

ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

**INTENTIONAL RADIATOR CERTIFICATION TO
FCC PART 22 SUBPART H, PART 24 SUBPART E and PART 27 SUBPART
B, C & SUBPART L REQUIREMENT**

OF

FCC Applicant: Panasonic Corporation of North America
Two Riverfront Plaza, 9th Floor, Newark, NJ 07102-5490

Product Name: Tablet Computer

Brand Name: Panasonic

Model No.: FZ-L1AA

Marketing Name: FZ-L1

Model Difference: N/A

FCC ID: ACJFZL1B

Report Number: ER/2018/B0032

FCC Rule Part: 2 , 22H & 24E & 27B, C & L

Issue Date: Dec. 20, 2018

Date of Test: Nov. 15, 2018 ~ Nov. 27, 2018

Date of EUT Received: Nov. 15, 2018

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Electronics & Communication Laboratory. 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.

Tested By:

Louis Chen

Louis Chen / Sr. Engineer

Approved By:

Jazz Huang

Jazz Huang / Asst. Supervisor



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Revision History

Report Number	Revision	Description	Effectuated Page	Issue Date	Revised By
ER/2018/B0032	Rev.00	Initial creation of document	All	Dec. 12, 2018	Tiffany Kao
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1. GENERAL PRODUCT INFORMATION

1.1. Product Description

General:

Product Name:	Tablet Computer	
Brand Name:	Panasonic	
Model No.:	FZ-L1AA	
Model Difference:	N/A	
Product HW/SW version:	C-NA-002 / 15-02-521-008	
Radio HW/SW version:	N/A / MSM8909.LA.3.0.1	
Power Supply:	3.8V from Rechargeable Li-ion Battery or 5V from AC/DC Adapter	
	Battery:	Model No.: FZ-VZSUT10U, Supplier: Panasonic
	Adapter:	1. Model No.: FZ-AAE184EE, Supplier: Panasonic 2. Model No.: FZ-AAE184EG, Supplier: Panasonic 3. Model No.: FZ-AAE184EM, Supplier: Panasonic

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1.2. WCDMA / LTE: Cellular Phone Standards Frequency Range

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

LTE Band	BW (MHz)	Operation Frequency (MHz)	LTE Band	BW (MHz)	Operation Frequency (MHz)
2	1.4	1850.7 - 1909.3	4	1.4	1710.7 - 1754.3
	3	1851.5 - 1908.5		3	1711.5 - 1753.5
	5	1852.5 - 1907.5		5	1712.5 - 1752.5
	10	1855.0 - 1905.0		10	1715.0 - 1750.0
	15	1857.5 - 1902.5		15	1717.5 - 1747.5
	20	1860.0 - 1900.0		20	1720.0 - 1745.0
5	1.4	824.7 - 848.3	12	1.4	699.7 - 715.3
	3	825.5 - 847.5		3	700.5 - 714.5
	5	826.5 - 846.5		5	701.5 - 713.5
	10	829.0 - 844.0		10	704.0 - 711.0
13	5	779.5 - 784.5			
	10	782			

Antenna Designation

Type	Main / Aux	Antenna Part No.	Modulation	Frequency (MHz)	Peak Antenna Gain (dBi)
Monopole	Main	FZ-L1AA	WCDMA / HSPA Band II	1852.4 ~ 1907.6	0.5
			WCDMA / HSPA Band V	826.4 ~ 846.6	-2
			LTE Band 2	1850 ~ 1910	0.5
			LTE Band 4	1710 ~ 1755	1
			LTE Band 5	824 ~ 849	-2
			LTE Band 12	699 ~ 716	-3
			LTE Band 13	777 ~ 787	-1.5

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1.3. Type of Emission & Max ERP/EIRP Power Measurement Result:

	ERP / EIRP (dBm)		(W)	Type of Emission
WCDMA Band II	22.84	EIRP	0.192	4M16F9W
HSDPA Band II	22.73	EIRP	0.187	4M16F9W
HSUPA Band II	22.44	EIRP	0.175	4M17F9W
WCDMA Band V	19.87	ERP	0.097	4M15F9W
HSDPA Band V	18.80	ERP	0.076	4M14F9W
HSUPA Band V	18.91	ERP	0.078	4M16F9W

LTE Band	BW (MHz)	Modulation	ERP / EIRP (dBm)		(W)	Type of Emission
2	1.4	QPSK	23.45	EIRP	0.221	1M10G7D
	1.4	16QAM	22.64	EIRP	0.184	1M10D7W
	3	QPSK	23.64	EIRP	0.231	2M71G7D
	3	16QAM	22.36	EIRP	0.172	2M71D7W
	5	QPSK	23.57	EIRP	0.228	4M52G7D
	5	16QAM	22.75	EIRP	0.188	4M52D7W
	10	QPSK	23.66	EIRP	0.232	9M02G7D
	10	16QAM	22.37	EIRP	0.173	8M98D7W
	15	QPSK	23.44	EIRP	0.221	13M5G7D
	15	16QAM	22.69	EIRP	0.186	13M5D7W
	20	QPSK	23.56	EIRP	0.227	18M0G7D
	20	16QAM	22.76	EIRP	0.189	18M0D7W
5	1.4	QPSK	21.54	ERP	0.143	1M10G7D
	1.4	16QAM	20.61	ERP	0.115	1M10D7W
	3	QPSK	21.49	ERP	0.141	2M70G7D
	3	16QAM	20.72	ERP	0.118	2M71D7W
	5	QPSK	21.53	ERP	0.142	4M52G7D
	5	16QAM	20.46	ERP	0.111	4M52D7W
	10	QPSK	21.33	ERP	0.136	8M97G7D
	10	16QAM	20.42	ERP	0.110	8M99D7W

LTE Band	BW (MHz)	Modulation	ERP / EIRP (dBm)		(W)	Type of Emission
4	1.4	QPSK	24.12	EIRP	0.258	1M10G7D
	1.4	16QAM	23.61	EIRP	0.230	1M10D7W
	3	QPSK	24.23	EIRP	0.265	2M71G7D
	3	16QAM	23.43	EIRP	0.220	2M71D7W
	5	QPSK	24.29	EIRP	0.269	4M52G7D
	5	16QAM	23.59	EIRP	0.229	4M51D7W
	10	QPSK	24.26	EIRP	0.267	9M01G7D
	10	16QAM	23.42	EIRP	0.220	8M98D7W
	15	QPSK	24.27	EIRP	0.267	13M5G7D
	15	16QAM	23.64	EIRP	0.231	13M5D7W
	20	QPSK	24.41	EIRP	0.276	18M0G7D
	20	16QAM	23.89	EIRP	0.245	18M0D7W

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12	1.4	QPSK	20.44	ERP	0.111	1M10G7D
	1.4	16QAM	19.65	ERP	0.092	1M10D7W
	3	QPSK	20.45	ERP	0.111	2M70G7D
	3	16QAM	19.39	ERP	0.087	2M71D7W
	5	QPSK	20.45	ERP	0.111	4M51G7D
	5	16QAM	19.49	ERP	0.089	4M52D7W
	10	QPSK	20.44	ERP	0.111	9M00G7D
	10	16QAM	19.46	ERP	0.088	8M96D7W

13	5	QPSK	21.70	ERP	0.148	4M51G7D
	5	16QAM	20.50	ERP	0.112	4M52D7W
	10	QPSK	21.92	ERP	0.156	8M97G7D
	10	16QAM	20.57	ERP	0.114	8M93D7W

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1.4. Test Methodology of Applied Standards

CC 47 CFR Part 2, 22, 24, 27, Part 90S.

ANSI C63.26-2015

KDB971168 D01 Power Meas license Digital System v03

KDB941225 D01 SAR test for 3G devices v03r01 (SAR Measurement Procedures for 3G Devices, WCDMA / HSPA) was used for EUT and Base station setting.

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

Note: All test items have been performed and record as per the above standards.

1.5. Test Facility

SGS Taiwan Ltd. Electronics & Communication Laboratory No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803

(TAF code 0513)

FCC Registration Number and Designation number are: 509634 / TW0001

1.6. Special Accessories

AC Adapter is used while the test is conducted and there is no other accessory attached. This is the worst case condition.

1.7. Equipment Modifications

There were no modifications incorporated into the EUT.

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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

According to measurement procured ANSI C63.26-2015, the EUT is placed on a turn table which is 0.8m 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

According to measurement procured ANSI C63.26-2015, The EUT is a placed on as 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 according to the requirements in Section 8 and 13.

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.

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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)
Low Band (Below 1GHz)	4	10	14
High Band (Above 1 GHz)	4.4	10	14.4

2.5. Final Amplifier Voltage and Current Information:

Test Mode	DC voltage (V)	DC current (mA)
WCDMA B2	3.8	542
WCDMA B5		532
LTE Band 2		598
LTE Band 4		585
LTE Band 5		591
LTE Band 12		581
LTE Band 13		586

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2.6. Configuration of Tested System

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

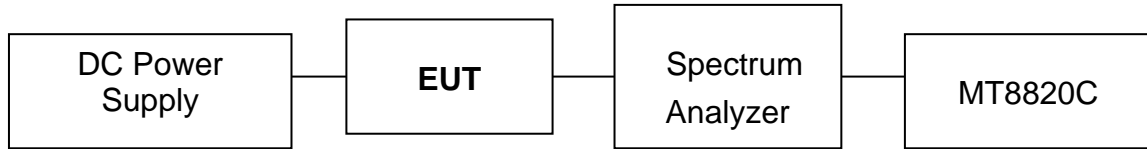


Fig. 2-2 Configuration of Tested System (Fixed Channel-Radiated)

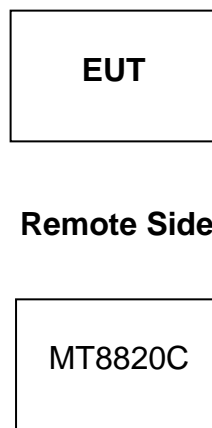


Table 2-1 Equipment Used in

Item	Equipment	Mfr/Brand	Model/ Type No.	Series No.	Data Cable	Power Cord
1.	Universal Radio Communication Tester	Anritsu	MT8820C	6200307563	shielded	Un-shielded
2.	DC Power Supply	Anritsu	E3640A	KR93300208	N/A	Un-shielded

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3. SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§2.1046(a)	RF Power Output	Compliant
§2.1046(a) §22.913(a)(5) §24.232(c) §27.50(a)(3) §27.50(c)(10) §27.50(d)(4)	ERP/ EIRP measurement	Compliant
§2.1049(h)	99% & 26dB Occupied Bandwidth	Compliant
§2.1051 §22.917(a) §24.238(a) §27.53(g) §27.50(c)(5) §27.53(h) §27.53(m)(4)(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)(2),(4) §27.50(c)(5) §27.53(f) §27.53(g) §27.53(h) §27.53(m)(4)	Field Strength of Spurious Radiation	Compliant
§27.53(f)	Spurious emission in 1559 -1610MHz Band	Compliant
§24.232(d) §27.53(d) (5) §27.50(i) (B)	Peak to Average Ratio	Compliant
§2.1055(a)(1) §22.355 §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. EUT set to at the channel with highest output power to investigated spurious emission with stand-up position (H, E1 mode) and lie down position (E2 mode) axis and antenna ports as worst-case scenario. The worst case was found as listed below. Following channel(s) was (were) selected for the final test as listed below:

BAND	RADIATED EMISSION
WCDMA/HSPA Band II	E1 Mode
WCDMA/HSPA Band V	E1 Mode
LTE Band 2	E1 Mode
LTE Band 4	E1 Mode
LTE Band 5	E1 Mode
LTE Band 12	E1 Mode
LTE Band 13	E1 Mode

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WCDMA/HSPA MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
ERP / EIRP	4132 to 4233	4132, 4183, 4233	WCDMA/HSPA Band V
EIRP	9262 to 9538	9262, 9400, 9538	WCDMA/HSPA Band II
FREQUENCY STABILITY	4132 to 4233 9262 to 9538	4183 9400	WCDMA Band II WCDMA Band V
OCCUPIED BANDWIDTH	4132 to 4233 9262 to 9538	4132, 4183, 4233 9262, 9400, 9538	WCDMA/HSPA Band II WCDMA/HSPA Band V
PEAK TO AVERAGE RATIO	4132 to 4233 9262 to 9538	4132, 4183, 4233 9262, 9400, 9538	WCDMA/HSPA Band II WCDMA/HSPA Band V
BAND EDGE	4132 to 4233 9262 to 9538	4132, 4233 9262, 9538	WCDMA Band II WCDMA Band V
CONDUCTED EMISSION	4132 to 4233 9262 to 9538	4132, 4183, 4233 9262, 9400, 9538	WCDMA Band II WCDMA Band V
RADIATED EMISSION	4132 to 4233 9262 to 9538	4132, 4183, 4233 9262, 9400, 9538	WCDMA Band II WCDMA Band V

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LTE Band 2 MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
EIRP	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK, 16QAM	1 RB/ 0,5 RB Offest
	18615 to 19185	18615, 18900, 19185	3MHz	QPSK, 16QAM	1 RB/ 0,14 RB Offest
	18625 to 19175	18625, 18900, 19175	5MHz	QPSK, 16QAM	1 RB/ 0,24 RB Offest
	18650 to 19150	18650, 18900, 19150	10MHz	QPSK, 16QAM	1 RB/ 0,49 RB Offest
	18675 to 19125	18675, 18900, 19125	15MHz	QPSK, 16QAM	1 RB/ 0,74 RB Offest
	18700 to 19100	18700, 18900, 19100	20MHz	QPSK, 16QAM	1 RB/ 0,99 RB Offest
FREQUENCY STABILITY	18650 to 19150	18900	10MHz	QPSK,	Full RB
OCCUPIED BANDWIDTH	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK, 16QAM	Full RB
	18615 to 19185	18615, 18900, 19185	3MHz	QPSK, 16QAM	Full RB
	18625 to 19175	18625, 18900, 19175	5MHz	QPSK, 16QAM	Full RB
	18650 to 19150	18650, 18900, 19150	10MHz	QPSK, 16QAM	Full RB
	18675 to 19125	18675, 18900, 19125	15MHz	QPSK, 16QAM	Full RB
	18700 to 19100	18700, 18900, 19100	20MHz	QPSK, 16QAM	Full RB
PEAK TO AVERAGE RATIO	18607 to 19193	18607, 18900, 19193	1.4MHz	16QAM	Full RB
	18615 to 19185	18615, 18900, 19185	3MHz	16QAM	Full RB
	18625 to 19175	18625, 18900, 19175	5MHz	16QAM	Full RB
	18650 to 19150	18650, 18900, 19150	10MHz	16QAM	Full RB
	18675 to 19125	18675, 18900, 19125	15MHz	16QAM	Full RB
	18700 to 19100	18700, 18900, 19100	20MHz	16QAM	Full RB
BAND EDGE	18607 to 19193	18607, 19193	1.4MHz	QPSK,	1 RB/ 0,5 RB Offes Full RB
	18615 to 19185	18615, 19185	3MHz	QPSK,	1 RB/ 0,14 RB Offest Full RB
	18625 to 19175	18625, 19175	5MHz	QPSK,	1 RB/ 0,24 RB Offest Full RB
	18650 to 19150	18650, 19150	10MHz	QPSK,	1 RB/ 0,49 RB Offest Full RB
	18675 to 19125	18675, 19125	15MHz	QPSK,	1 RB/ 0,74 RB Offest Full RB
	18700 to 19100	18700, 19100	20MHz	QPSK,	1 RB/ 0,99 RB Offest Full RB
CONDUCTED EMISSION	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK,	1 RB, 0 RB Offest
	18615 to 19185	18615, 18900, 19185	3MHz	QPSK,	1 RB, 0 RB Offest
	18625 to 19175	18625, 18900, 19175	5MHz	QPSK,	1 RB, 0 RB Offest
	18650 to 19150	18650, 18900, 19150	10MHz	QPSK,	1 RB, 0 RB Offest
	18675 to 19125	18675, 18900, 19125	15MHz	QPSK,	1 RB, 0 RB Offest
	18700 to 19100	18700, 18900, 19100	20MHz	QPSK,	1 RB, 0 RB Offest
RADIATED EMISSION	18650 to 19150	18650, 18900, 19150	10MHz	QPSK	1 RB, 49 RB Offest

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LTE Band 4 MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
EIRP	19957 to 19393	19957, 20175, 19393	1.4MHz	QPSK, 16QAM	1 RB/ 0,5 RB Offest
	19965 to 22385	19965, 20175, 22385	3MHz	QPSK, 16QAM	1 RB/ 0,14 RB Offest
	19975 to 20375	19975, 20175, 20375	5MHz	QPSK, 16QAM	1 RB/ 0,24 RB Offest
	20000 to 20350	20000, 20175, 20350	10MHz	QPSK, 16QAM	1 RB/ 0,49 RB Offest
	20025 to 20325	20025, 20175, 20325	15MHz	QPSK, 16QAM	1 RB/ 0,74 RB Offest
	20050 to 20300	20050, 20175, 20300	20MHz	QPSK, 16QAM	1 RB/ 0,99 RB Offest
FREQUENCY STABILITY	20000 to 20350	20175	10MHz	QPSK,	Full RB
OCCUPIED BANDWIDTH	19957 to 19393	19957, 20175, 19393	1.4MHz	QPSK, 16QAM	Full RB
	19965 to 22385	19965, 20175, 22385	3MHz	QPSK, 16QAM	Full RB
	19975 to 20375	19975, 20175, 20375	5MHz	QPSK, 16QAM	Full RB
	20000 to 20350	20000, 20175, 20350	10MHz	QPSK, 16QAM	Full RB
	20025 to 20325	20025, 20175, 20325	15MHz	QPSK, 16QAM	Full RB
	20050 to 20300	20050, 20175, 20300	20MHz	QPSK, 16QAM	Full RB
PEAK TO AVERAGE RATIO	19957 to 19393	19957, 20175, 19393	1.4MHz	16QAM	Full RB
	19965 to 22385	19965, 20175, 22385	3MHz	16QAM	Full RB
	19975 to 20375	19975, 20175, 20375	5MHz	16QAM	Full RB
	20000 to 20350	20000, 20175, 20350	10MHz	16QAM	Full RB
	20025 to 20325	20025, 20175, 20325	15MHz	16QAM	Full RB
	20050 to 20300	20050, 20175, 20300	20MHz	16QAM	Full RB
BAND EDGE	19957 to 19393	19957, 19393	1.4MHz	QPSK,	1 RB/ 0,5 RB Offes Full RB
	19965 to 22385	19965, 22385	3MHz	QPSK,	1 RB/ 0,14 RB Offest Full RB
	19975 to 20375	19975, 20375	5MHz	QPSK,	1 RB/ 0,24 RB Offest Full RB
	20000 to 20350	20000, 20350	10MHz	QPSK,	1 RB/ 0,49 RB Offest Full RB
	20025 to 20325	20025, 20325	15MHz	QPSK,	1 RB/ 0,74 RB Offest Full RB
	20050 to 20300	20050, 20300	20MHz	QPSK,	1 RB/ 0,99 RB Offest Full RB
CONDUCTED EMISSION	19957 to 19393	19957, 20175, 19393	1.4MHz	QPSK,	1 RB, 0 RB Offest
	19965 to 22385	19965, 20175, 22385	3MHz	QPSK,	1 RB, 0 RB Offest
	19975 to 20375	19975, 20175, 20375	5MHz	QPSK,	1 RB, 0 RB Offest
	20000 to 20350	20000, 20175, 20350	10MHz	QPSK,	1 RB, 0 RB Offest
	20025 to 20325	20025, 20175, 20325	15MHz	QPSK,	1 RB, 0 RB Offest
	20050 to 20300	20050, 20175, 20300	20MHz	QPSK,	1 RB, 0 RB Offest
RADIATED EMISSION	20050 to 20300	20050, 20175, 20300	20MHz	QPSK,	1 RB, 0 RB Offest

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LTE Band 5 MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
ERP / EIRP	20470 to 20643	20470, 20525, 20643	1.4MHz	QPSK, 16QAM	1 RB/ 0,5 RB Offest
	20415 to 20635	20415, 20525, 20635	3MHz	QPSK, 16QAM	1 RB/ 0,14 RB Offest
	20425 to 20625	20425, 20525, 20625	5MHz	QPSK, 16QAM	1 RB/ 0,24 RB Offest
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK, 16QAM	1 RB/ 0,49 RB Offest
FREQUENCY STABILITY	20450 to 20600	20525	10MHz	QPSK,	Full RB
OCCUPIED BANDWIDTH	20470 to 20643	20470, 20525, 20643	1.4MHz	QPSK, 16QAM	Full RB
	20415 to 20635	20415, 20525, 20635	3MHz	QPSK, 16QAM	Full RB
	20425 to 20625	20425, 20525, 20625	5MHz	QPSK, 16QAM	Full RB
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK, 16QAM	Full RB
PEAK TO AVERAGE RATIO	20470 to 20643	20470, 20525, 20643	1.4MHz	16QAM	Full RB
	20415 to 20635	20415, 20525, 20635	3MHz	16QAM	Full RB
	20425 to 20625	20425, 20525, 20625	5MHz	16QAM	Full RB
	20450 to 20600	20450, 20525, 20600	10MHz	16QAM	Full RB
BAND EDGE	20470 to 20643	20470, 20643	1.4MHz	QPSK,	1 RB/ 0,5 RB Offes Full RB
	20415 to 20635	20415, 20635	3MHz	QPSK,	1 RB/ 0,14 RB Offest Full RB
	20425 to 20625	20425, 20625	5MHz	QPSK,	1 RB/ 0,24 RB Offest Full RB
	20450 to 20600	20450, 20600	10MHz	QPSK,	1 RB/ 0,49 RB Offest Full RB
CONDUCTED EMISSION	20470 to 20643	20470, 20525, 20643	1.4MHz	QPSK,	1 RB, 0 RB Offest
	20415 to 20635	20415, 20525, 20635	3MHz	QPSK,	1 RB, 0 RB Offest
	20425 to 20625	20425, 20525, 20625	5MHz	QPSK,	1 RB, 0 RB Offest
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK,	1 RB, 0 RB Offest
RADIATED EMISSION	20425 to 20625	20425, 20525, 20625	5MHz	QPSK	1 RB, 0 RB Offest

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LTE Band 12 MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
ERP / EIRP	23017 to 23173	23017, 23095, 23173	1.4MHz	QPSK, 16QAM	1 RB/ 0,5 RB Offest
	23025 to 23165	23025, 23095, 23165	3MHz	QPSK, 16QAM	1 RB/ 0,14 RB Offest
	23035 to 23155	23035, 23095, 23155	5MHz	QPSK, 16QAM	1 RB/ 0,24 RB Offest
	23060 to 23130	23060, 23095, 23130	10MHz	QPSK, 16QAM	1 RB/ 0,49 RB Offest
FREQUENCY STABILITY	23060 to 23130	23095	10MHz	QPSK,	Full RB
OCCUPIED BANDWIDTH	23017 to 23173	23017, 23095, 23173	1.4MHz	QPSK, 16QAM	Full RB
	23025 to 23165	23025, 23095, 23165	3MHz	QPSK, 16QAM	Full RB
	23035 to 23155	23035, 23095, 23155	5MHz	QPSK, 16QAM	Full RB
	23060 to 23130	23060, 23095, 23130	10MHz	QPSK, 16QAM	Full RB
PEAK TO AVERAGE RATIO	23017 to 23173	23017, 23095, 23173	1.4MHz	16QAM	Full RB
	23025 to 23165	23025, 23095, 23165	3MHz	16QAM	Full RB
	23035 to 23155	23035, 23095, 23155	5MHz	16QAM	Full RB
	23060 to 23130	23060, 23095, 23130	10MHz	16QAM	Full RB
BAND EDGE	23017 to 23173	23017, 23095, 23173	1.4MHz	QPSK,	1 RB/ 0,5 RB Offes Full RB
	23025 to 23165	23025, 23095, 23165	3MHz	QPSK,	1 RB/ 0,14 RB Offest Full RB
	23035 to 23155	23035, 23095, 23155	5MHz	QPSK,	1 RB/ 0,24 RB Offest Full RB
	23060 to 23130	23060, 23095, 23130	10MHz	QPSK,	1 RB/ 0,49 RB Offest Full RB
CONDUCTED EMISSION	23017 to 23173	23017, 23095, 23173	1.4MHz	QPSK,	1 RB, 0 RB Offest
	23025 to 23165	23025, 23095, 23165	3MHz	QPSK,	1 RB, 0 RB Offest
	23035 to 23155	23035, 23095, 23155	5MHz	QPSK,	1 RB, 0 RB Offest
	23060 to 23130	23060, 23095, 23130	10MHz	QPSK,	1 RB, 0 RB Offest
RADIATED EMISSION	23025 to 23165	23025, 23095, 23165	3MHz	QPSK	1 RB, 0 RB Offest

LTE Band 13 MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
ERP / EIRP	23205 to 23255	23205, 23230, 23255	5MHz	QPSK, 16QAM	1 RB/ 0,24 RB Offest
	23230	23230	10MHz	QPSK, 16QAM	1 RB/ 0,49 RB Offest
FREQUENCY STABILITY	23230	23230	10MHz	QPSK,	Full RB
OCCUPIED BANDWIDTH	23205 to 23255	23205, 23230, 23255	5MHz	QPSK, 16QAM	Full RB
	23230	23230	10MHz	QPSK, 16QAM	Full RB
PEAK TO AVERAGE RATIO	23205 to 23255	23205, 23230, 23255	5MHz	16QAM	Full RB
	23230	23230	10MHz	16QAM	Full RB
BAND EDGE	23205 to 23255	23205, 23255	5MHz	QPSK,	1 RB/ 0,24 RB Offest Full RB
	23230	23230	10MHz	QPSK,	1 RB/ 0,49 RB Offest Full RB
CONDUCTED EMISSION	23205 to 23255	23205, 23230, 23255	5MHz	QPSK,	1 RB, 0 RB Offest
	23230	23230	10MHz	QPSK,	1 RB, 0 RB Offest
RADIATED EMISSION	23230	23230	10MHz	QPSK	1 RB/ 0 RB Offest

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f (886-2) 2298-0488

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5. MEASUREMENT UNCERTAINTY

Test Items	Uncertainty
RF Power Output	+/- 1.10 dB
ERP/ EIRP measurement	Vertical Polarization = +/- 4.74dB Horizontal Polarization = +/- 4.62dB
99% Occupied Bandwidth	+/- 5.19 Hz
Out of Band Emissions at Antenna Terminals and Band Edge	+/- 0.70 dB
Peak to Average Ratio	+/- 0.70 dB
Frequency Stability vs. Temperature	+/- 5.19 Hz
Frequency Stability vs. Voltage	+/- 5.19 Hz
Temperature	+/- 0.65 °C
Humidity	+/- 4.6 %
DC / AC Power Source	DC= +/- 0.13%, AC= +/- 0.2%

Radiated Spurious Emission:

Measurement uncertainty (Polarization : Vertical)	9kHz – 30MHz: +/- 2.87 dB
	30MHz - 180MHz: +/- 3.37dB
	180MHz -417MHz: +/- 3.19dB
	0.417GHz-1GHz: +/- 3.19dB
	1GHz - 18GHz: +/- 4.04dB
	18GHz - 40GHz: +/- 4.04dB

Measurement uncertainty (Polarization : Horizontal)	9kHz – 30MHz: +/- 2.87 dB
	30MHz - 167MHz: +/- 4.22dB
	167MHz -500MHz: +/- 3.44dB
	0.5GHz-1GHz: +/- 3.39dB
	1GHz - 18GHz: +/- 4.08dB
	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.

ERP/EIRP LIMIT

According to FCC §2.1046

FCC 22.913(a) Mobile station is limited to 7W ERP.

FCC 24.232(b) Mobile and portable stations are limited to 2 W EIRP.

