ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 22 SUBPART H, PART 24 SUBPART E and PART 27 SUBPART F, L, H REQUIREMENT

OF

Applicant:	Moxa Inc. 4TH FL 135 LANE 235 BAOQIAO RD XINDIAN DISTRICT NEW TAIPEI CITY 231 TAIWAN
Product Name:	Arm-based platform
Brand Name:	Moxa
Model No.:	UC-8112A-ME-T-LX
Model Difference:	N/A
Report Number:	T190304W05-RP
FCC ID:	SLE-UC8112A
FCC Rule Part:	2 , 22H & 24E & 27F, L, H
Issue Date:	Jun. 26, 2019
Date of Test:	Mar. 04, 2019 ~ Mar. 27, 2019
Date of EUT Received:	Mar. 04, 2019
Issued by:	Compliance Certification Services Inc.Wugu Lab. No.11, Wugong 6th Rd., Wugu Dist., New Taipei City 24891, Taiwan. (R.O.C.) service@ccsrf.com

The test Result was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were given in ANSI C63.26: 2015 and compliance standards.
The test results of this report relate only to the tested sample (EUT) identified in this report
The test Report of full or partial shall not copy. Without written approval of Compliance Certification Services Inc. (Wugu Laboratory).

Tested By: Henry Chiang

Henry Chiang / Engineer

Approved By: Kevin Tsai

Kevin Tsai / Deputy Manager

Revision History

Report Number	Revision	Description	Effected Page	Issue Date	Revised By
T190304W05-RP	Rev.00	Initial creation of document	All	Apr. 29, 2019	Elle Chang
T190304W05-RP	Rev.01	Updated Power Supply	Page 4	Jun. 26, 2019	Elle Chang

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1. GENERAL PRODUCT INFORMATION

1.1. Product Description

General:

Product Name:	Arm-based platform
Brand Name:	Moxa
Model No.:	UC-8112A-ME-T-LX
Model Difference:	N/A
Hardware Version:	N/A
Software Version:	N/A
Power Supply:	12-36Vdc

Antenna Designation

Vendor	Type	Antenna Part No.	Modulation	Frequency (MHz)	Peak Antenna Gain (dBi)
MOXA	Dipole	ANT-LTEUS-ASM-01	WCDMA / HSPA Band II	1852.4 ~ 1907.6	2
			WCDMA / HSPA Band V	826.4 ~ 846.6	1
			LTE Band 2	1850 ~ 1910	2
			LTE Band 4	1710 ~ 1755	2
			LTE Band 5	824 ~ 849	1
			LTE Band 13	777 ~ 787	1
			LTE Band 17	704 ~ 716	1

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)		
2	1.4	1850.7	-	1909.3
	3	1851.5	-	1908.5
	5	1852.5	-	1907.5
	10	1855.0	-	1905.0
	15	1857.5	-	1902.5
	20	1860.0	-	1900.0
4	1.4	1710.7	-	1754.3
	3	1711.5	-	1753.5
	5	1712.5	-	1752.5
	10	1715.0	-	1750.0
	15	1717.5	-	1747.5
	20	1720.0	-	1745.0
5	1.4	824.7	-	848.3
	3	825.5	-	847.5
	5	826.5	-	846.5
	10	829.0	-	844.0
13	5	779.5	-	784.5
	10	782		
17	5	706.5	-	713.5
	10	709.0	-	711.0

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

	ERP / EIRP (dBm)		W	Type of Emission
WCDMA Band II	24.73	EIRP	0.297	4M14F9W
HSDPA Band II	24.71	EIRP	0.296	4M13F9W
HSUPA Band II	24.72	EIRP	0.296	4M12F9W
WCDMA Band V	23.03	ERP	0.201	4M13F9W
HSDPA Band V	22.94	ERP	0.197	4M12F9W
HSUPA Band V	22.95	ERP	0.197	4M13F9W

LTE Band	BW	Modulation	ERP / EIRP (dBm)		(W)	Type of Emission
2	1.4	QPSK	24.64	EIRP	0.291	1M12G7D
		16QAM	24.12	EIRP	0.258	1M12D7W
2	3	QPSK	24.60	EIRP	0.288	2M72G7D
		16QAM	23.50	EIRP	0.224	2M73D7W
2	5	QPSK	24.73	EIRP	0.297	4M53G7D
		16QAM	23.79	EIRP	0.239	4M52D7W
2	10	QPSK	24.53	EIRP	0.284	9M26G7D
		16QAM	23.82	EIRP	0.241	9M27D7W
2	15	QPSK	24.60	EIRP	0.288	13M5G7D
		16QAM	24.10	EIRP	0.257	13M5D7W
2	20	QPSK	24.62	EIRP	0.290	18M0G7D
		16QAM	23.71	EIRP	0.235	18M0D7W

LTE Band	BW	Modulation	ERP / EIRP (dBm)		(W)	Type of Emission
4	1.4	QPSK	25.02	EIRP	0.318	1M12G7D
		16QAM	24.40	EIRP	0.275	1M12D7W
4	3	QPSK	24.97	EIRP	0.314	2M71G7D
		16QAM	24.04	EIRP	0.254	2M72D7W
4	5	QPSK	24.82	EIRP	0.303	4M52G7D
		16QAM	24.29	EIRP	0.269	4M52D7W
4	10	QPSK	25.06	EIRP	0.321	9M02G7D
		16QAM	24.59	EIRP	0.288	8M98D7W
4	15	QPSK	25.15	EIRP	0.327	13M5G7D
		16QAM	24.39	EIRP	0.275	13M5D7W
4	20	QPSK	25.18	EIRP	0.330	17M9G7D
		16QAM	24.47	EIRP	0.280	18M0D7W

LTE Band	BW	Modulation	ERP / EIRP (dBm)		(W)	Type of Emission
5	1.4	QPSK	20.88	ERP	0.122	1M11G7D
		16QAM	20.11	ERP	0.103	1M12D7W
5	3	QPSK	20.87	ERP	0.122	2M71G7D
		16QAM	20.10	ERP	0.102	2M72D7W
5	5	QPSK	20.79	ERP	0.120	4M52G7D
		16QAM	20.14	ERP	0.103	4M52D7W
5	10	QPSK	21.00	ERP	0.126	9M05G7D
		16QAM	20.46	ERP	0.111	9M01D7W

LTE Band	BW	Modulation	ERP / EIRP (dBm)		(W)	Type of Emission
13	5	QPSK	20.93	ERP	0.124	4M53G7D
		16QAM	20.06	ERP	0.101	4M53D7W
13	10	QPSK	20.86	ERP	0.122	8M96G7D
		16QAM	19.63	ERP	0.092	8M94D7W

LTE Band	BW	Modulation	ERP / EIRP (dBm)		(W)	Type of Emission
17	5	QPSK	21.25	ERP	0.133	4M54G7D
		16QAM	20.36	ERP	0.109	4M53D7W
17	10	QPSK	20.86	ERP	0.122	8M98G7D
		16QAM	20.10	ERP	0.102	8M95D7W

1.4. Test Methodology of Applied Standards

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

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

Compliance Certification Services Inc. Wugu Lab. No.11, Wugong 6th Rd.,

Wugu Dist., New Taipei City 24891, Taiwan. (R.O.C.) (TAF code 1309)

FCC Designation number: TW1309

1.6. Special Accessories

No special accessories were used during testing.

1.7. Equipment Modifications

There were no modifications incorporated into the EUT.

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 0.8 m above ground plane. A low loss of RF cable was used to connect the antenna port of EUT to measurement equipment.

2.3.2 Radiated Emissions (ERP/EIRP)

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.

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)	0.2	14.8	15
High Band (Above 1 GHz)	0.4	14.5	14.9

2.5. Final Amplifier Voltage and Current Information:

Test Mode	DC voltage (V)	DC current (mA)
WCDMA B2	24	0.25
WCDMA B5		0.25
LTE Band 2		0.26
LTE Band 4		0.25
LTE Band 5		0.21
LTE Band 13		0.21
LTE Band 17		0.22

2.6. Configuration of Tested System

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

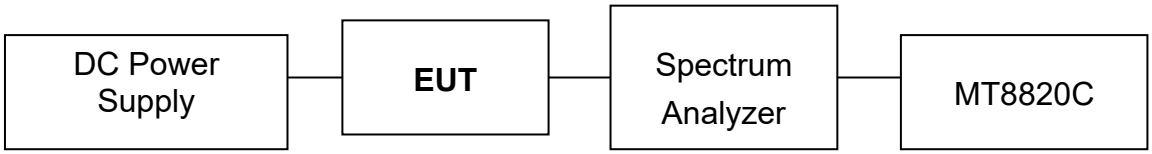
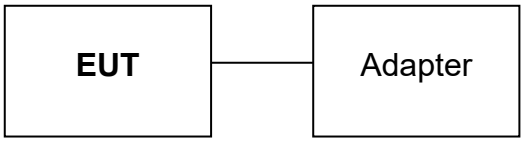


Fig. 2-2 Configuration of Tested System (Fixed Channel-Radiated)



Remote Side

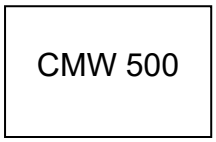
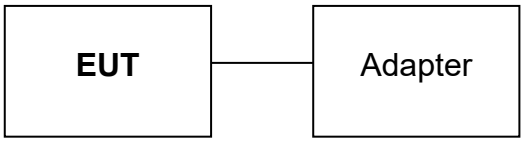


Fig. 2-3 Configuration of Tested System (Fixed Channel-Radiated, Wireless Charging Mode)



Remote Side

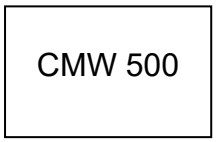


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/ Type No.	Series No.	Data Cable	Power Cord
1.	Wideband Radio Communication Tester	R&S	CMW 500	116875	shielded	Un-shielded
2.	DC Power Supply	Anritsu	E3640A	MY52410006	N/A	Unshielded

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(c)(10) 27.50(d)(4) §27.50(h)(2)	ERP/ EIRP measurement	Compliant
§2.1049(h)	99% & 26dB Occuupied Bandwidth	Compliant
§2.1051 §22.917(a) §24.238(a) §27.53(g) (h) §27.53(m)(4)	Out of Band Emissions at Antenna Terminals and Band Edge / Emission mask requirements	Compliant
§2.1053 §22.917(a) §24.238(a) §27.53(g) (h) §27.53(m)(4)	Field Strength of Spurious Radiation	Compliant
§24.232(d)	Peak to Average Ratio	Compliant
§2.1055(a)(1) §22.355 §24.235 §27.54	Frequency Stability	Compliant

4. DESCRIPTION OF TEST MODES

4.1. The Worst Test Modes and Channel Details

1. The EUT has been tested under operating condition.
2. Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, X(E1)Y(E2)Z(H) axis and antenna ports. The worst case was found as listed below. Following channel(s) was (were) selected for the final test as listed below:

BAND	RADIATED EMISSION and Wireless charging Cover
WCDMA/HSPA Band II	H-plan
WCDMA/HSPA Band V	H-plan
LTE Band 2	H-plan
LTE Band 4	H-plan
LTE Band 5	H-plan
LTE Band 13	H-plan
LTE Band 17	H-plan

Note: Additional emissions testing were performed per KDB 648474 D03 and reported herein and identified as WPC. Per KDB 648474 D03, spurious emissions measurement data was also investigated with the wireless charging battery cover.

WCDMA/HSPA MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
ERP	4132 to 4233	4132, 4183, 4233	WCDMA/HSPA Band V
EIRP	9262 to 9538	9262, 9400, 9583	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, 9583	WCDMA/HSPA Band II WCDMA/HSPA Band V
PEAK TO AVERAGE RATIO	4132 to 4233 9262 to 9538	4132, 4183, 4233 9262, 9400, 9583	WCDMA/HSPA Band II WCDMA/HSPA Band V
BAND EDGE	4132 to 4233 9262 to 9538	4132, 4233 9262, 9583	WCDMA Band II WCDMA Band V
CONDCUDETED EMISSION	4132 to 4233 9262 to 9538	4132, 4183, 4233 9262, 9400, 9583	WCDMA Band II WCDMA Band V
RADIATED EMISSION	4132 to 4233 9262 to 9538	4132, 4183, 4233 9262, 9400, 9583	HSDPA Band II WCDMA Band V

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, 64QAM	1 RB/ 0,5 RB Offest
	18615 to 19185	18615, 18900, 19185	3MHz	QPSK, 16QAM, 64QAM	1 RB/ 0,14 RB Offest
	18625 to 19175	18625, 18900, 19175	5MHz	QPSK, 16QAM, 64QAM	1 RB/ 0,24 RB Offest
	18650 to 19150	18650, 18900, 19150	10MHz	QPSK, 16QAM, 64QAM	1 RB/ 0,49 RB Offest
	18675 to 19125	18675, 18900, 19125	15MHz	QPSK, 16QAM, 64QAM	1 RB/ 0,74 RB Offest
	18700 to 19100	18700, 18900, 19100	20MHz	QPSK, 16QAM, 64QAM	1 RB/ 0,99 RB Offest
FREQUENCY STA-BILITY	18650 to 19150	18900	10MHz	QPSK,	Full RB
OCCUPIED BAND-WIDTH	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK, 16QAM, 64QAM	Full RB
	18615 to 19185	18615, 18900, 19185	3MHz	QPSK, 16QAM, 64QAM	Full RB
	18625 to 19175	18625, 18900, 19175	5MHz	QPSK, 16QAM, 64QAM	Full RB
	18650 to 19150	18650, 18900, 19150	10MHz	QPSK, 16QAM, 64QAM	Full RB
	18675 to 19125	18675, 18900, 19125	15MHz	QPSK, 16QAM, 64QAM	Full RB
	18700 to 19100	18700, 18900, 19100	20MHz	QPSK, 16QAM, 64QAM	Full RB
PEAK TO AVERAGE RATIO	18607 to 19193	18607, 18900, 19193	1.4MHz	64QAM	Full RB
	18615 to 19185	18615, 18900, 19185	3MHz	64QAM	Full RB
	18625 to 19175	18625, 18900, 19175	5MHz	64QAM	Full RB
	18650 to 19150	18650, 18900, 19150	10MHz	64QAM	Full RB
	18675 to 19125	18675, 18900, 19125	15MHz	64QAM	Full RB
	18700 to 19100	18700, 18900, 19100	20MHz	64QAM	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
CONDCUDETED 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 EMIS-SION	18625 to 19175	18625, 18900, 19175	3MHz	QPSK	1 RB, 14 RB Offest

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, 64QAM	1 RB/ 0,5 RB Offest
	19965 to 22385	19965, 20175, 22385	3MHz	QPSK, 16QAM, 64QAM	1 RB/ 0,14 RB Offest
	19975 to 20375	19975, 20175, 20375	5MHz	QPSK, 16QAM, 64QAM	1 RB/ 0,24 RB Offest
	20000 to 20350	20000, 20175, 20350	10MHz	QPSK, 16QAM, 64QAM	1 RB/ 0,49 RB Offest
	20025 to 20325	20025, 20175, 20325	15MHz	QPSK, 16QAM, 64QAM	1 RB/ 0,74 RB Offest
	20050 to 20300	20050, 20175, 20300	20MHz	QPSK, 16QAM, 64QAM	1 RB/ 0,99 RB Offest
FREQUENCY STA-BILITY	20000 to 20350	20175	10MHz	QPSK,	Full RB
OCCUPIED BAND-WIDTH	19957 to 19393	19957, 20175, 19393	1.4MHz	QPSK, 16QAM, 64QAM	Full RB
	19965 to 22385	19965, 20175, 22385	3MHz	QPSK, 16QAM, 64QAM	Full RB
	19975 to 20375	19975, 20175, 20375	5MHz	QPSK, 16QAM, 64QAM	Full RB
	20000 to 20350	20000, 20175, 20350	10MHz	QPSK, 16QAM, 64QAM	Full RB
	20025 to 20325	20025, 20175, 20325	15MHz	QPSK, 16QAM, 64QAM	Full RB
	20050 to 20300	20050, 20175, 20300	20MHz	QPSK, 16QAM, 64QAM	Full RB
PEAK TO AVERAGE RATIO	19957 to 19393	19957, 20175, 19393	1.4MHz	64QAM	Full RB
	19965 to 22385	19965, 20175, 22385	3MHz	64QAM	Full RB
	19975 to 20375	19975, 20175, 20375	5MHz	64QAM	Full RB
	20000 to 20350	20000, 20175, 20350	10MHz	64QAM	Full RB
	20025 to 20325	20025, 20175, 20325	15MHz	64QAM	Full RB
	20050 to 20300	20050, 20175, 20300	20MHz	64QAM	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
CONDCUDETED 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 EMIS-SION	20000 to 20350	20000, 20175, 20350	10MHz	QPSK,	1 RB, 49 RB Offest

LTE Band 5 MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
ERP	20470 to 20643	20470, 20525, 20643	1.4MHz	QPSK, 16QAM, 64QAM	1 RB/ 0,5 RB Offest
	20415 to 20635	20415, 20525, 20635	3MHz	QPSK, 16QAM, 64QAM	1 RB/ 0,14 RB Offest
	20425 to 20625	20425, 20525, 20625	5MHz	QPSK, 16QAM, 64QAM	1 RB/ 0,24 RB Offest
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK, 16QAM, 64QAM	1 RB/ 0,49 RB Offest
FREQUENCY STABILITY	20450 to 20600	20525	10MHz	QPSK	Full RB
OCCUPIED BAND-WIDTH	20470 to 20643	20470, 20525, 20643	1.4MHz	QPSK, 16QAM, 64QAM	Full RB
	20415 to 20635	20415, 20525, 20635	3MHz	QPSK, 16QAM, 64QAM	Full RB
	20425 to 20625	20425, 20525, 20625	5MHz	QPSK, 16QAM, 64QAM	Full RB
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK, 16QAM, 64QAM	Full RB
PEAK TO AVERAGE RATIO	20470 to 20643	20470, 20525, 20643	1.4MHz	64QAM	Full RB
	20415 to 20635	20415, 20525, 20635	3MHz	64QAM	Full RB
	20425 to 20625	20425, 20525, 20625	5MHz	64QAM	Full RB
	20450 to 20600	20450, 20525, 20600	10MHz	64QAM	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
CONDCUDETED 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	20450 to 20600	20450, 20525, 20600	10MHz	QPSK	1 RB, 0 RB Offest

LTE Band 13 MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
ERP	23205 to 23255	23205, 23230, 23255	5MHz	QPSK, 16QAM, 64QAM	1 RB/ 0,24 RB Offest
	23230	23230	10MHz	QPSK, 16QAM, 64QAM	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, 64QAM	Full RB
	23230	23230	10MHz	QPSK, 16QAM, 64QAM	Full RB
PEAK TO AVERAGE RATIO	23205 to 23255	23205, 23230, 23255	5MHz	64QAM	Full RB
	23230	23230	10MHz	64QAM	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
CONDCUDETED 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	23205 to 23255	23205, 23230, 23255	5MHz	16QAM	1 RB/ 0 RB Offest

LTE Band 17 MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
ERP	23755 to 23825	23755, 23790, 23825	5MHz	QPSK, 16QAM, 64QAM	1 RB/ 0,24 RB Offest
	23780 to 23800	23780, 23790, 23800	10MHz	QPSK, 16QAM, 64QAM	1 RB/ 0,49 RB Offest
FREQUENCY STABILITY	23780 to 23800	23790	10MHz	QPSK	Full RB
OCCUPIED BANDWIDTH	23755 to 23825	23755, 23790, 23825	5MHz	QPSK, 16QAM, 64QAM	Full RB
	23780 to 23800	23780, 23790, 23800	10MHz	QPSK, 16QAM, 64QAM	Full RB
PEAK TO AVERAGE RATIO	23755 to 23825	23755, 23790, 23825	5MHz	64QAM	Full RB
	23780 to 23800	23780, 23790, 23800	10MHz	64QAM	Full RB
BAND EDGE	23755 to 23825	23755, 23825	5MHz	QPSK	1 RB/ 0,24 RB Offest Full RB
	23780 to 23800	23780, 23800	10MHz	QPSK	1 RB/ 0,49 RB Offest Full RB
CONDCUDETED EMISSION	23755 to 23825	23755, 23790, 23825	5MHz	QPSK	1 RB, 0 RB Offest
	23780 to 23800	23780, 23790, 23800	10MHz	QPSK	1 RB, 0 RB Offest
RADIATED EMISSION	23780 to 23800	23780, 23790, 23800	10MHz	QPSK	1 RB, 49 RB Offest

5. MEASUREMENT UNCERTAINTY

Test Items	Uncertainty
RF Output Power	+/- 1.15 dB
99% Occupied Bandwidth	+/- 0.89%
Out of Band Emissions at Antenna Terminals and Band Edge	+/- 0.89 dB
Frequency Stability vs. Temperature	+/- 2.64 Hz
3M Semi Anechoic Chamber / 30M~200M	+/- 4.12 dB
3M Semi Anechoic Chamber / 200MHz ~ 1GHz	+/- 4.68
3M Semi Anechoic Chamber / 1GHz ~ 8GHz	+/- 5.18
3M Semi Anechoic Chamber / 8GHz ~ 18GHz	+/- 5.47
3M Semi Anechoic Chamber / 18GHz ~ 26GHz	+/- 3.81
3M Semi Anechoic Chamber / 26GHz ~ 40GHz	+/- 3.87

Note:

1. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
2. ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report.
3. The conformity assessment statement in this report is based solely on the test results, measurement uncertainty is excluded.

