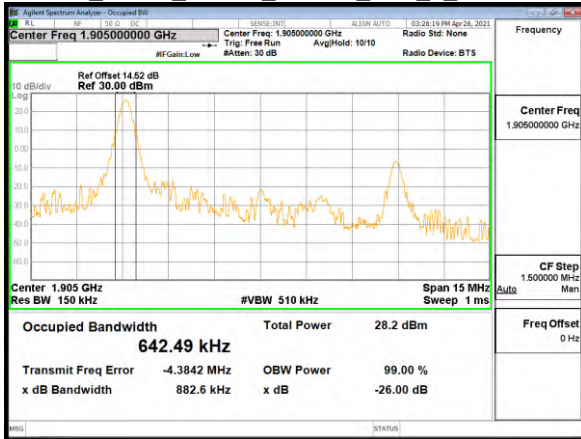
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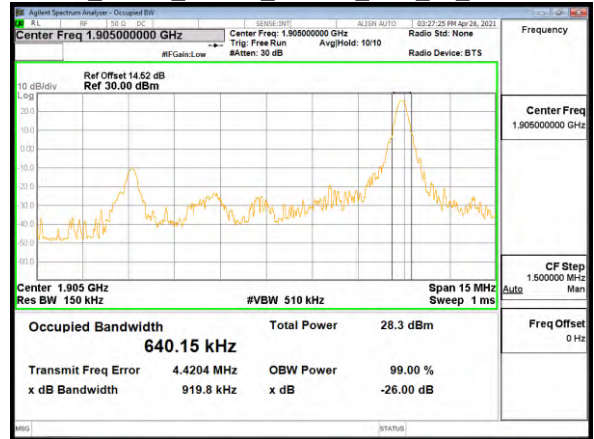
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OBW\_Band2\_10MHz\_16QAM\_RB1\_0\_CH19150



OBW\_Band2\_10MHz\_16QAM\_RB1\_49\_CH19150

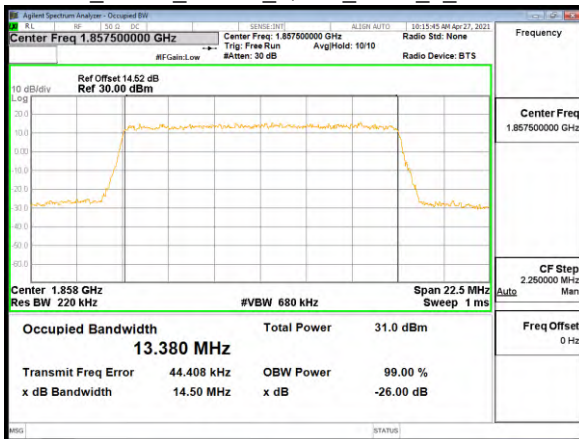


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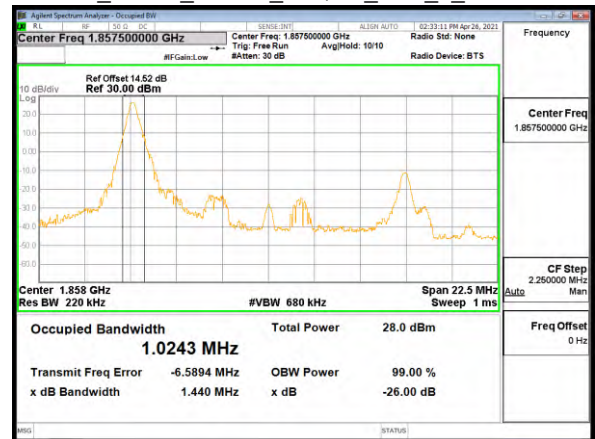
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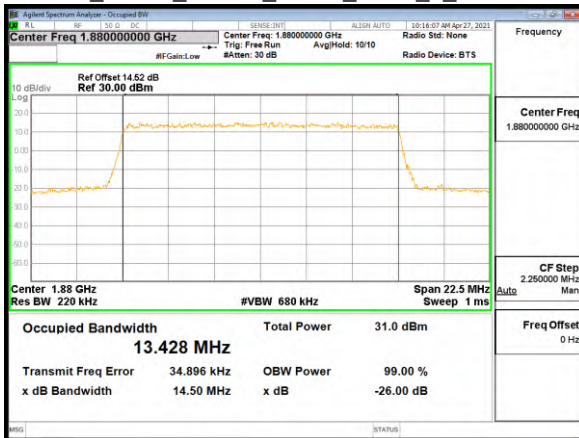
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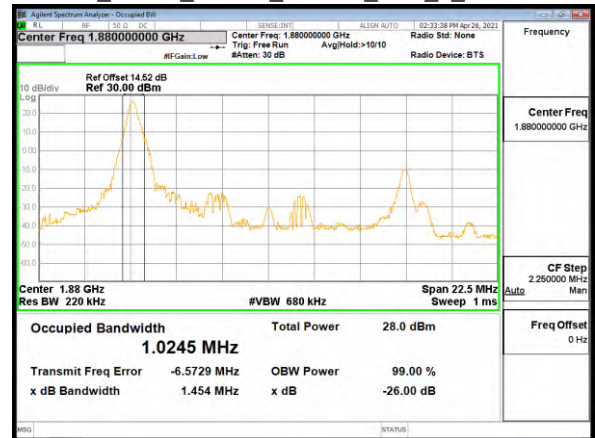
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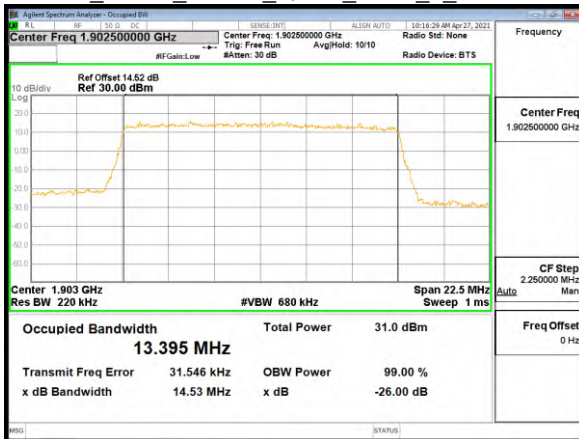
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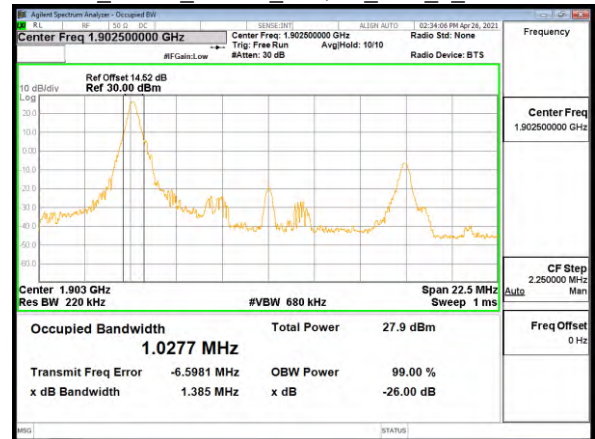
OBW\_Band2\_15MHz\_16QAM\_RB1\_0\_CH18900



OBW\_Band2\_15MHz\_QPSK\_RB75\_0\_CH19125



OBW\_Band2\_15MHz\_16QAM\_RB1\_0\_CH19125



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