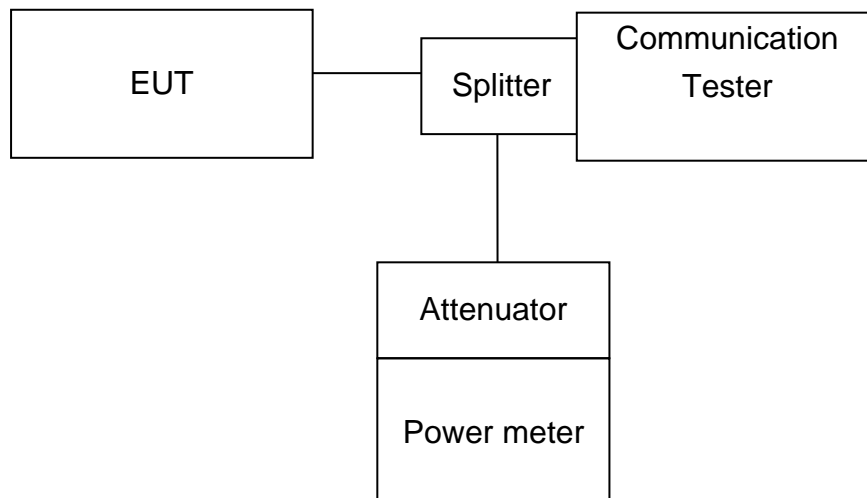
FCC 27.50(a)(3) Mobile and portable stations (hand-held devices) are limited to 250 mW/ 5MHz EIRP.

FCC 27.50(c)(10) Portable stations (hand-held devices) are limited to 3 watts ERP.

FCC 27.50(d)(4) Fixed, mobile, and portable (hand-held) stations are limited to 1W EIRP.

FCC 27, 50(h)(2) Mobile and other user stations. Mobile stations are limited to 2 W EIRP

6.2. Test Set-up



Note: Measurement setup for testing on Antenna connector.

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6.3. Measurement Procedure

The transmitter output was connected to a calibrated attenuator, the other end of which was connected to a power meter. Transmitter output was read off the power meter in dBm. The power output at the transmitter antenna port was determined by adding the value of the attenuator to the power meter reading. TS 151 010-1 is reference to conduct the test measurement of output power.

The Procedure of KDB941225 (SAR Measurement Procedures for 3G devices, (WCD-MA/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.

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP.

TEST PROCEDURE:

ANSI C63.26:2015

KDB 971168 Section 5.6

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

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

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

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

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

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

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6.4. Measurement Equipment Used

Conducted Emission (measured at antenna port) Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Radio Communication Analyser	Anritsu	MT8820C	6201465317	01/17/2018	01/16/2019
DC Power Supply	Agilent	E3640A	KR93300208	08/15/2018	08/14/2019
Attenuator	Mini-Circuit	BW-S10W2+	2	01/02/2018	01/01/2019
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2018	01/01/2019
Splitter	RF-LAMBAD	RFLT2W1G18G	11-JSPF412-018	01/02/2018	01/01/2019
Coaxial Cables	N/A	WK CE Cable	N/A	01/02/2018	01/01/2019

6.5. Measurement Result

RF Conducted Output Power

WCDMA MODE:

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 (+1.7/-3.7). RMC 12.2kps is used for this testing.

Results:

WCDMA/HSUPA/HSDPA Band II Result:

EUT Mode	Freq. (MHz)	CH	Conducted Avg. Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
WCDMA	1852.4	9262	22.34	0.50	22.84	33.00	-10.16
	1880.0	9400	22.24	0.50	22.74	33.00	-10.26
	1907.6	9538	22.28	0.50	22.78	33.00	-10.22
HSDPA	1852.4	9262	21.92	0.50	22.42	33.00	-10.58
	1880.0	9400	22.01	0.50	22.51	33.00	-10.49
	1907.6	9538	22.23	0.50	22.73	33.00	-10.27
HSUPA	1852.4	9262	21.33	0.50	21.83	33.00	-11.17
	1880.0	9400	21.36	0.50	21.86	33.00	-11.14
	1907.6	9538	21.94	0.50	22.44	33.00	-10.56

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WCDMA/HSUPA/HSDPA Band V Result:

EUT Mode	Freq. (MHz)	CH	Conducted Avg. Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
WCDMA	826.4	4132	21.87	-2.00	19.87	38.50	-18.63
	836.6	4183	21.79	-2.00	19.79	38.50	-18.71
	846.6	4233	21.80	-2.00	19.80	38.50	-18.70
HSDPA	826.4	4132	20.80	-2.00	18.80	38.50	-19.70
	836.6	4183	20.78	-2.00	18.78	38.50	-19.72
	846.6	4233	20.73	-2.00	18.73	38.50	-19.77
HSUPA	826.4	4132	20.77	-2.00	18.77	38.50	-19.73
	836.6	4183	20.91	-2.00	18.91	38.50	-19.59
	846.6	4233	20.69	-2.00	18.69	38.50	-19.81

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HSDPA Release 6 MODE:

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 V8.4.0. RMC 12.2kps is used for this testing.

HSDPA SUB-TEST Setting

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

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{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.

Results:

Mode	Sub test	Avg. Power (dBm)		
		Channel		
		9262.00	9400.00	9538.00
HSDPA II	1	21.92	22.01	22.23
	2	21.53	21.45	21.61
	3	21.53	21.47	21.65
	4	21.52	21.47	21.64

Mode	Sub test	Avg. Power (dBm)		
		Channel		
		4132.00	4183.00	4233.00
HSDPA V	1	20.80	20.78	20.73
	2	20.77	20.68	20.76
	3	20.36	20.29	20.26
	4	20.33	20.20	20.27

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HSPA (HSDPA & HSUPA) Release 6 MODE

The following 5 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 C11.1.3 in the 3GPP TS34.121-1. RMC 12.2kps is used for this testing

HSPA SUB-TEST Setting

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

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS}	β_{ec}	β_{ed}	β_{ed} (SF)	β_{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.

Results:

Mode	Sub test	Avg. Power (dBm) Channel		
		9262.00	9400.00	9538.00
HSUPA II	1	21.33	21.36	21.94
	2	20.44	20.48	20.76
	3	20.48	20.64	20.75
	4	20.79	20.93	21.15
	5	22.00	22.00	22.10

Mode	Sub test	Avg. Power (dBm) Channel		
		4132.00	4183.00	4233.00
HSUPA V	1	20.77	20.91	20.69
	2	20.34	20.23	20.25
	3	20.76	20.73	20.69
	4	20.81	20.74	20.72
	5	20.74	20.72	20.68

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WCDMA/HSDPA/HSUPA band II, V

The EUT output power was controlled by simulator. Set Communication Tester MT8820C function key "UE Power Control" and enter max rated power 24dBm. The EUT is going to be set to max output power to 24dBm. Then record the read (see page 15 for measurement data). 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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LTE Result:

Antenna gain (dBi) 0.5

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)
1.4	18607	1850.7	QPSK	1	0	22.61	23.11	33
				1	5	22.58	23.08	33
				3	2	22.68	23.18	33
				6	0	21.72	22.22	33
	18900	1880	QPSK	1	0	22.76	23.26	33
				1	5	22.79	23.29	33
				3	2	22.78	23.28	33
				6	0	21.75	22.25	33
	19193	1909.3	QPSK	1	0	22.74	23.24	33
				1	5	22.73	23.23	33
				3	2	22.95	23.45	33
				6	0	21.91	22.41	33
	18607	1850.7	16QAM	1	0	21.88	22.38	33
				1	5	21.59	22.09	33
				3	2	21.86	22.36	33
				6	0	20.76	21.26	33
	18900	1880	16QAM	1	0	21.58	22.08	33
				1	5	21.28	21.78	33
				3	2	21.66	22.16	33
				6	0	20.36	20.86	33
	19193	1909.3	16QAM	1	0	21.94	22.44	33
				1	5	22.14	22.64	33
				3	2	22.11	22.61	33
				6	0	20.58	21.08	33

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台灣檢驗科技股份有限公司

t (886-2) 2299-3279

f (886-2) 2298-0488

www.tw.sgs.com

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Antenna gain (dBi) 0.5

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)
3	18615	1851.5	QPSK	1	0	22.59	23.09	33
				1	14	22.48	22.98	33
				8	4	21.74	22.24	33
				15	0	21.71	22.21	33
	18900	1880	QPSK	1	0	22.70	23.20	33
				1	14	22.77	23.27	33
				8	4	21.78	22.28	33
				15	0	21.75	22.25	33
	19185	1908.5	QPSK	1	0	22.78	23.28	33
				1	14	23.14	23.64	33
				8	4	21.96	22.46	33
				15	0	21.93	22.43	33
	18615	1851.5	16QAM	1	0	21.80	22.30	33
				1	14	21.86	22.36	33
				8	4	20.56	21.06	33
				15	0	20.50	21.00	33
	18900	1880	16QAM	1	0	21.59	22.09	33
				1	14	21.55	22.05	33
				8	4	20.82	21.32	33
				15	0	20.65	21.15	33
	19185	1908.5	16QAM	1	0	21.73	22.23	33
				1	14	21.80	22.30	33
				8	4	20.90	21.40	33
				15	0	21.02	21.52	33

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台灣檢驗科技股份有限公司

t (886-2) 2299-3279

f (886-2) 2298-0488

www.tw.sgs.com

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Antenna gain (dBi) 0.5

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)
5	18625	1852.5	QPSK	1	0	22.76	23.26	33
				1	24	22.84	23.34	33
				12	6	21.79	22.29	33
				25	0	21.82	22.32	33
	18900	1880	QPSK	1	0	22.79	23.29	33
				1	24	22.85	23.35	33
				12	6	21.84	22.34	33
				25	0	21.81	22.31	33
	19175	1907.5	QPSK	1	0	23.03	23.53	33
				1	24	23.07	23.57	33
				12	6	21.95	22.45	33
				25	0	21.89	22.39	33
	18625	1852.5	16QAM	1	0	21.74	22.24	33
				1	24	21.69	22.19	33
				12	6	20.71	21.21	33
				25	0	20.79	21.29	33
	18900	1880	16QAM	1	0	21.59	22.09	33
				1	24	21.62	22.12	33
				12	6	20.78	21.28	33
				25	0	20.88	21.38	33
19175	1907.5	16QAM	1	0	22.25	22.75	33	
			1	24	21.73	22.23	33	
			12	6	20.76	21.26	33	
			25	0	20.98	21.48	33	

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台灣檢驗科技股份有限公司

t (886-2) 2299-3279

f (886-2) 2298-0488

www.tw.sgs.com

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Antenna gain (dBi) 0.5

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)
10	18650	1855	QPSK	1	0	22.64	23.14	33
				1	49	22.62	23.12	33
				25	12	21.84	22.34	33
				50	0	21.81	22.31	33
	18900	1880	QPSK	1	0	22.85	23.35	33
				1	49	22.91	23.41	33
				25	12	21.89	22.39	33
				50	0	21.86	22.36	33
	19150	1905	QPSK	1	0	22.85	23.35	33
				1	49	23.16	23.66	33
				25	12	22.08	22.58	33
				50	0	22.09	22.59	33
	18650	1855	16QAM	1	0	21.87	22.37	33
				1	49	21.85	22.35	33
				25	12	20.90	21.40	33
				50	0	20.73	21.23	33
	18900	1880	16QAM	1	0	21.68	22.18	33
				1	49	21.68	22.18	33
				25	12	20.80	21.30	33
				50	0	20.76	21.26	33
	19150	1905	16QAM	1	0	21.82	22.32	33
				1	49	21.82	22.32	33
				25	12	21.18	21.68	33
				50	0	20.97	21.47	33

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台灣檢驗科技股份有限公司

t (886-2) 2299-3279

f (886-2) 2298-0488

www.tw.sgs.com

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Antenna gain (dBi) 0.5

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)
15	18675	1857.5	QPSK	1	0	22.76	23.26	33
				1	74	22.61	23.11	33
				36	18	21.76	22.26	33
				75	0	21.79	22.29	33
	18900	1880	QPSK	1	0	22.82	23.32	33
				1	74	22.71	23.21	33
				36	18	21.83	22.33	33
				75	0	21.85	22.35	33
	19125	1902.5	QPSK	1	0	22.93	23.43	33
				1	74	22.94	23.44	33
				36	18	21.90	22.40	33
				75	0	22.01	22.51	33
	18675	1857.5	16QAM	1	0	21.88	22.38	33
				1	74	21.59	22.09	33
				36	18	20.73	21.23	33
				75	0	20.73	21.23	33
	18900	1880	16QAM	1	0	21.81	22.31	33
				1	74	22.02	22.52	33
				36	18	20.76	21.26	33
				75	0	20.75	21.25	33
19125	1902.5	16QAM	1	0	22.19	22.69	33	
			1	74	22.18	22.68	33	
			36	18	20.69	21.19	33	
			75	0	20.80	21.30	33	

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台灣檢驗科技股份有限公司

t (886-2) 2299-3279

f (886-2) 2298-0488

www.tw.sgs.com

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Antenna gain (dBi) 0.5

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)
20	18700	1860	QPSK	1	0	23.02	23.52	33
				1	99	22.70	23.20	33
				50	25	21.86	22.36	33
				100	0	22.05	22.55	33
	18900	1880	QPSK	1	0	23.06	23.56	33
				1	99	22.94	23.44	33
				50	25	22.07	22.57	33
				100	0	22.11	22.61	33
	19100	1900	QPSK	1	0	22.98	23.48	33
				1	99	23.05	23.55	33
				50	25	22.12	22.62	33
				100	0	22.18	22.68	33
	18700	1860	16QAM	1	0	22.11	22.61	33
				1	99	22.26	22.76	33
				50	25	20.87	21.37	33
				100	0	20.98	21.48	33
	18900	1880	16QAM	1	0	21.77	22.27	33
				1	99	21.70	22.20	33
				50	25	21.03	21.53	33
				100	0	20.99	21.49	33
19100	1900	16QAM	1	0	22.15	22.65	33	
			1	99	22.01	22.51	33	
			50	25	21.11	21.61	33	
			100	0	21.21	21.71	33	

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t (886-2) 2299-3279

f (886-2) 2298-0488

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Antenna gain (dBi) 1

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)
1.4	19957	1710.7	QPSK	1	0	23.02	24.02	30
				1	5	23.00	24.00	30
				3	2	23.07	24.07	30
				6	0	22.03	23.03	30
	20175	1732.5	QPSK	1	0	23.00	24.00	30
				1	5	22.99	23.99	30
				3	2	23.08	24.08	30
				6	0	22.05	23.05	30
	20393	1754.3	QPSK	1	0	23.03	24.03	30
				1	5	23.06	24.06	30
				3	2	23.12	24.12	30
				6	0	22.16	23.16	30
	19957	1710.7	16QAM	1	0	22.32	23.32	30
				1	5	22.25	23.25	30
				3	2	22.04	23.04	30
				6	0	21.07	22.07	30
	20175	1732.5	16QAM	1	0	22.16	23.16	30
				1	5	22.61	23.61	30
				3	2	22.17	23.17	30
				6	0	20.92	21.92	30
	20393	1754.3	16QAM	1	0	22.32	23.32	30
				1	5	22.61	23.61	30
				3	2	22.13	23.13	30
				6	0	20.98	21.98	30

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f (886-2) 2298-0488

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Antenna gain (dBi) 1

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)
3	19965	1711.5	QPSK	1	0	23.18	24.18	30
				1	14	22.97	23.97	30
				8	4	21.93	22.93	30
				15	0	21.93	22.93	30
	20175	1732.5	QPSK	1	0	23.02	24.02	30
				1	14	23.15	24.15	30
				8	4	21.93	22.93	30
				15	0	21.95	22.95	30
	20385	1753.5	QPSK	1	0	23.08	24.08	30
				1	14	23.23	24.23	30
				8	4	22.06	23.06	30
				15	0	22.08	23.08	30
	19965	1711.5	16QAM	1	0	22.11	23.11	30
				1	14	21.93	22.93	30
				8	4	20.86	21.86	30
				15	0	20.87	21.87	30
	20175	1732.5	16QAM	1	0	22.43	23.43	30
				1	14	22.25	23.25	30
				8	4	21.08	22.08	30
				15	0	21.10	22.10	30
	20385	1753.5	16QAM	1	0	22.27	23.27	30
				1	14	22.29	23.29	30
				8	4	21.20	22.20	30
				15	0	21.13	22.13	30

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Antenna gain (dBi) 1

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)
5	19975	1712.5	QPSK	1	0	23.19	24.19	30
				1	24	23.09	24.09	30
				12	6	21.87	22.87	30
				25	0	21.92	22.92	30
	20175	1732.5	QPSK	1	0	23.23	24.23	30
				1	24	23.17	24.17	30
				12	6	21.98	22.98	30
				25	0	22.05	23.05	30
	20375	1752.5	QPSK	1	0	23.23	24.23	30
				1	24	23.29	24.29	30
				12	6	22.03	23.03	30
				25	0	22.09	23.09	30
	19975	1712.5	16QAM	1	0	22.28	23.28	30
				1	24	22.27	23.27	30
				12	6	20.92	21.92	30
				25	0	20.83	21.83	30
	20175	1732.5	16QAM	1	0	22.49	23.49	30
				1	24	22.59	23.59	30
				12	6	20.93	21.93	30
				25	0	21.04	22.04	30
20375	1752.5	16QAM	1	0	22.21	23.21	30	
			1	24	22.00	23.00	30	
			12	6	21.08	22.08	30	
			25	0	21.10	22.10	30	

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台灣檢驗科技股份有限公司

t (886-2) 2299-3279

f (886-2) 2298-0488

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Antenna gain (dBi) 1

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)
10	20000	1715	QPSK	1	0	23.19	24.19	30
				1	49	22.85	23.85	30
				25	12	22.01	23.01	30
				50	0	22.06	23.06	30
	20175	1732.5	QPSK	1	0	23.07	24.07	30
				1	49	22.99	23.99	30
				25	12	22.02	23.02	30
				50	0	22.06	23.06	30
	20375	1750	QPSK	1	0	23.21	24.21	30
				1	49	23.26	24.26	30
				25	12	22.02	23.02	30
				50	0	22.06	23.06	30
	20000	1715	16QAM	1	0	22.42	23.42	30
				1	49	22.18	23.18	30
				25	12	20.94	21.94	30
				50	0	21.02	22.02	30
	20175	1732.5	16QAM	1	0	22.29	23.29	30
				1	49	22.05	23.05	30
				25	12	20.80	21.80	30
				50	0	20.99	21.99	30
20375	1750	16QAM	1	0	22.31	23.31	30	
			1	49	22.29	23.29	30	
			25	12	21.31	22.31	30	
			50	0	21.11	22.11	30	

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台灣檢驗科技股份有限公司

t (886-2) 2299-3279

f (886-2) 2298-0488

www.tw.sgs.com

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Antenna gain (dBi) 1

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)
15	20025	1717.5	QPSK	1	0	23.25	24.25	30
				1	74	22.79	23.79	30
				36	18	21.95	22.95	30
				75	0	22.02	23.02	30
	20175	1732.5	QPSK	1	0	23.27	24.27	30
				1	74	22.90	23.90	30
				36	18	22.06	23.06	30
				75	0	22.03	23.03	30
	20325	1747.5	QPSK	1	0	23.22	24.22	30
				1	74	23.16	24.16	30
				36	18	21.91	22.91	30
				75	0	21.90	22.90	30
	20025	1717.5	16QAM	1	0	22.28	23.28	30
				1	74	21.73	22.73	30
				36	18	20.90	21.90	30
				75	0	20.80	21.80	30
	20175	1732.5	16QAM	1	0	22.58	23.58	30
				1	74	22.36	23.36	30
				36	18	20.99	21.99	30
				75	0	20.97	21.97	30
20325	1747.5	16QAM	1	0	22.64	23.64	30	
			1	74	22.61	23.61	30	
			36	18	20.95	21.95	30	
			75	0	20.83	21.83	30	

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台灣檢驗科技股份有限公司

t (886-2) 2299-3279

f (886-2) 2298-0488

www.tw.sgs.com

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Antenna gain (dBi) 1

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)
20	20050	1720	QPSK	1	0	23.41	24.41	30
				1	99	23.04	24.04	30
				50	25	22.06	23.06	30
				100	0	22.05	23.05	30
	20175	1732.5	QPSK	1	0	23.25	24.25	30
				1	99	22.84	23.84	30
				50	25	22.14	23.14	30
				100	0	22.14	23.14	30
	20300	1745	QPSK	1	0	23.37	24.37	30
				1	99	23.21	24.21	30
				50	25	22.00	23.00	30
				100	0	22.05	23.05	30
	20050	1720	16QAM	1	0	22.89	23.89	30
				1	99	21.76	22.76	30
				50	25	21.02	22.02	30
				100	0	21.02	22.02	30
	20175	1732.5	16QAM	1	0	22.28	23.28	30
				1	99	22.18	23.18	30
				50	25	21.18	22.18	30
				100	0	21.18	22.18	30
20300	1745	16QAM	1	0	22.83	23.83	30	
			1	99	22.52	23.52	30	
			50	25	21.05	22.05	30	
			100	0	20.98	21.98	30	

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台灣檢驗科技股份有限公司

t (886-2) 2299-3279

f (886-2) 2298-0488

www.tw.sgs.com

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Antenna gain (dBi) -2

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)	ERP Limit (dBm)
1.4	20407	824.7	QPSK	1	0	23.06	21.06	38.45
				1	5	23.03	21.03	38.45
				3	2	23.31	21.31	38.45
				6	0	22.20	20.20	38.45
	20525	836.5	QPSK	1	0	23.38	21.38	38.45
				1	5	23.49	21.49	38.45
				3	2	23.54	21.54	38.45
				6	0	22.41	20.41	38.45
	20643	848.3	QPSK	1	0	23.22	21.22	38.45
				1	5	23.14	21.14	38.45
				3	2	23.29	21.29	38.45
				6	0	22.24	20.24	38.45
	20407	824.7	16QAM	1	0	22.37	20.37	38.45
				1	5	22.37	20.37	38.45
				3	2	22.41	20.41	38.45
				6	0	21.26	19.26	38.45
	20525	836.5	16QAM	1	0	22.61	20.61	38.45
				1	5	22.60	20.60	38.45
				3	2	22.56	20.56	38.45
				6	0	21.24	19.24	38.45
	20643	848.3	16QAM	1	0	22.44	20.44	38.45
				1	5	21.98	19.98	38.45
				3	2	22.26	20.26	38.45
				6	0	21.19	19.19	38.45

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台灣檢驗科技股份有限公司

t (886-2) 2299-3279

f (886-2) 2298-0488

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Antenna gain (dBi) -2

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)	ERP Limit (dBm)
3	20415	825.5	QPSK	1	0	23.29	21.29	38.45
				1	14	23.31	21.31	38.45
				8	4	22.28	20.28	38.45
				15	0	22.22	20.22	38.45
	20525	836.5	QPSK	1	0	23.49	21.49	38.45
				1	14	23.46	21.46	38.45
				8	4	22.41	20.41	38.45
				15	0	22.22	20.22	38.45
	20635	847.5	QPSK	1	0	23.24	21.24	38.45
				1	14	23.28	21.28	38.45
				8	4	22.33	20.33	38.45
				15	0	22.11	20.11	38.45
	20415	825.5	16QAM	1	0	22.06	20.06	38.45
				1	14	22.03	20.03	38.45
				8	4	21.36	19.36	38.45
				15	0	21.49	19.49	38.45
	20525	836.5	16QAM	1	0	22.72	20.72	38.45
				1	14	22.54	20.54	38.45
				8	4	21.35	19.35	38.45
				15	0	21.34	19.34	38.45
20635	847.5	16QAM	1	0	21.95	19.95	38.45	
			1	14	21.91	19.91	38.45	
			8	4	21.48	19.48	38.45	
			15	0	21.38	19.38	38.45	

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台灣檢驗科技股份有限公司

t (886-2) 2299-3279

f (886-2) 2298-0488

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Antenna gain (dBi) -2

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)	ERP Limit (dBm)
5	20425	826.5	QPSK	1	0	23.24	21.24	38.45
				1	24	23.48	21.48	38.45
				12	6	22.27	20.27	38.45
				25	0	22.25	20.25	38.45
	20525	836.5	QPSK	1	0	23.53	21.53	38.45
				1	24	23.43	21.43	38.45
				12	6	22.33	20.33	38.45
				25	0	22.36	20.36	38.45
	20625	846.5	QPSK	1	0	23.49	21.49	38.45
				1	24	23.47	21.47	38.45
				12	6	22.20	20.20	38.45
				25	0	22.23	20.23	38.45
	20425	826.5	16QAM	1	0	22.46	20.46	38.45
				1	24	22.22	20.22	38.45
				12	6	21.35	19.35	38.45
				25	0	21.45	19.45	38.45
	20525	836.5	16QAM	1	0	22.07	20.07	38.45
				1	24	21.88	19.88	38.45
				12	6	21.38	19.38	38.45
				25	0	21.43	19.43	38.45
20625	846.5	16QAM	1	0	22.15	20.15	38.45	
			1	24	22.24	20.24	38.45	
			12	6	21.24	19.24	38.45	
			25	0	21.51	19.51	38.45	

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f (886-2) 2298-0488

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Antenna gain (dBi) -2

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)	ERP Limit (dBm)
10	20450	829	QPSK	1	0	23.16	21.16	38.45
				1	49	23.33	21.33	38.45
				25	12	22.33	20.33	38.45
				50	0	22.29	20.29	38.45
	20525	836.5	QPSK	1	0	23.33	21.33	38.45
				1	49	23.09	21.09	38.45
				25	12	22.33	20.33	38.45
				50	0	22.37	20.37	38.45
	20600	844	QPSK	1	0	23.28	21.28	38.45
				1	49	23.17	21.17	38.45
				25	12	22.33	20.33	38.45
				50	0	22.27	20.27	38.45
	20450	829	16QAM	1	0	22.32	20.32	38.45
				1	49	22.34	20.34	38.45
				25	12	21.28	19.28	38.45
				50	0	21.30	19.30	38.45
	20525	836.5	16QAM	1	0	22.37	20.37	38.45
				1	49	22.22	20.22	38.45
				25	12	21.39	19.39	38.45
				50	0	21.38	19.38	38.45
20600	844	16QAM	1	0	22.42	20.42	38.45	
			1	49	22.19	20.19	38.45	
			25	12	21.39	19.39	38.45	
			50	0	21.30	19.30	38.45	

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f (886-2) 2298-0488

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Antenna gain (dBi) -3

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)	ERP Limit (dBm)
1.4	23017	699.7	QPSK	1	0	23.30	20.30	34.77
				1	5	23.14	20.14	34.77
				3	2	23.44	20.44	34.77
				6	0	22.40	19.40	34.77
	23095	707.5	QPSK	1	0	23.29	20.29	34.77
				1	5	23.26	20.26	34.77
				3	2	23.39	20.39	34.77
				6	0	22.33	19.33	34.77
	23173	715.5	QPSK	1	0	23.10	20.10	34.77
				1	5	23.09	20.09	34.77
				3	2	23.33	20.33	34.77
				6	0	22.47	19.47	34.77
	23017	699.7	16QAM	1	0	21.86	18.86	34.77
				1	5	22.16	19.16	34.77
				3	2	22.45	19.45	34.77
				6	0	21.20	18.20	34.77
	23095	707.5	16QAM	1	0	21.69	18.69	34.77
				1	5	22.26	19.26	34.77
				3	2	22.46	19.46	34.77
				6	0	21.11	18.11	34.77
23173	715.5	16QAM	1	0	22.29	19.29	34.77	
			1	5	22.26	19.26	34.77	
			3	2	22.47	19.47	34.77	
			6	0	21.18	18.18	34.77	