6. RF CONDUCTED OUTPUT POWER MEASUREMENT

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

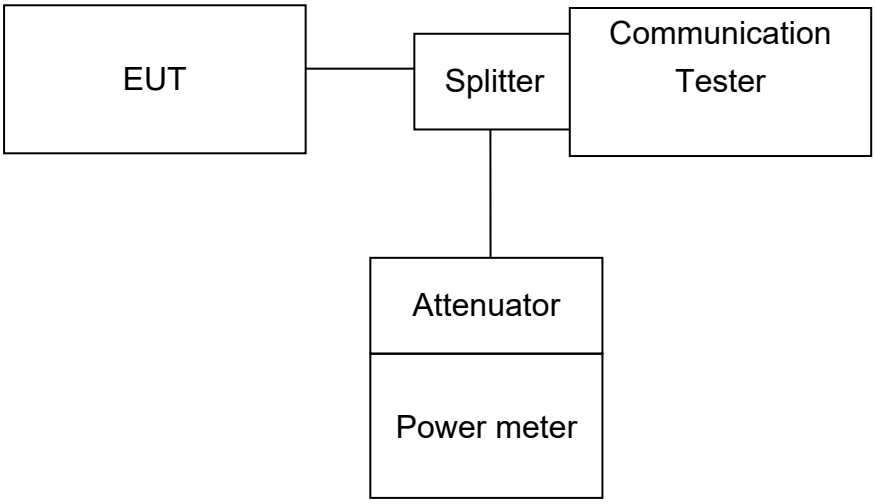
FCC 24.232(b) Mobile and portable stations are limited to 2 W EIRP.

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

FCC 27.50(d)(4) Mobile and portable (hand-held) stations are limited to 1 watts 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*

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, (WCDMA/HSPA) was used for EUT and Base station setting. RMC 12.2kps is used for this testing, and KDB 971168 D01 Power Meas License Digital System as the supplemental test methodology to adjust the proper setting obtaining the measurement results

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

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

ERP/EIRP = PMeas + 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.2

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.

6.4. Measurement Equipment Used

EQUIPMENT TYPE	MFR	MODEL NUM-BER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Radio Communica-tion Analyer	Anritsu	MT8820C	6201465316	03/31/2018	03/30/2019
Spectrum Analyzer	Agilent	N9010A	MY51440113	06/20/2018	06/19/2019
DC Block	PASTERNACK	PE8210	RF29	02/26/2019	02/25/2020
Splitter	Woken	DOM35LW1A2	RF36	02/26/2019	02/25/2020
Attenuator	Marvelous	WATT-218FS-10	RF245	02/26/2019	02/25/2020
Coaxial Cables	Woken	00100A1F1A185C	RF12	02/26/2019	02/25/2020
Coaxial Cables	Woken	00100A1F1A185C	RF202	02/26/2019	02/25/2020
DC Power Supply	Agilent	E3640A	MY40000811	12/11/2018	12/10/2019

6.5. Measurement Result

RF Conducted Output PowerWCDMA MODE:

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 V8.4.0 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)	ERP (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
WCDMA	1852.4	9262	22.12	2.00	21.97	24.12	33.00	-8.88
	1880.0	9400	22.73	2.00	22.58	24.73	33.00	-8.27
	1907.6	9538	22.71	2.00	22.56	24.71	33.00	-8.29
HSDPA	1852.4	9262	22.06	2.00	21.91	24.06	33.00	-8.94
	1880.0	9400	22.71	2.00	22.56	24.71	33.00	-8.29
	1907.6	9538	22.64	2.00	22.49	24.64	33.00	-8.36
HSUPA	1852.4	9262	22.11	2.00	21.96	24.11	33.00	-8.89
	1880.0	9400	22.72	2.00	22.57	24.72	33.00	-8.28
	1907.6	9538	22.65	2.00	22.50	24.65	33.00	-8.35

WCDMA/HSUPA/HSDPA Band V Result:

EUT Mode	Freq. (MHz)	CH	Conducted Avg. Power (dBm)	Antenna Gain (dBi)	ERP (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
WCDMA	826.4	4132	21.88	1.00	20.73	22.88	38.50	-15.62
	836.6	4183	21.91	1.00	20.76	22.91	38.50	-15.59
	846.6	4233	22.03	1.00	20.88	23.03	38.50	-15.47
HSDPA	826.4	4132	21.73	1.00	20.58	22.73	38.50	-15.77
	836.6	4183	21.84	1.00	20.69	22.84	38.50	-15.66
	846.6	4233	21.94	1.00	20.79	22.94	38.50	-15.56
HSUPA	826.4	4132	21.83	1.00	20.68	22.83	38.50	-15.67
	836.6	4183	21.86	1.00	20.71	22.86	38.50	-15.64
	846.6	4233	21.95	1.00	20.80	22.95	38.50	-15.55

LTE Result:

FDD Band 2

Antenna gain (dBi) 2

LTE Band 2_Uplink frequency band : 1850 to 1910 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
1.4	18607	1850.7	QPSK	1	0	22.03	24.03	33	-8.97
				1	5	21.99	23.99	33	-9.01
				3	2	21.99	23.99	33	-9.01
				6	0	20.90	22.90	33	-10.1
	18900	1880	QPSK	1	0	22.62	24.62	33	-8.38
				1	5	22.64	24.64	33	-8.36
				3	2	22.64	24.64	33	-8.36
				6	0	21.81	23.81	33	-9.19
	19193	1909.3	QPSK	1	0	22.50	24.50	33	-8.5
				1	5	22.43	24.43	33	-8.57
				3	2	22.44	24.44	33	-8.56
				6	0	21.56	23.56	33	-9.44
	18607	1850.7	16QAM	1	0	21.34	23.34	33	-9.66
				1	5	21.20	23.20	33	-9.8
				3	2	20.98	22.98	33	-10.02
				6	0	20.15	22.15	33	-10.85
	18900	1880	16QAM	1	0	22.12	24.12	33	-8.88
				1	5	21.92	23.92	33	-9.08
				3	2	21.73	23.73	33	-9.27
				6	0	20.84	22.84	33	-10.16
	19193	1909.3	16QAM	1	0	21.77	23.77	33	-9.23
				1	5	21.64	23.64	33	-9.36
				3	2	21.57	23.57	33	-9.43
				6	0	20.56	22.56	33	-10.44

Antenna gain (dBi) 2

LTE Band 2_Uplink frequency band : 1850 to 1910 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
3	18615	1851.5	QPSK	1	0	21.97	23.97	33	-9.03
				1	14	21.80	23.80	33	-9.2
				8	4	21.04	23.04	33	-9.96
				15	0	21.00	23.00	33	-10
	18900	1880	QPSK	1	0	22.60	24.60	33	-8.4
				1	14	22.40	24.40	33	-8.6
				8	4	21.77	23.77	33	-9.23
				15	0	21.32	23.32	33	-9.68
	19185	1908.5	QPSK	1	0	22.53	24.53	33	-8.47
				1	14	22.22	24.22	33	-8.78
				8	4	21.61	23.61	33	-9.39
				15	0	21.67	23.67	33	-9.33
	18615	1851.5	16QAM	1	0	20.93	22.93	33	-10.07
				1	14	21.02	23.02	33	-9.98
				8	4	20.19	22.19	33	-10.81
				15	0	20.18	22.18	33	-10.82
	18900	1880	16QAM	1	0	21.50	23.50	33	-9.5
				1	14	21.24	23.24	33	-9.76
				8	4	20.87	22.87	33	-10.13
				15	0	20.75	22.75	33	-10.25
	19185	1908.5	16QAM	1	0	20.85	22.85	33	-10.15
				1	14	21.11	23.11	33	-9.89
				8	4	20.51	22.51	33	-10.49
				15	0	20.51	22.51	33	-10.49

Antenna gain (dBi) 2

LTE Band 2_Uplink frequency band : 1850 to 1910 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
5	18625	1852.5	QPSK	1	0	22.11	24.11	33	-8.89
				1	24	21.86	23.86	33	-9.14
				12	6	21.05	23.05	33	-9.95
				25	0	21.05	23.05	33	-9.95
	18900	1880	QPSK	1	0	22.73	24.73	33	-8.27
				1	24	22.34	24.34	33	-8.66
				12	6	21.76	23.76	33	-9.24
				25	0	21.72	23.72	33	-9.28
	19175	1907.5	QPSK	1	0	22.31	24.31	33	-8.69
				1	24	22.32	24.32	33	-8.68
				12	6	21.68	23.68	33	-9.32
				25	0	21.58	23.58	33	-9.42
	18625	1852.5	16QAM	1	0	21.49	23.49	33	-9.51
				1	24	21.16	23.16	33	-9.84
				12	6	20.14	22.14	33	-10.86
				25	0	20.09	22.09	33	-10.91
	18900	1880	16QAM	1	0	21.79	23.79	33	-9.21
				1	24	21.61	23.61	33	-9.39
				12	6	20.79	22.79	33	-10.21
				25	0	20.75	22.75	33	-10.25
	19175	1907.5	16QAM	1	0	20.73	22.73	33	-10.27
				1	24	20.71	22.71	33	-10.29
				12	6	20.68	22.68	33	-10.32
				25	0	20.54	22.54	33	-10.46

Antenna gain (dBi) 2

LTE Band 2_Uplink frequency band : 1850 to 1910 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
10	18650	1855	QPSK	1	0	22.05	24.05	33	-8.95
				1	49	21.81	23.81	33	-9.19
				25	12	20.91	22.91	33	-10.09
				50	0	20.93	22.93	33	-10.07
	18900	1880	QPSK	1	0	22.53	24.53	33	-8.47
				1	49	22.26	24.26	33	-8.74
				25	12	21.70	23.70	33	-9.3
				50	0	21.58	23.58	33	-9.42
	19150	1905	QPSK	1	0	21.87	23.87	33	-9.13
				1	49	22.35	24.35	33	-8.65
				25	12	21.25	23.25	33	-9.75
				50	0	21.25	23.25	33	-9.75
	18650	1855	16QAM	1	0	21.30	23.30	33	-9.7
				1	49	21.05	23.05	33	-9.95
				25	12	19.99	21.99	33	-11.01
				50	0	20.08	22.08	33	-10.92
	18900	1880	16QAM	1	0	21.79	23.79	33	-9.21
				1	49	21.59	23.59	33	-9.41
				25	12	20.68	22.68	33	-10.32
				50	0	20.55	22.55	33	-10.45
	19150	1905	16QAM	1	0	21.34	23.34	33	-9.66
				1	49	21.82	23.82	33	-9.18
				25	12	20.20	22.20	33	-10.8
				50	0	20.31	22.31	33	-10.69

Antenna gain (dBi) 2

LTE Band 2_Uplink frequency band : 1850 to 1910 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
15	18675	1857.5	QPSK	1	0	21.90	23.90	33	-9.1
				1	74	21.77	23.77	33	-9.23
				36	18	20.80	22.80	33	-10.2
				75	0	20.83	22.83	33	-10.17
	18900	1880	QPSK	1	0	22.60	24.60	33	-8.4
				1	74	22.41	24.41	33	-8.59
				36	18	21.58	23.58	33	-9.42
				75	0	21.62	23.62	33	-9.38
	19125	1902.5	QPSK	1	0	21.61	23.61	33	-9.39
				1	74	22.28	24.28	33	-8.72
				36	18	21.29	23.29	33	-9.71
				75	0	21.29	23.29	33	-9.71
	18675	1857.5	16QAM	1	0	20.91	22.91	33	-10.09
				1	74	20.98	22.98	33	-10.02
				36	18	19.60	21.60	33	-11.4
				75	0	19.89	21.89	33	-11.11
	18900	1880	16QAM	1	0	21.27	23.27	33	-9.73
				1	74	21.29	23.29	33	-9.71
				36	18	20.49	22.49	33	-10.51
				75	0	20.54	22.54	33	-10.46
	19125	1902.5	16QAM	1	0	21.12	23.12	33	-9.88
				1	74	22.10	24.10	33	-8.9
				36	18	20.29	22.29	33	-10.71
				75	0	20.28	22.28	33	-10.72

Antenna gain (dBi) 2

LTE Band 2_Uplink frequency band : 1850 to 1910 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
20	18700	1860	QPSK	1	0	22.08	24.08	33	-8.92
				1	99	22.22	24.22	33	-8.78
				50	25	20.76	22.76	33	-10.24
				100	0	20.64	22.64	33	-10.36
	18900	1880	QPSK	1	0	22.62	24.62	33	-8.38
				1	99	22.46	24.46	33	-8.54
				50	25	21.51	23.51	33	-9.49
				100	0	21.64	23.64	33	-9.36
	19100	1900	QPSK	1	0	21.68	23.68	33	-9.32
				1	99	22.51	24.51	33	-8.49
				50	25	20.90	22.90	33	-10.1
				100	0	21.08	23.08	33	-9.92
	18700	1860	16QAM	1	0	20.89	22.89	33	-10.11
				1	99	21.03	23.03	33	-9.97
				50	25	19.81	21.81	33	-11.19
				100	0	20.00	22.00	33	-11
	18900	1880	16QAM	1	0	21.60	23.60	33	-9.4
				1	99	21.37	23.37	33	-9.63
				50	25	20.45	22.45	33	-10.55
				100	0	20.49	22.49	33	-10.51
	19100	1900	16QAM	1	0	20.59	22.59	33	-10.41
				1	99	21.71	23.71	33	-9.29
				50	25	20.05	22.05	33	-10.95
				100	0	20.18	22.18	33	-10.82

FDD Band 4

Antenna gain (dBi) 2

LTE Band 4_Uplink frequency band : 1710 to 1755 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
1.4	19957	1710.7	QPSK	1	0	22.62	24.62	30	-5.38
				1	5	22.70	24.70	30	-5.3
				3	2	22.65	24.65	30	-5.35
				6	0	21.56	23.56	30	-6.44
	20175	1732.5	QPSK	1	0	23.00	25.00	30	-5
				1	5	22.91	24.91	30	-5.09
				3	2	23.02	25.02	30	-4.98
				6	0	22.09	24.09	30	-5.91
	20393	1754.3	QPSK	1	0	22.56	24.56	30	-5.44
				1	5	22.64	24.64	30	-5.36
				3	2	22.57	24.57	30	-5.43
				6	0	21.61	23.61	30	-6.39
	19957	1710.7	16QAM	1	0	21.91	23.91	30	-6.09
				1	5	21.88	23.88	30	-6.12
				3	2	21.37	23.37	30	-6.63
				6	0	20.63	22.63	30	-7.37
	20175	1732.5	16QAM	1	0	22.40	24.40	30	-5.6
				1	5	22.36	24.36	30	-5.64
				3	2	22.01	24.01	30	-5.99
				6	0	21.25	23.25	30	-6.75
	20393	1754.3	16QAM	1	0	21.96	23.96	30	-6.04
				1	5	22.13	24.13	30	-5.87
				3	2	21.58	23.58	30	-6.42
				6	0	20.69	22.69	30	-7.31

Antenna gain (dBi) 2

LTE Band 4_Uplink frequency band : 1710 to 1755 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
3	19965	1711.5	QPSK	1	0	22.50	24.50	30	-5.5
				1	14	22.67	24.67	30	-5.33
				8	4	21.66	23.66	30	-6.34
				15	0	21.65	23.65	30	-6.35
	20175	1732.5	QPSK	1	0	22.97	24.97	30	-5.03
				1	14	22.85	24.85	30	-5.15
				8	4	22.11	24.11	30	-5.89
				15	0	22.09	24.09	30	-5.91
	20385	1753.5	QPSK	1	0	22.47	24.47	30	-5.53
				1	14	22.62	24.62	30	-5.38
				8	4	21.63	23.63	30	-6.37
				15	0	21.65	23.65	30	-6.35
	19965	1711.5	16QAM	1	0	21.27	23.27	30	-6.73
				1	14	21.66	23.66	30	-6.34
				8	4	20.63	22.63	30	-7.37
				15	0	20.57	22.57	30	-7.43
	20175	1732.5	16QAM	1	0	22.00	24.00	30	-6
				1	14	21.89	23.89	30	-6.11
				8	4	21.07	23.07	30	-6.93
				15	0	21.09	23.09	30	-6.91
	20385	1753.5	16QAM	1	0	21.92	23.92	30	-6.08
				1	14	22.04	24.04	30	-5.96
				8	4	20.71	22.71	30	-7.29
				15	0	20.56	22.56	30	-7.44

Antenna gain (dBi) 2

LTE Band 4_Uplink frequency band : 1710 to 1755 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
5	19975	1712.5	QPSK	1	0	22.61	24.61	30	-5.39
				1	24	22.56	24.56	30	-5.44
				12	6	21.63	23.63	30	-6.37
				25	0	21.64	23.64	30	-6.36
	20175	1732.5	QPSK	1	0	22.82	24.82	30	-5.18
				1	24	22.78	24.78	30	-5.22
				12	6	22.10	24.10	30	-5.9
				25	0	22.11	24.11	30	-5.89
	20375	1752.5	QPSK	1	0	22.53	24.53	30	-5.47
				1	24	22.70	24.70	30	-5.3
				12	6	21.59	23.59	30	-6.41
				25	0	21.60	23.60	30	-6.4
	19975	1712.5	16QAM	1	0	21.84	23.84	30	-6.16
				1	24	21.83	23.83	30	-6.17
				12	6	20.55	22.55	30	-7.45
				25	0	20.65	22.65	30	-7.35
	20175	1732.5	16QAM	1	0	22.29	24.29	30	-5.71
				1	24	22.25	24.25	30	-5.75
				12	6	21.13	23.13	30	-6.87
				25	0	21.14	23.14	30	-6.86
	20375	1752.5	16QAM	1	0	21.73	23.73	30	-6.27
				1	24	21.66	23.66	30	-6.34
				12	6	20.46	22.46	30	-7.54
				25	0	20.60	22.60	30	-7.4

Antenna gain (dBi) 2

LTE Band 4_Uplink frequency band : 1710 to 1755 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
10	20000	1715	QPSK	1	0	22.62	24.62	30	-5.38
				1	49	22.47	24.47	30	-5.53
				25	12	21.56	23.56	30	-6.44
				50	0	21.56	23.56	30	-6.44
	20175	1732.5	QPSK	1	0	23.06	25.06	30	-4.94
				1	49	23.04	25.04	30	-4.96
				25	12	22.16	24.16	30	-5.84
				50	0	22.15	24.15	30	-5.85
	20375	1750	QPSK	1	0	22.85	24.85	30	-5.15
				1	49	22.64	24.64	30	-5.36
				25	12	21.52	23.52	30	-6.48
				50	0	21.63	23.63	30	-6.37
	20000	1715	16QAM	1	0	21.81	23.81	30	-6.19
				1	49	21.81	23.81	30	-6.19
				25	12	20.50	22.50	30	-7.5
				50	0	20.53	22.53	30	-7.47
	20175	1732.5	16QAM	1	0	22.07	24.07	30	-5.93
				1	49	22.59	24.59	30	-5.41
				25	12	21.04	23.04	30	-6.96
				50	0	21.07	23.07	30	-6.93
	20375	1750	16QAM	1	0	21.88	23.88	30	-6.12
				1	49	21.86	23.86	30	-6.14
				25	12	20.62	22.62	30	-7.38
				50	0	20.67	22.67	30	-7.33