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台灣檢驗科技股份有限公司

t (886-2) 2299-3279

f (886-2) 2298-0488

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Antenna gain (dBi) -3

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)	ERP Limit (dBm)
3	23025	700.5	QPSK	1	0	23.45	20.45	34.77
				1	14	23.26	20.26	34.77
				8	4	22.43	19.43	34.77
				15	0	22.42	19.42	34.77
	23095	707.5	QPSK	1	0	23.45	20.45	34.77
				1	14	23.34	20.34	34.77
				8	4	22.20	19.20	34.77
				15	0	22.30	19.30	34.77
	23165	714.5	QPSK	1	0	23.44	20.44	34.77
				1	14	23.43	20.43	34.77
				8	4	22.23	19.23	34.77
				15	0	22.33	19.33	34.77
	23025	700.5	16QAM	1	0	22.39	19.39	34.77
				1	14	22.12	19.12	34.77
				8	4	21.18	18.18	34.77
				15	0	21.23	18.23	34.77
	23095	707.5	16QAM	1	0	22.23	19.23	34.77
				1	14	21.85	18.85	34.77
				8	4	21.34	18.34	34.77
				15	0	21.45	18.45	34.77
	23165	714.5	16QAM	1	0	21.99	18.99	34.77
				1	14	21.94	18.94	34.77
				8	4	21.26	18.26	34.77
				15	0	21.23	18.23	34.77

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f (886-2) 2298-0488

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Antenna gain (dBi) -3

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)	ERP Limit (dBm)
5	23035	701.5	QPSK	1	0	23.41	20.41	34.77
				1	24	23.45	20.45	34.77
				12	6	22.34	19.34	34.77
				25	0	22.32	19.32	34.77
	23095	707.5	QPSK	1	0	23.39	20.39	34.77
				1	24	23.19	20.19	34.77
				12	6	22.25	19.25	34.77
				25	0	22.29	19.29	34.77
	23155	713.5	QPSK	1	0	23.38	20.38	34.77
				1	24	23.23	20.23	34.77
				12	6	22.30	19.30	34.77
				25	0	22.24	19.24	34.77
	23035	701.5	16QAM	1	0	21.74	18.74	34.77
				1	24	21.80	18.80	34.77
				12	6	21.42	18.42	34.77
				25	0	21.35	18.35	34.77
	23095	707.5	16QAM	1	0	22.36	19.36	34.77
				1	24	22.49	19.49	34.77
				12	6	21.40	18.40	34.77
				25	0	21.20	18.20	34.77
23155	713.5	16QAM	1	0	22.34	19.34	34.77	
			1	24	22.16	19.16	34.77	
			12	6	21.18	18.18	34.77	
			25	0	21.27	18.27	34.77	

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t (886-2) 2299-3279

f (886-2) 2298-0488

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Antenna gain (dBi) -3

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)	ERP Limit (dBm)
10	23060	704	QPSK	1	0	23.39	20.39	34.77
				1	49	23.26	20.26	34.77
				25	12	22.29	19.29	34.77
				50	0	22.31	19.31	34.77
	23095	707.5	QPSK	1	0	23.16	20.16	34.77
				1	49	23.21	20.21	34.77
				25	12	22.26	19.26	34.77
				50	0	22.28	19.28	34.77
	23130	711	QPSK	1	0	23.37	20.37	34.77
				1	49	23.44	20.44	34.77
				25	12	22.41	19.41	34.77
				50	0	22.39	19.39	34.77
	23060	704	16QAM	1	0	22.46	19.46	34.77
				1	49	22.30	19.30	34.77
				25	12	21.26	18.26	34.77
				50	0	21.23	18.23	34.77
	23095	707.5	16QAM	1	0	22.32	19.32	34.77
				1	49	22.34	19.34	34.77
				25	12	21.34	18.34	34.77
				50	0	21.20	18.20	34.77
23130	711	16QAM	1	0	22.41	19.41	34.77	
			1	49	22.39	19.39	34.77	
			25	12	21.42	18.42	34.77	
			50	0	21.38	18.38	34.77	

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t (886-2) 2299-3279

f (886-2) 2298-0488

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Antenna gain (dBi) -1.5

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)	ERP Limit (dBm)
5	23205	779.5	QPSK	1	0	23.11	21.61	34.77
				1	24	23.12	21.62	34.77
				12	6	22.17	20.67	34.77
				25	0	22.07	20.57	34.77
	23230	782	QPSK	1	0	23.20	21.70	34.77
				1	24	23.00	21.50	34.77
				12	6	22.09	20.59	34.77
				25	0	22.03	20.53	34.77
	23255	784.5	QPSK	1	0	22.93	21.43	34.77
				1	24	22.98	21.48	34.77
				12	6	21.98	20.48	34.77
				25	0	21.97	20.47	34.77
	23205	779.5	16QAM	1	0	21.76	20.26	34.77
				1	24	22.00	20.50	34.77
				12	6	21.10	19.60	34.77
				25	0	21.38	19.88	34.77
	23230	782	16QAM	1	0	21.80	20.30	34.77
				1	24	21.78	20.28	34.77
				12	6	21.01	19.51	34.77
				25	0	21.25	19.75	34.77
23255	784.5	16QAM	1	0	21.71	20.21	34.77	
			1	24	21.66	20.16	34.77	
			12	6	20.99	19.49	34.77	
			25	0	21.27	19.77	34.77	

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f (886-2) 2298-0488

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Antenna gain (dBi) -1.5

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)	ERP Limit (dBm)
10	23230	782	QPSK	1	0	23.42	21.92	34.77
				1	49	22.85	21.35	34.77
				25	12	22.08	20.58	34.77
				50	0	21.99	20.49	34.77
	23230	782	16QAM	1	0	22.07	20.57	34.77
				1	49	21.83	20.33	34.77
				25	12	21.06	19.56	34.77
				50	0	21.13	19.63	34.77

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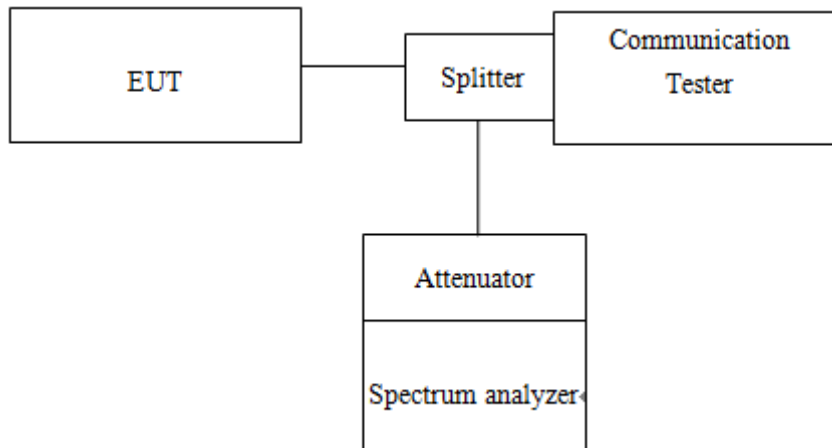
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7. OCCUPIED BANDWIDTH MEASUREMENT

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, -20dBc display line was placed on the screen (or 20dB bandwidth). Set RBW to 99% bandwidth, 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 (measured at antenna port) Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EXA Spectrum Analyzer	Agilent	N9010A	MY50420195	05/03/2018	05/02/2019
Radio Communication Analyer	Anritsu	MT8820C	6201465317	01/17/2018	01/16/2019
DC Power Supply	Agilent	E3640A	KR93300208	08/15/2018	08/14/2019
Temperature Chamber	TERCHY	MHG-120LF	911009	05/18/2018	05/17/2019
Attenuator	Mini-Circuit	BW-S10W2+	2	01/02/2018	01/01/2019
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2018	01/01/2019
Splitter	RF-LAMBAD	RFLT2W1G18G	11-JSPF412-018	01/02/2018	01/01/2019
Coaxial Cables	N/A	WK CE Cable	N/A	01/02/2018	01/01/2019

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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	4.15080	4.15430	4.14760	4.699	4.709	4.707
1880.00	9400	4.15570	4.14950	4.13790	4.699	4.706	4.692
1907.60	9538	4.16130	4.15770	4.16530	4.681	4.686	4.683

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	4.15450	4.13880	4.15580	4.727	4.729	4.710
836.60	4183	4.12930	4.12640	4.12600	4.711	4.686	4.689
846.60	4233	4.11550	4.13410	4.11960	4.682	4.676	4.686

LTE BAND 2 Channel bandwidth: 1.4MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1850.7	18607	1.0982	1.0994	1.287	1.285
1880.0	18900	1.0967	1.1021	1.311	1.288
1909.3	19193	1.0978	1.0986	1.282	1.293

LTE BAND 2 Channel bandwidth: 3MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1851.5	18615	2.7051	2.7059	2.974	2.988
1880.0	18900	2.7049	2.7078	2.973	3.002
1908.5	19185	2.7032	2.7061	2.993	2.980

LTE BAND 2 Channel bandwidth: 5MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1852.5	18625	4.5059	4.5125	5.065	5.024
1880.0	18900	4.5151	4.5164	5.054	5.022
1907.5	19175	4.5219	4.5188	5.058	5.067

LTE BAND 2 Channel bandwidth: 10MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1855.0	18650	8.9975	8.9692	9.811	9.878
1880.0	18900	9.0150	8.9551	9.897	9.803
1905.0	19150	9.0158	8.9785	9.889	9.830

LTE BAND 2 Channel bandwidth: 15MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1857.5	18675	13.472	13.477	14.766	14.815
1880.0	18900	13.499	13.475	14.663	14.820
1902.5	19125	13.500	13.492	14.696	14.849

LTE BAND 2 Channel bandwidth: 20MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1860.0	18700	17.924	17.960	19.475	19.390
1880.0	18900	17.943	17.956	19.488	19.479
1900.0	19100	17.966	17.950	19.420	19.505

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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	1.0988	1.1007	1.278	1.308
1732.5	20175	1.1004	1.0984	1.306	1.296
1754.3	20393	1.0971	1.0999	1.321	1.321

LTE BAND 4 Channel bandwidth: 3MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1711.5	19965	2.7051	2.7044	3.012	3.000
1732.5	20175	2.7071	2.7011	2.991	3.016
1753.5	20385	2.7032	2.7072	3.013	3.012

LTE BAND 4 Channel bandwidth: 5MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1712.5	19957	4.5109	4.5109	5.007	4.979
1732.5	20175	4.5172	4.5134	5.043	5.004
1752.5	20375	4.5172	4.5129	5.028	5.028

LTE BAND 4 Channel bandwidth: 10MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1715.0	20000	8.9946	8.9528	9.868	9.812
1732.5	20175	8.9887	8.9678	9.894	9.797
1750.0	20350	9.0109	8.9792	10.015	9.862

LTE BAND 4 Channel bandwidth: 15MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1717.5	20025	13.497	13.455	14.720	14.772
1732.5	20175	13.493	13.461	14.687	14.767
1747.5	20325	13.482	13.490	14.682	14.668

LTE BAND 4 Channel bandwidth: 20MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1720.0	20050	17.916	17.930	19.413	19.485
1732.5	20175	17.939	17.943	19.472	19.375
1745.0	20300	17.917	17.966	19.411	19.524

LTE BAND 5 Channel bandwidth: 1.4MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
824.7	20407	1.0988	1.1035	1.289	1.302
836.5	20525	1.0959	1.1015	1.291	1.298
848.3	20643	1.0960	1.1019	1.274	1.309

LTE BAND 5 Channel bandwidth: 3MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
825.5	20415	2.7019	2.7047	2.989	2.992
836.5	20525	2.7040	2.7053	2.984	2.997
847.5	20635	2.6974	2.7025	2.975	2.990

LTE BAND 5 Channel bandwidth: 5MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
826.5	20425	4.5185	4.5199	5.040	5.049
836.5	20525	4.5085	4.5080	5.055	4.982
846.5	20625	4.5028	4.5128	5.011	5.049

LTE BAND 5 Channel bandwidth: 10MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
829.0	20450	8.9735	8.9882	9.807	9.789
836.5	20525	8.9479	8.9351	9.766	9.818
844.0	20600	8.9679	8.9696	9.838	9.808

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LTE BAND 12 Channel bandwidth: 1.4MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
699.7	23017	1.1006	1.0984	1.257	1.289
707.5	23095	1.0972	1.1010	1.286	1.287
715.3	23173	1.0976	1.1028	1.291	1.300

LTE BAND 12 Channel bandwidth: 3MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
700.5	23025	2.7020	2.7052	3.119	3.010
707.5	23095	2.6883	2.7050	2.907	2.975
714.5	23165	2.6988	2.7043	2.981	2.998

LTE BAND 12 Channel bandwidth: 5MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
701.5	23035	4.5147	4.5141	5.389	5.076
707.5	23095	4.5144	4.5089	5.028	5.013
713.5	23155	4.4877	4.5210	4.839	5.011

LTE BAND 12 Channel bandwidth: 10MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
704.0	23060	8.9924	8.9648	9.842	9.847
707.5	23095	9.0018	8.9571	9.900	9.801
711.0	23130	8.9819	8.9568	9.819	9.844

LTE BAND 13 Channel bandwidth: 5MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
779.5	23205	4.4966	4.5063	5.007	5.017
782.0	23230	4.5139	4.5122	5.054	5.014
784.5	23255	4.5115	4.5185	5.072	5.010

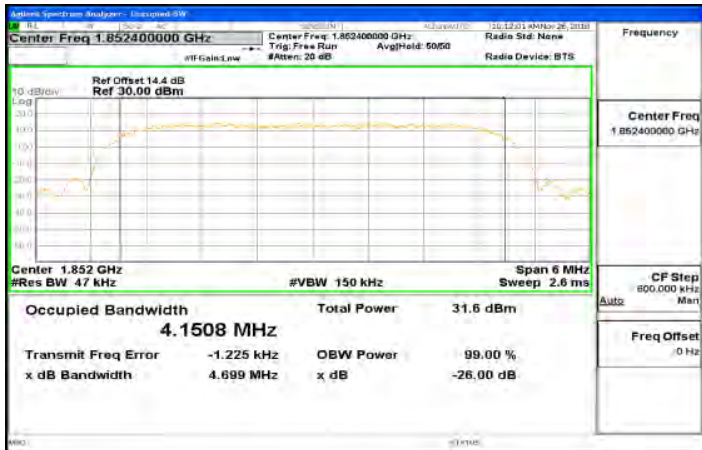
LTE BAND 13 Channel bandwidth: 10MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
782.0	23230	8.971	8.932	9.749	9.811

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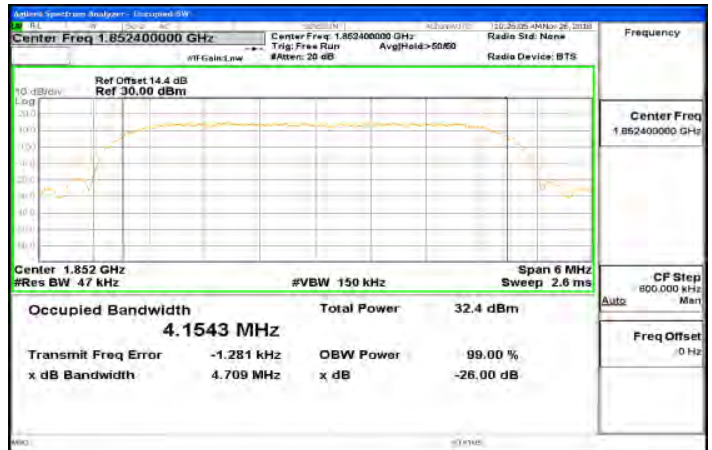
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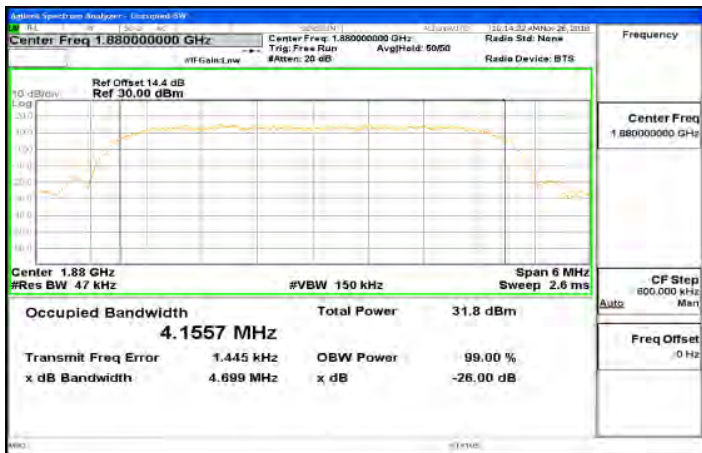
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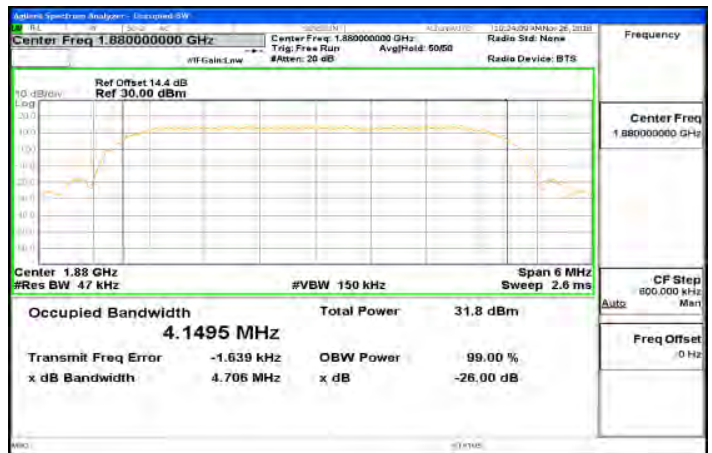
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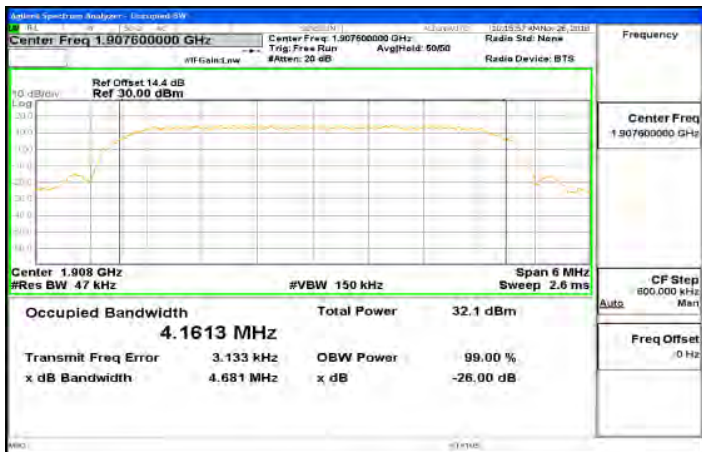
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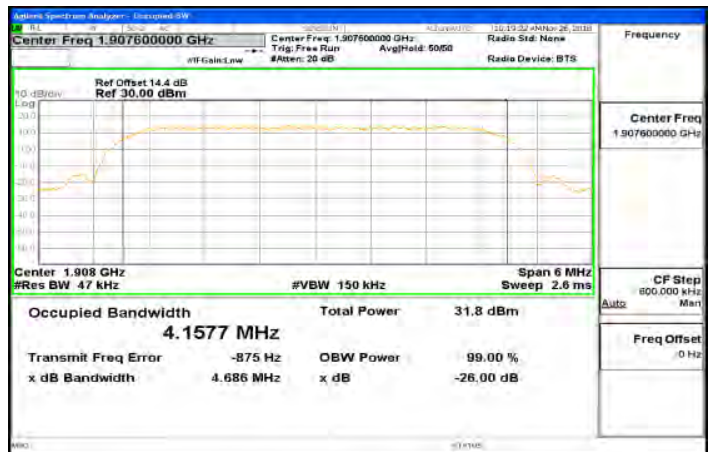
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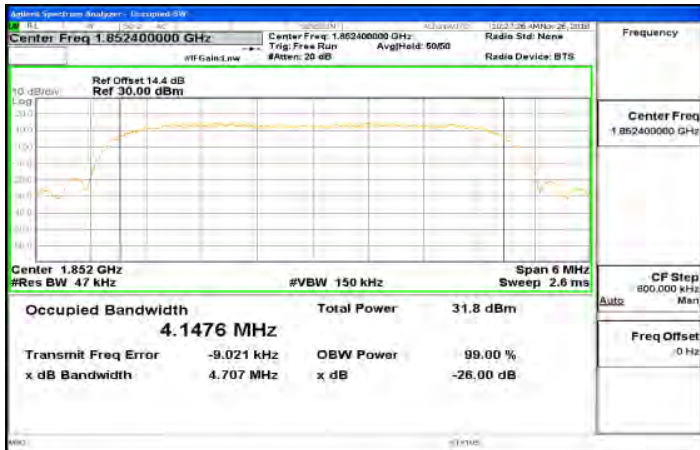


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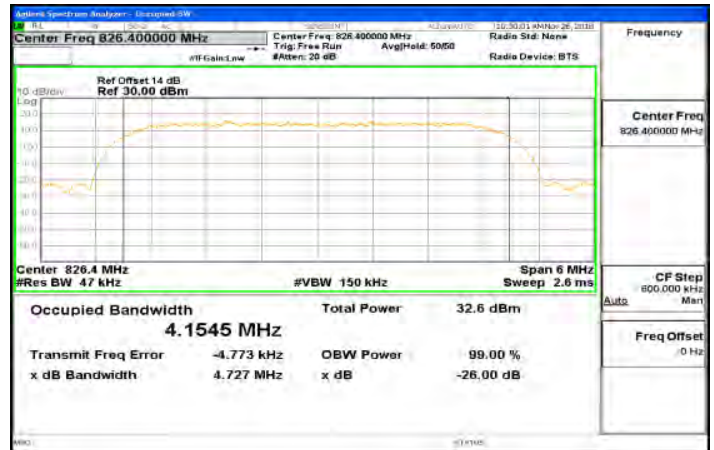
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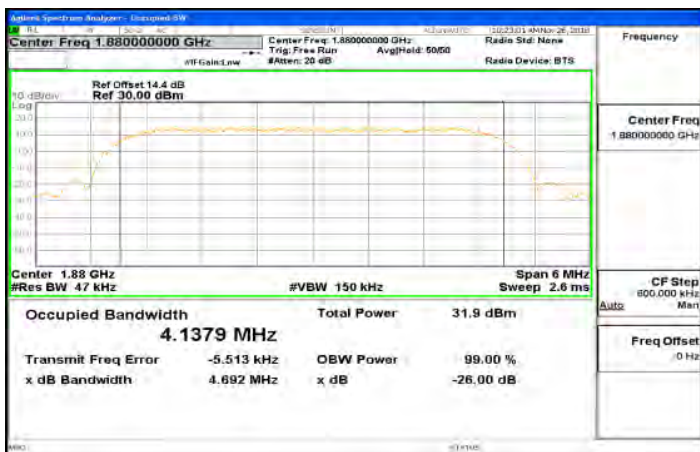
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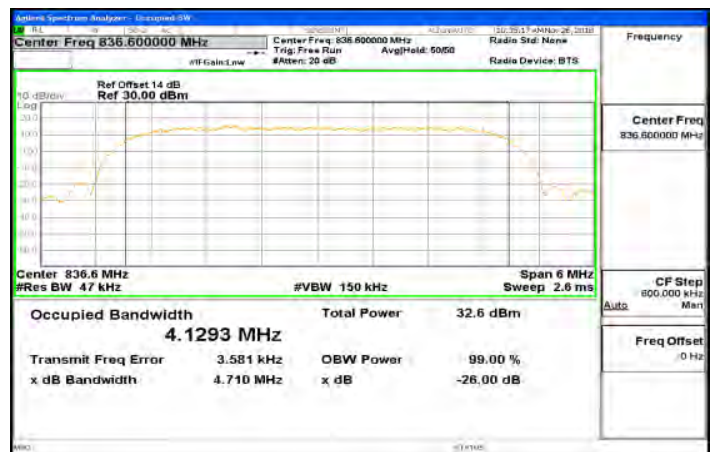
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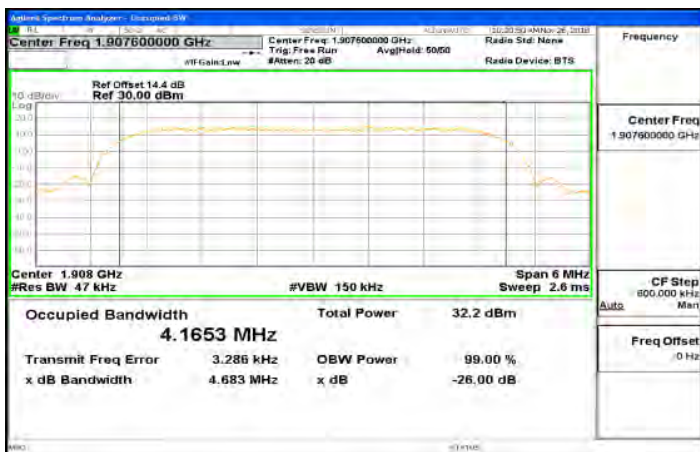
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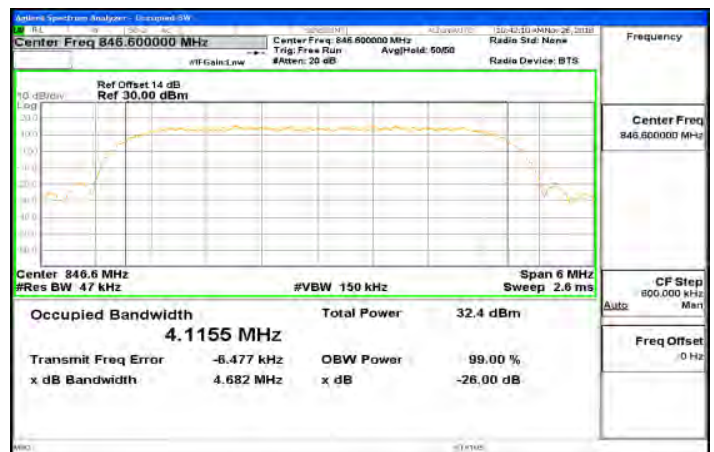
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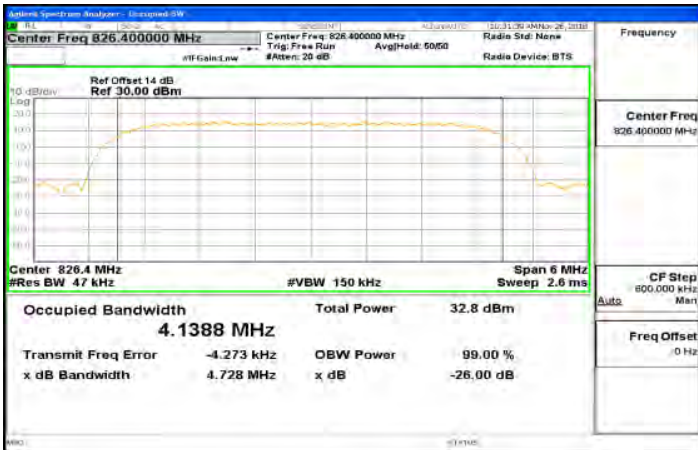


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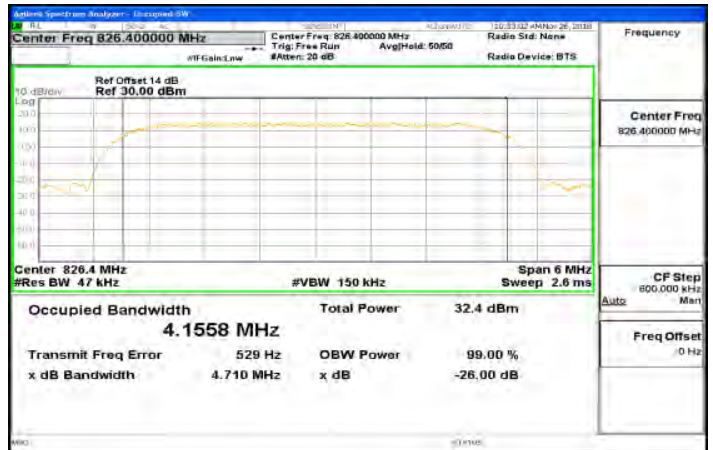
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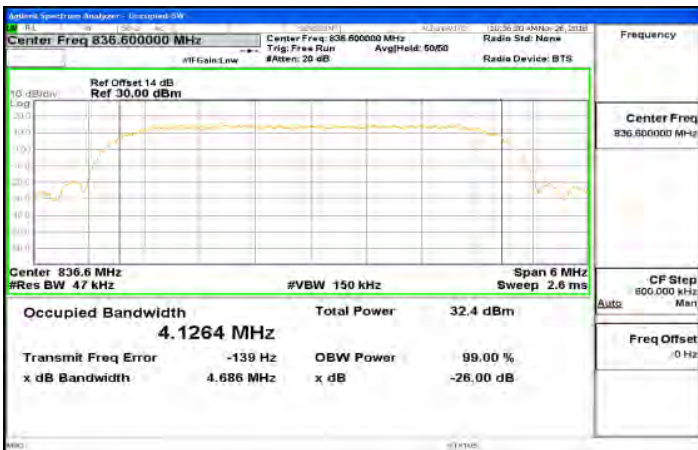
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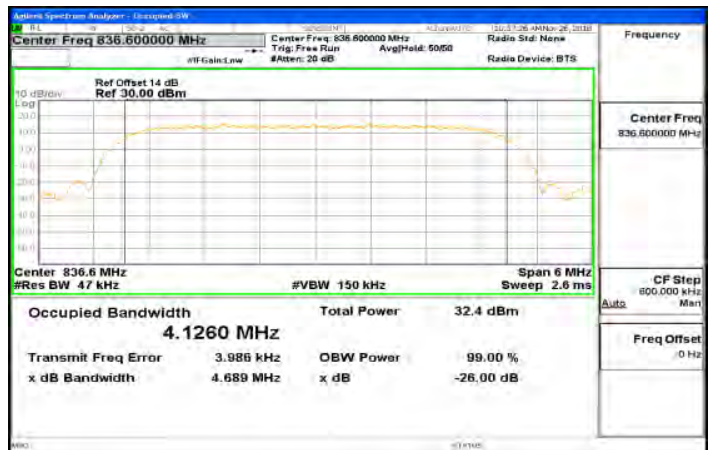
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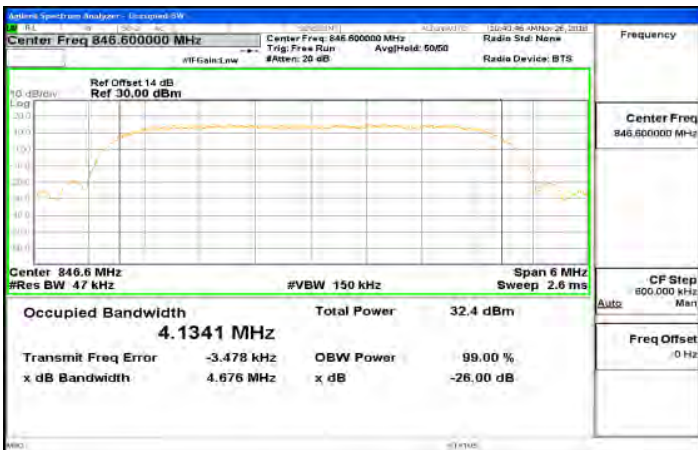
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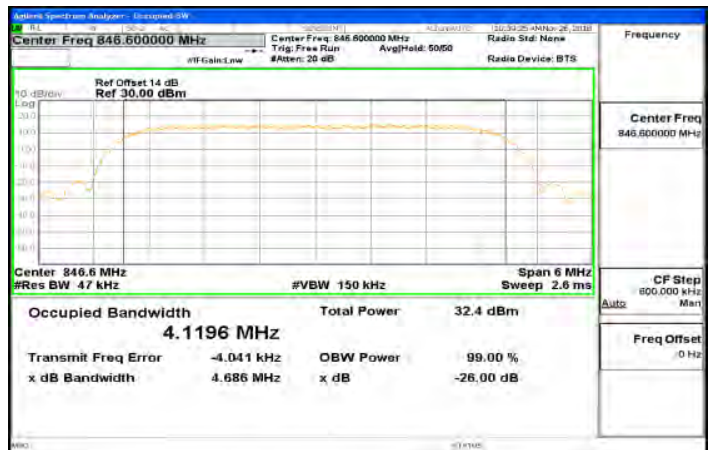
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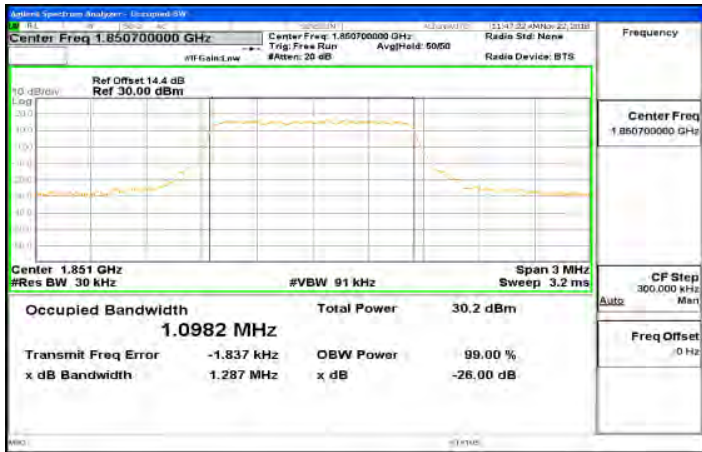


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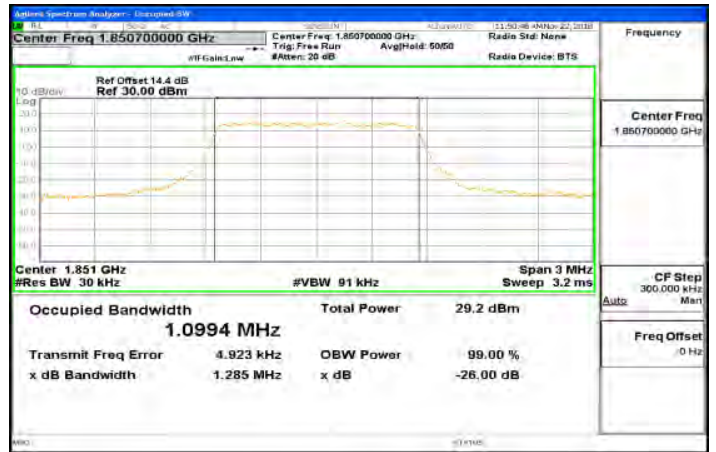
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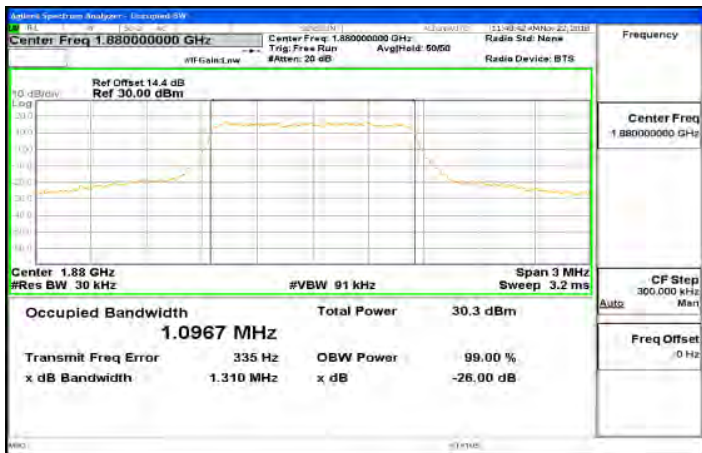
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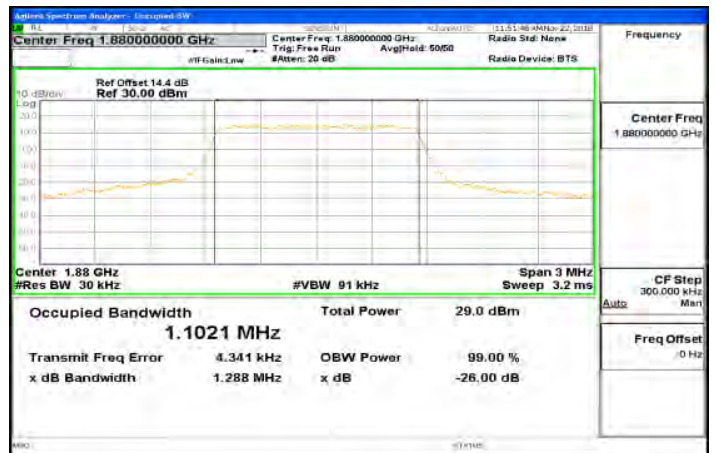
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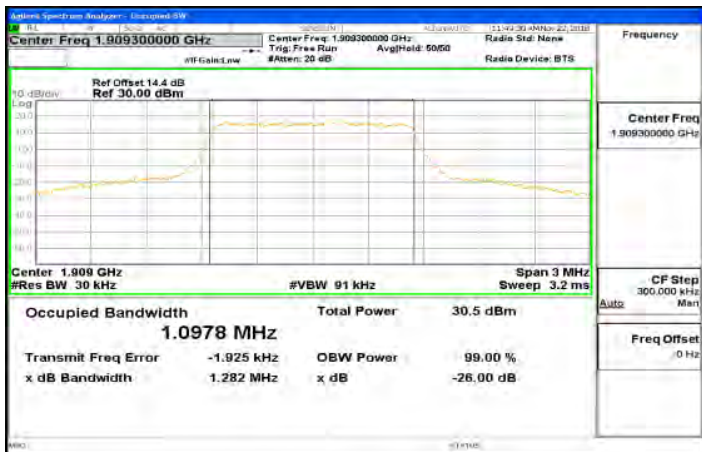
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Band2_1_4MHz_QPSK_6_0_HighCH19193-1909.3



Band2_1_4MHz_16QAM_6_0_HighCH19193-1909.3



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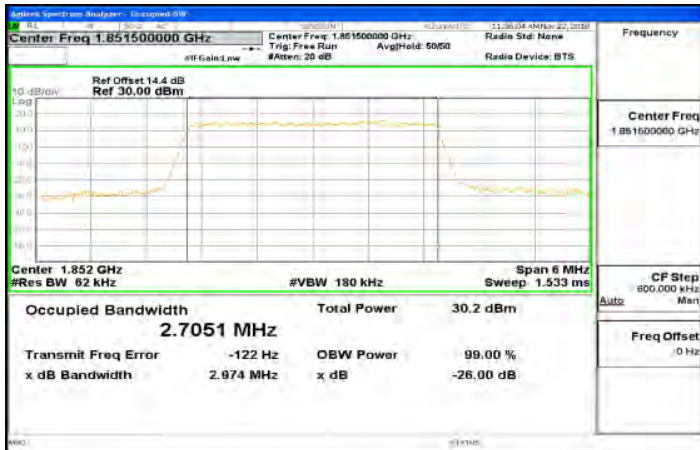
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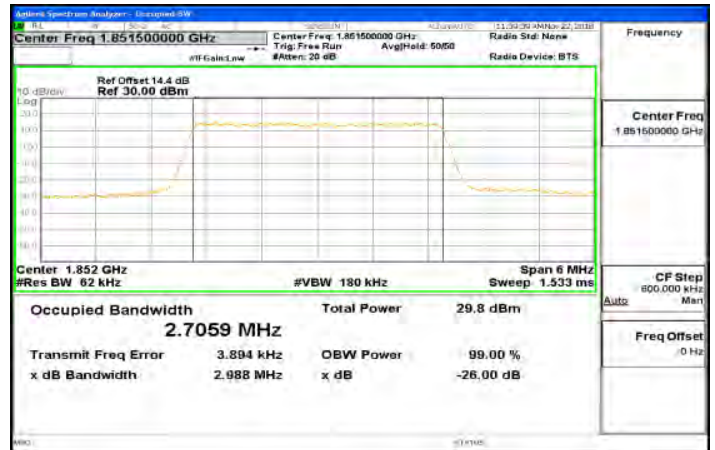
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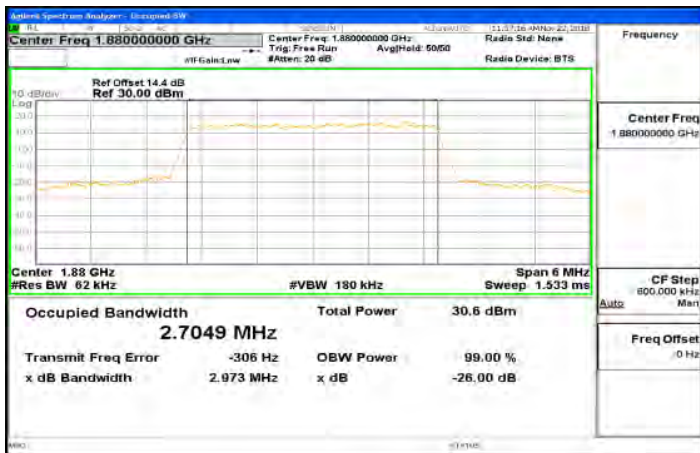
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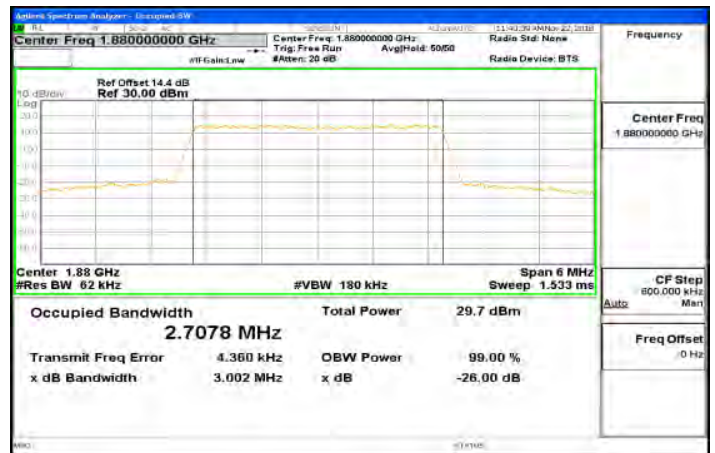
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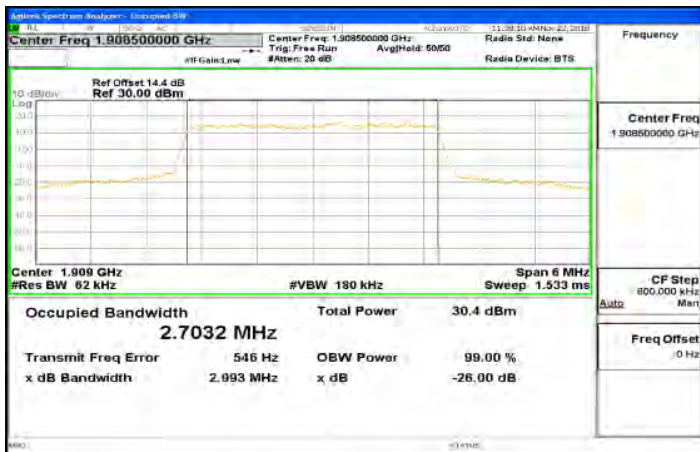
Band2_3MHz_QPSK_15_0_MidCH18900-1880



Band2_3MHz_16QAM_15_0_MidCH18900-1880



Band2_3MHz_QPSK_15_0_HighCH19185-1908.5



Band2_3MHz_16QAM_15_0_HighCH19185-1908.5



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Band2_5MHz_QPSK_25_0_LowCH18625-1852.5



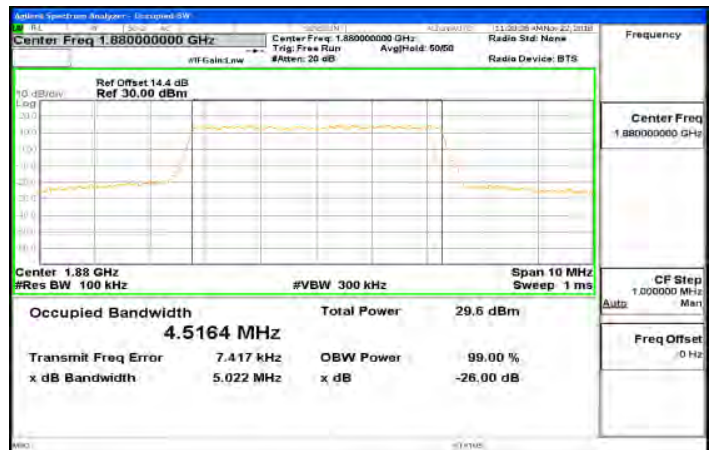
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Band2_5MHz_QPSK_25_0_MidCH18900-1880



Band2_5MHz_16QAM_25_0_MidCH18900-1880



Band2_5MHz_QPSK_25_0_HighCH19175-1907.5



Band2_5MHz_16QAM_25_0_HighCH19175-1907.5



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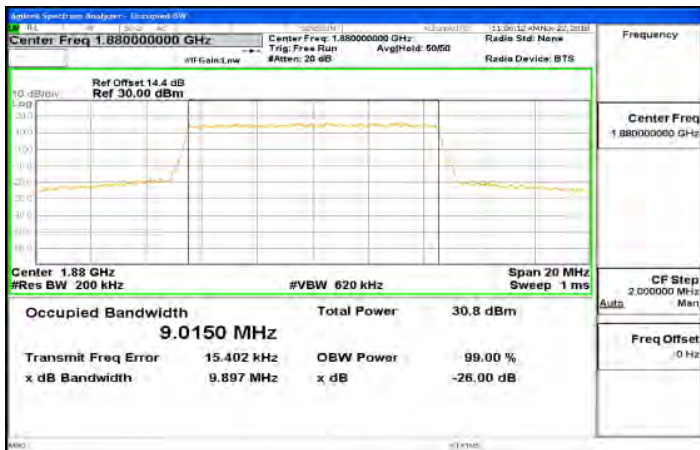
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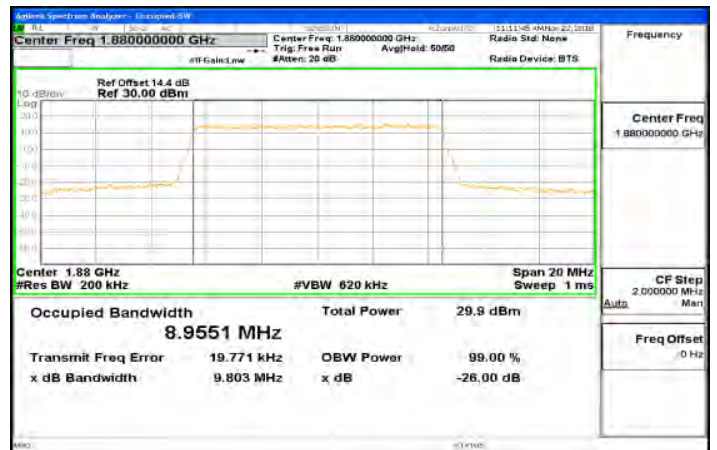
Band2_10MHz_16QAM_50_0_LowCH18650-1855



Band2_10MHz_QPSK_50_0_MidCH18900-1880



Band2_10MHz_16QAM_50_0_MidCH18900-1880



Band2_10MHz_QPSK_50_0_HighCH19150-1905



Band2_10MHz_16QAM_50_0_HighCH19150-1905

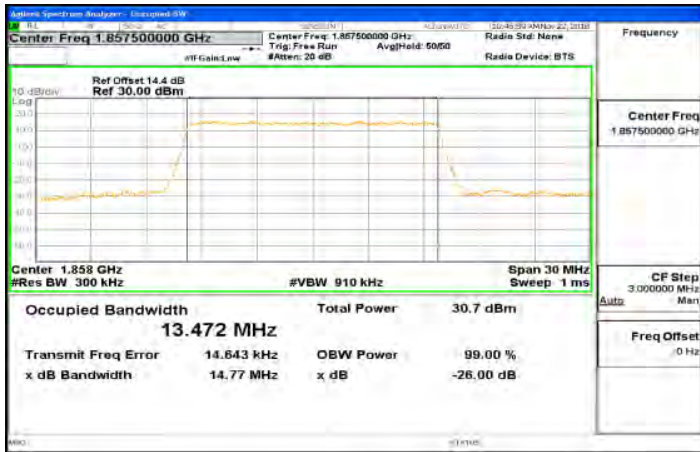


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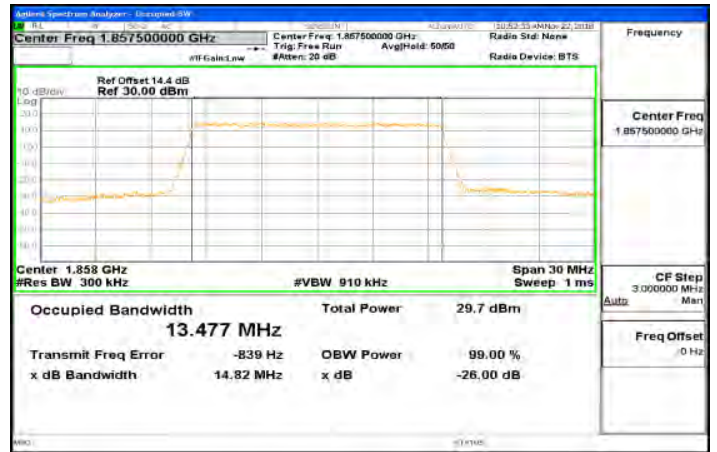
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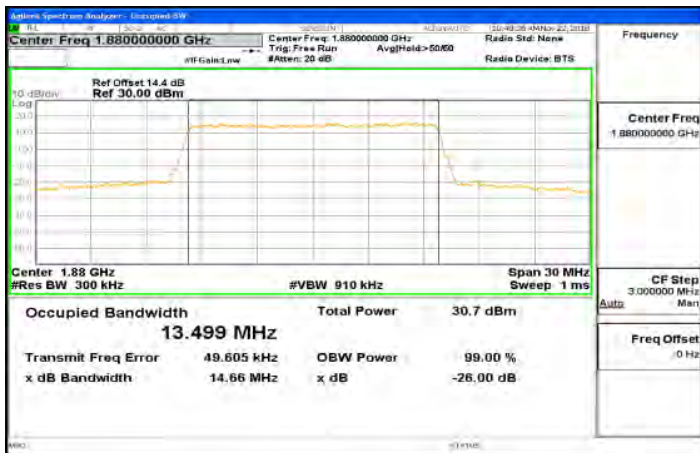
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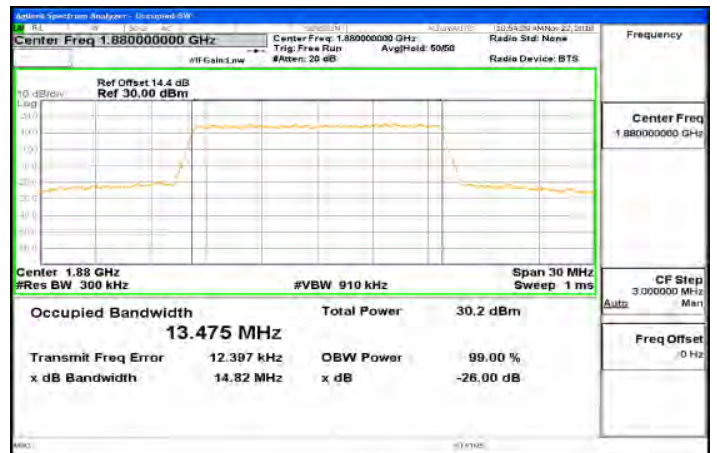
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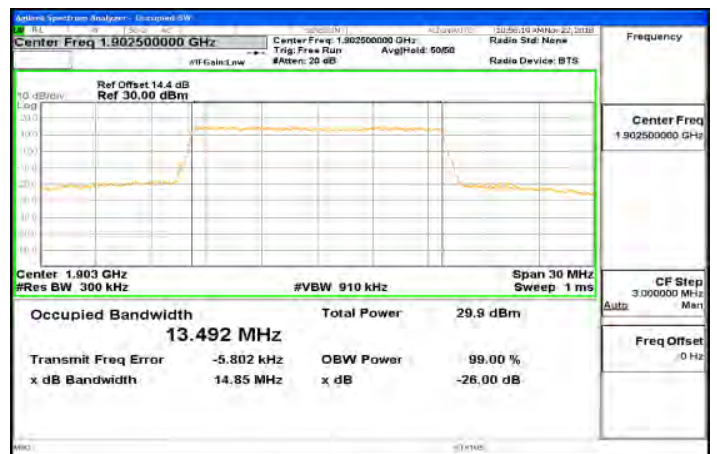
Band2_15MHz_16QAM_75_0_MidCH18900-1880



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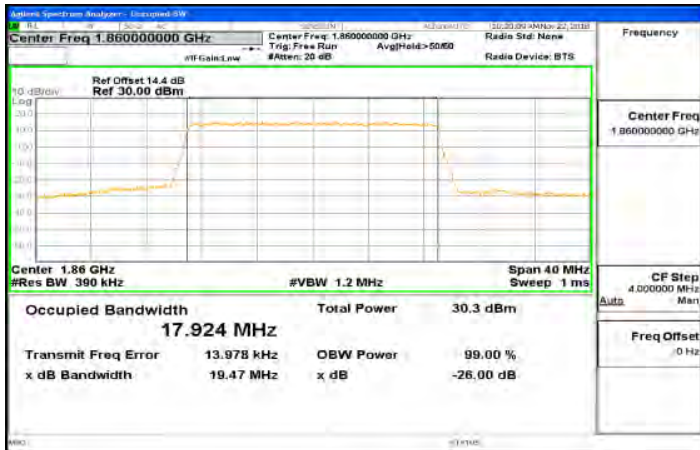


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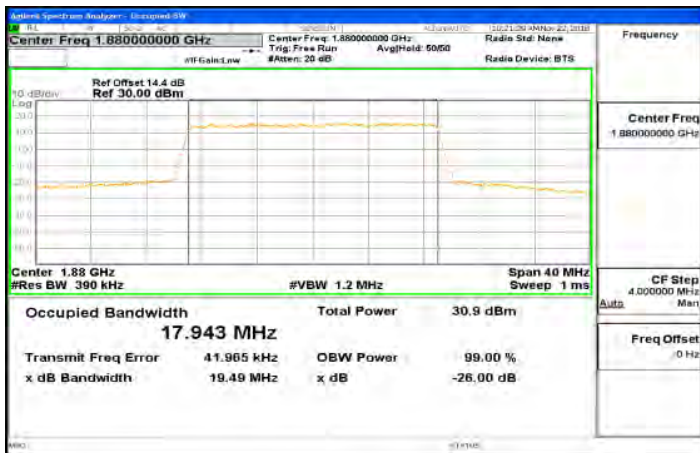
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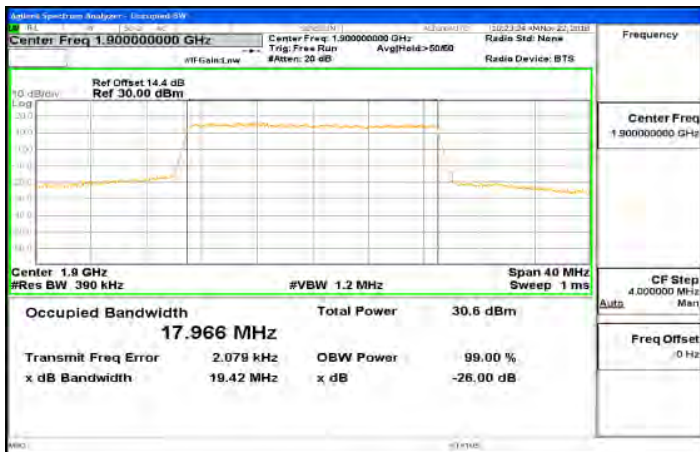
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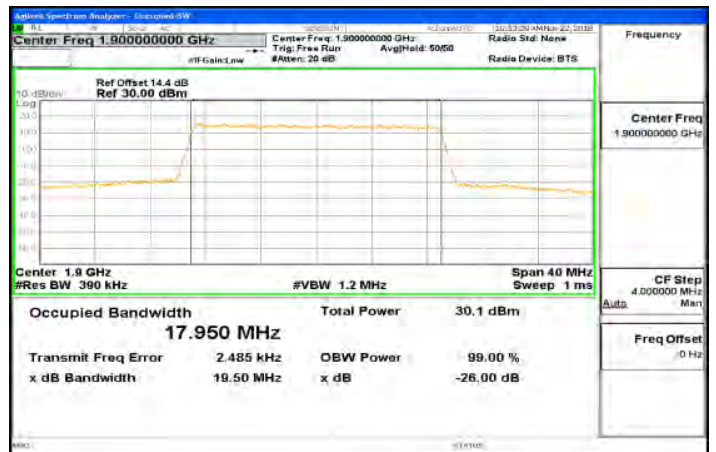
Band2_20MHz_16QAM_100_0_MidCH18900-1880