Antenna gain (dBi) 2

LTE Band 4_Uplink frequency band : 1710 to 1755 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
15	20025	1717.5	QPSK	1	0	22.74	24.74	30	-5.26
				1	74	22.55	24.55	30	-5.45
				36	18	21.61	23.61	30	-6.39
				75	0	21.55	23.55	30	-6.45
	20175	1732.5	QPSK	1	0	22.82	24.82	30	-5.18
				1	74	23.15	25.15	30	-4.85
				36	18	22.22	24.22	30	-5.78
				75	0	22.18	24.18	30	-5.82
	20325	1747.5	QPSK	1	0	22.97	24.97	30	-5.03
				1	74	22.77	24.77	30	-5.23
				36	18	21.51	23.51	30	-6.49
				75	0	21.81	23.81	30	-6.19
	20025	1717.5	16QAM	1	0	20.53	22.53	30	-7.47
				1	74	20.20	22.20	30	-7.8
				36	18	20.53	22.53	30	-7.47
				75	0	20.52	22.52	30	-7.48
	20175	1732.5	16QAM	1	0	22.39	24.39	30	-5.61
				1	74	22.12	24.12	30	-5.88
				36	18	21.11	23.11	30	-6.89
				75	0	21.07	23.07	30	-6.93
	20325	1747.5	16QAM	1	0	22.33	24.33	30	-5.67
				1	74	22.23	24.23	30	-5.77
				36	18	20.82	22.82	30	-7.18
				75	0	20.60	22.60	30	-7.4

Antenna gain (dBi) 2

LTE Band 4_Uplink frequency band : 1710 to 1755 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
20	20050	1720	QPSK	1	0	22.84	24.84	30	-5.16
				1	99	22.74	24.74	30	-5.26
				50	25	21.58	23.58	30	-6.42
				100	0	21.64	23.64	30	-6.36
	20175	1732.5	QPSK	1	0	23.16	25.16	30	-4.84
				1	99	23.18	25.18	30	-4.82
				50	25	22.20	24.20	30	-5.8
				100	0	22.22	24.22	30	-5.78
	20300	1745	QPSK	1	0	23.06	25.06	30	-4.94
				1	99	22.91	24.91	30	-5.09
				50	25	21.78	23.78	30	-6.22
				100	0	21.84	23.84	30	-6.16
	20050	1720	16QAM	1	0	22.17	24.17	30	-5.83
				1	99	22.07	24.07	30	-5.93
				50	25	20.62	22.62	30	-7.38
				100	0	20.67	22.67	30	-7.33
	20175	1732.5	16QAM	1	0	22.33	24.33	30	-5.67
				1	99	22.47	24.47	30	-5.53
				50	25	21.14	23.14	30	-6.86
				100	0	21.14	23.14	30	-6.86
	20300	1745	16QAM	1	0	22.42	24.42	30	-5.58
				1	99	22.18	24.18	30	-5.82
				50	25	20.64	22.64	30	-7.36
				100	0	20.61	22.61	30	-7.39

FDD Band 5

Antenna gain (dBi) 1

LTE Band 5_Uplink frequency band : 824 to 849 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
1.4	20407	824.7	QPSK	1	0	21.90	20.75	22.90	38.45	-15.55
				1	5	21.98	20.83	22.98	38.45	-15.47
				3	2	22.01	20.86	23.01	38.45	-15.44
				6	0	21.05	19.90	22.05	38.45	-16.4
	20525	836.5	QPSK	1	0	21.75	20.60	22.75	38.45	-15.7
				1	5	21.70	20.55	22.70	38.45	-15.75
				3	2	21.67	20.52	22.67	38.45	-15.78
				6	0	20.78	19.63	21.78	38.45	-16.67
	20643	848.3	QPSK	1	0	22.03	20.88	23.03	38.45	-15.42
				1	5	21.93	20.78	22.93	38.45	-15.52
				3	2	21.94	20.79	22.94	38.45	-15.51
				6	0	20.95	19.80	21.95	38.45	-16.5
	20407	824.7	16QAM	1	0	20.39	19.24	21.39	38.45	-17.06
				1	5	20.97	19.82	21.97	38.45	-16.48
				3	2	20.93	19.78	21.93	38.45	-16.52
				6	0	20.08	18.93	21.08	38.45	-17.37
	20525	836.5	16QAM	1	0	21.24	20.09	22.24	38.45	-16.21
				1	5	21.18	20.03	22.18	38.45	-16.27
				3	2	20.61	19.46	21.61	38.45	-16.84
				6	0	19.71	18.56	20.71	38.45	-17.74
	20643	848.3	16QAM	1	0	21.26	20.11	22.26	38.45	-16.19
				1	5	21.26	20.11	22.26	38.45	-16.19
				3	2	20.69	19.54	21.69	38.45	-16.76
				6	0	20.00	18.85	21.00	38.45	-17.45

Antenna gain (dBi) 1

LTE Band 5_Uplink frequency band : 824 to 849 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
3	20415	825.5	QPSK	1	0	21.95	20.80	22.95	38.45	-15.5
				1	14	21.98	20.83	22.98	38.45	-15.47
				8	4	21.14	19.99	22.14	38.45	-16.31
				15	0	21.02	19.87	22.02	38.45	-16.43
	20525	836.5	QPSK	1	0	21.60	20.45	22.60	38.45	-15.85
				1	14	21.66	20.51	22.66	38.45	-15.79
				8	4	20.73	19.58	21.73	38.45	-16.72
				15	0	20.77	19.62	21.77	38.45	-16.68
	20635	847.5	QPSK	1	0	22.02	20.87	23.02	38.45	-15.43
				1	14	21.84	20.69	22.84	38.45	-15.61
				8	4	20.82	19.67	21.82	38.45	-16.63
				15	0	20.89	19.74	21.89	38.45	-16.56
	20415	825.5	16QAM	1	0	21.24	20.09	22.24	38.45	-16.21
				1	14	21.25	20.10	22.25	38.45	-16.2
				8	4	20.11	18.96	21.11	38.45	-17.34
				15	0	20.01	18.86	21.01	38.45	-17.44
	20525	836.5	16QAM	1	0	20.70	19.55	21.70	38.45	-16.75
				1	14	20.78	19.63	21.78	38.45	-16.67
				8	4	19.57	18.42	20.57	38.45	-17.88
				15	0	19.64	18.49	20.64	38.45	-17.81
	20635	847.5	16QAM	1	0	21.10	19.95	22.10	38.45	-16.35
				1	14	20.93	19.78	21.93	38.45	-16.52
				8	4	18.68	17.53	19.68	38.45	-18.77
				15	0	19.81	18.66	20.81	38.45	-17.64

Antenna gain (dBi) 1

LTE Band 5_Uplink frequency band : 824 to 849 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
5	20425	826.5	QPSK	1	0	21.84	20.69	22.84	38.45	-15.61
				1	24	21.77	20.62	22.77	38.45	-15.68
				12	6	20.99	19.84	21.99	38.45	-16.46
				25	0	20.91	19.76	21.91	38.45	-16.54
	20525	836.5	QPSK	1	0	21.52	20.37	22.52	38.45	-15.93
				1	24	21.71	20.56	22.71	38.45	-15.74
				12	6	20.64	19.49	21.64	38.45	-16.81
				25	0	20.64	19.49	21.64	38.45	-16.81
	20625	846.5	QPSK	1	0	21.94	20.79	22.94	38.45	-15.51
				1	24	21.64	20.49	22.64	38.45	-15.81
				12	6	20.87	19.72	21.87	38.45	-16.58
				25	0	20.85	19.70	21.85	38.45	-16.6
	20425	826.5	16QAM	1	0	20.74	19.59	21.74	38.45	-16.71
				1	24	20.74	19.59	21.74	38.45	-16.71
				12	6	20.04	18.89	21.04	38.45	-17.41
				25	0	20.01	18.86	21.01	38.45	-17.44
	20525	836.5	16QAM	1	0	20.83	19.68	21.83	38.45	-16.62
				1	24	20.45	19.30	21.45	38.45	-17
				12	6	19.52	18.37	20.52	38.45	-17.93
				25	0	19.56	18.41	20.56	38.45	-17.89
	20625	846.5	16QAM	1	0	21.29	20.14	22.29	38.45	-16.16
				1	24	21.06	19.91	22.06	38.45	-16.39
				12	6	19.87	18.72	20.87	38.45	-17.58
				25	0	19.83	18.68	20.83	38.45	-17.62

Antenna gain (dBi) 1

LTE Band 5_Uplink frequency band : 824 to 849 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
10	20450	829	QPSK	1	0	22.15	21.00	23.15	38.45	-15.3
				1	49	21.85	20.70	22.85	38.45	-15.6
				25	12	20.98	19.83	21.98	38.45	-16.47
				50	0	20.94	19.79	21.94	38.45	-16.51
	20525	836.5	QPSK	1	0	21.43	20.28	22.43	38.45	-16.02
				1	49	21.76	20.61	22.76	38.45	-15.69
				25	12	20.70	19.55	21.70	38.45	-16.75
				50	0	20.63	19.48	21.63	38.45	-16.82
	20600	844	QPSK	1	0	21.73	20.58	22.73	38.45	-15.72
				1	49	21.62	20.47	22.62	38.45	-15.83
				25	12	20.76	19.61	21.76	38.45	-16.69
				50	0	20.81	19.66	21.81	38.45	-16.64
	20450	829	16QAM	1	0	21.61	20.46	22.61	38.45	-15.84
				1	49	21.27	20.12	22.27	38.45	-16.18
				25	12	19.83	18.68	20.83	38.45	-17.62
				50	0	19.99	18.84	20.99	38.45	-17.46
	20525	836.5	16QAM	1	0	20.74	19.59	21.74	38.45	-16.71
				1	49	21.06	19.91	22.06	38.45	-16.39
				25	12	19.62	18.47	20.62	38.45	-17.83
				50	0	19.60	18.45	20.60	38.45	-17.85
	20600	844	16QAM	1	0	20.30	19.15	21.30	38.45	-17.15
				1	49	20.14	18.99	21.14	38.45	-17.31
				25	12	19.61	18.46	20.61	38.45	-17.84
				50	0	19.45	18.30	20.45	38.45	-18

FDD Band 13

Antenna gain (dBi) 1

LTE Band 13_Uplink frequency band : 777 to 787 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
5	23205	779.5	QPSK	1	0	20.71	19.56	21.71	34.77	-13.06
				1	24	21.81	20.66	22.81	34.77	-11.96
				12	6	20.42	19.27	21.42	34.77	-13.35
				25	0	20.74	19.59	21.74	34.77	-13.03
	23230	782	QPSK	1	0	21.34	20.19	22.34	34.77	-12.43
				1	24	21.77	20.62	22.77	34.77	-12
				12	6	20.53	19.38	21.53	34.77	-13.24
				25	0	20.56	19.41	21.56	34.77	-13.21
	23255	784.5	QPSK	1	0	21.86	20.71	22.86	34.77	-11.91
				1	24	22.08	20.93	23.08	34.77	-11.69
				12	6	20.78	19.63	21.78	34.77	-12.99
				25	0	20.82	19.67	21.82	34.77	-12.95
	23205	779.5	16QAM	1	0	20.21	19.06	21.21	34.77	-13.56
				1	24	21.21	20.06	22.21	34.77	-12.56
				12	6	19.71	18.56	20.71	34.77	-14.06
				25	0	19.81	18.66	20.81	34.77	-13.96
	23230	782	16QAM	1	0	20.75	19.60	21.75	34.77	-13.02
				1	24	20.99	19.84	21.99	34.77	-12.78
				12	6	19.54	18.39	20.54	34.77	-14.23
				25	0	19.55	18.40	20.55	34.77	-14.22
	23255	784.5	16QAM	1	0	20.98	19.83	21.98	34.77	-12.79
				1	24	21.20	20.05	22.20	34.77	-12.57
				12	6	19.70	18.55	20.70	34.77	-14.07
				25	0	19.79	18.64	20.79	34.77	-13.98

Antenna gain (dBi) 1

LTE Band 13_Uplink frequency band : 777 to 787 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
10	23230	782	QPSK	1	0	21.13	19.98	22.13	34.77	-12.64
				1	49	22.01	20.86	23.01	34.77	-11.76
				25	12	20.55	19.40	21.55	34.77	-13.22
				50	0	20.66	19.51	21.66	34.77	-13.11
	23230	782	16QAM	1	0	19.77	18.62	20.77	34.77	-14
				1	49	20.78	19.63	21.78	34.77	-12.994
				25	12	19.46	18.31	20.46	34.77	-14.31
				50	0	19.61	18.46	20.61	34.77	-14.16

FDD Band 17

Antenna gain (dBi) 1

LTE Band 17_Uplink frequency band : 704 to 716 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
5	23755	706.5	QPSK	1	0	21.80	20.65	22.80	34.77	-11.97
				1	24	22.23	21.08	23.23	34.77	-11.54
				12	6	21.00	19.85	22.00	34.77	-12.77
				25	0	21.02	19.87	22.02	34.77	-12.75
	23790	710	QPSK	1	0	22.13	20.98	23.13	34.77	-11.64
				1	24	21.84	20.69	22.84	34.77	-11.93
				12	6	21.16	20.01	22.16	34.77	-12.61
				25	0	21.15	20.00	22.15	34.77	-12.62
	23825	713.5	QPSK	1	0	22.40	21.25	23.40	34.77	-11.37
				1	24	22.01	20.86	23.01	34.77	-11.76
				12	6	20.41	19.26	21.41	34.77	-13.36
				25	0	21.03	19.88	22.03	34.77	-12.74
	23755	706.5	16QAM	1	0	20.66	19.51	21.66	34.77	-13.11
				1	24	20.90	19.75	21.90	34.77	-12.87
				12	6	20.10	18.95	21.10	34.77	-13.67
				25	0	20.07	18.92	21.07	34.77	-13.7
	23790	710	16QAM	1	0	21.34	20.19	22.34	34.77	-12.43
				1	24	21.29	20.14	22.29	34.77	-12.48
				12	6	20.11	18.96	21.11	34.77	-13.66
				25	0	20.04	18.89	21.04	34.77	-13.73
	23825	713.5	16QAM	1	0	21.51	20.36	22.51	34.77	-12.26
				1	24	21.28	20.13	22.28	34.77	-12.49
				12	6	20.02	18.87	21.02	34.77	-13.75
				25	0	20.17	19.02	21.17	34.77	-13.6

Antenna gain (dBi) 1

LTE Band 17_Uplink frequency band : 704 to 716 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
10	23780	709	QPSK	1	0	21.64	20.49	22.64	34.77	-12.13
				1	49	21.46	20.31	22.46	34.77	-12.31
				25	12	20.87	19.72	21.87	34.77	-12.9
				50	0	20.76	19.61	21.76	34.77	-13.01
	23790	710	QPSK	1	0	21.83	20.68	22.83	34.77	-11.94
				1	49	21.67	20.52	22.67	34.77	-12.1
				25	12	21.08	19.93	22.08	34.77	-12.69
				50	0	20.96	19.81	21.96	34.77	-12.81
	23800	711	QPSK	1	0	22.01	20.86	23.01	34.77	-11.76
				1	49	21.79	20.64	22.79	34.77	-11.98
				25	12	20.60	19.45	21.60	34.77	-13.17
				50	0	20.89	19.74	21.89	34.77	-12.88
	23780	709	16QAM	1	0	21.00	19.85	22.00	34.77	-12.77
				1	49	21.03	19.88	22.03	34.77	-12.74
				25	12	20.02	18.87	21.02	34.77	-13.75
				50	0	19.94	18.79	20.94	34.77	-13.83
	23790	710	16QAM	1	0	21.25	20.10	22.25	34.77	-12.52
				1	49	21.03	19.88	22.03	34.77	-12.74
				25	12	20.06	18.91	21.06	34.77	-13.71
				50	0	19.98	18.83	20.98	34.77	-13.79
	23800	711	16QAM	1	0	21.08	19.93	22.08	34.77	-12.69
				1	49	21.10	19.95	22.10	34.77	-12.67
				25	12	20.13	18.98	21.13	34.77	-13.64
				50	0	20.05	18.90	21.05	34.77	-13.72

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 V8.4.0 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} (*Note1, 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			Mode	Sub test	Avg. Power (dBm) Channel		
		9262.00	9400.00	9538.00			4132.00	4183.00	4233.00
HSDPA II	1	21.71	22.30	22.04	HSDPA V	1	21.83	21.97	22.25
	2	21.69	22.28	22.02		2	21.82	21.94	22.21
	3	21.28	21.87	21.55		3	21.40	21.57	21.76
	4	21.26	21.86	21.57		4	21.39	21.56	21.75

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 V8.4.0 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 V8.4.0. 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} (Codes)	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	β_{ed}1: 47/15 β_{ed}2: 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	21.49	22.18	21.84
	2	21.47	22.14	21.81
	3	21.06	21.73	21.41
	4	21.52	22.16	21.85
	5	21.04	21.69	21.38

Mode	Sub test	Avg. Power (dBm) Channel		
		4132.00	4183.00	4233.00
HSUPA V	1	21.75	22.21	22.14
	2	21.74	22.20	22.13
	3	21.31	21.84	21.68
	4	21.78	22.24	22.17
	5	21.28	21.83	21.66

WCDMA/HSDPA/HSUPA band V

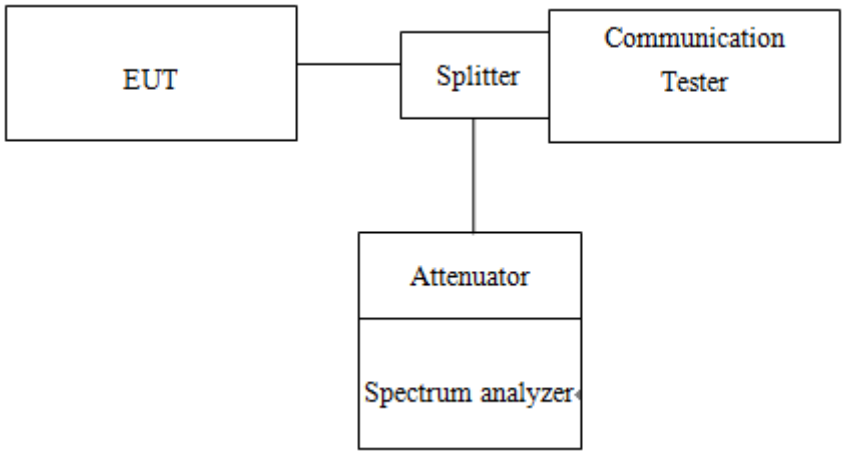
The EUT output power was controlled by simulator. Set Communication Tester MT8820C function key “UE Power Control” and enter max rated power 24dBm. The EUT is going to be set to max output power to 24dBm. Then record the read (see page 15 for measurement data). The min. power was measures by a function key “minimum power” then record the read. It is -52.3dBm. The power variation can be 0.1dB step by setting.

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%.

7.4. Measurement Equipment Used

EQUIPMENT TYPE	MFR	MODEL NUM-BER	SERIAL NUM-BER	LAST CAL.	CAL DUE.
Radio Communication Analyer	Anritsu	MT8820C	6201465316	03/31/2018	03/30/2019
Spectrum Analyzer	Agilent	N9010A	MY51440113	06/20/2018	06/19/2019
DC Block	PASTERNACK	PE8210	RF29	02/26/2019	02/25/2020
Splitter	Woken	DOM35LW1A2	RF36	02/26/2019	02/25/2020
Attenuator	Marvelous	WATT-218FS-10	RF245	02/26/2019	02/25/2020
Coaxial Cables	Woken	00100A1F1A185C	RF12	02/26/2019	02/25/2020
Coaxial Cables	Woken	00100A1F1A185C	RF202	02/26/2019	02/25/2020
DC Power Supply	Agilent	E3640A	MY40000811	12/11/2018	12/10/2019

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	4.13530	4.11360	4.12260	4.701	4.688	4.667
1880.00	9400	4.12810	4.11660	4.11150	4.698	4.660	4.695
1907.60	9538	4.12490	4.12620	4.11020	4.695	4.673	4.672
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	4.11700	4.11290	4.12100	4.667	4.669	4.680
836.60	4183	4.12530	4.11030	4.12860	4.681	4.685	4.680
846.60	4233	4.11360	4.11670	4.11170	4.695	4.684	4.680

LTE BAND 2 Channel bandwidth: 1.4MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1850.7	18607	1.1131	1.1147	1.479	1.480
1880.0	18900	1.1156	1.1159	1.500	1.479
1909.3	19193	1.1185	1.1175	1.493	1.481

LTE BAND 2 Channel bandwidth: 3MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1851.5	18615	2.7220	2.7284	3.503	3.610
1880.0	18900	2.7212	2.7254	3.491	3.606
1908.5	19185	2.7199	2.7282	3.537	3.619

LTE BAND 2 Channel bandwidth: 5MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1852.5	18625	4.5227	4.5137	5.283	5.248
1880.0	18900	4.5246	4.5136	5.242	5.241
1907.5	19175	4.5257	4.5183	5.251	5.288

LTE BAND 2 Channel bandwidth: 10MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1855.0	18650	9.2218	9.1755	15.098	14.895
1880.0	18900	9.2530	9.2652	15.056	14.986
1905.0	19150	9.2561	9.2181	14.975	14.901

LTE BAND 2 Channel bandwidth: 15MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1857.5	18675	13.476	13.488	14.812	14.893
1880.0	18900	13.505	13.494	14.791	14.963
1902.5	19125	13.505	13.492	14.821	14.865

LTE BAND 2 Channel bandwidth: 20MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1860.0	18700	17.911	17.924	19.454	19.385
1880.0	18900	17.945	17.928	19.514	19.416
1900.0	19100	17.954	17.955	19.510	19.506

LTE BAND 4 Channel bandwidth: 1.4MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1710.7	19957	1.1172	1.1154	1.489	1.467
1732.5	20175	1.1156	1.1143	1.492	1.472
1754.3	20393	1.1168	1.1134	1.570	1.482

LTE BAND 4 Channel bandwidth: 3MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1711.5	19965	2.7080	2.7195	3.155	3.173
1732.5	20175	2.7141	2.7160	3.124	3.177
1753.5	20385	2.7074	2.7160	3.179	3.199

LTE BAND 4 Channel bandwidth: 5MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1712.5	19957	4.5175	4.5164	5.307	5.264
1732.5	20175	4.5157	4.5170	5.299	5.268
1752.5	20375	4.5166	4.5138	5.316	5.224

LTE BAND 4 Channel bandwidth: 10MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1715.0	20000	9.0122	8.9736	10.047	9.964
1732.5	20175	9.0109	8.9796	10.074	9.981
1750.0	20350	9.0243	8.9845	10.013	9.920

LTE BAND 4 Channel bandwidth: 15MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1717.5	20025	13.444	13.453	14.740	14.782
1732.5	20175	13.517	13.498	14.787	14.871
1747.5	20325	13.479	13.464	14.807	14.801

LTE BAND 4 Channel bandwidth: 20MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1720.0	20050	17.891	17.918	19.452	19.340
1732.5	20175	17.929	17.960	19.488	19.415
1745.0	20300	17.895	17.924	19.464	19.347

LTE BAND 5 Channel bandwidth: 1.4MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
824.7	20407	1.1145	1.1138	1.467	1.471
836.5	20525	1.1125	1.1152	1.459	1.471
848.3	20643	1.1139	1.1152	1.515	1.482

LTE BAND 5 Channel bandwidth: 3MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
825.5	20415	2.7065	2.7168	3.131	3.162
836.5	20525	2.7068	2.7158	3.166	3.184
847.5	20635	2.7065	2.7200	3.158	3.147

LTE BAND 5 Channel bandwidth: 5MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
826.5	20425	4.5241	4.5206	5.377	5.408
836.5	20525	4.5226	4.5225	5.412	5.409
846.5	20625	4.5208	4.5153	5.366	5.364

LTE BAND 5 Channel bandwidth: 10MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
829.0	20450	9.0379	8.9947	10.988	10.260
836.5	20525	9.0515	9.0134	11.630	10.315
844.0	20600	9.0206	8.9776	10.714	10.274

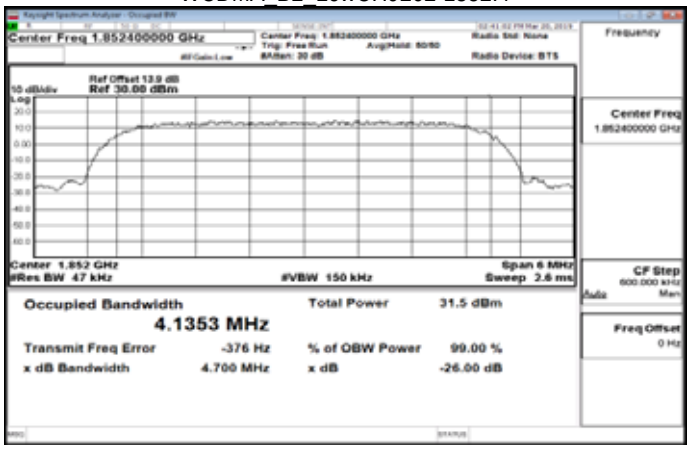
LTE BAND 13 Channel bandwidth: 5MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
779.5	23205	4.4774	4.4784	5.106	5.063
782.0	23230	4.5286	4.5250	5.158	5.143
784.5	23255	4.5058	4.5073	5.111	5.119

LTE BAND 13 Channel bandwidth: 10MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
782.0	23230	8.957	8.938	9.893	10.022

LTE BAND 17 Channel bandwidth: 5MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
706.5	23755	4.5292	4.5337	5.559	5.611
710.0	23790	4.5260	4.5219	5.519	5.514
713.5	23825	4.5442	4.5327	5.581	5.478

LTE BAND 17 Channel bandwidth: 10MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
709.0	23780	8.9770	8.9274	9.930	9.449
710.0	23790	8.9781	8.9543	9.962	9.928
711.0	23800	8.9760	8.9544	9.654	9.928

WCDMA_B2_LowCH9262-1852.4



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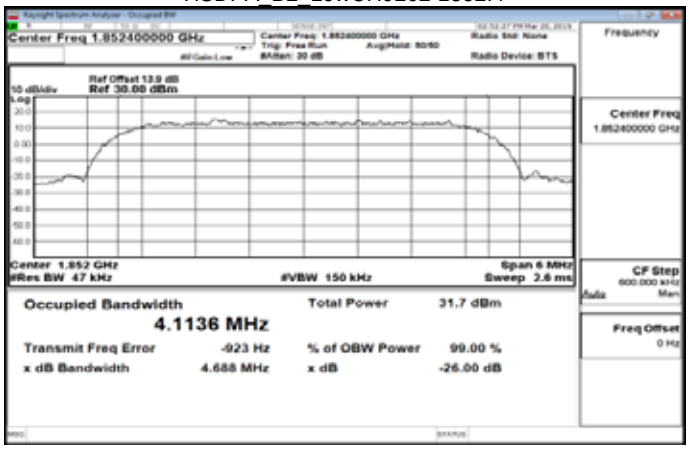

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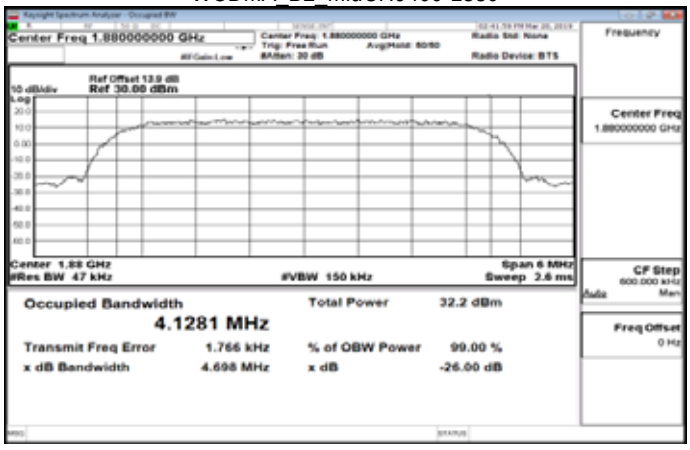

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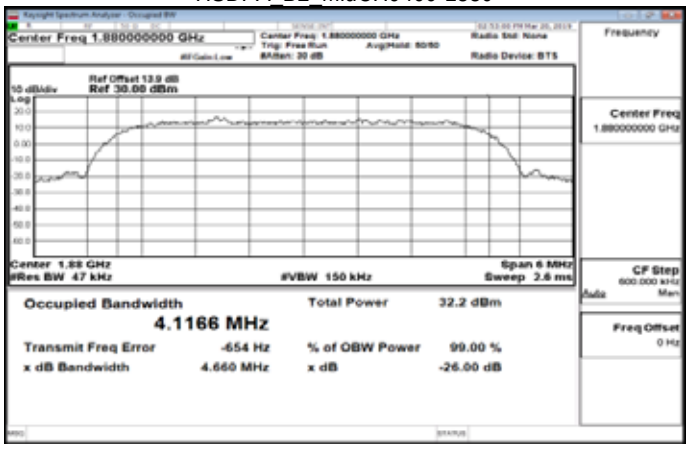

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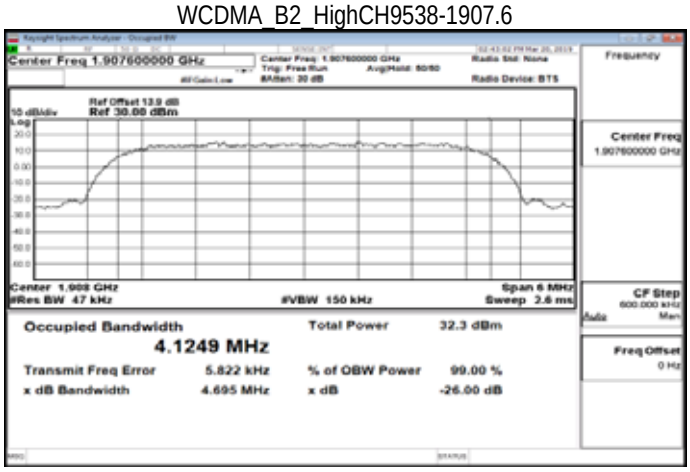

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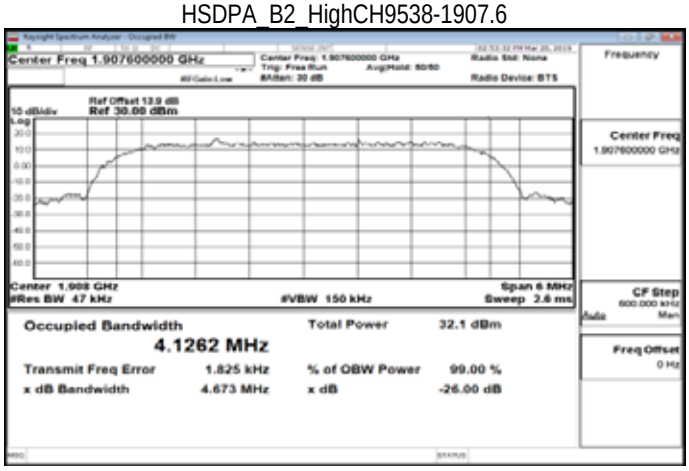

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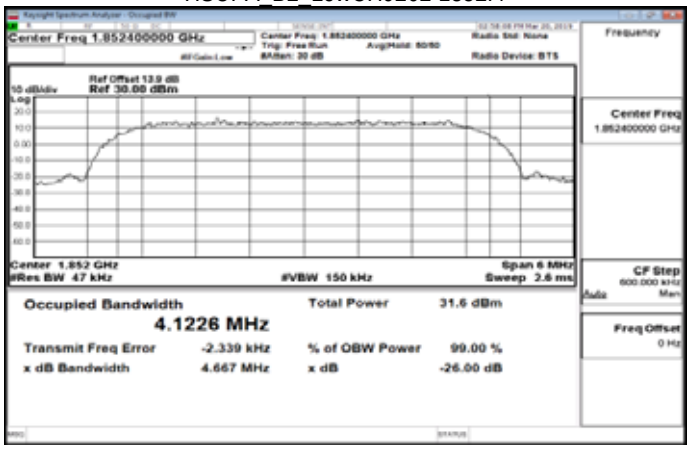

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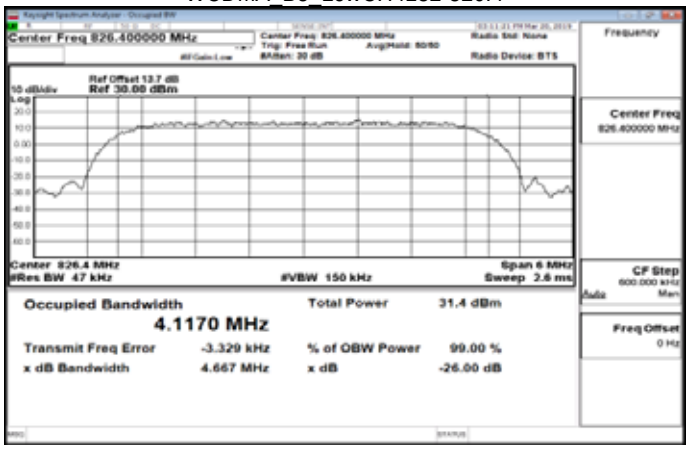
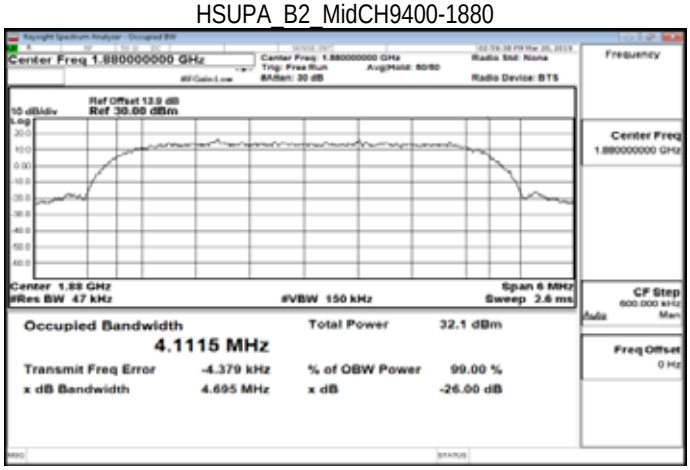


HSUPA_B2_MidCH9400-1880



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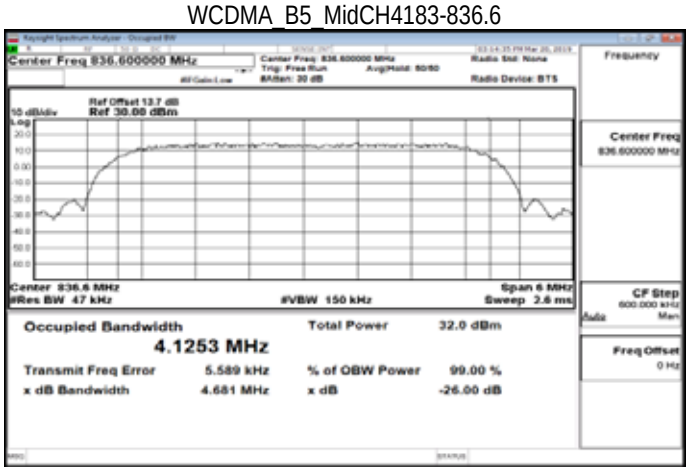

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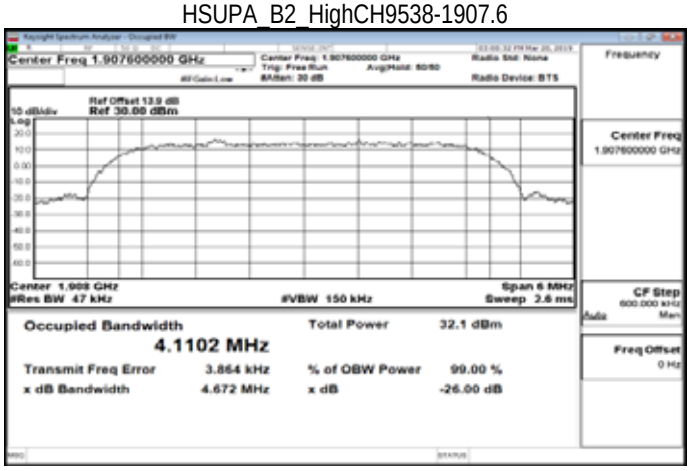

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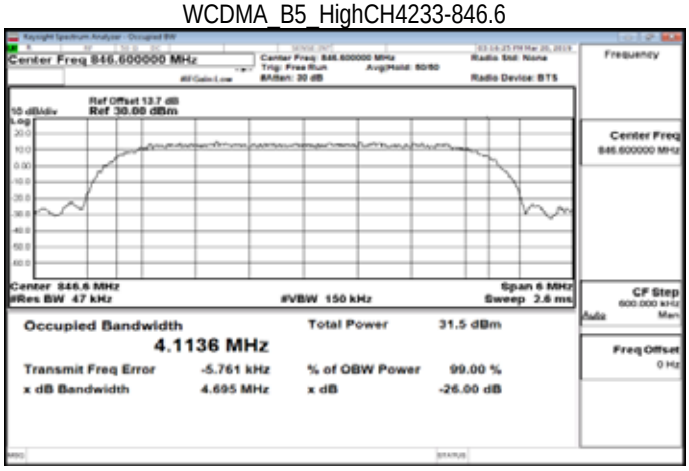

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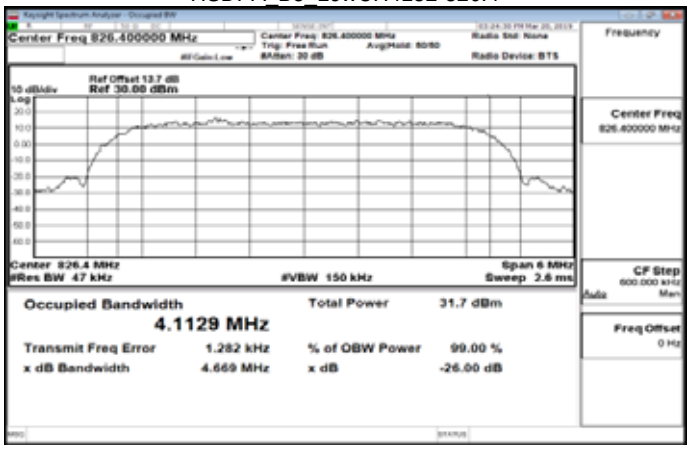

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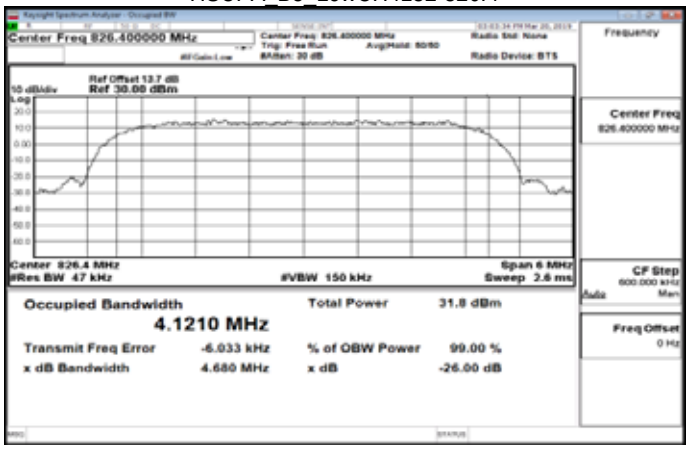

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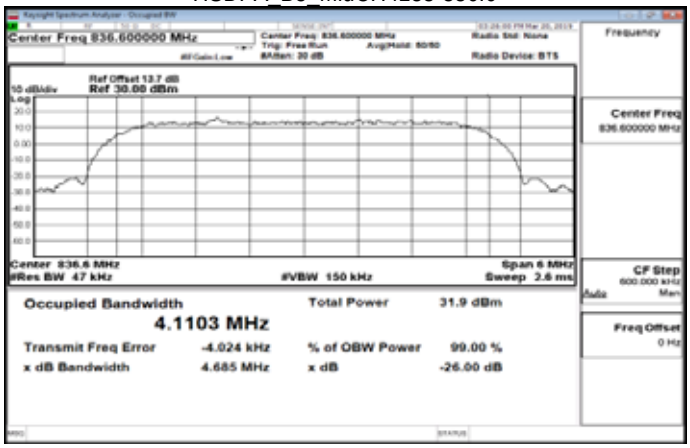