Band2_20MHz_QPSK_100_0_HighCH19100-1900



Band2_20MHz_16QAM_100_0_HighCH19100-1900



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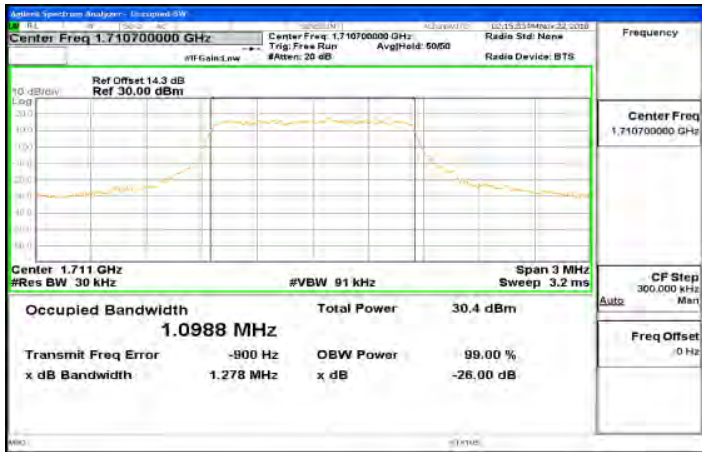
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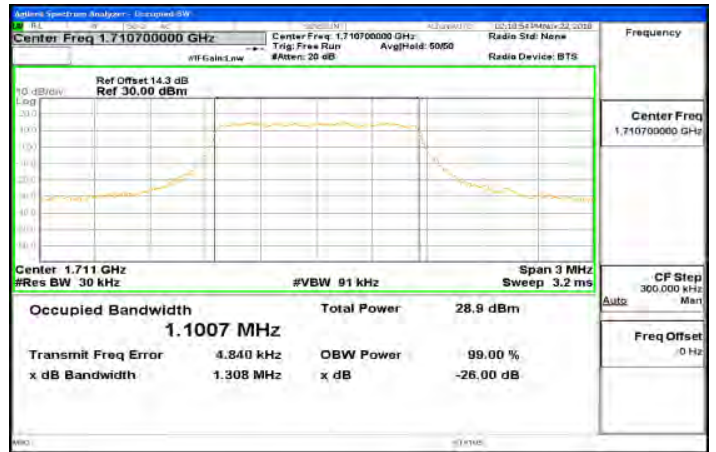
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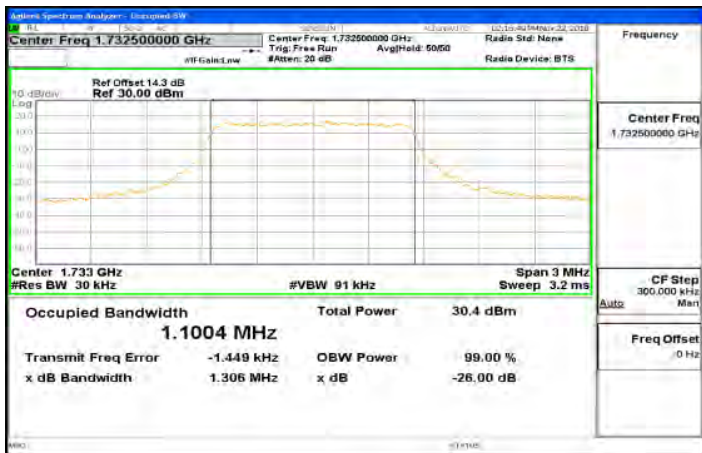
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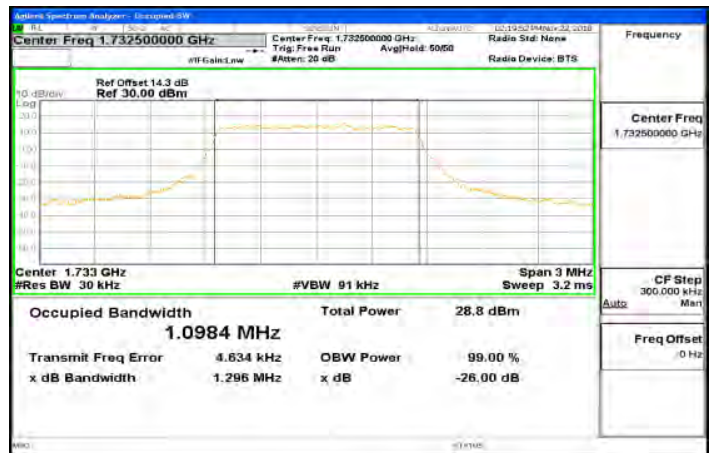
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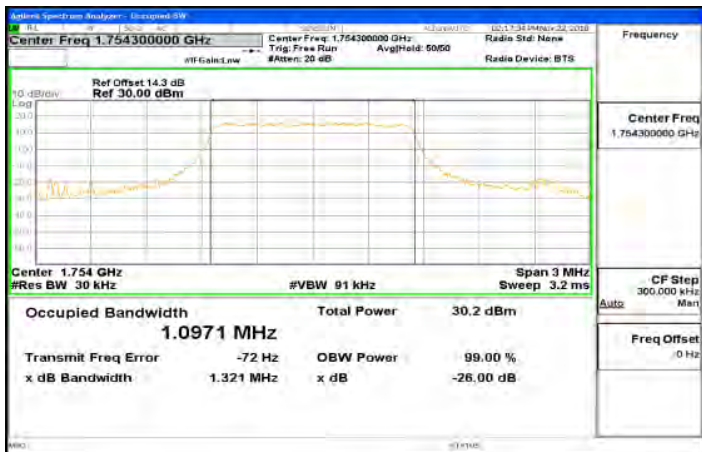
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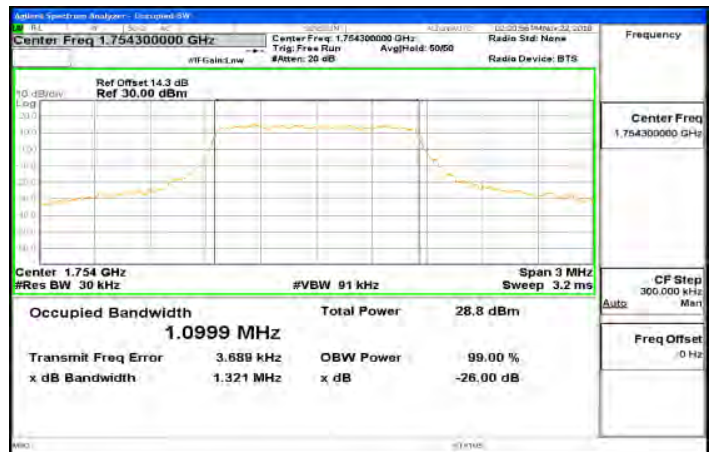
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Band4_1_4MHz_QPSK_6_0_HighCH20393-1754.3



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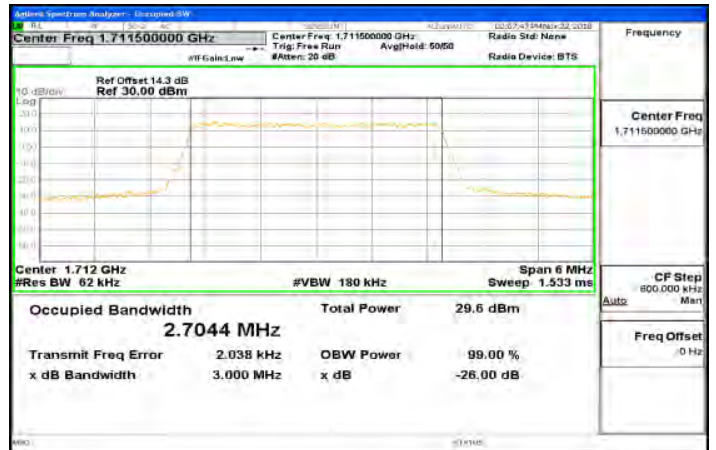
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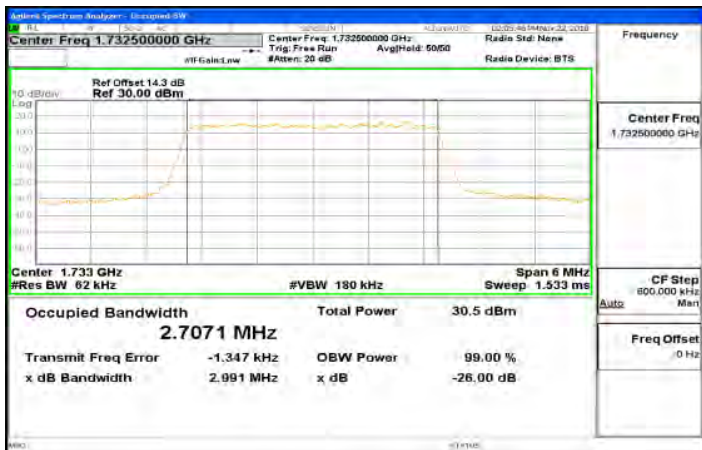
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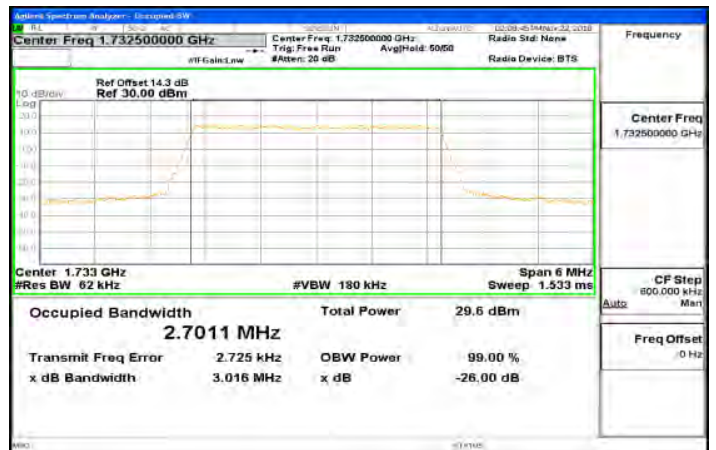
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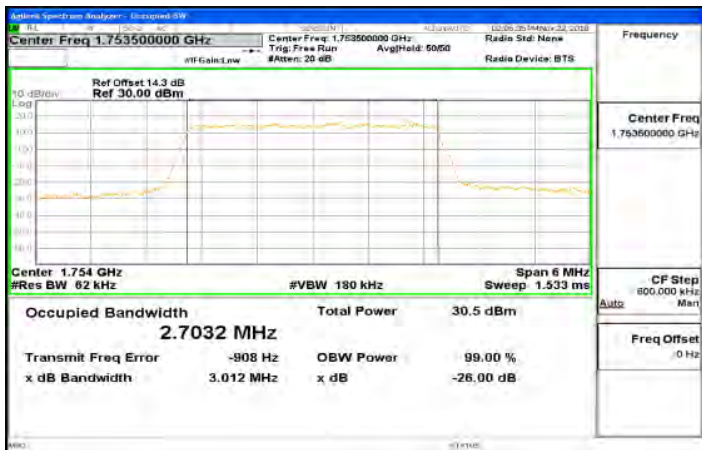
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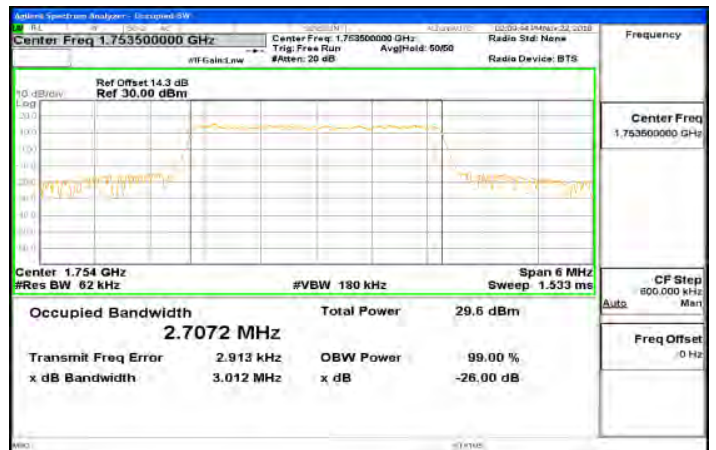
Band4_3MHz_16QAM_15_0_MidCH20175-1732.5



Band4_3MHz_QPSK_15_0_HighCH20385-1753.5



Band4_3MHz_16QAM_15_0_HighCH20385-1753.5



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Band4_5MHz_16QAM_25_0_LowCH19975-1712.5



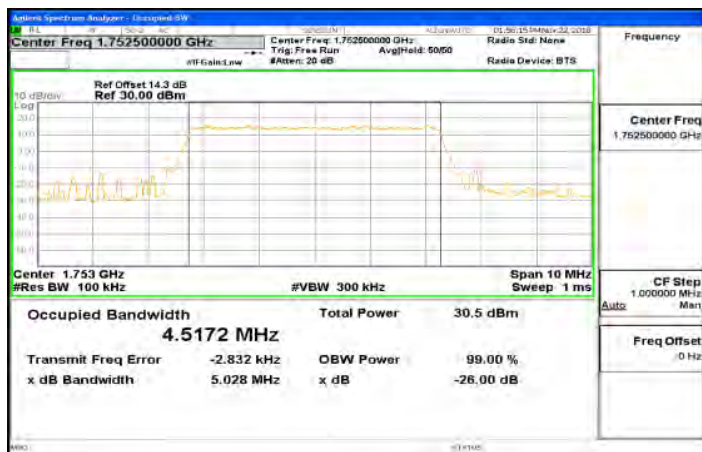
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Band4_5MHz_16QAM_25_0_MidCH20175-1732.5



Band4_5MHz_QPSK_25_0_HighCH20375-1752.5



Band4_5MHz_16QAM_25_0_HighCH20375-1752.5



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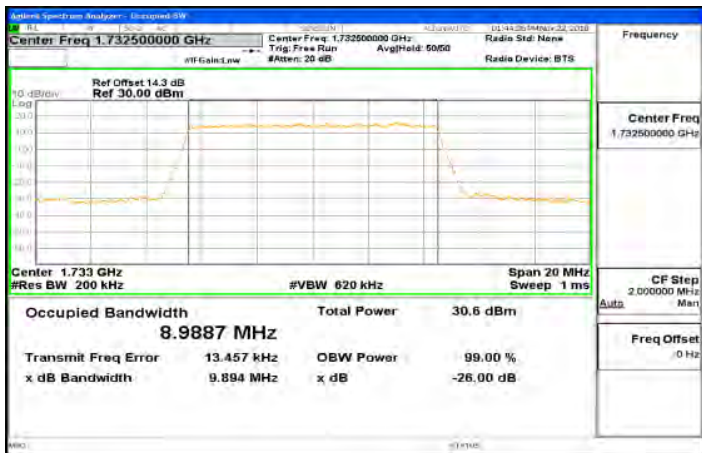
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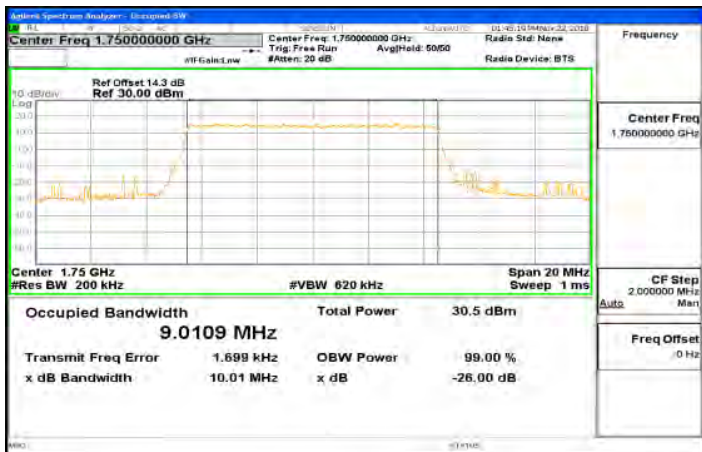
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Band4_10MHz_16QAM_50_0_MidCH20175-1732.5



Band4_10MHz_QPSK_50_0_HighCH20350-1750



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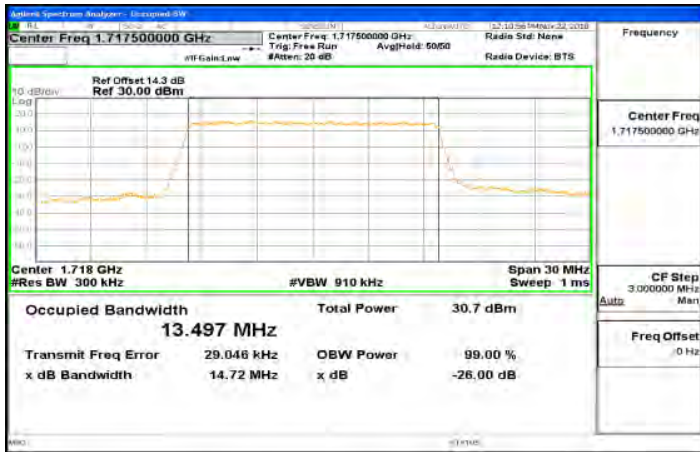


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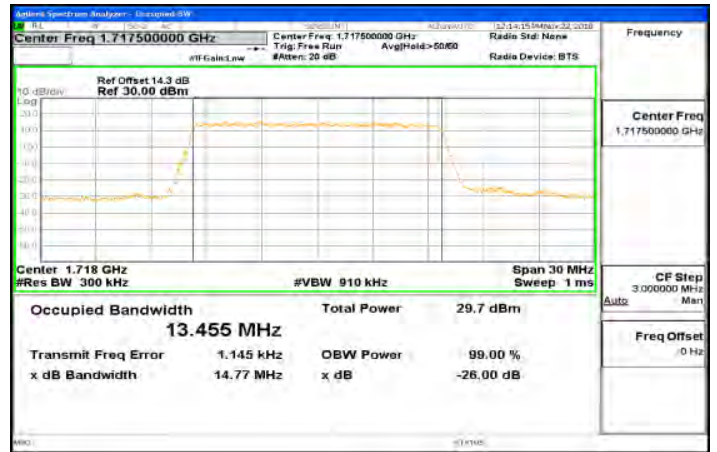
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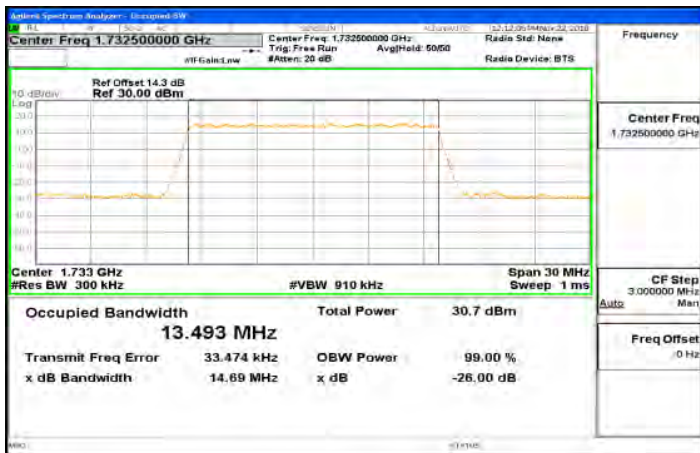
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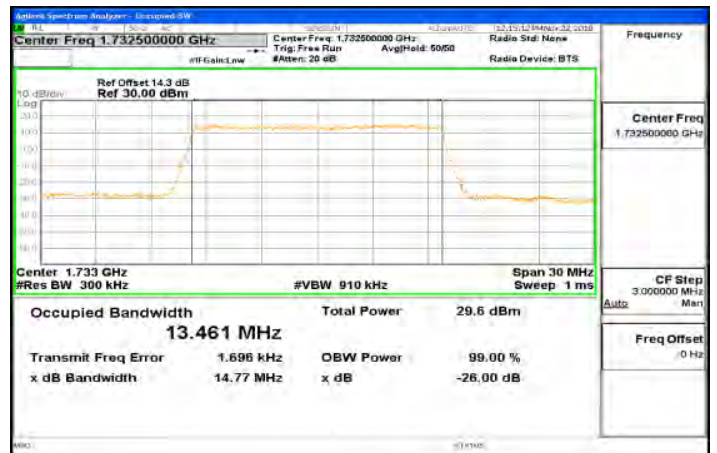
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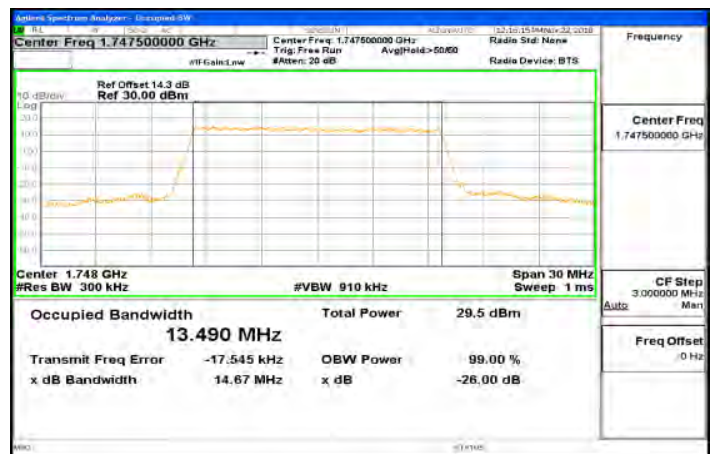
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Band4_15MHz_QPSK_75_0_HighCH20325-1747.5



Band4_15MHz_16QAM_75_0_HighCH20325-1747.5



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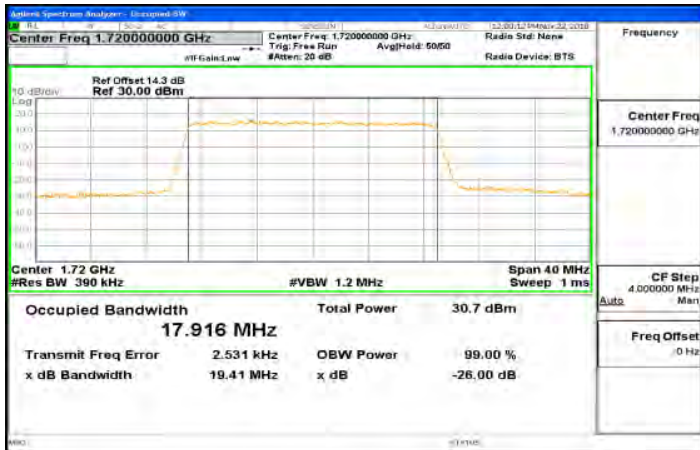
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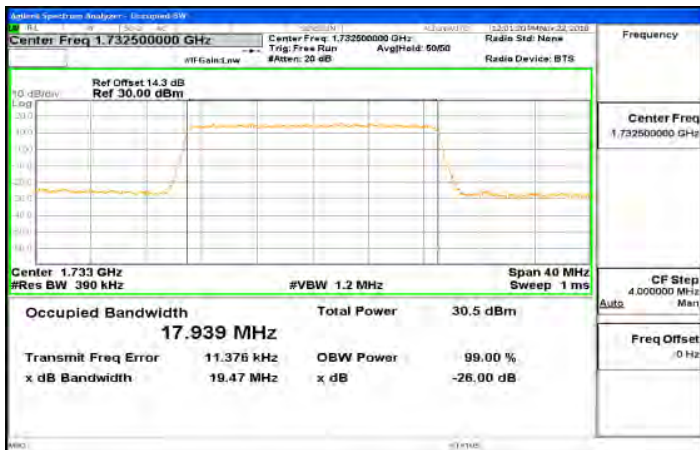
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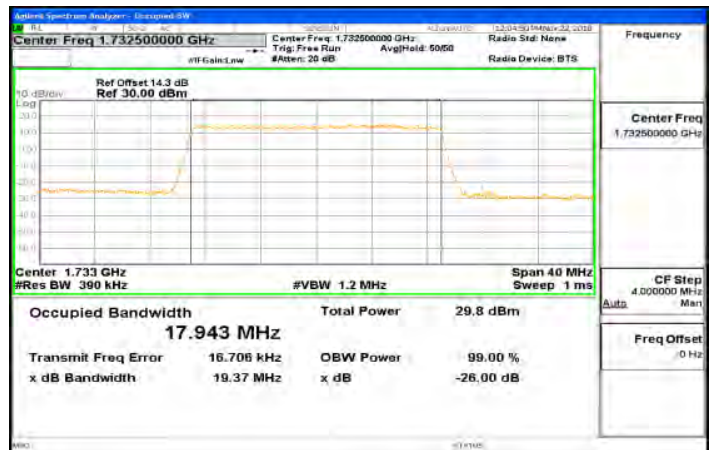
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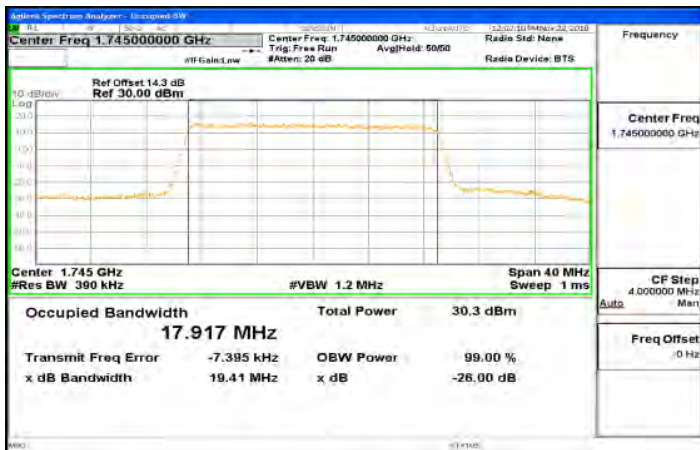
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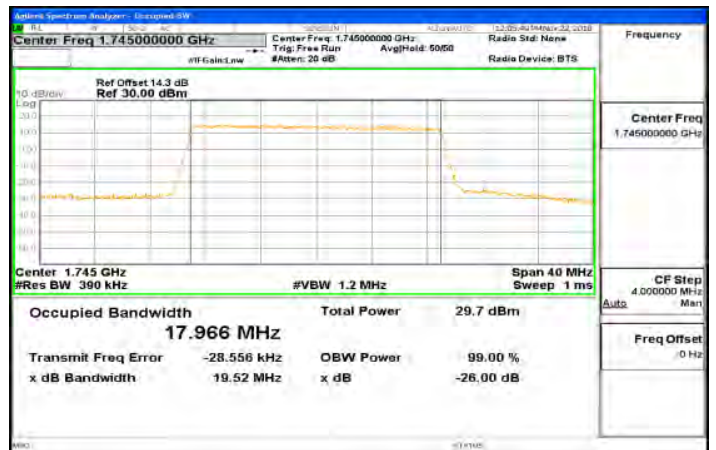
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Band4_20MHz_QPSK_100_0_HighCH20300-1745