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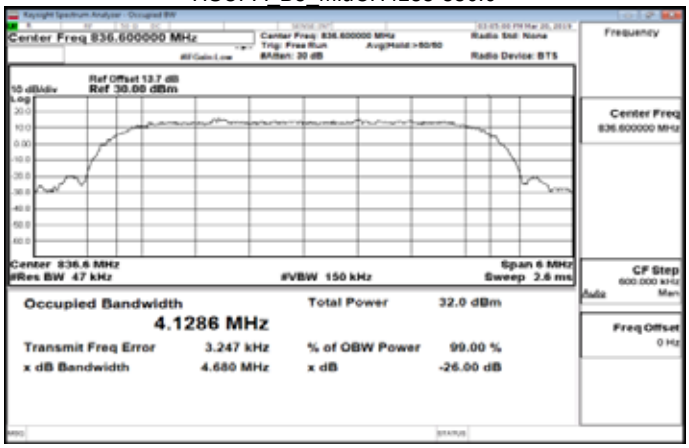

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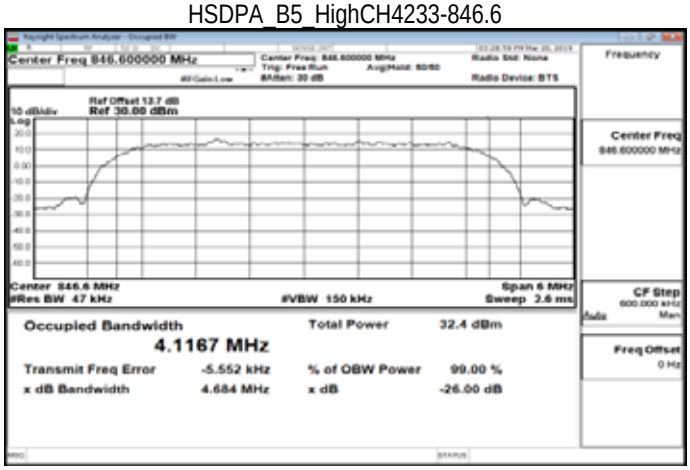

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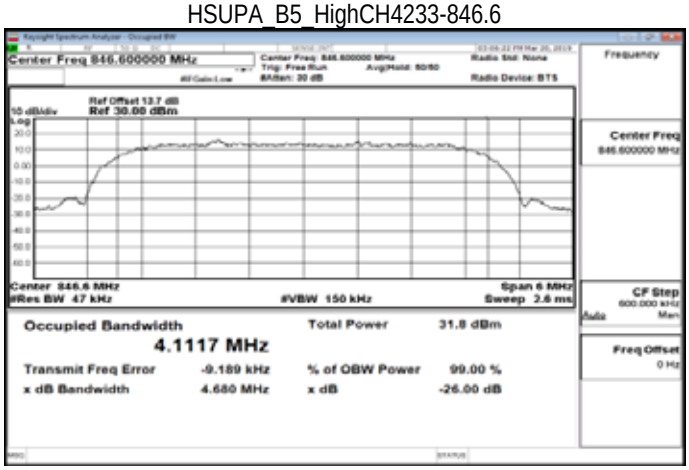
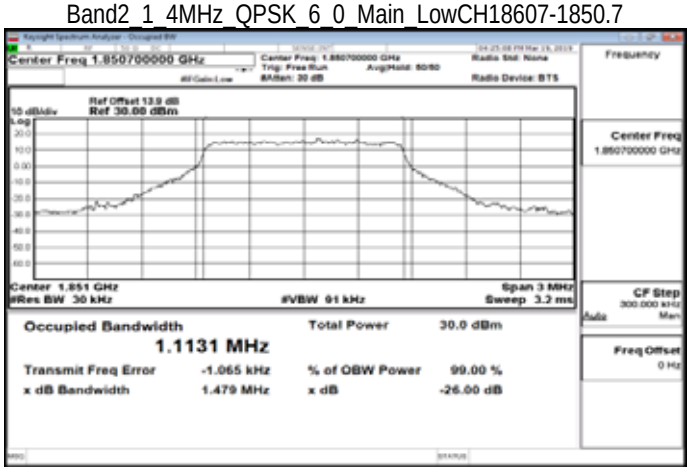
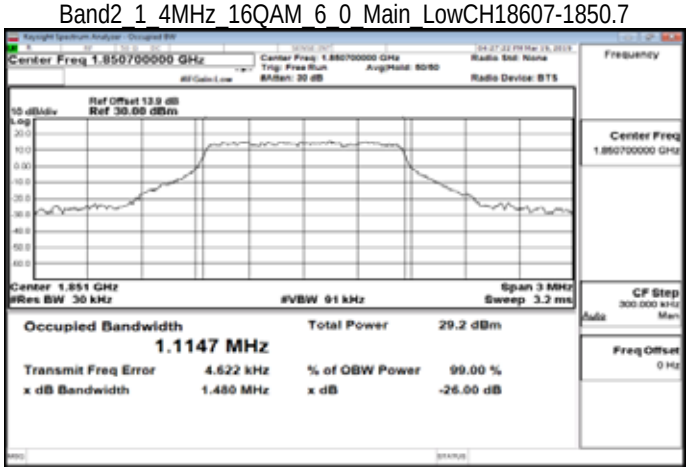


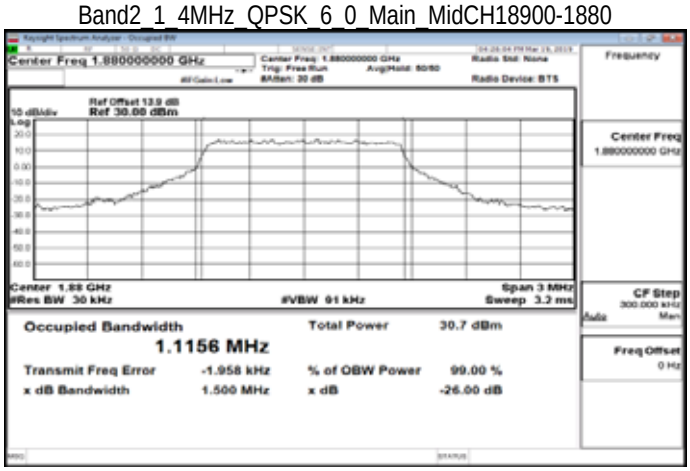
Band2_1_4MHz_QPSK_6_0_Main_LowCH18607-1850.7



Band2_1_4MHz_16QAM_6_0_Main_LowCH18607-1850.7



Band2_1_4MHz_QPSK_6_0_Main_MidCH18900-1880



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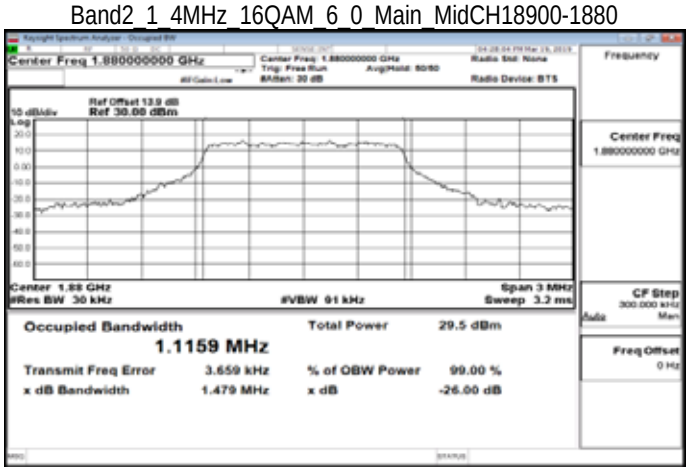
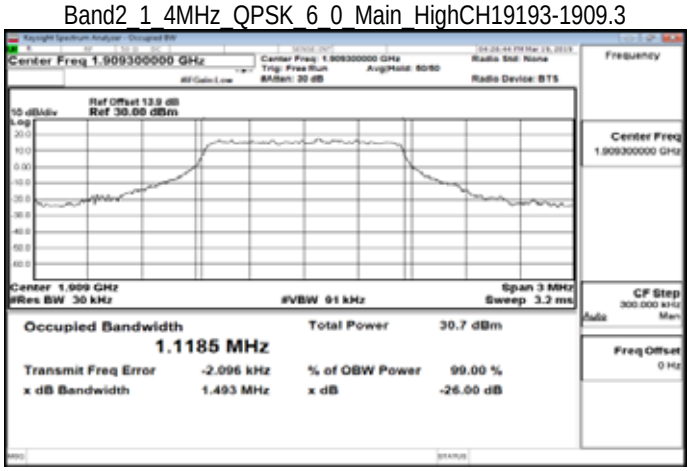
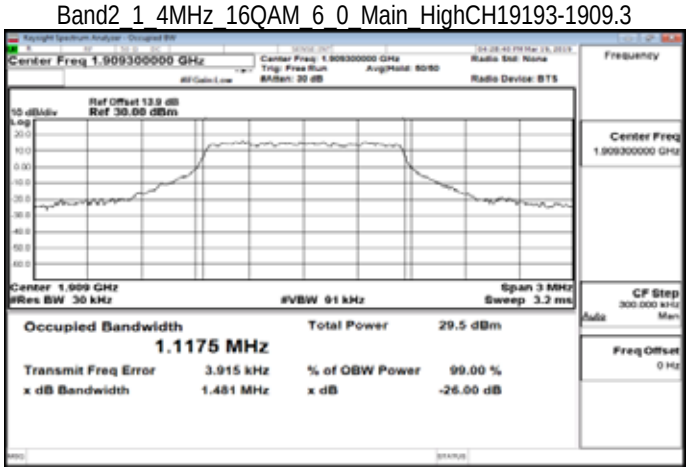


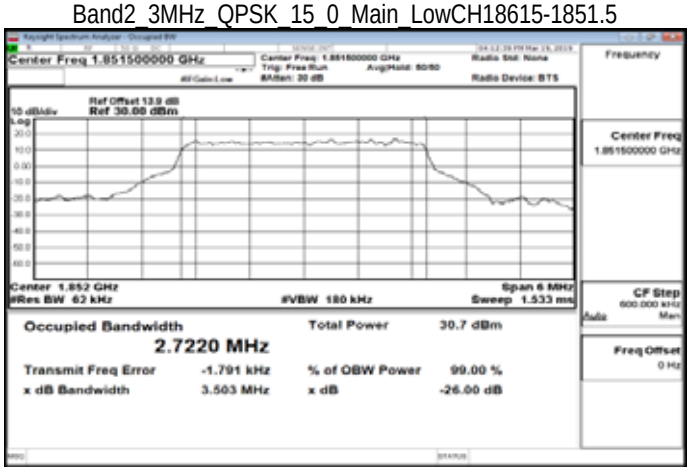
Band2_1_4MHz_QPSK_6_0_Main_HighCH19193-1909.3



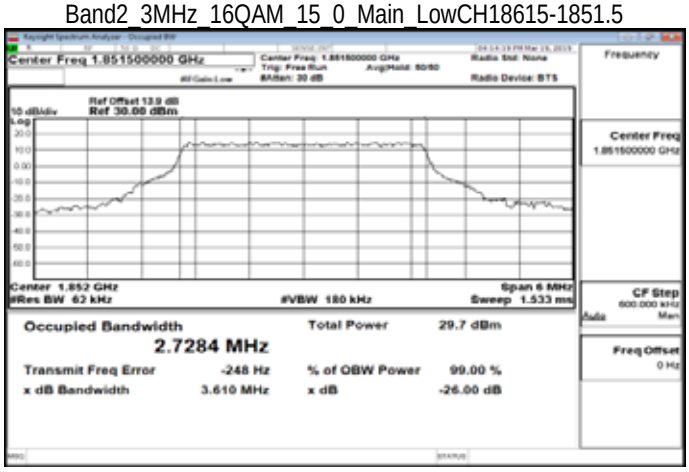
Band2_1_4MHz_16QAM_6_0_Main_HighCH19193-1909.3



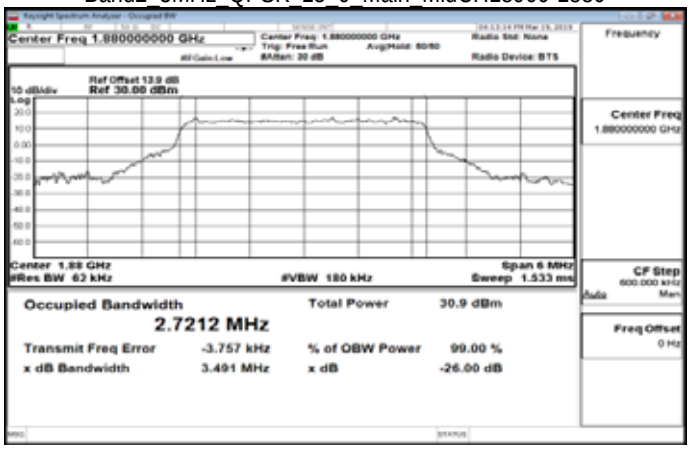
Band2_3MHz_QPSK_15_0_Main_LowCH18615-1851.5



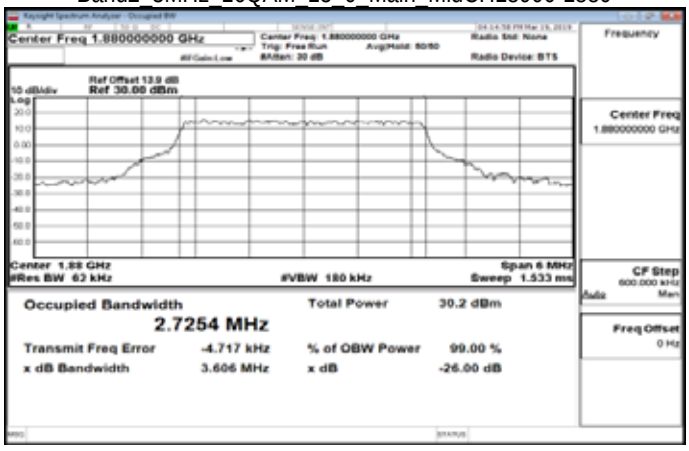
Band2_3MHz_16QAM_15_0_Main_LowCH18615-1851.5



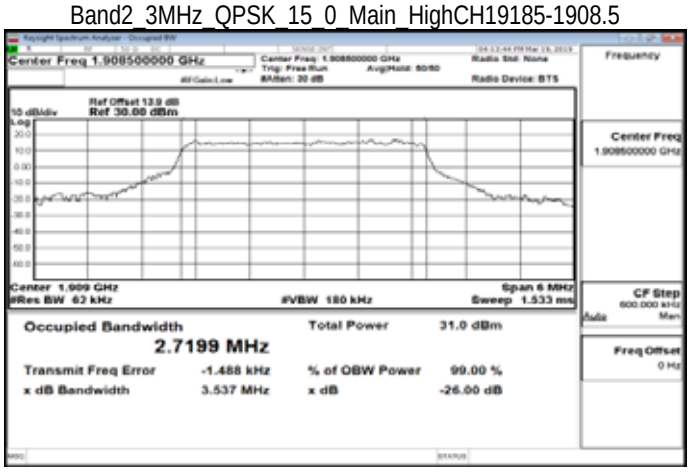
Band2_3MHz_QPSK_15_0_Main_MidCH18900-1880



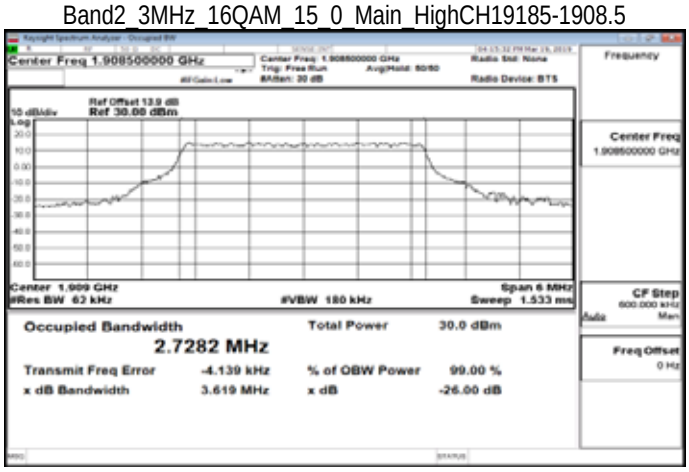
Band2_3MHz_16QAM_15_0_Main_MidCH18900-1880



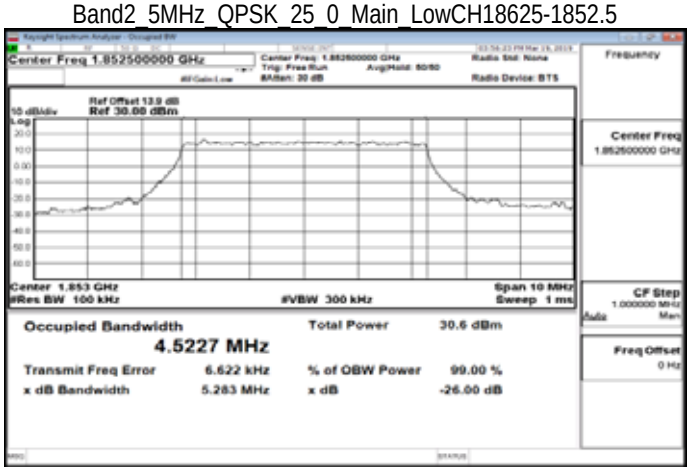
Band2_3MHz_QPSK_15_0_Main_HighCH19185-1908.5



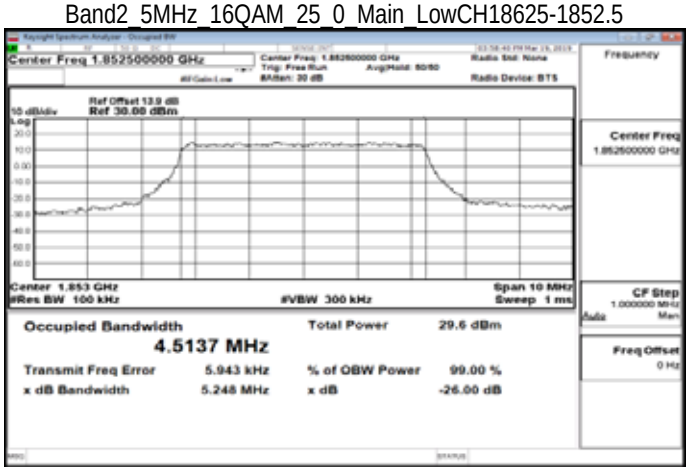
Band2_3MHz_16QAM_15_0_Main_HighCH19185-1908.5



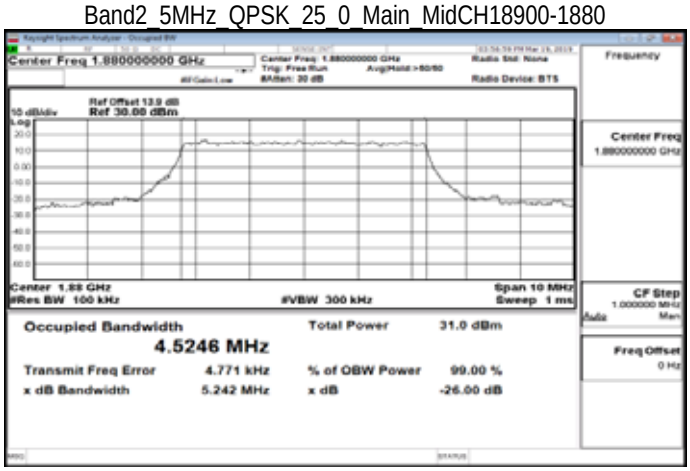
Band2_5MHz_QPSK_25_0_Main_LowCH18625-1852.5



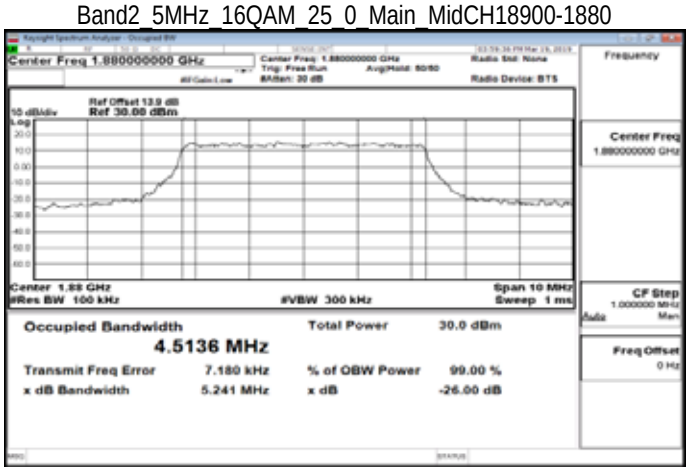
Band2_5MHz_16QAM_25_0_Main_LowCH18625-1852.5



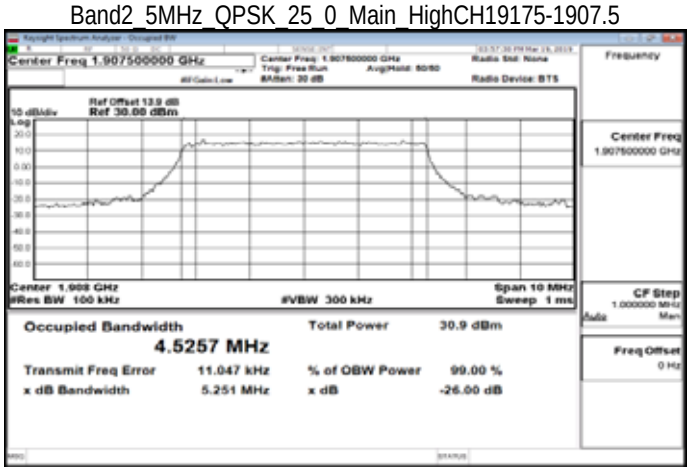
Band2_5MHz_QPSK_25_0_Main_MidCH18900-1880



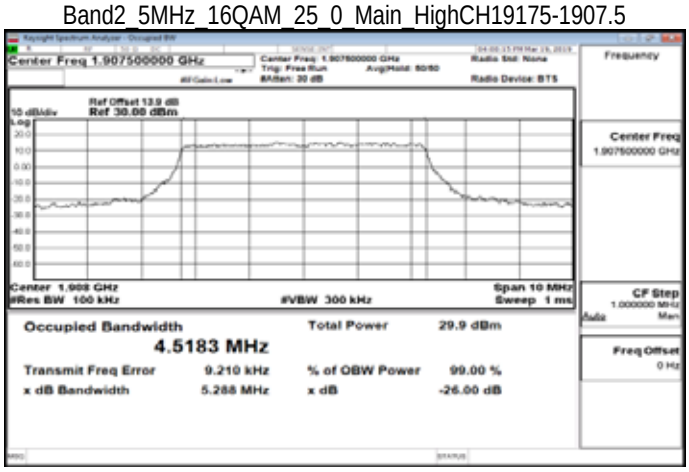
Band2_5MHz_16QAM_25_0_Main_MidCH18900-1880



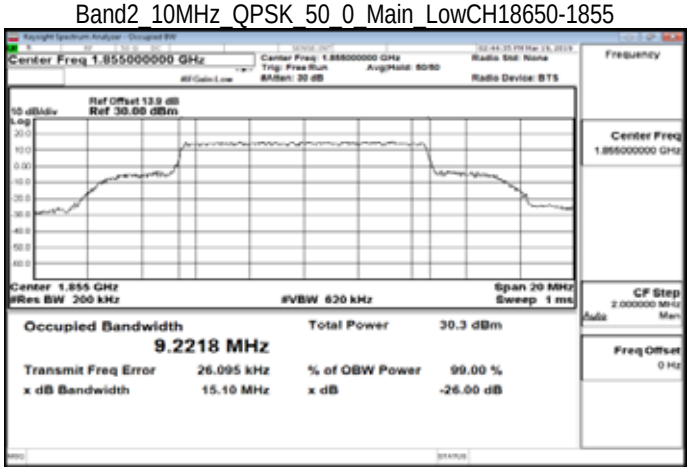
Band2_5MHz_QPSK_25_0_Main_HighCH19175-1907.5



Band2_5MHz_16QAM_25_0_Main_HighCH19175-1907.5



Band2_10MHz_QPSK_50_0_Main_LowCH18650-1855



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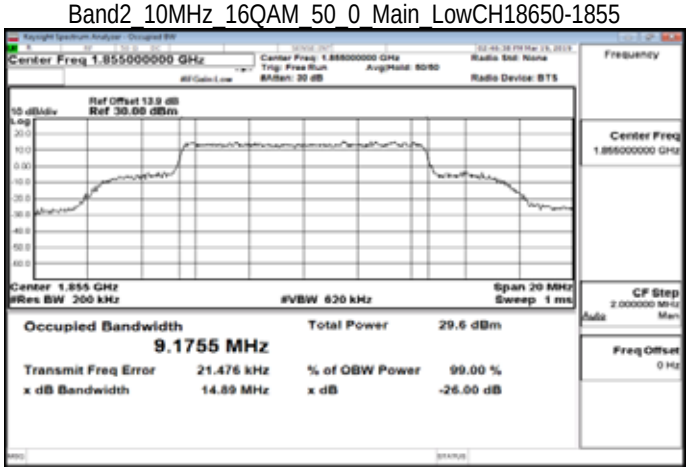
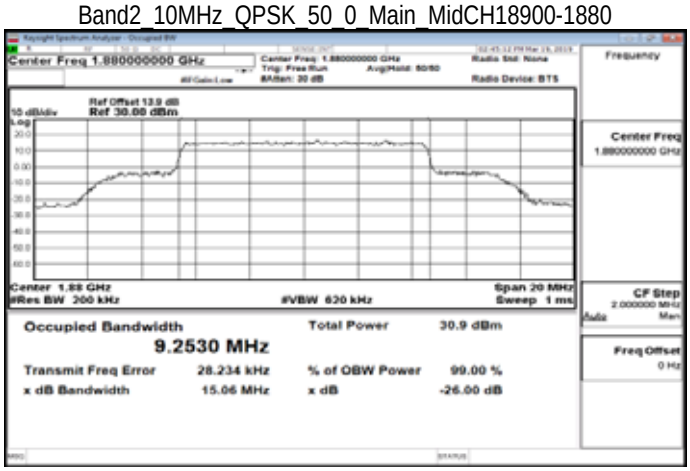
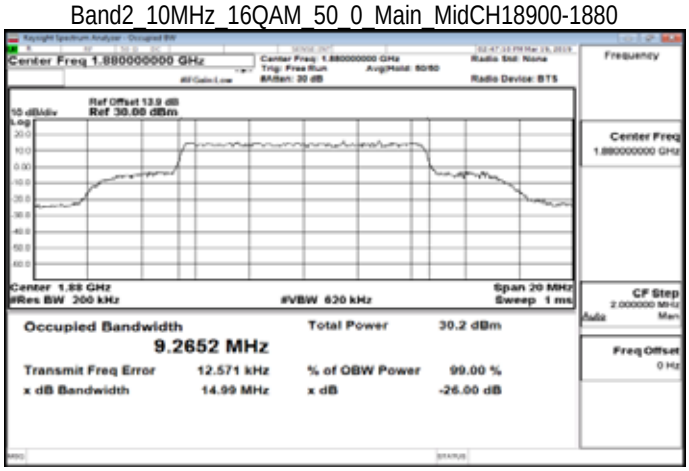


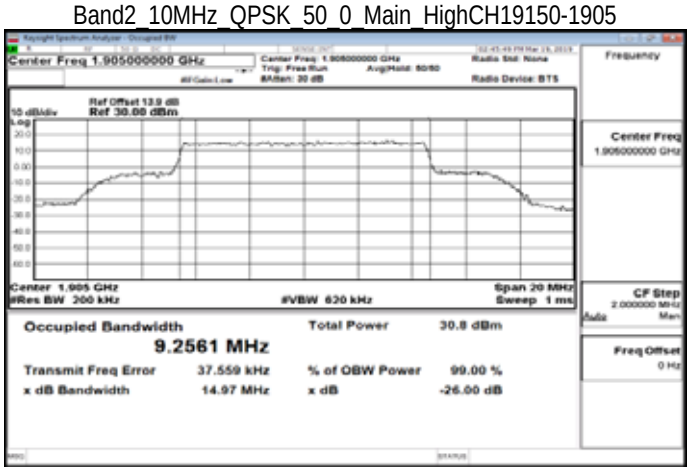
Band2_10MHz_QPSK_50_0_Main_MidCH18900-1880



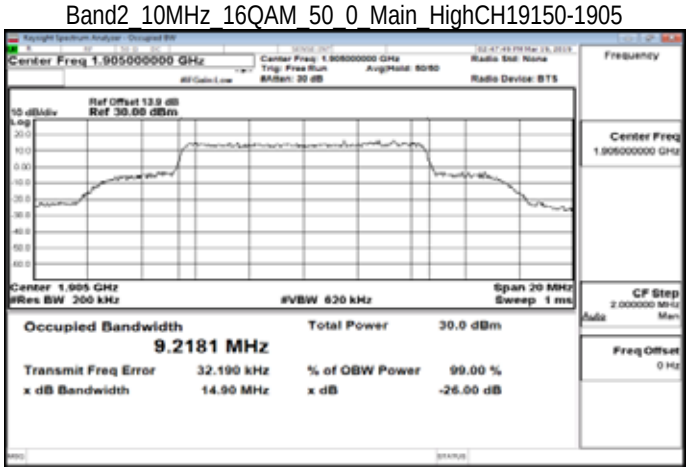
Band2_10MHz_16QAM_50_0_Main_MidCH18900-1880



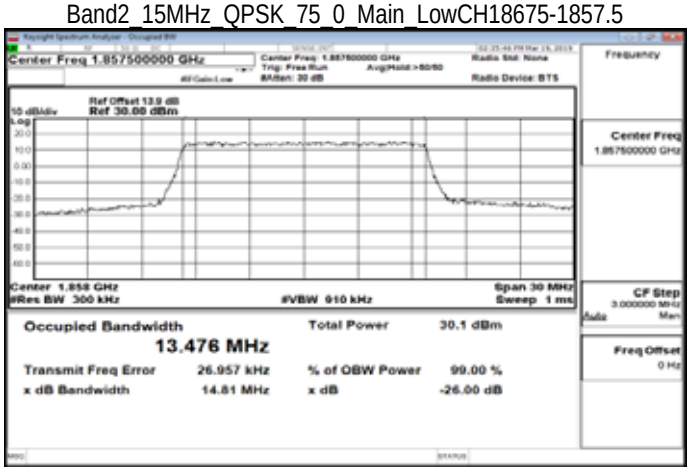
Band2_10MHz_QPSK_50_0_Main_HighCH19150-1905



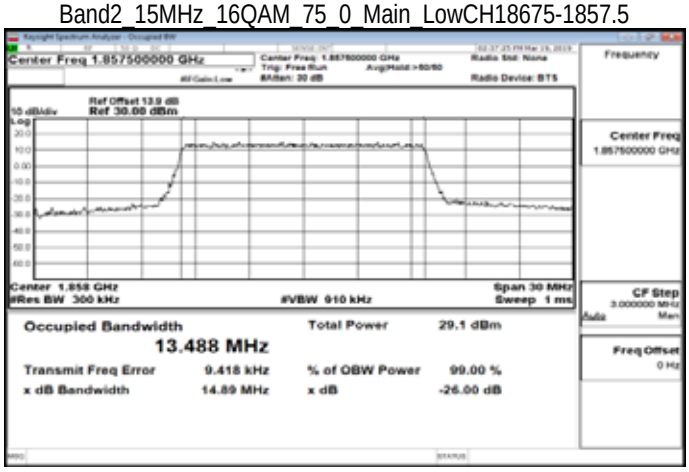
Band2_10MHz_16QAM_50_0_Main_HighCH19150-1905



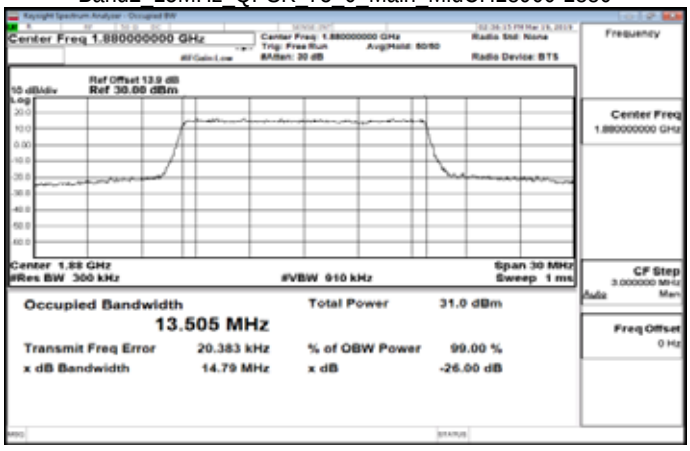
Band2_15MHz_QPSK_75_0_Main_LowCH18675-1857.5



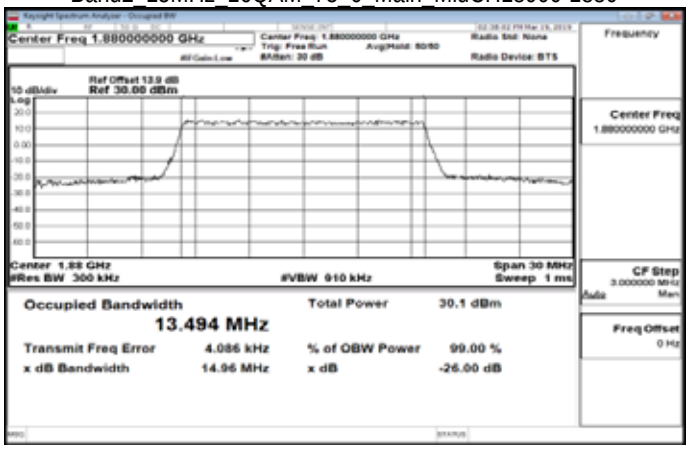
Band2_15MHz_16QAM_75_0_Main_LowCH18675-1857.5



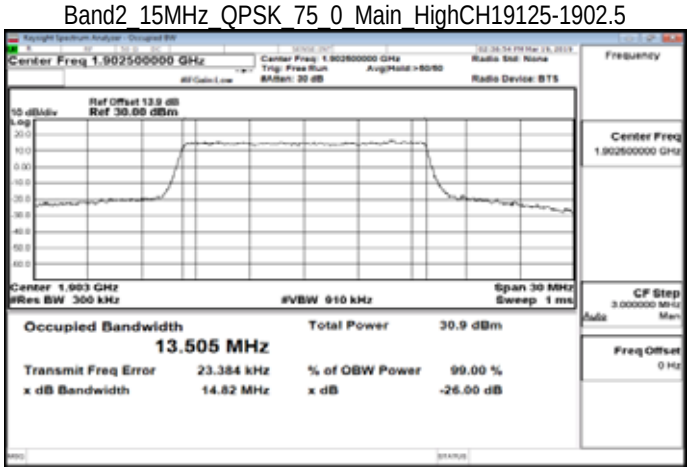
Band2_15MHz_QPSK_75_0_Main_MidCH18900-1880



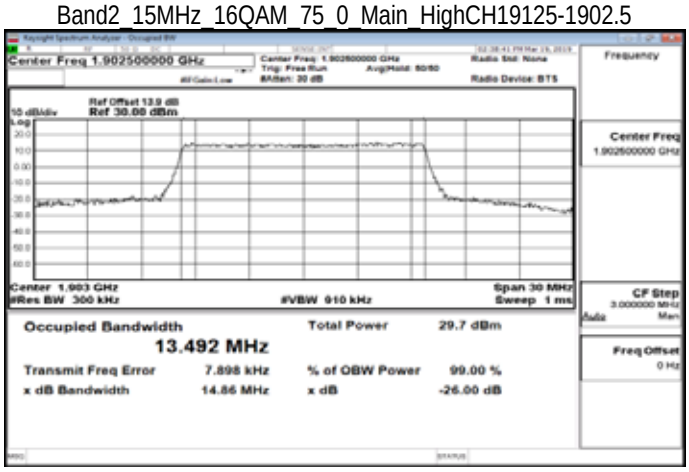
Band2_15MHz_16QAM_75_0_Main_MidCH18900-1880



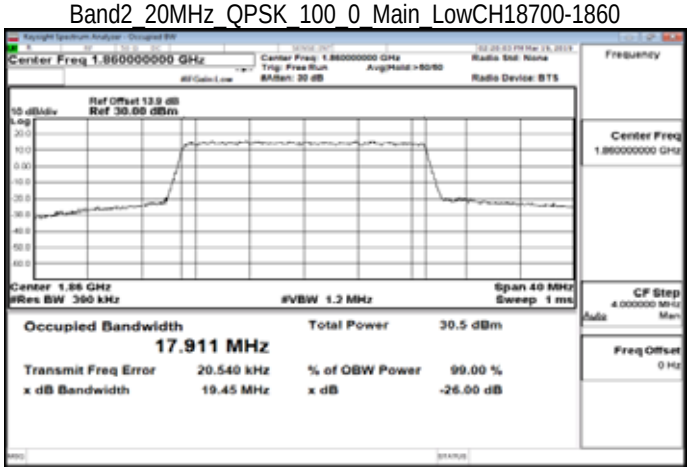
Band2_15MHz_QPSK_75_0_Main_HighCH19125-1902.5



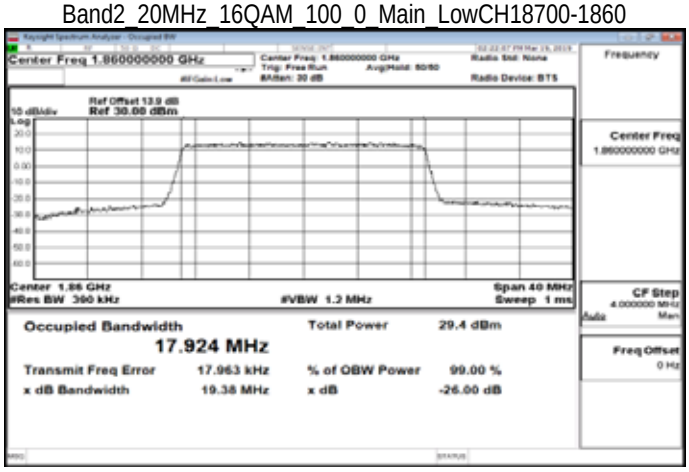
Band2_15MHz_16QAM_75_0_Main_HighCH19125-1902.5



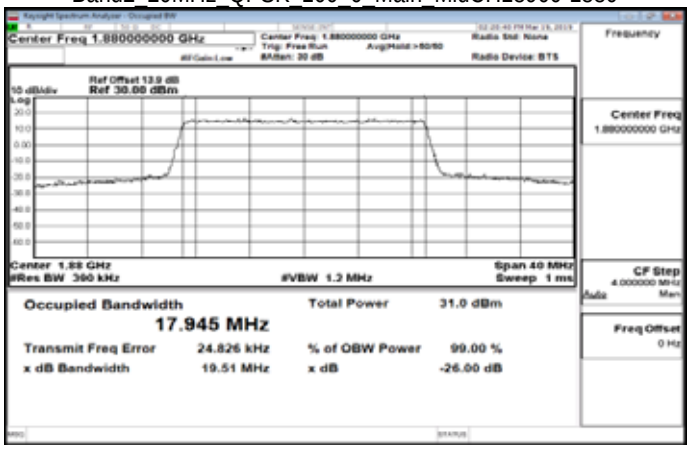
Band2_20MHz_QPSK_100_0_Main_LowCH18700-1860



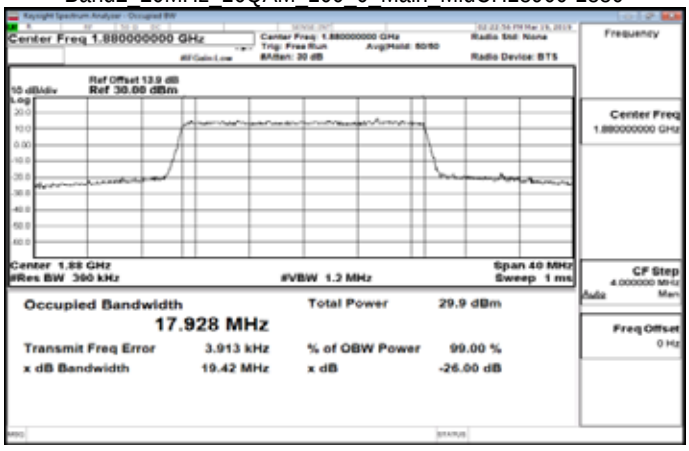
Band2_20MHz_16QAM_100_0_Main_LowCH18700-1860