Band4_20MHz_16QAM_100_0_HighCH20300-1745

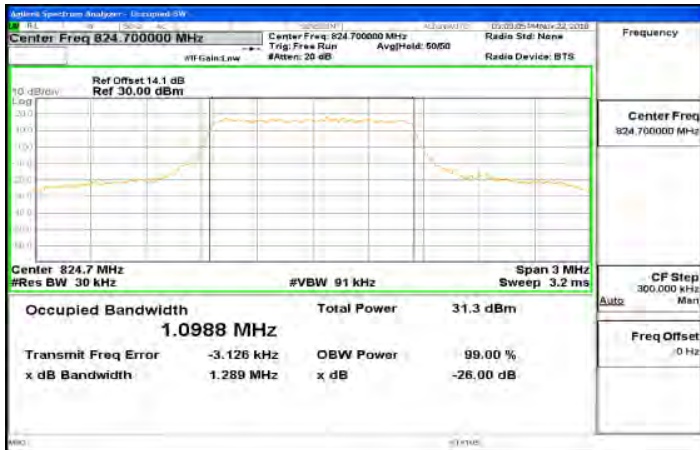


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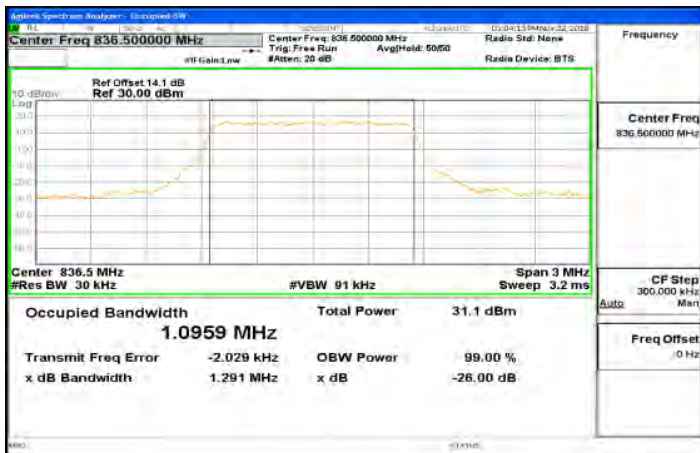
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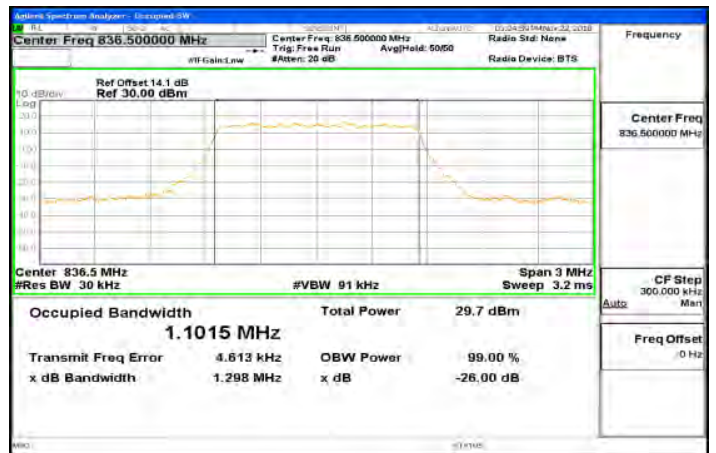
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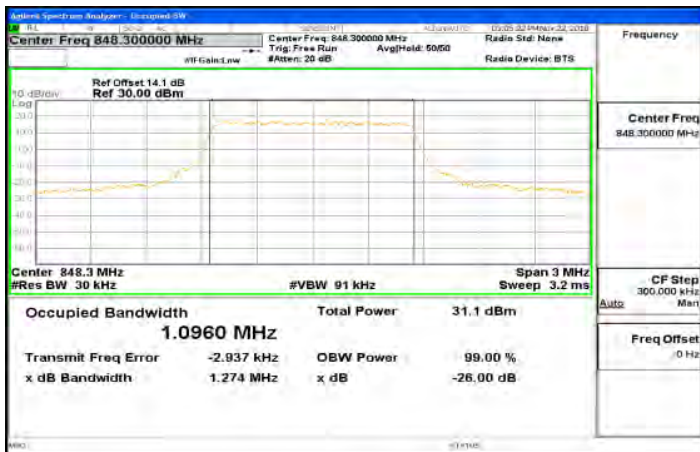
Band5_1_4MHz_QPSK_6_0_MidCH20525-836.5



Band5_1_4MHz_16QAM_6_0_MidCH20525-836.5



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Band5_1_4MHz_16QAM_6_0_HighCH20643-848.3

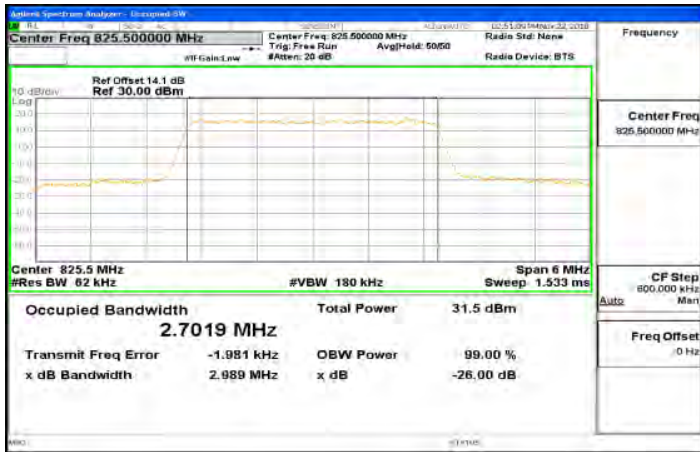


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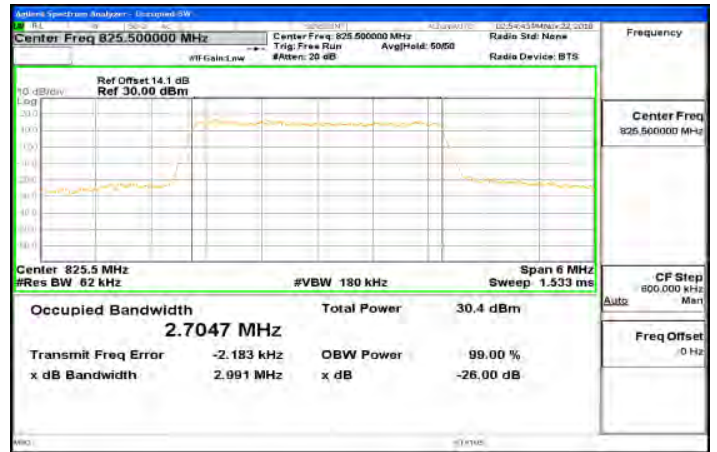
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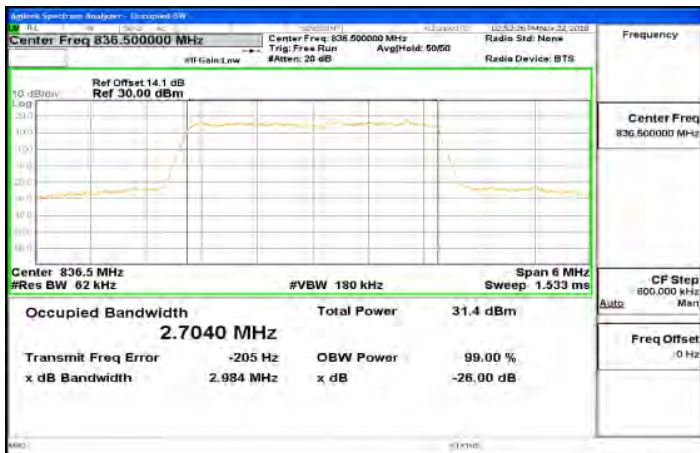
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Band5_3MHz_16QAM_15_0_LowCH20415-825.5



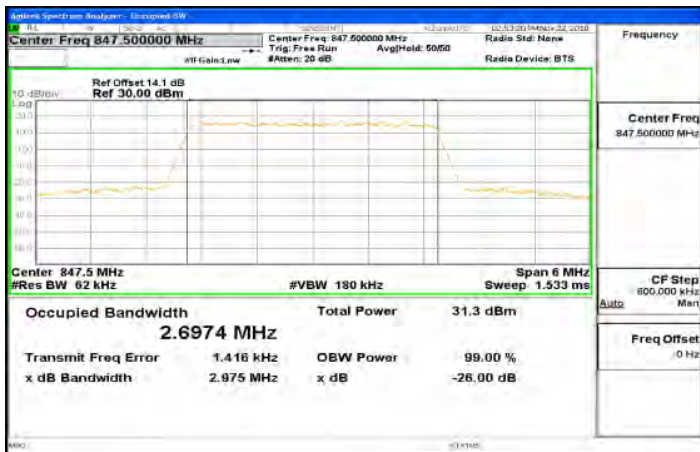
Band5_3MHz_QPSK_15_0_MidCH20525-836.5



Band5_3MHz_16QAM_15_0_MidCH20525-836.5



Band5_3MHz_QPSK_15_0_HighCH20635-847.5



Band5_3MHz_16QAM_15_0_HighCH20635-847.5



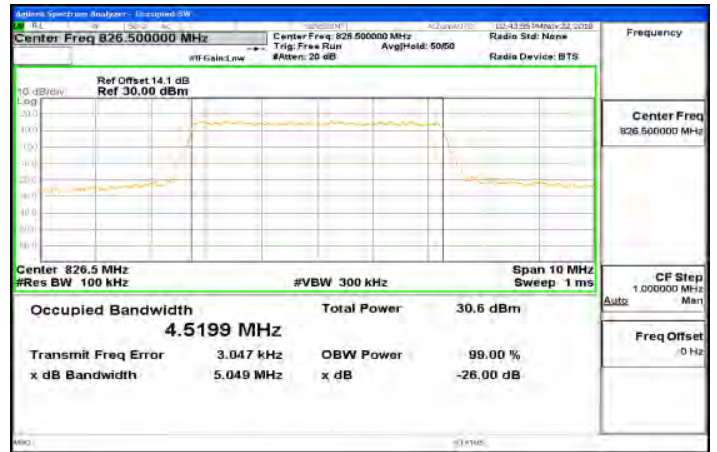
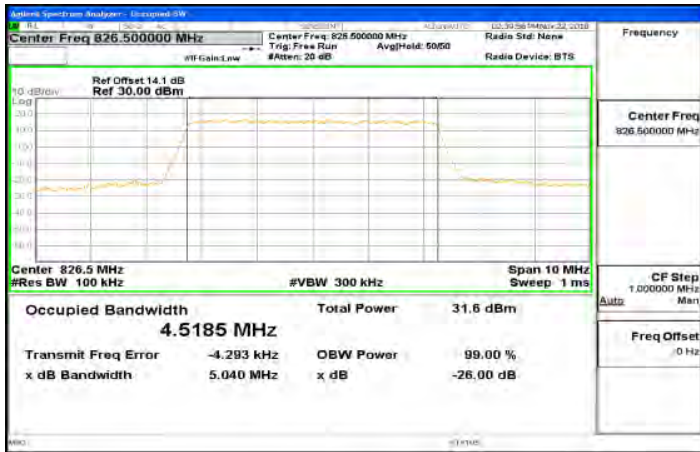
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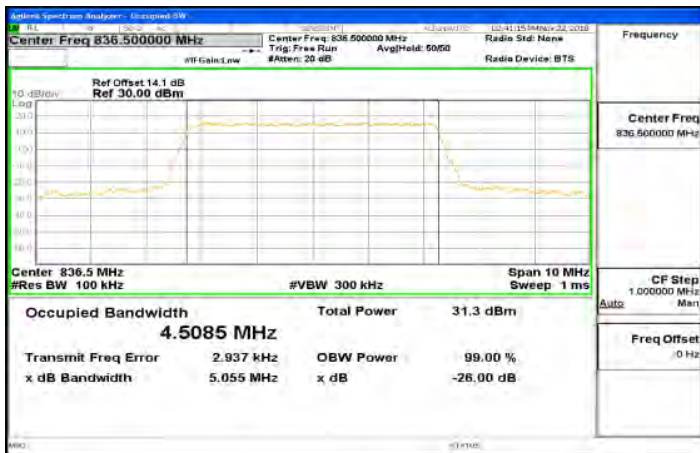
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Band5_5MHz_16QAM_25_0_LowCH20425-826.5



Band5_5MHz_QPSK_25_0_MidCH20525-836.5

Band5_5MHz_16QAM_25_0_MidCH20525-836.5



Band5_5MHz_QPSK_25_0_HighCH20625-846.5

Band5_5MHz_16QAM_25_0_HighCH20625-846.5



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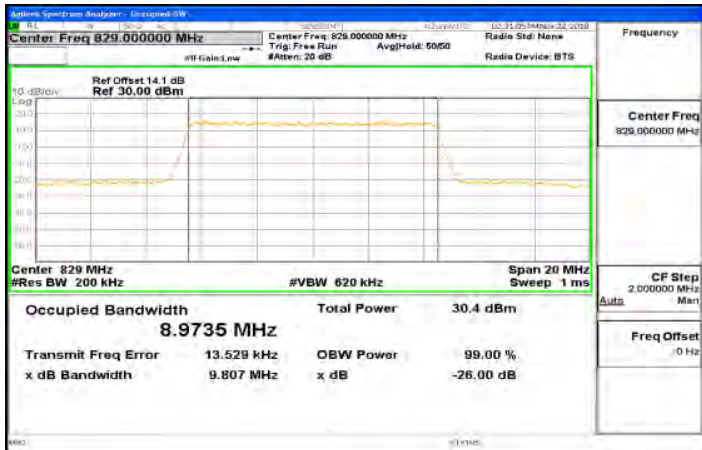
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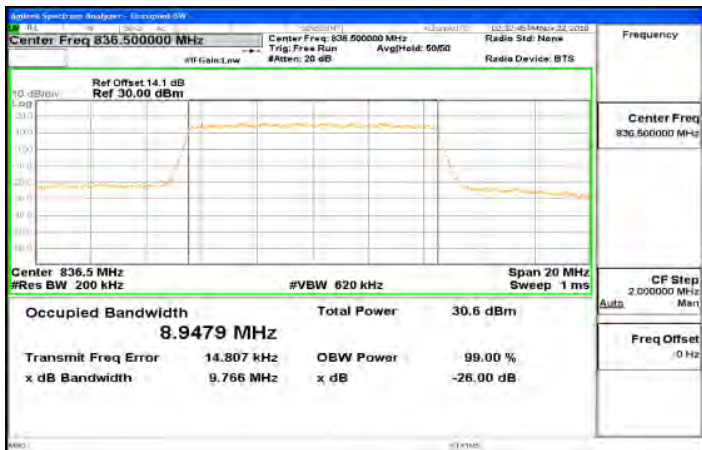
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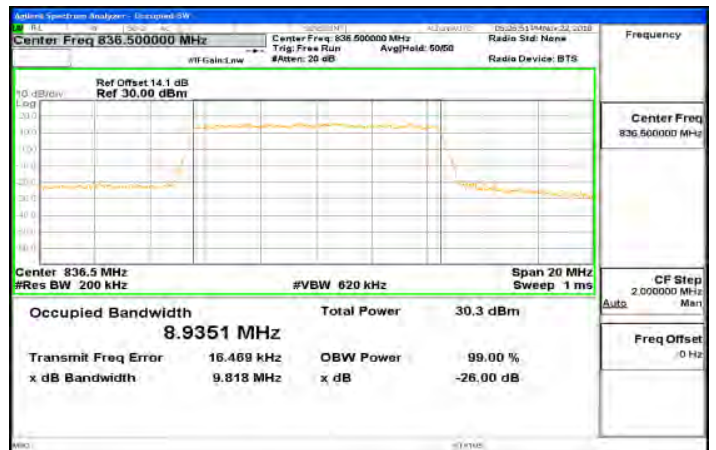
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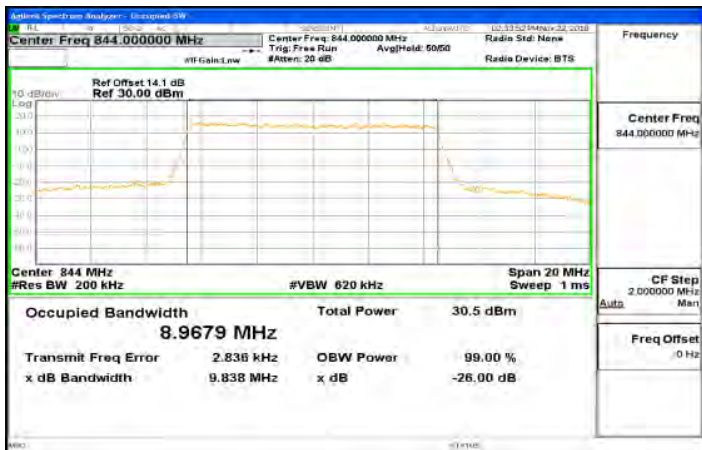
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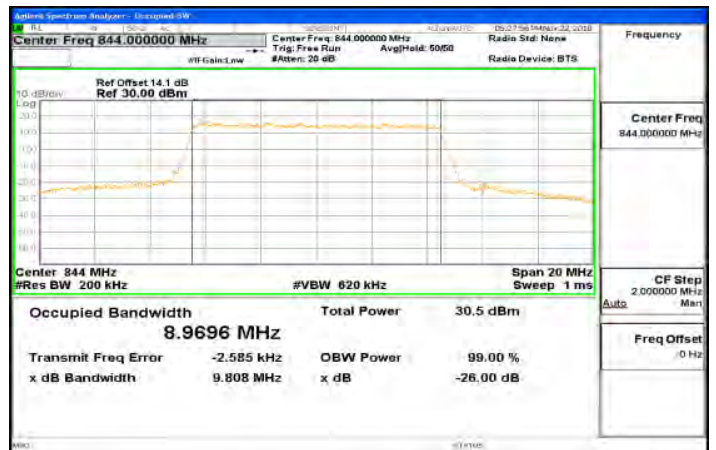
Band5_10MHz_16QAM_50_0_MidCH20525-836.5



Band5_10MHz_QPSK_50_0_HighCH20600-844



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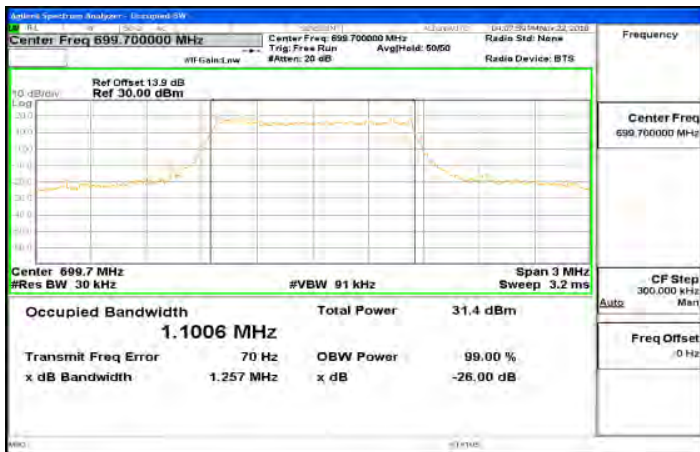


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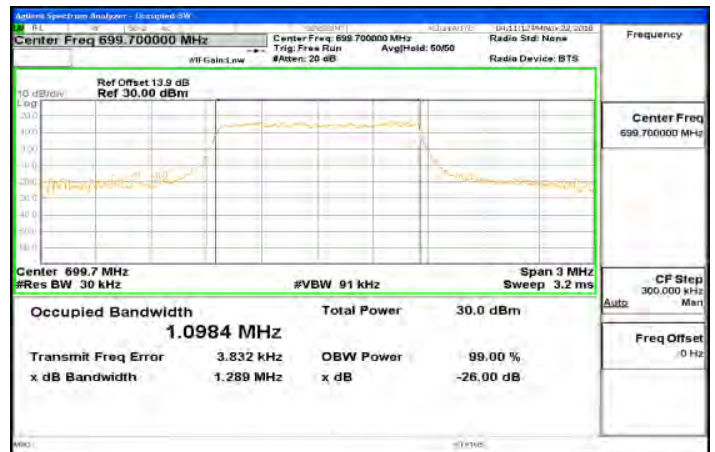
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Band12_1_4MHz_QPSK_6_0_LowCH23017-699.7



Band12_1_4MHz_16QAM_6_0_LowCH23017-699.7



Band12_1_4MHz_QPSK_6_0_MidCH23095-707.5



Band12_1_4MHz_16QAM_6_0_MidCH23095-707.5



Band12_1_4MHz_QPSK_6_0_HighCH23173-715.3



Band12_1_4MHz_16QAM_6_0_HighCH23173-715.3



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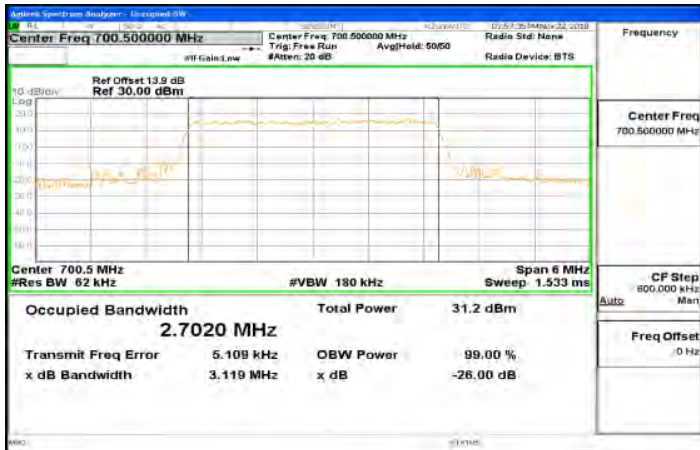
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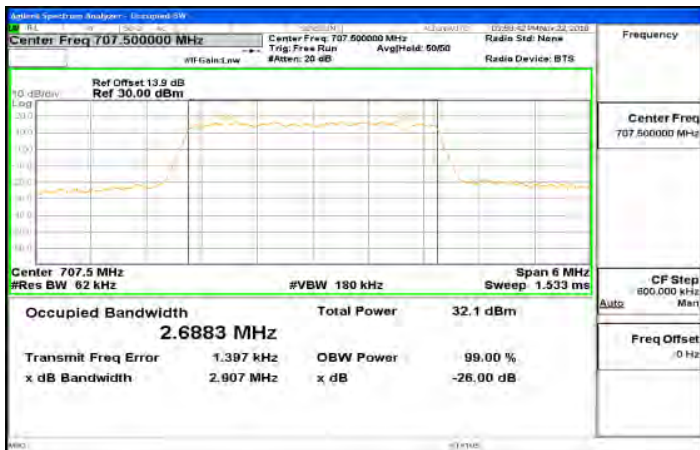
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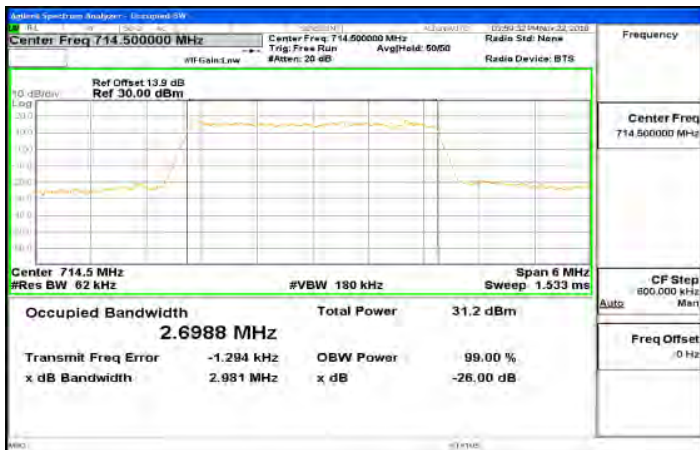
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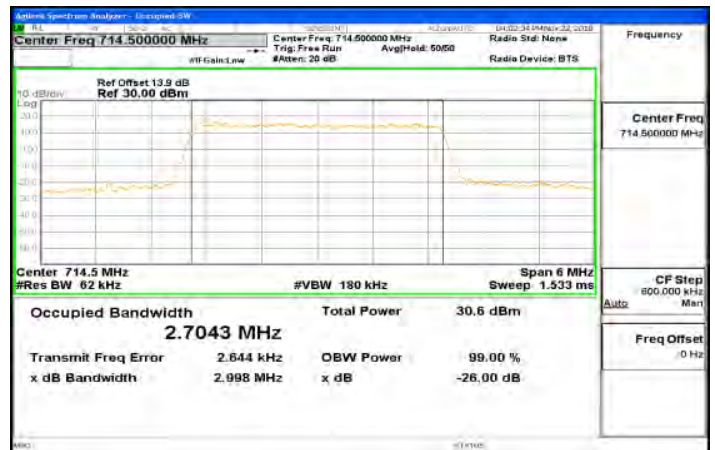
Band12_3MHz_16QAM_15_0_MidCH23095-707.5



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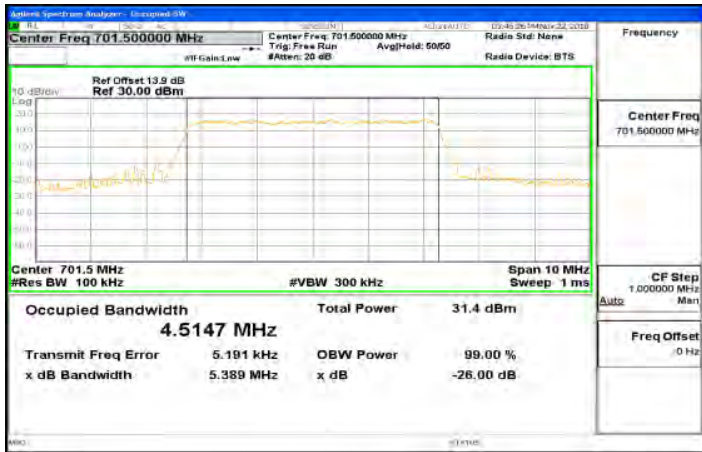