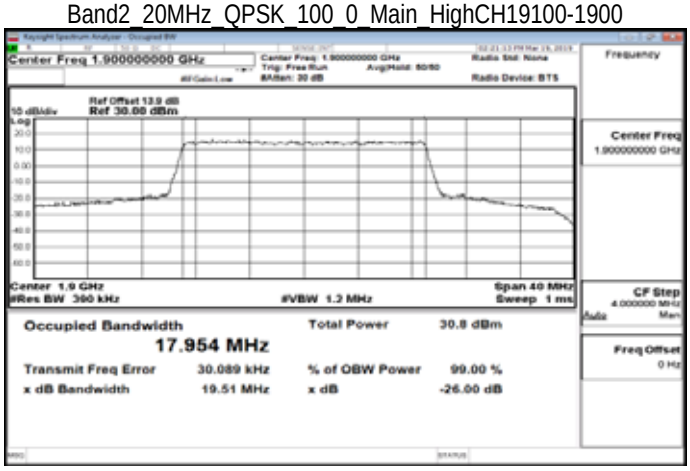
Band2_20MHz_QPSK_100_0_Main_MidCH18900-1880



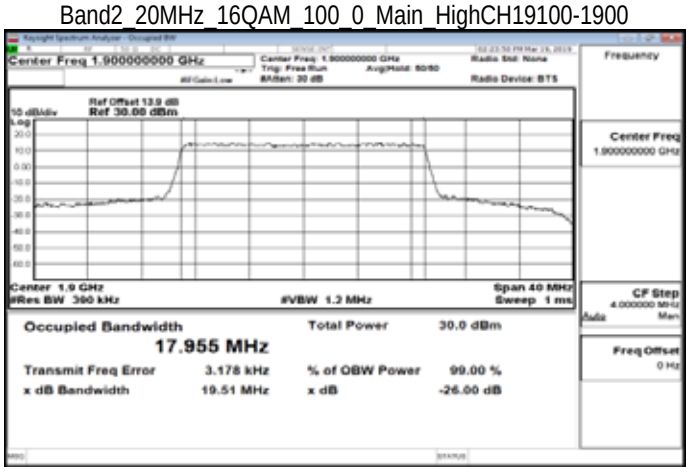
Band2_20MHz_16QAM_100_0_Main_MidCH18900-1880



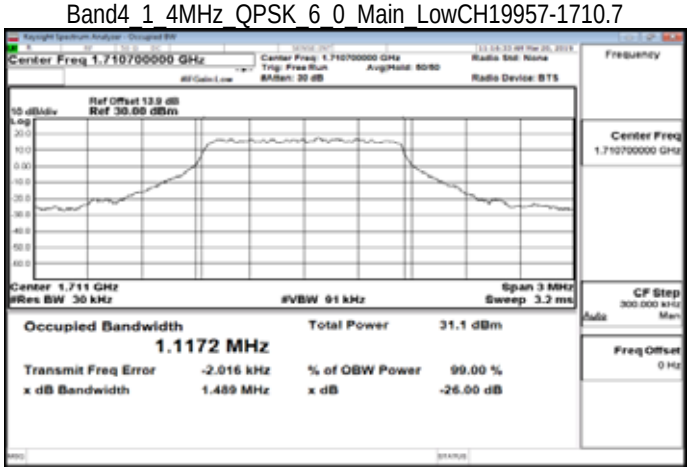
Band2_20MHz_QPSK_100_0_Main_HighCH19100-1900



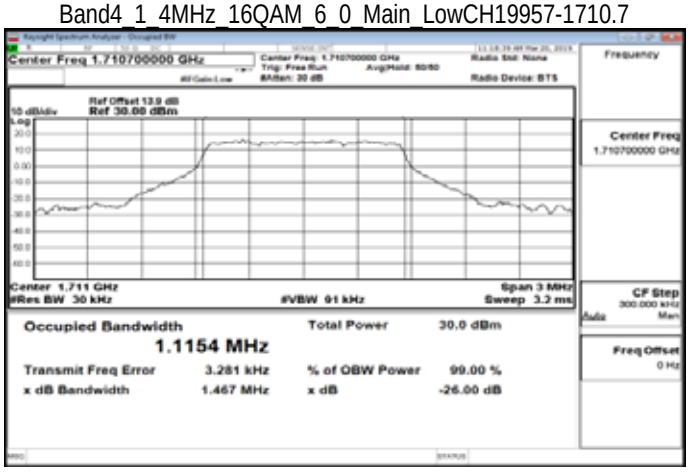
Band2_20MHz_16QAM_100_0_Main_HighCH19100-1900



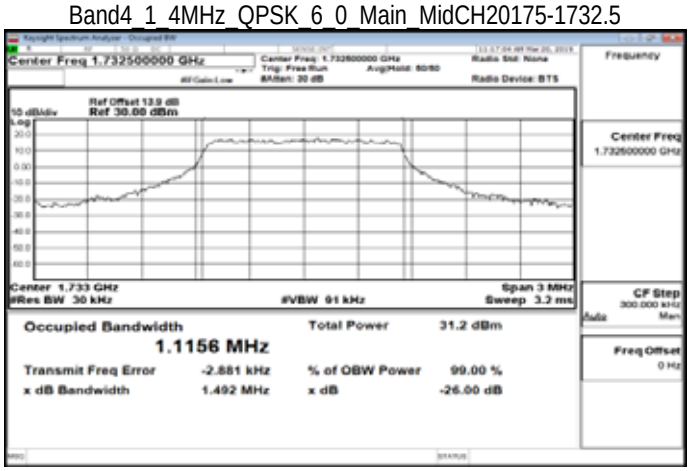
Band4_1_4MHz_QPSK_6_0_Main_LowCH19957-1710.7



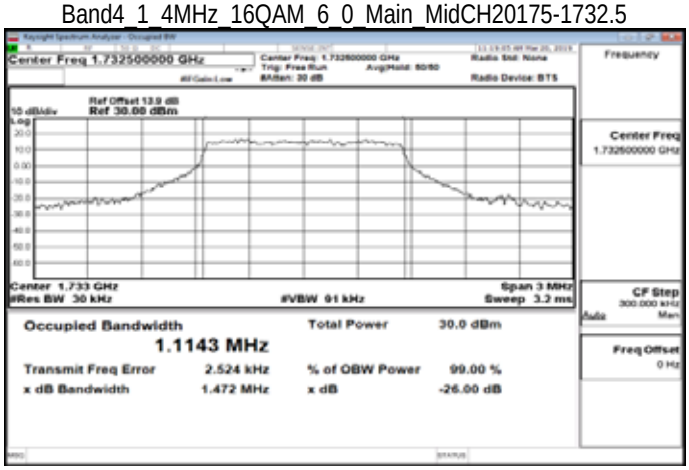
Band4_1_4MHz_16QAM_6_0_Main_LowCH19957-1710.7



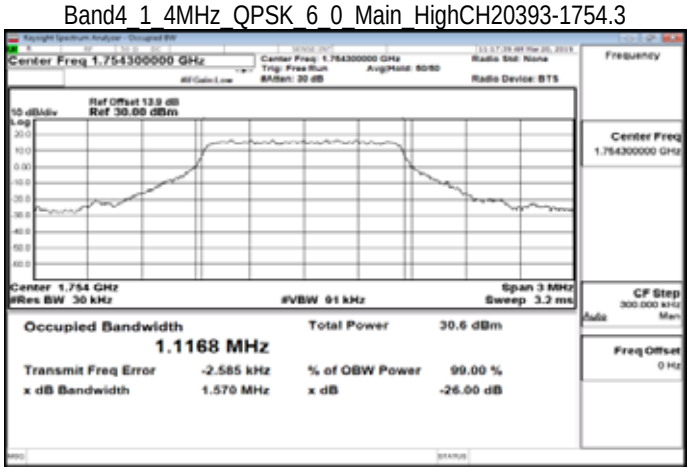
Band4_1_4MHz_QPSK_6_0_Main_MidCH20175-1732.5



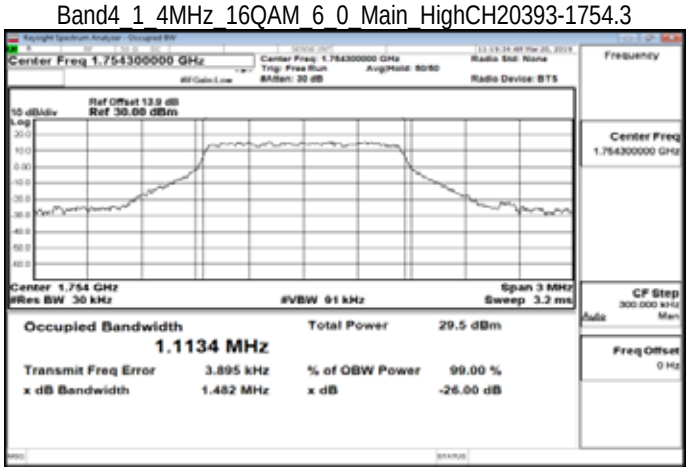
Band4_1_4MHz_16QAM_6_0_Main_MidCH20175-1732.5



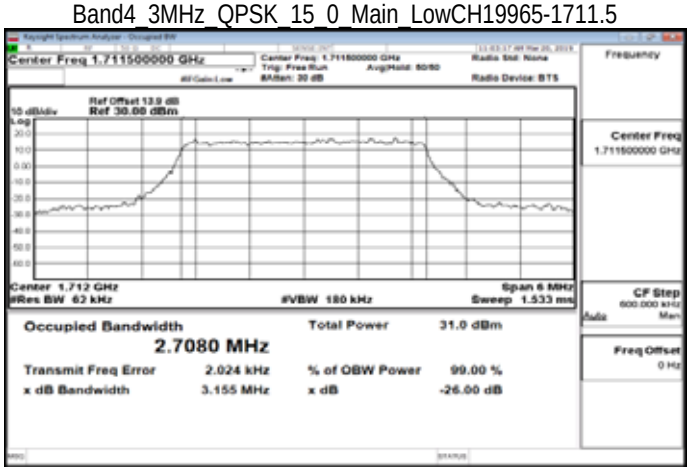
Band4_1_4MHz_QPSK_6_0_Main_HighCH20393-1754.3



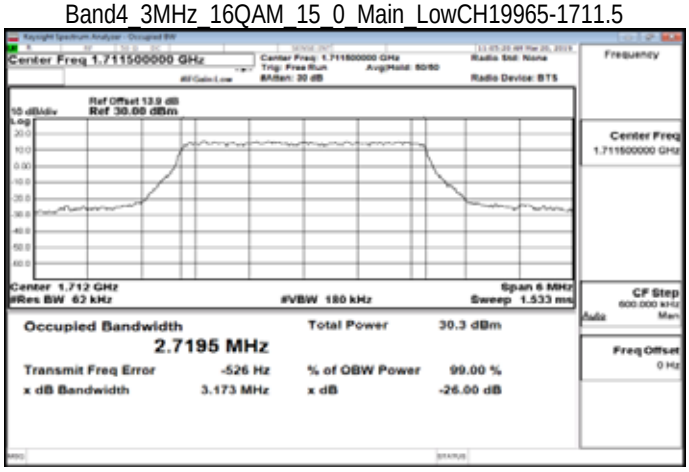
Band4_1_4MHz_16QAM_6_0_Main_HighCH20393-1754.3



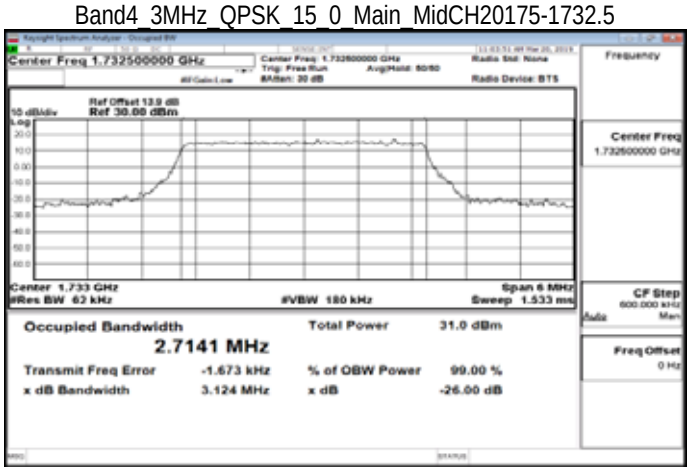
Band4_3MHz_QPSK_15_0_Main_LowCH19965-1711.5



Band4_3MHz_16QAM_15_0_Main_LowCH19965-1711.5



Band4_3MHz_QPSK_15_0_Main_MidCH20175-1732.5



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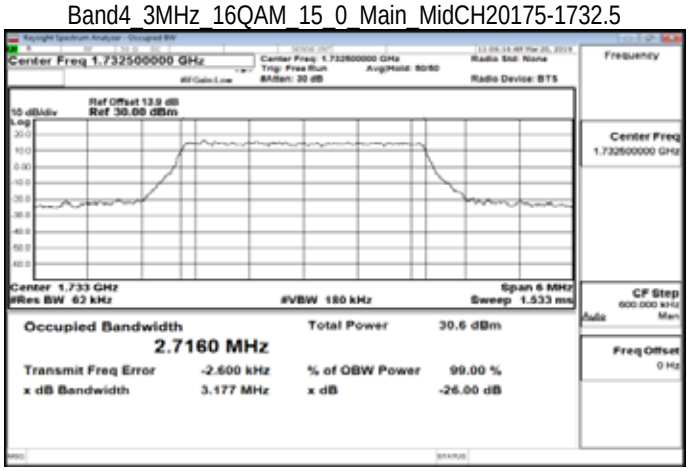

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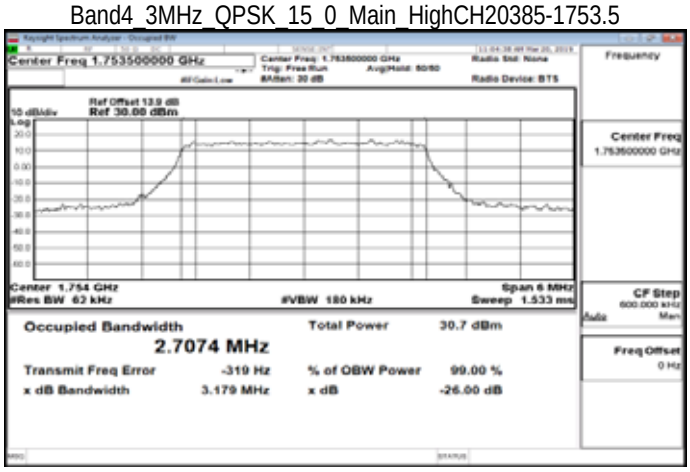

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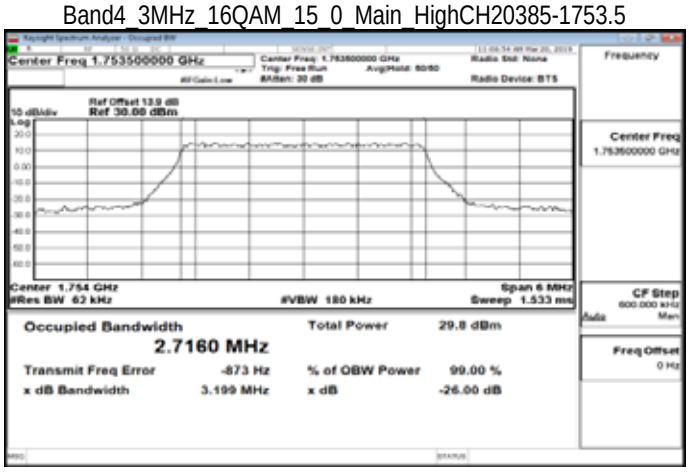
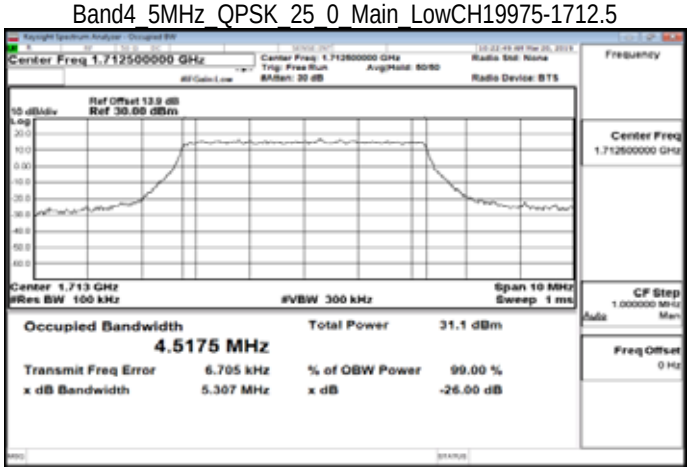


Band4_5MHz_QPSK_25_0_Main_LowCH19975-1712.5



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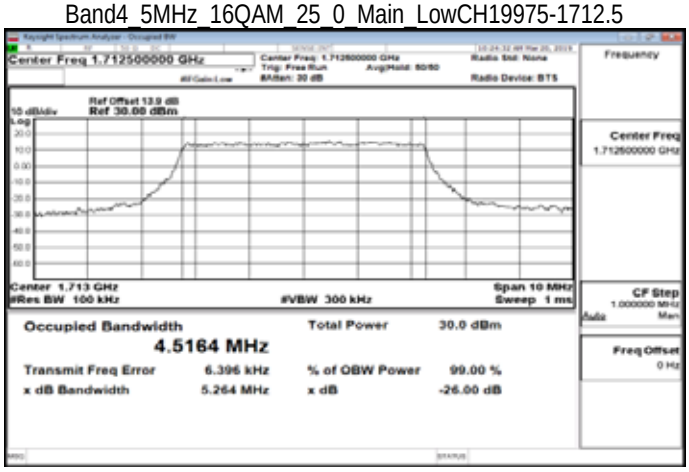

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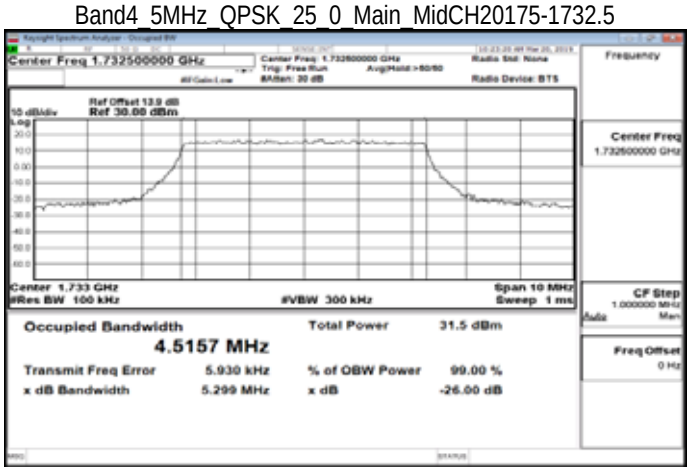

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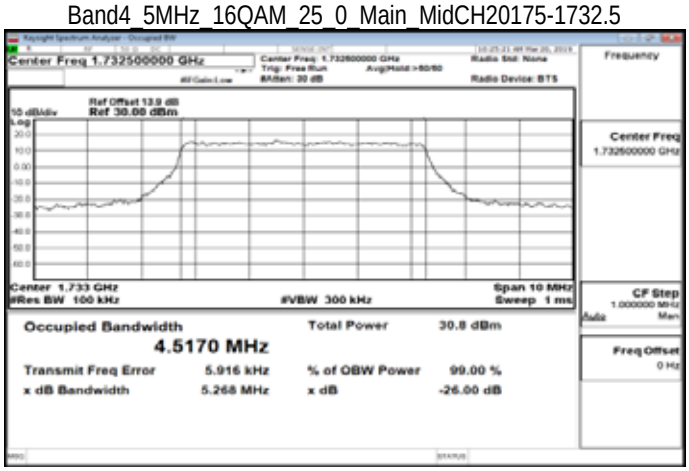