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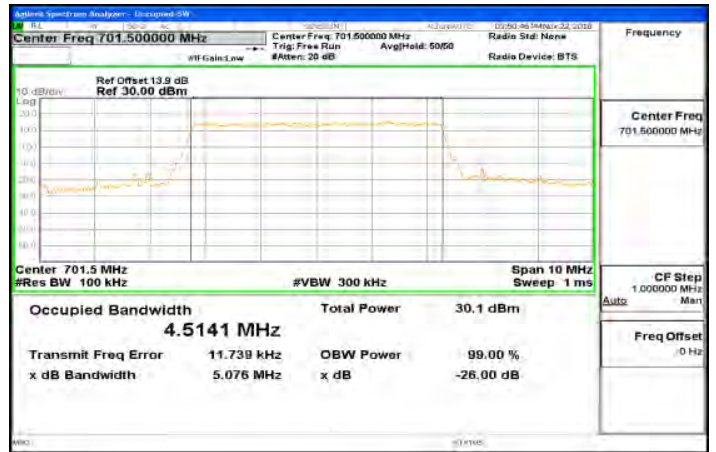
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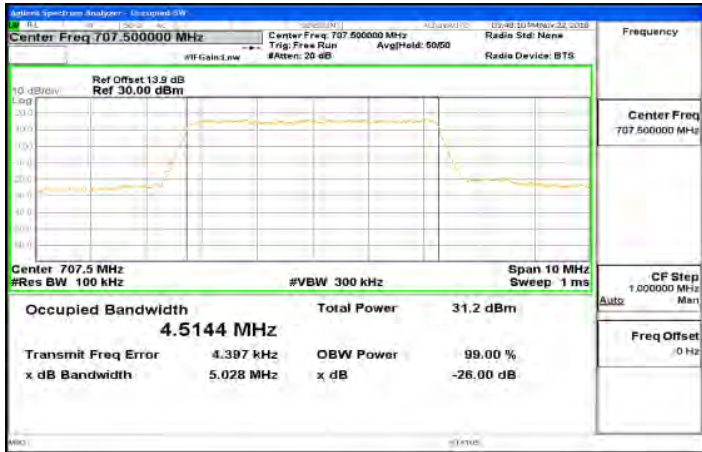
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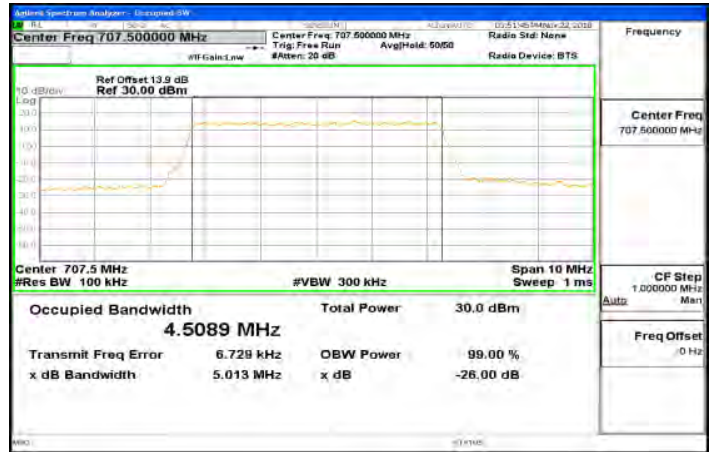
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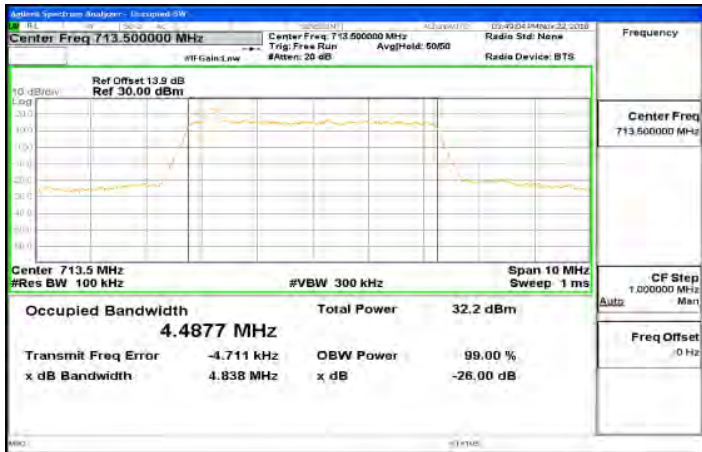
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Band12_5MHz_16QAM_25_0_MidCH23095-707.5



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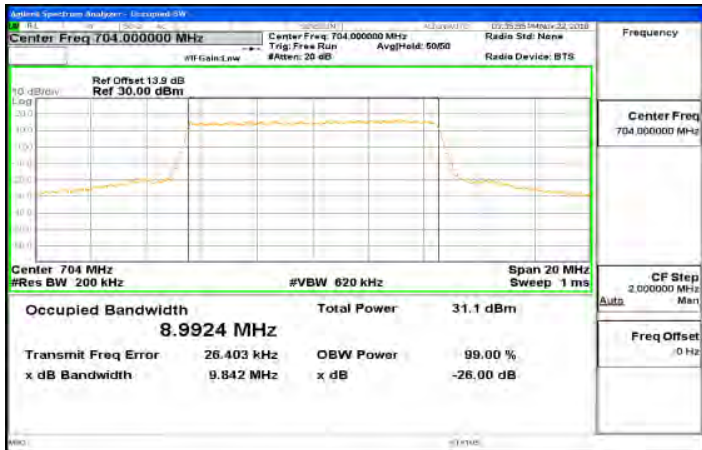


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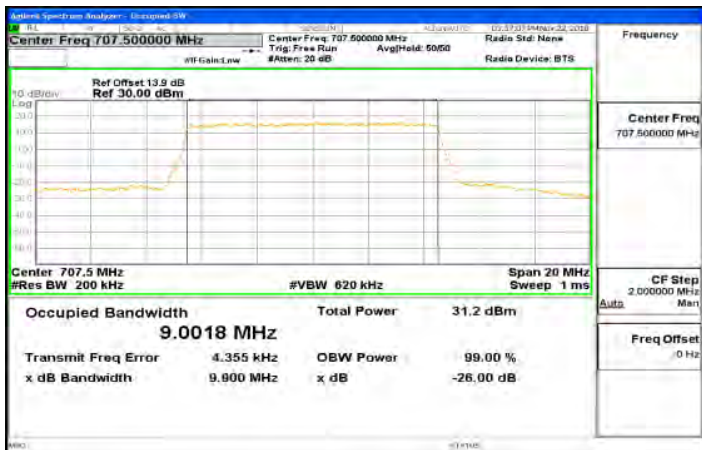
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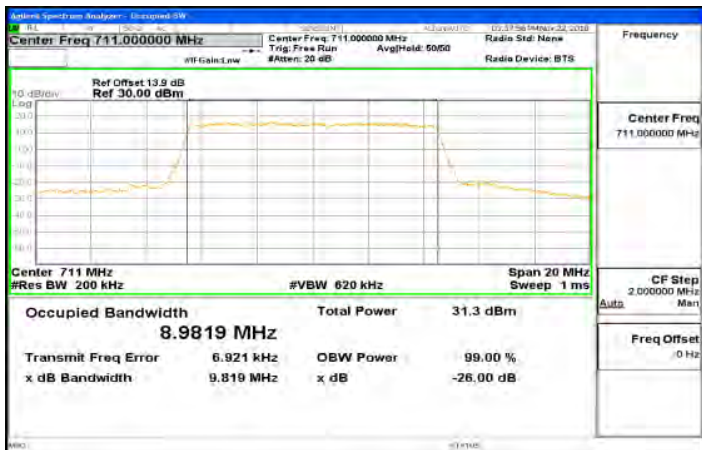
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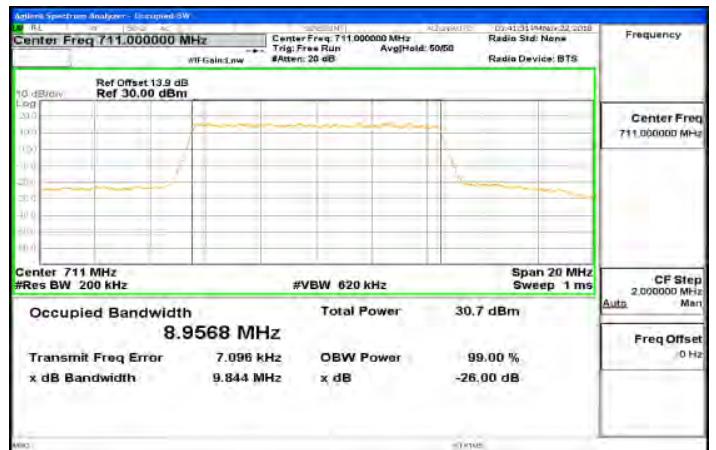
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Band12_10MHz_QPSK_50_0_HighCH23130-711



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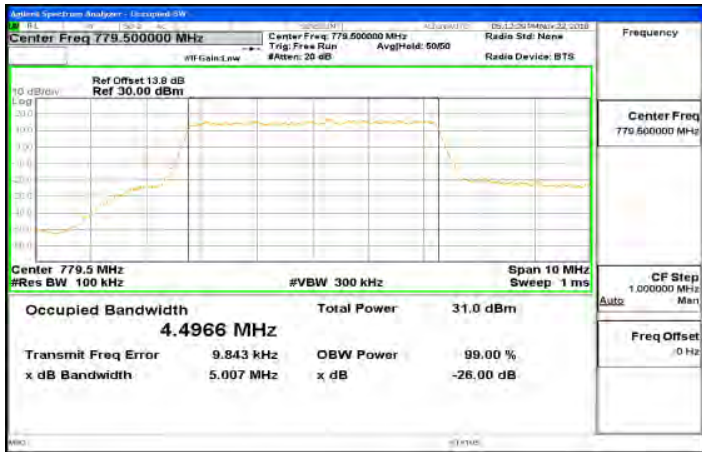


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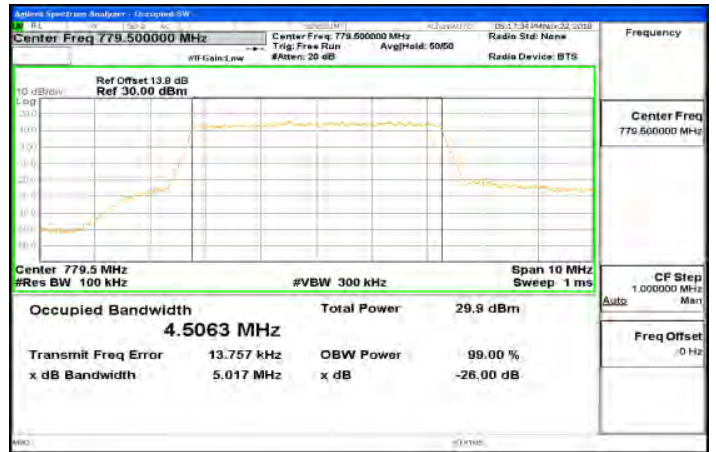
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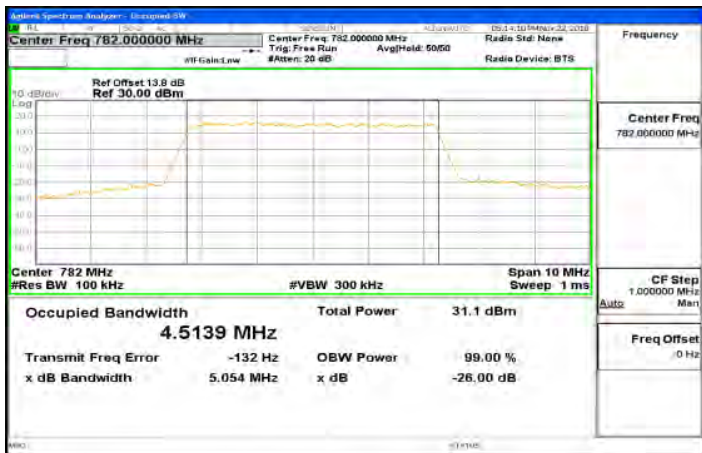
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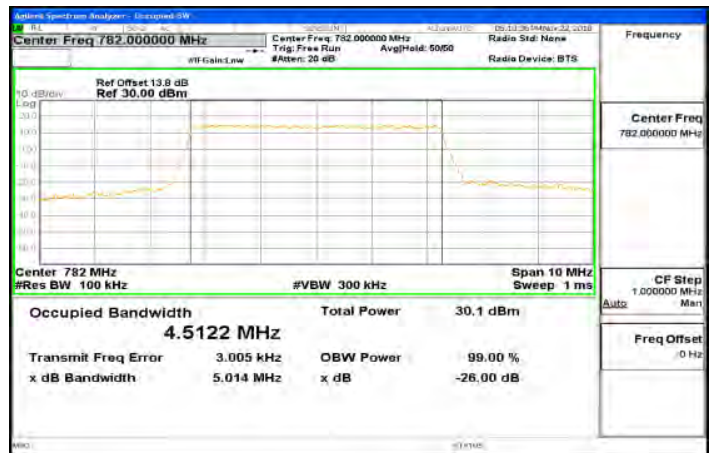
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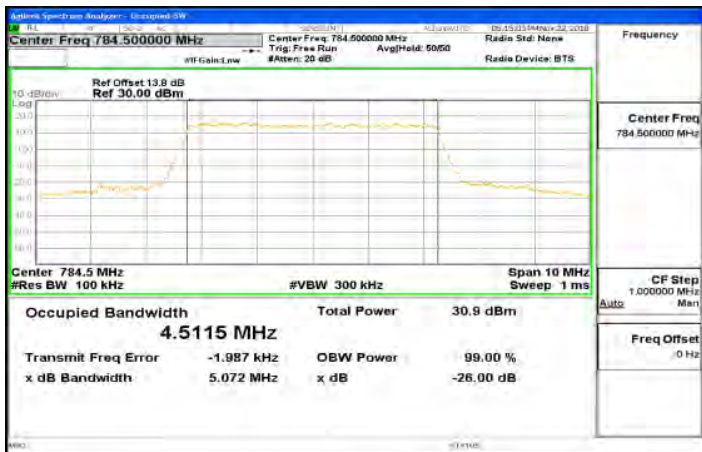
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Band13_5MHz_16QAM_25_0_MidCH23230-782



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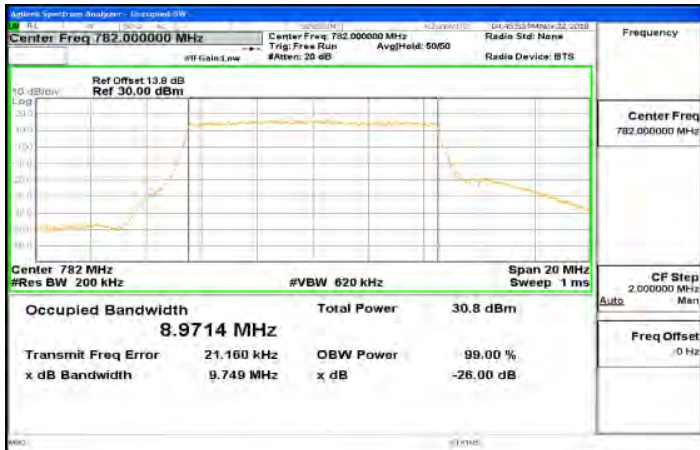


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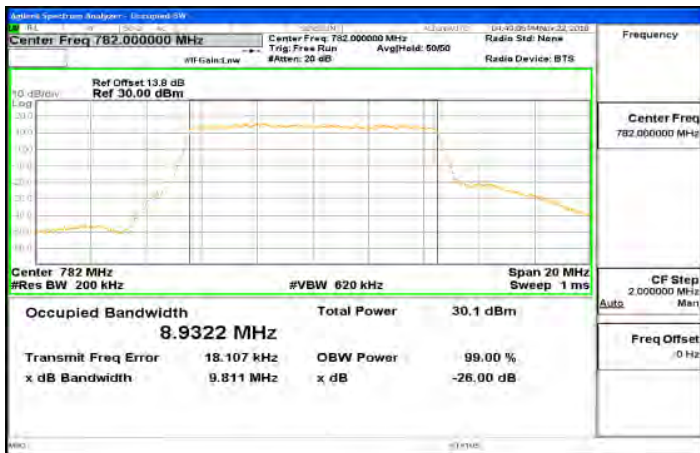
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Band13_10MHz_QPSK_50_0_MidCH23230-782



Band13_10MHz_16QAM_50_0_MidCH23230-782



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8. OUT OF BAND EMISSION AT ANTENNA TERMINALS

8.1. Standard Applicable

FCC §22.917(a), §24.238(a), §27.53(h), Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

FCC §27.53(c)

(c) For operations in the 746–758 MHz band and the 776–788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

(2) On any frequency outside the 776–788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log(P)$ dB (-13dBm)

(4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than $65 + 10 \log(P)$ dB in a 6.25 kHz band segment, for mobile and portable stations;

§27.53 (f) For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

FCC §27.53(c) (5) & FCC §27.53(g)

Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

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FCC §27.53(h) (3)

Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

FCC §27.53(m) (4) (6)

For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed; for mobile digital stations, in the 1 megahertz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed, except when the 1 megahertz band is 2495-2496 MHz, in which case a resolution bandwidth of at least one percent may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 megahertz or 1 percent of emission bandwidth, as specified; or 1 megahertz or 2 percent for mobile digital stations, except in the band 2495-2496 MHz). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. With respect to television operations, measurements must be made of the separate visual and aural operating powers at sufficiently frequent intervals to ensure compliance with the rules.

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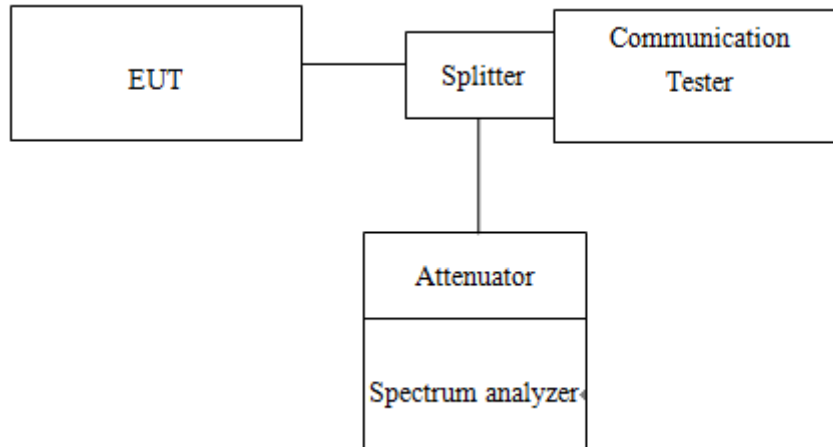
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8.2. Test SET-UP



8.3. Measurement Procedure

Conducted Emission

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

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

Band Edge

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

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8.4. Measurement Equipment Used

Conducted Emission (measured at antenna port) Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EXA Spectrum Analyzer	Agilent	N9010A	MY50420195	05/03/2018	05/02/2019
Radio Communication Analyser	Anritsu	MT8820C	6201465317	01/17/2018	01/16/2019
DC Power Supply	Agilent	E3640A	KR93300208	08/15/2018	08/14/2019
Temperature Chamber	TERCHY	MHG-120LF	911009	05/18/2018	05/17/2019
Attenuator	Mini-Circuit	BW-S10W2+	2	01/02/2018	01/01/2019
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2018	01/01/2019
Splitter	RF-LAMBAD	RFLT2W1G18G	11-JSPF412-018	01/02/2018	01/01/2019
Coaxial Cables	N/A	WK CE Cable	N/A	01/02/2018	01/01/2019

8.5. Measurement Result:

Refer to next pages.

NOTE: The occurrence of the spike on the conducted emission is the signal of the fundamental emission.

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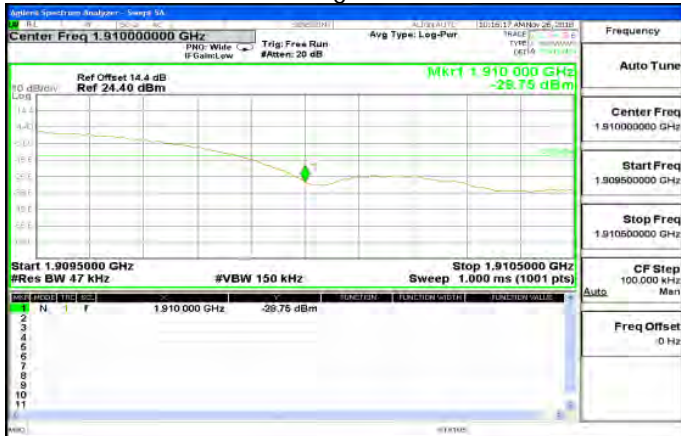
Band Edge
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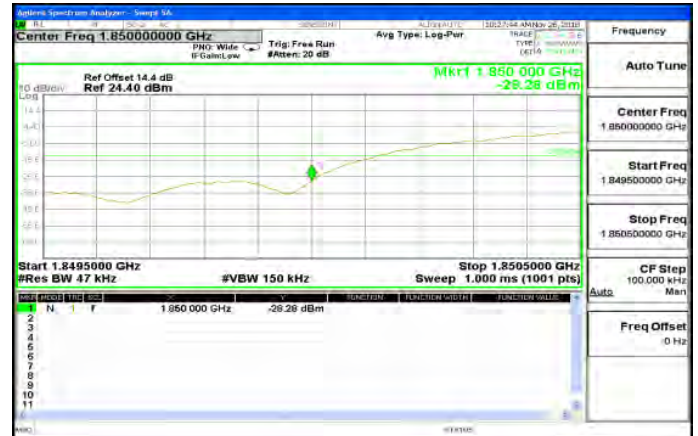
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WCDMA_B2_HighCH9538-1907.6



HSUPA_B2_LowCH9262-1852.4



HSDPA_B2_LowCH9262-1852.4



HSUPA_B2_HighCH9538-1907.6



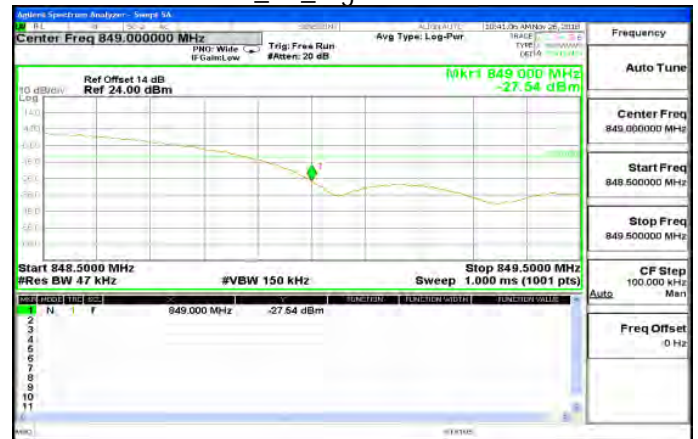
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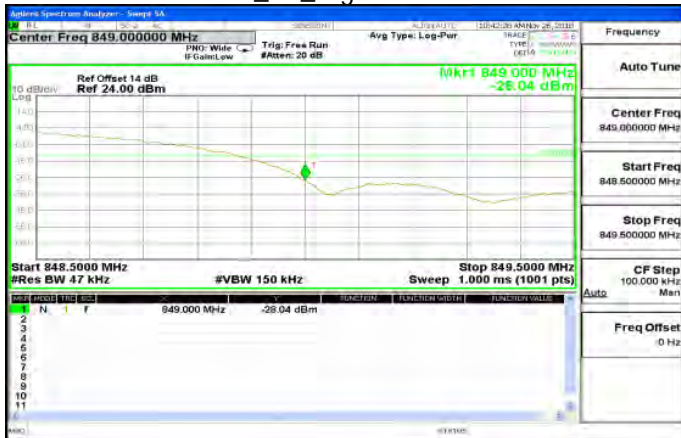
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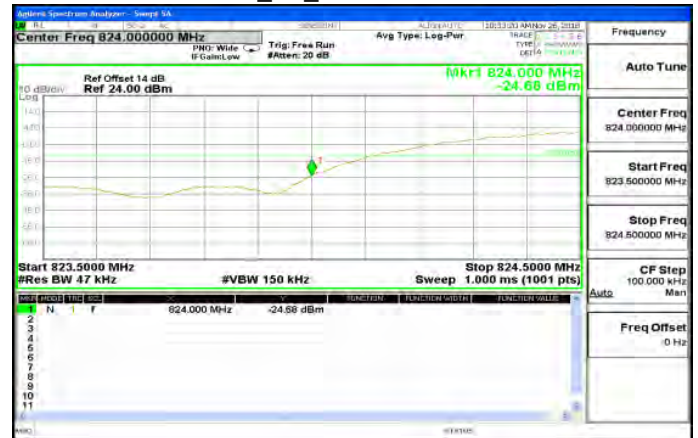
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WCDMA_B5_HighCH4233-846.6



HSUPA_B5_LowCH4132-826.4



HSDPA_B5_LowCH4132-826.4



HSUPA_B5_HighCH4233-846.6



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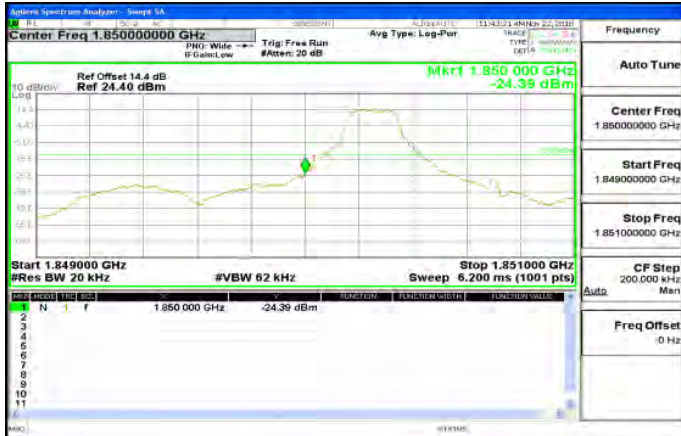
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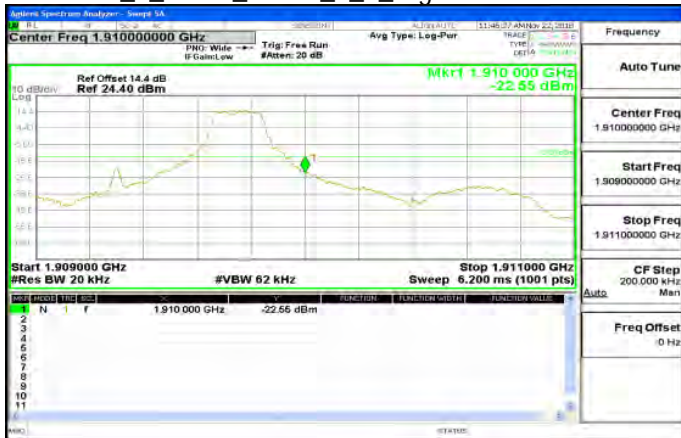
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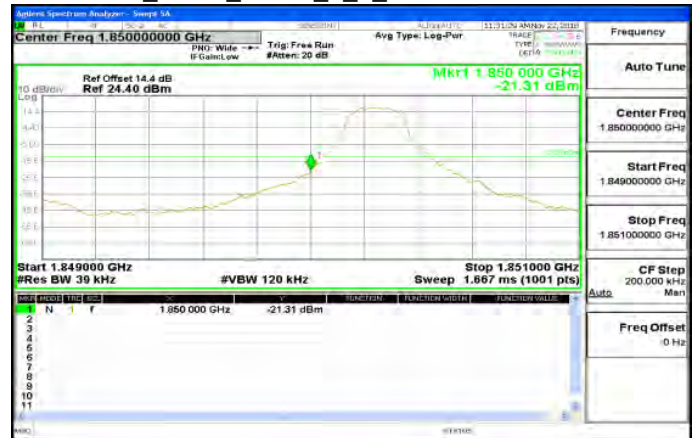
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Band2_1_4MHz_QPSK_1_5_HighCH19193-1909.3



Band2_3MHz_QPSK_1_0_LowCH18615-1851.5



Band2_1_4MHz_QPSK_6_0_LowCH18607-1850.7



Band2_3MHz_QPSK_1_14_HighCH19185-1908.5



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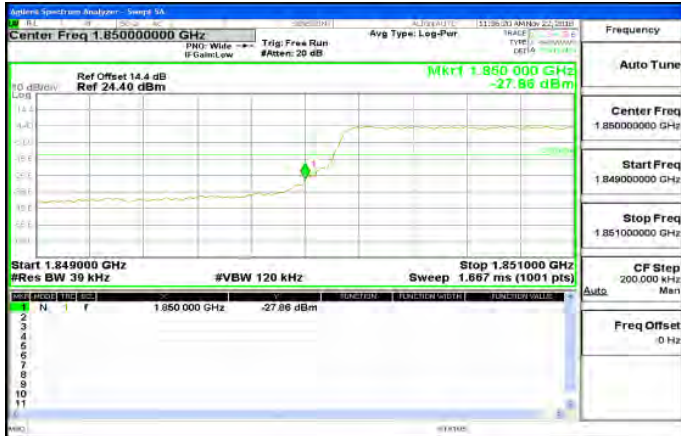
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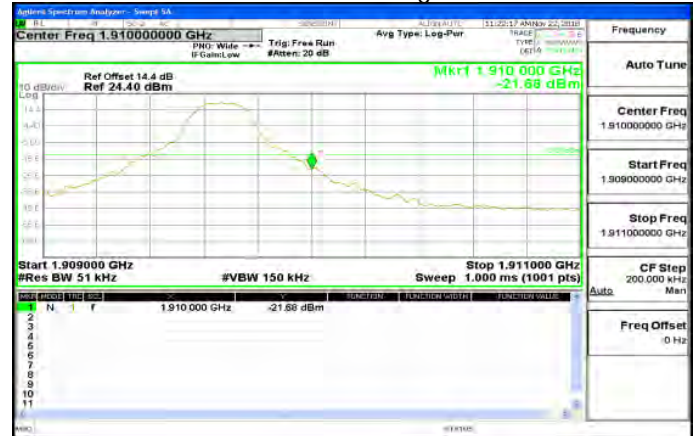
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Band2_3MHz_QPSK_15_0_LowCH18615-1851.5



Band2_5MHz_QPSK_1_24_HighCH19175-1907.5



Band2_3MHz_QPSK_15_0_HighCH19185-1908.5



Band2_5MHz_QPSK_25_0_LowCH18625-1852.5



Band2_5MHz_QPSK_1_0_LowCH18625-1852.5



Band2_5MHz_QPSK_25_0_HighCH19175-1907.5



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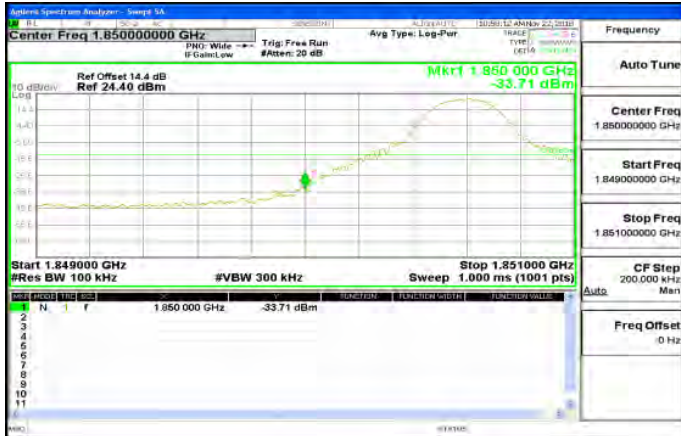
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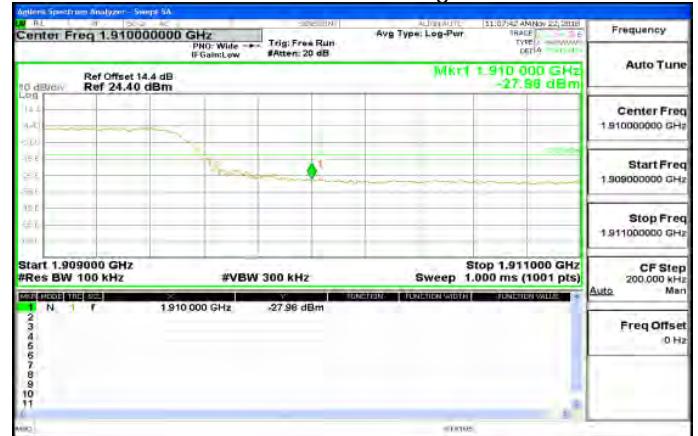
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Band2_10MHz_QPSK_50_0_HighCH19150-1905



Band2_10MHz_QPSK_1_49_HighCH19150-1905



Band2_15MHz_QPSK_1_0_LowCH18675-1857.5



Band2_10MHz_QPSK_50_0_LowCH18650-1855



Band2_15MHz_QPSK_1_74_HighCH19125-1902.5



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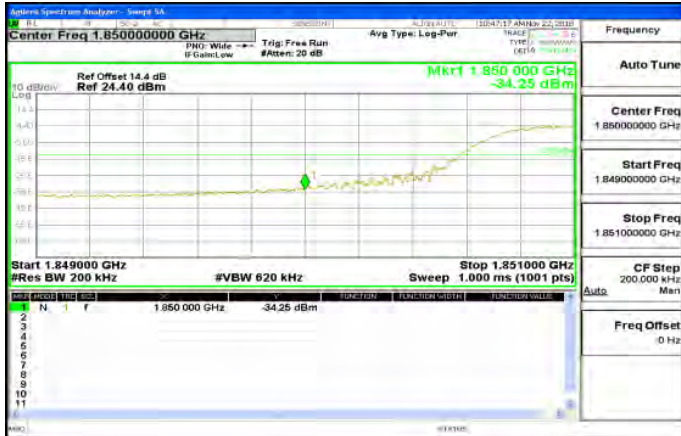
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Band2_15MHz_QPSK_75_0_LowCH18675-1857.5



Band2_20MHz_QPSK_1_99_HighCH19100-1900



Band2_15MHz_QPSK_75_0_HighCH19125-1902.5



Band2_20MHz_QPSK_100_0_LowCH18700-1860



Band2_20MHz_QPSK_1_0_LowCH18700-1860



Band2_20MHz_QPSK_100_0_HighCH19100-1900



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Band4_1_4MHz_QPSK_1_0_LowCH19957-1710.7



Band4_1_4MHz_QPSK_6_0_HighCH20393-1754.3



Band4_1_4MHz_QPSK_1_5_HighCH20393-1754.3



Band4_3MHz_QPSK_1_0_LowCH19965-1711.5



Band4_1_4MHz_QPSK_6_0_LowCH19957-1710.7



Band4_3MHz_QPSK_1_14_HighCH20385-1753.5



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Band4_3MHz_QPSK_15_0_LowCH19965-1711.5



Band4_5MHz_QPSK_1_24_HighCH20375-1752.5



Band4_3MHz_QPSK_15_0_HighCH20385-1753.5



Band4_5MHz_QPSK_25_0_LowCH19975-1712.5



Band4_5MHz_QPSK_1_0_LowCH19975-1712.5



Band4_5MHz_QPSK_25_0_HighCH20375-1752.5



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Band4_10MHz_QPSK_50_0_HighCH20350-1750



Band4_10MHz_QPSK_1_49_HighCH20350-1750



Band4_15MHz_QPSK_1_0_LowCH20025-1717.5



Band4_10MHz_QPSK_50_0_LowCH2000-1715



Band4_15MHz_QPSK_1_74_HighCH20325-1747.5



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Band4_20MHz_QPSK_1_99_HighCH20300-1745



Band4_15MHz_QPSK_75_0_HighCH20325-1747.5



Band4_20MHz_QPSK_100_0_LowCH20050-1720



Band4_20MHz_QPSK_1_0_LowCH20050-1720



Band4_20MHz_QPSK_100_0_HighCH20300-1745



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Band5_1_4MHz_QPSK_6_0_HighCH20643-848.3



Band5_1_4MHz_QPSK_1_5_HighCH20643-848.3



Band5_3MHz_QPSK_1_0_LowCH20415-825.5



Band5_1_4MHz_QPSK_6_0_LowCH20407-824.7



Band5_3MHz_QPSK_1_14_HighCH20635-847.5



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Band5_5MHz_QPSK_1_24_HighCH20625-846.5



Band5_3MHz_QPSK_15_0_HighCH20635-847.5



Band5_5MHz_QPSK_25_0_LowCH20425-826.5



Band5_5MHz_QPSK_1_0_LowCH20425-826.5



Band5_5MHz_QPSK_25_0_HighCH20625-846.5



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Band5_10MHz_QPSK_1_0_LowCH20450-829



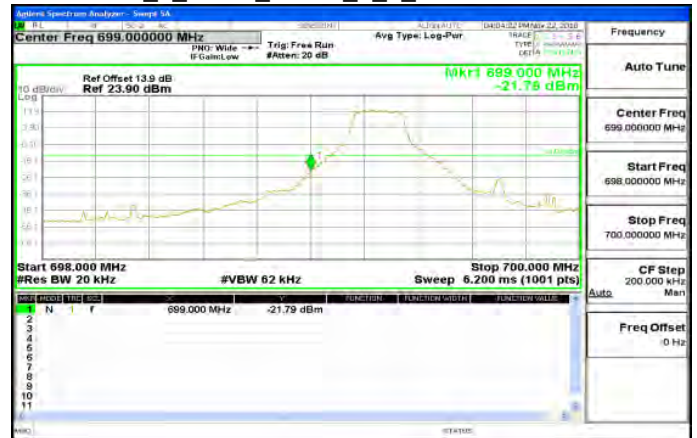
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Band5_10MHz_QPSK_1_49_HighCH20600-844



Band12_1_4MHz_QPSK_1_0_LowCH23017-699.7



Band5_10MHz_QPSK_50_0_LowCH20450-829



Band12_1_4MHz_QPSK_1_5_HighCH23173-715.3



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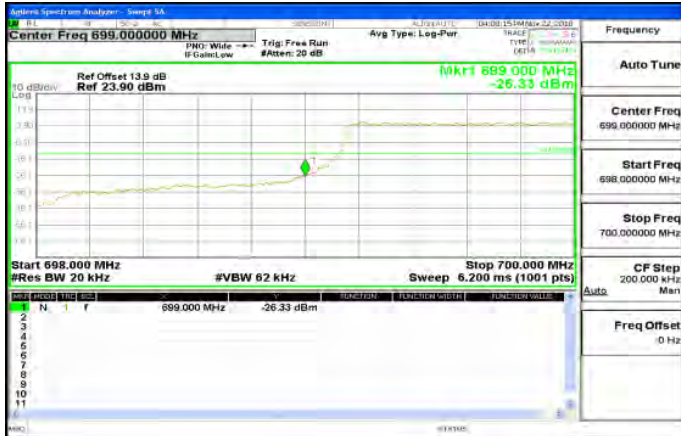
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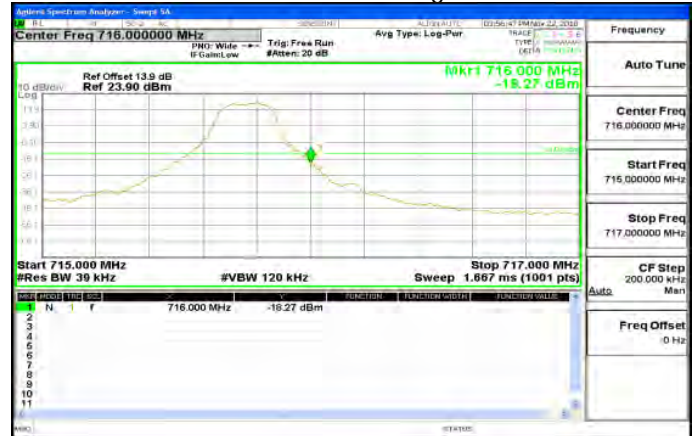
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Band12_1_4MHz_QPSK_6_0_LowCH23017-699.7



Band12_3MHz_QPSK_1_14_HighCH23165-714.5



Band12_1_4MHz_QPSK_6_0_HighCH23173-715.3



Band12_3MHz_QPSK_15_0_LowCH23025-700.5



Band12_3MHz_QPSK_1_0_LowCH23025-700.5



Band12_3MHz_QPSK_15_0_HighCH23165-714.5



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Band12_5MHz_QPSK_1_0_LowCH23035-701.5



Band12_5MHz_QPSK_25_0_HighCH23155-713.5



Band12_5MHz_QPSK_1_24_HighCH23155-713.5



Band12_10MHz_QPSK_1_0_LowCH23060-704



Band12_5MHz_QPSK_25_0_LowCH23035-701.5



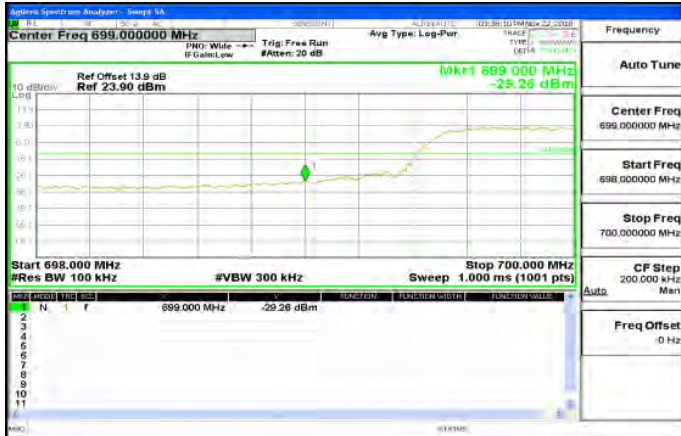
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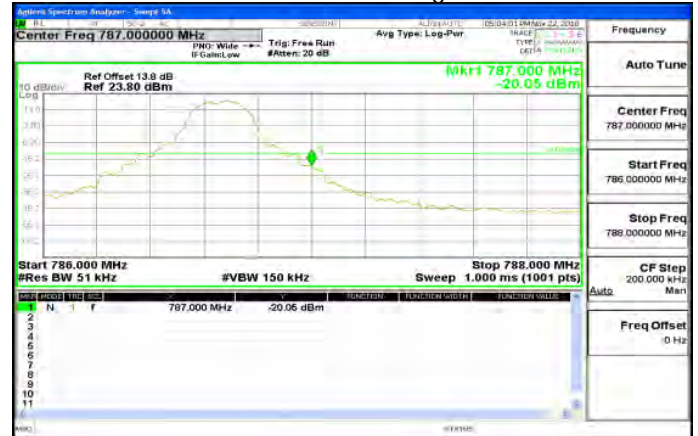
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Band12_10MHz_QPSK_50_0_LowCH23060-704



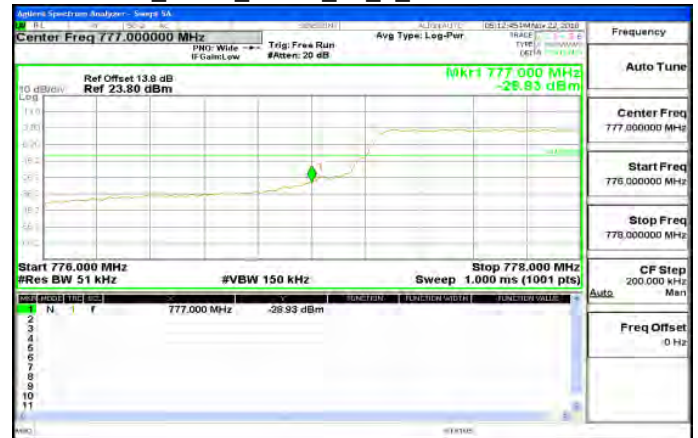
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Band12_10MHz_QPSK_50_0_HighCH23130-711



Band13_5MHz_QPSK_25_0_LowCH23205-779.5



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Band13_5MHz_QPSK_25_0_HighCH23255-784.5



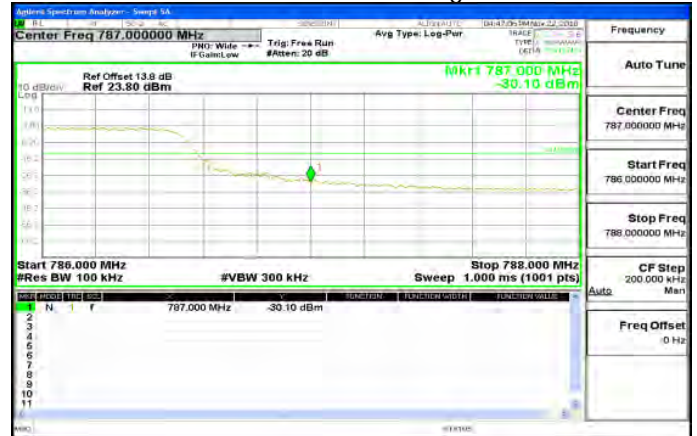
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Band13_10MHz_QPSK_1_0_LowCH23230-782



Band13_10MHz_QPSK_50_0_HighCH23230-782



Band13_10MHz_QPSK_1_49_HighCH23230-782



Band13_10MHz_QPSK_50_0_LowCH23230-782



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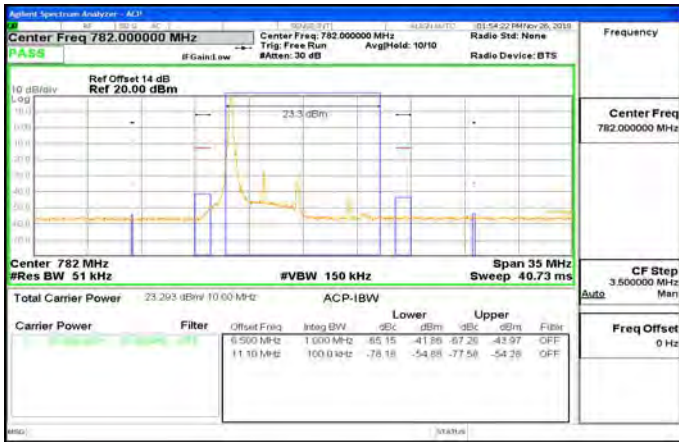
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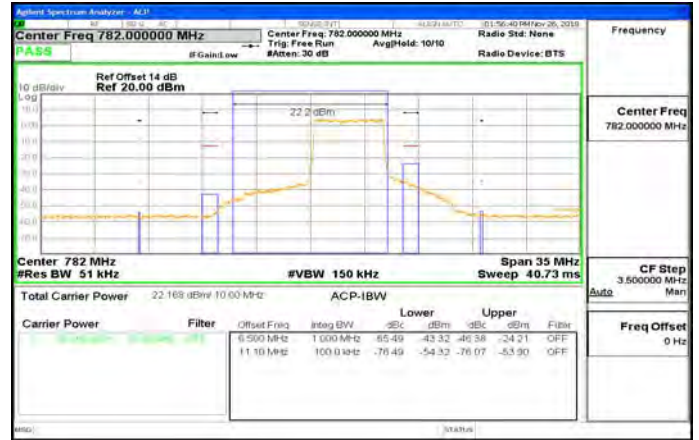
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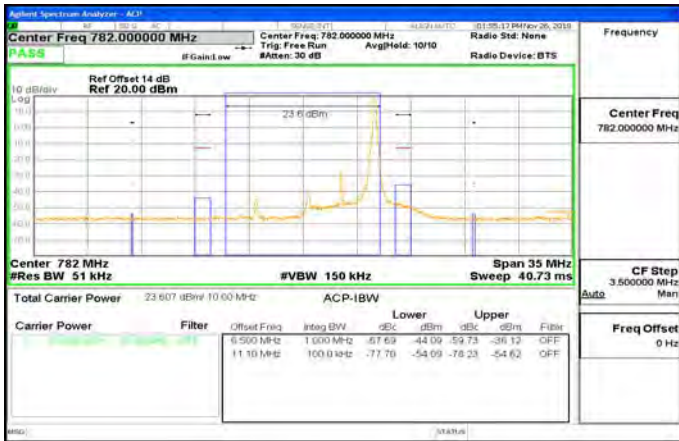
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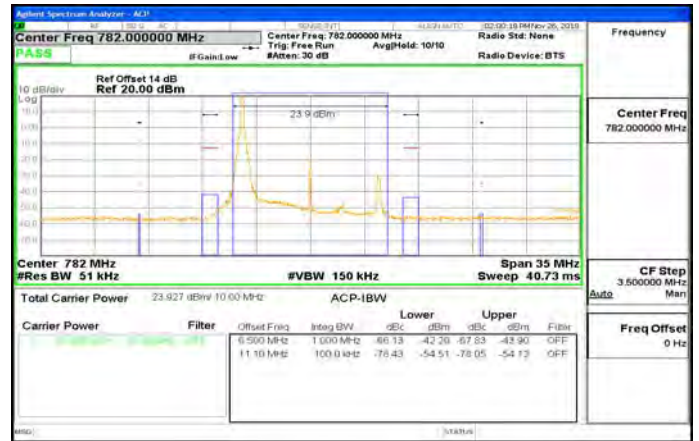
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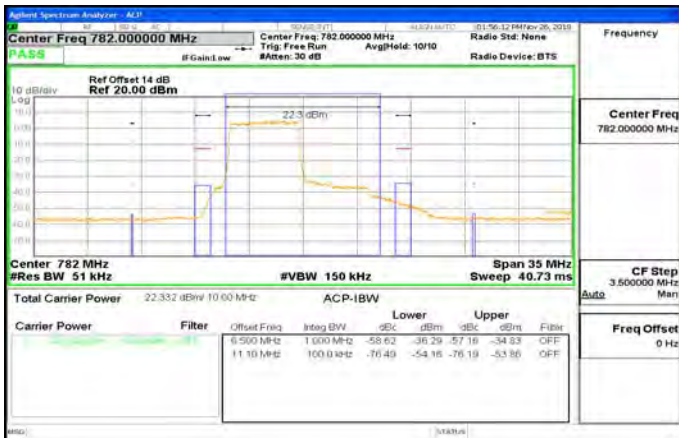
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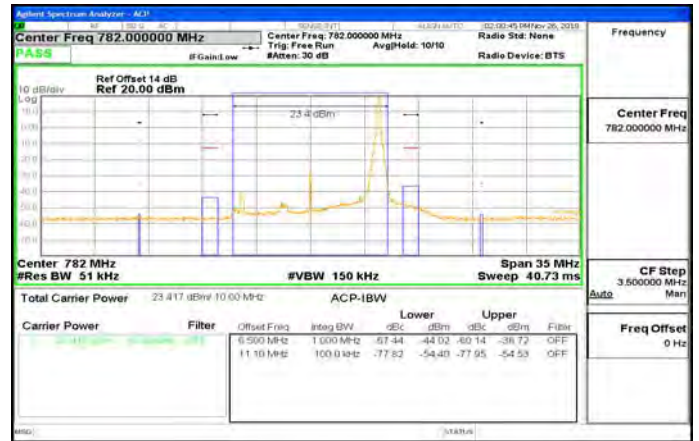
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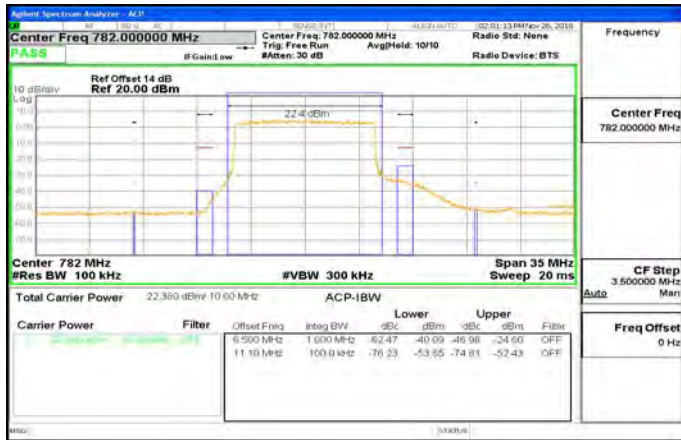


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Band13_10MHz_QPSK_50_0_CH23230



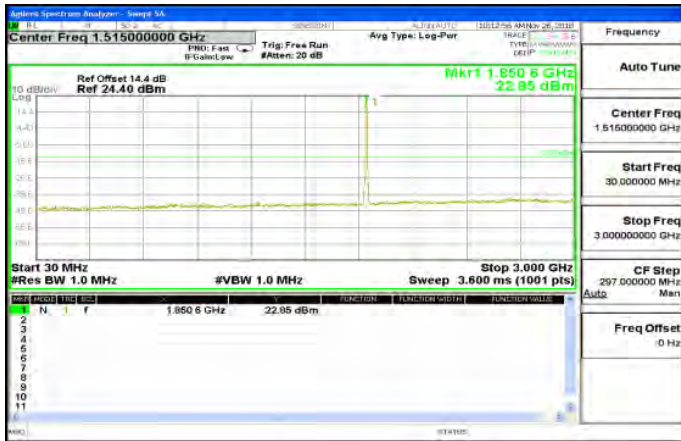
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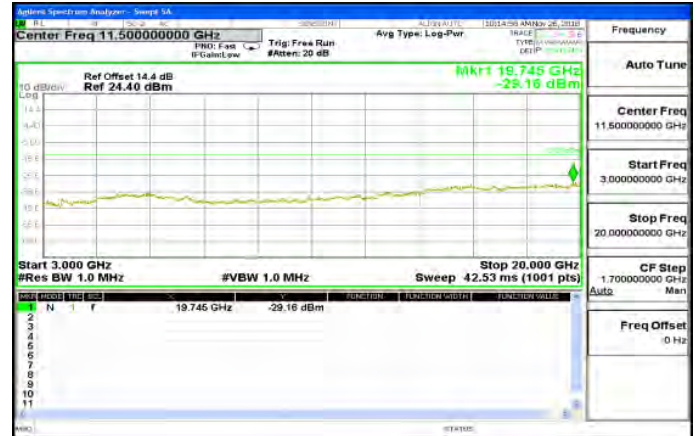
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Out of Band Emission

30MHz-3GHz_WCDMA_B2_LowCH9262-1852.4



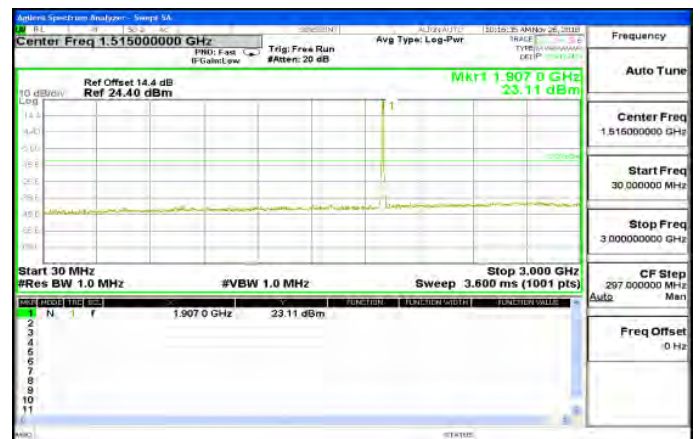
3GHz-10GHz_WCDMA_B2_MidCH9400-1880



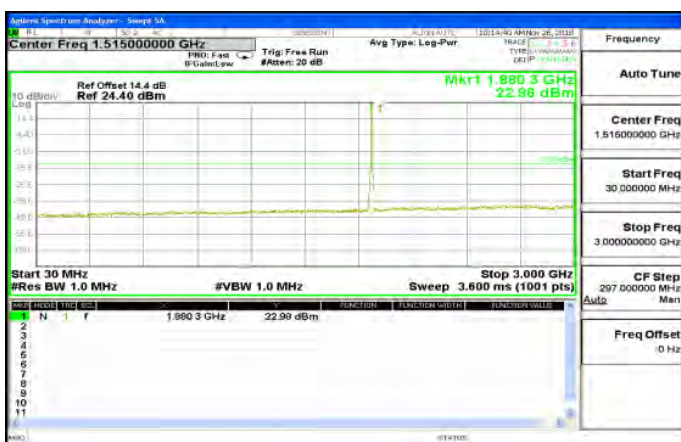
3GHz-10GHz_WCDMA_B2_LowCH9262-1852.4



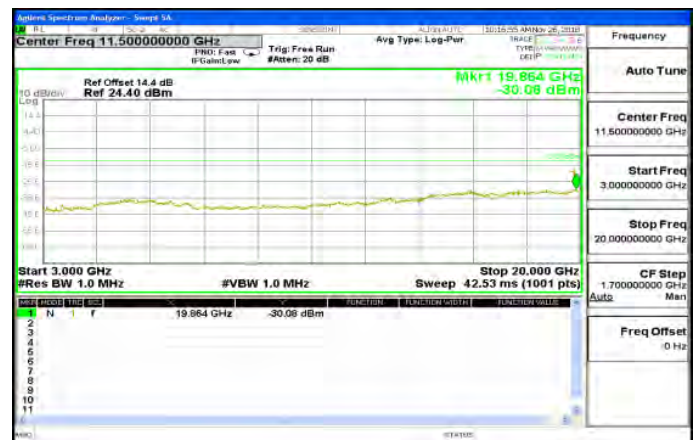
30MHz-3GHz_WCDMA_B2_HighCH9538-1907.6



30MHz-3GHz_WCDMA_B2_MidCH9400-1880



3GHz-10GHz_WCDMA_B2_HighCH9538-1907.6



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