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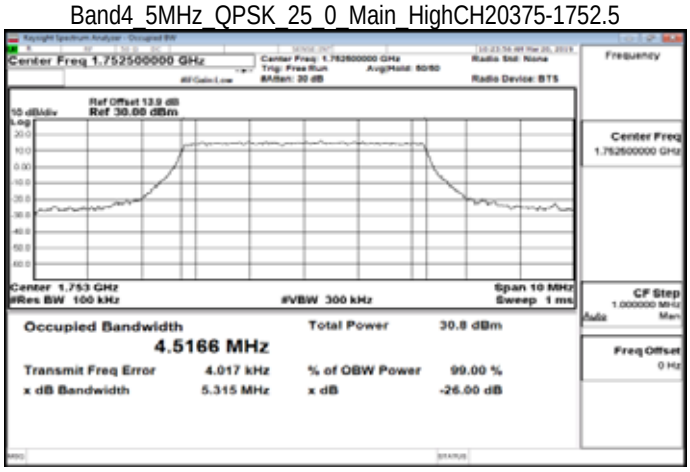

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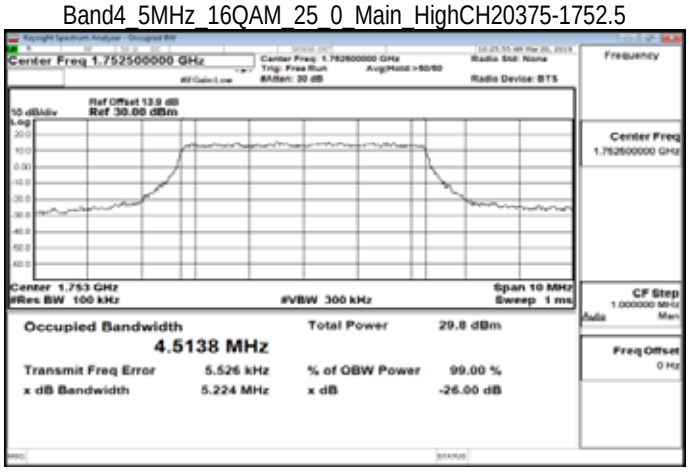
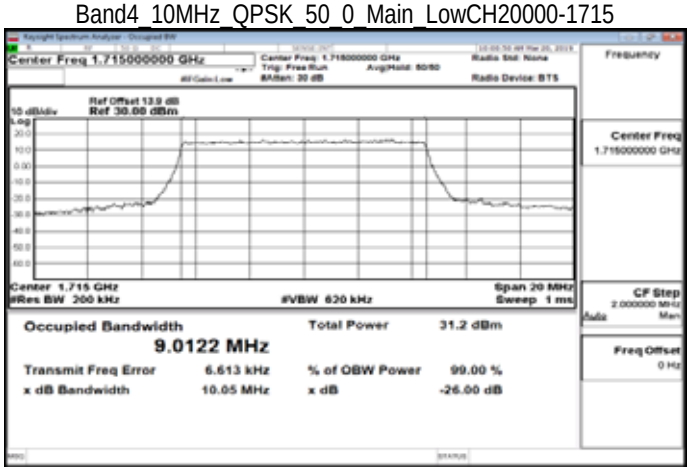


Band4_10MHz_QPSK_50_0_Main_LowCH20000-1715



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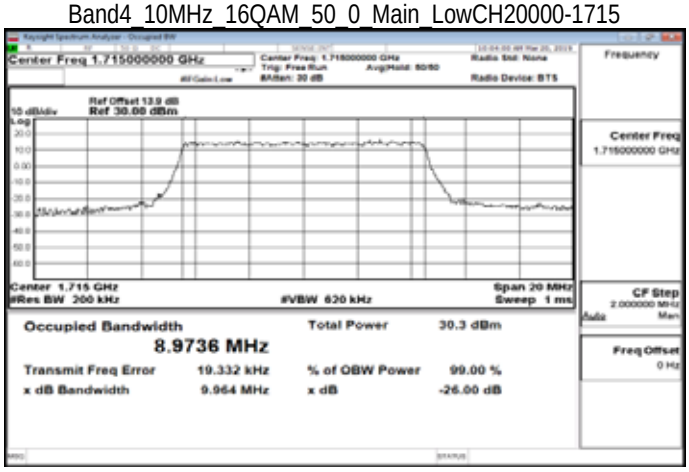
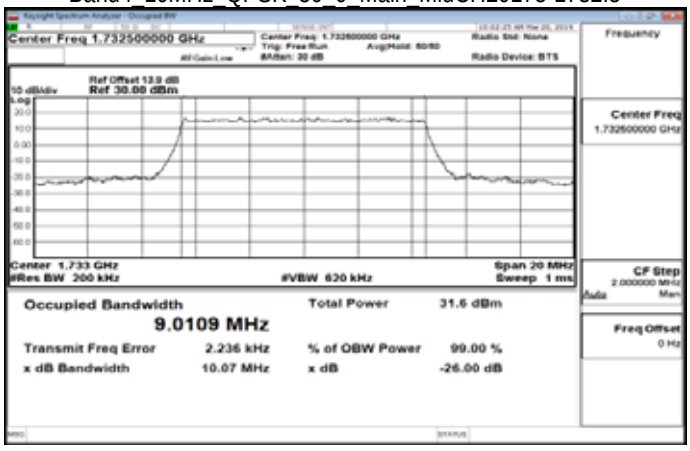
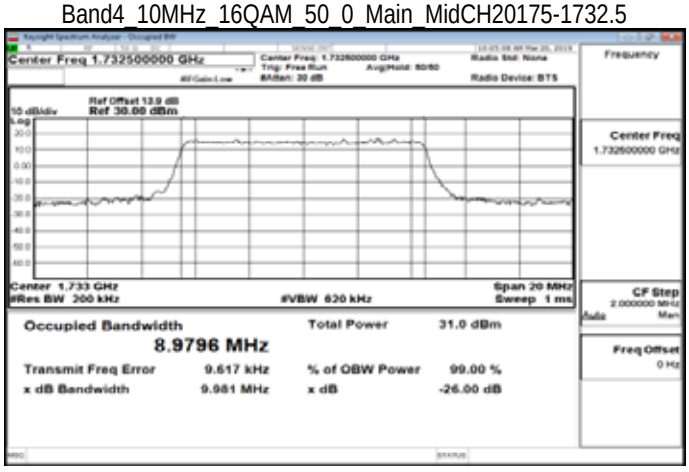


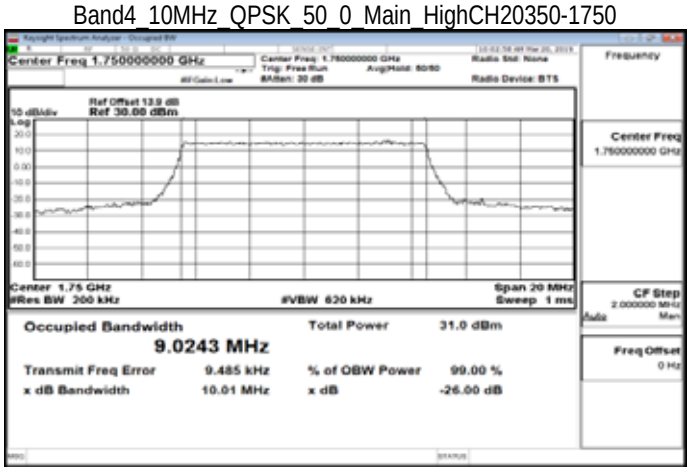
Band4_10MHz_QPSK_50_0_Main_MidCH20175-1732.5



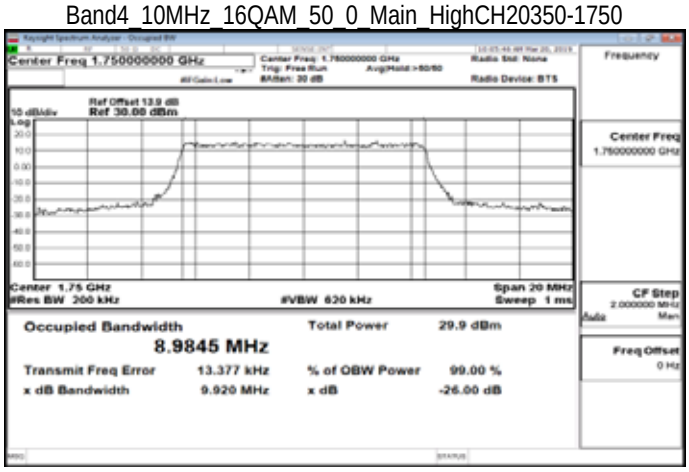
Band4_10MHz_16QAM_50_0_Main_MidCH20175-1732.5



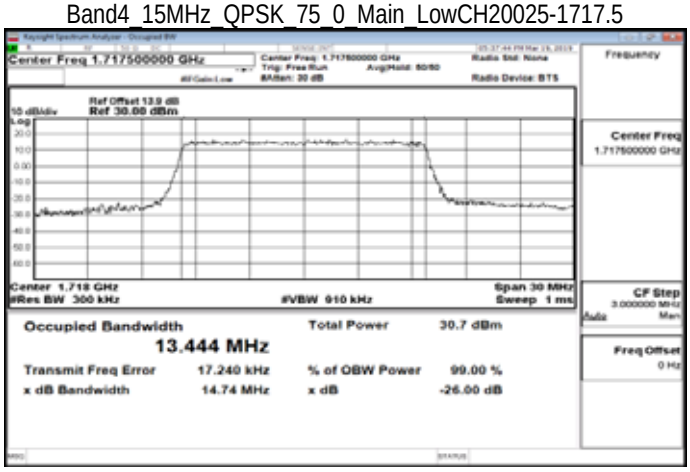
Band4_10MHz_QPSK_50_0_Main_HighCH20350-1750



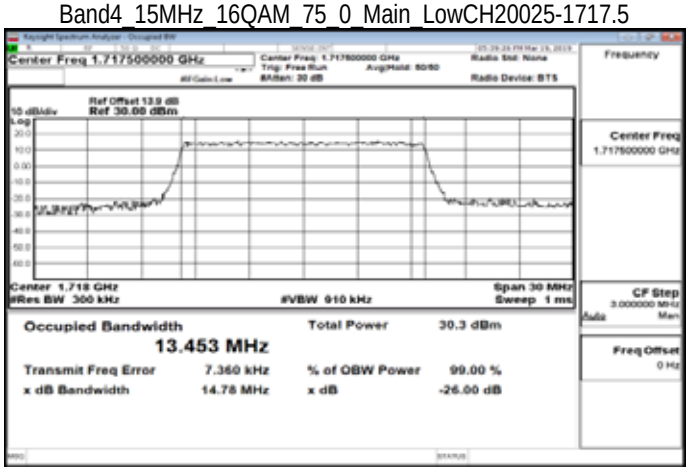
Band4_10MHz_16QAM_50_0_Main_HighCH20350-1750



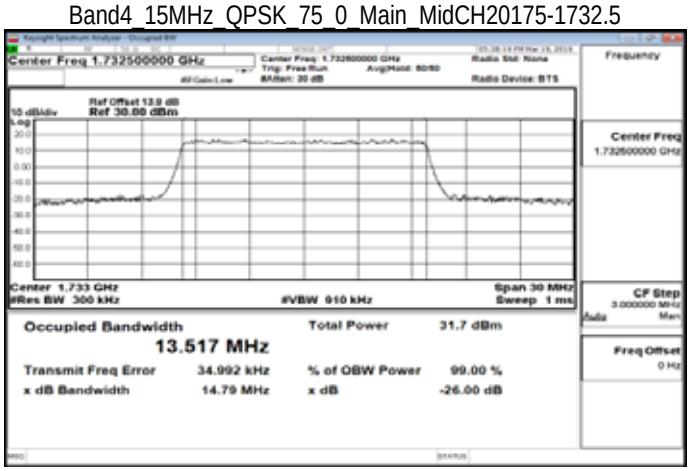
Band4_15MHz_QPSK_75_0_Main_LowCH20025-1717.5



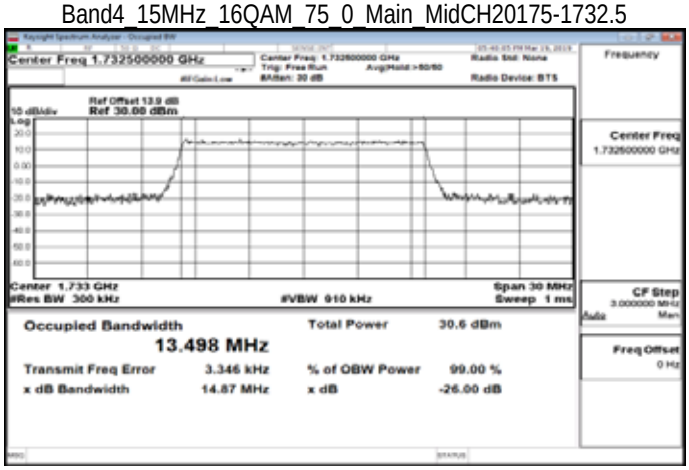
Band4_15MHz_16QAM_75_0_Main_LowCH20025-1717.5



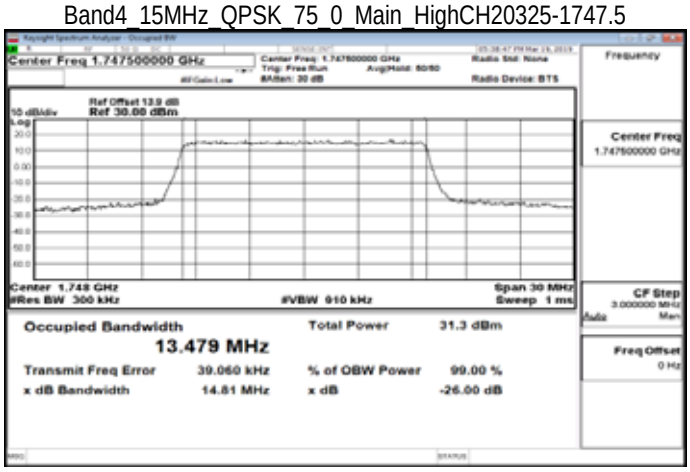
Band4_15MHz_QPSK_75_0_Main_MidCH20175-1732.5



Band4_15MHz_16QAM_75_0_Main_MidCH20175-1732.5



Band4_15MHz_QPSK_75_0_Main_HighCH20325-1747.5



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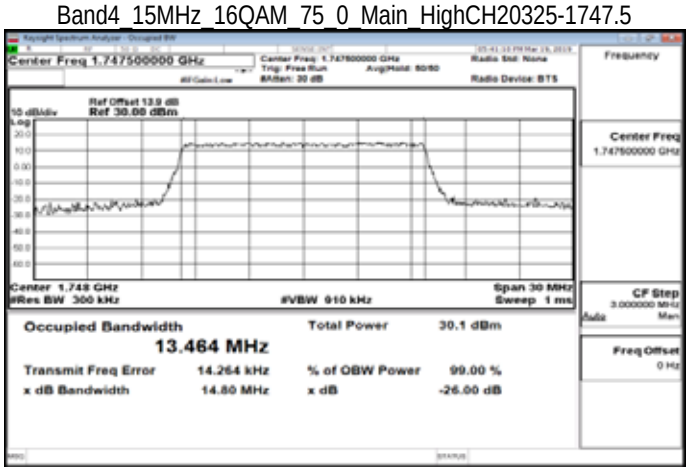
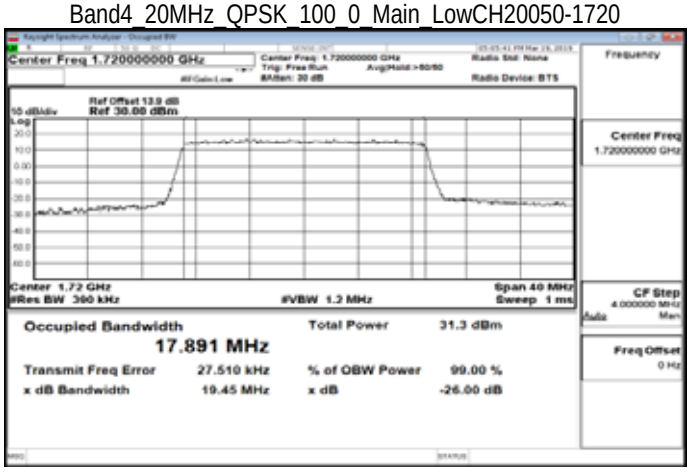


Band4_20MHz_QPSK_100_0_Main_LowCH20050-1720



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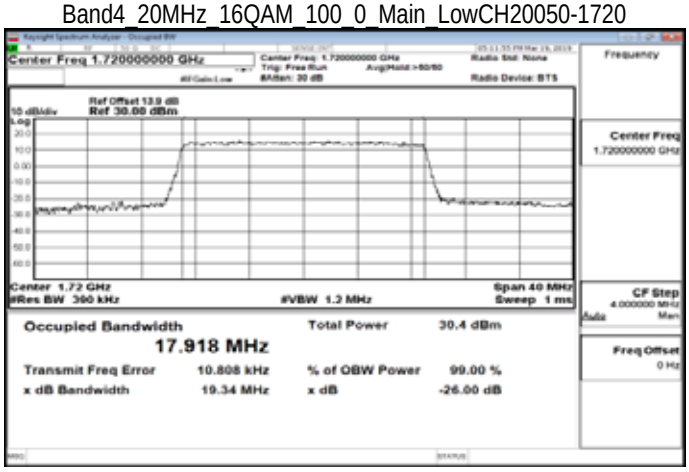
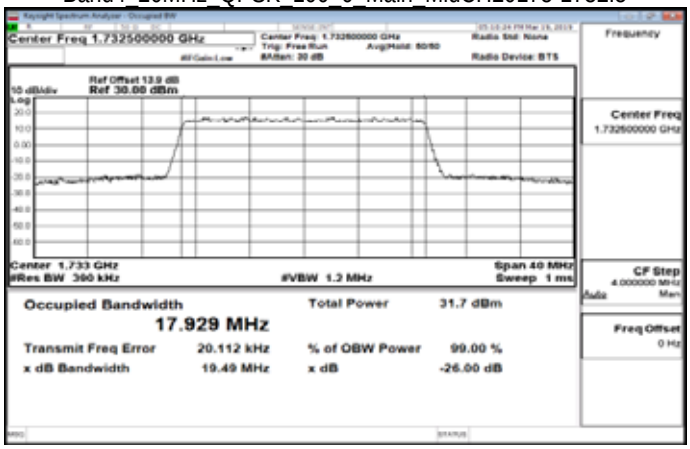


Band4_20MHz_QPSK_100_0_Main_MidCH20175-1732.5



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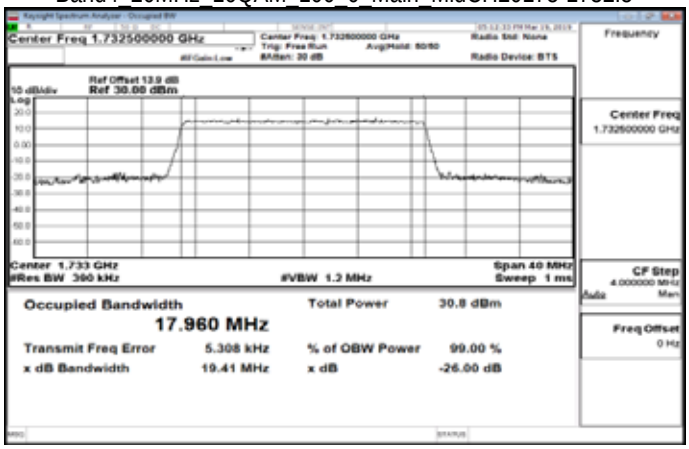

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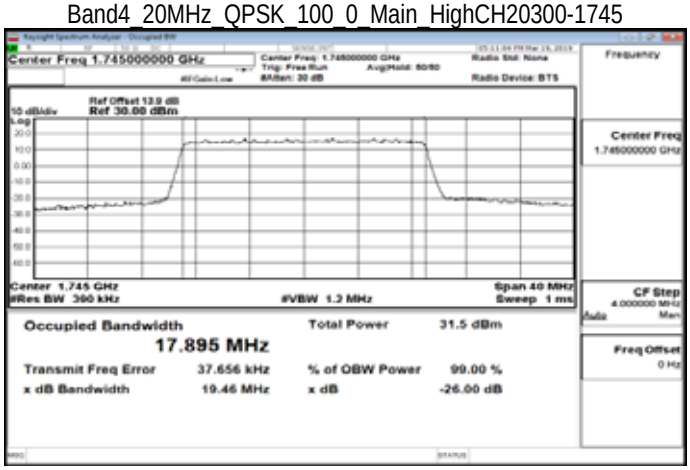

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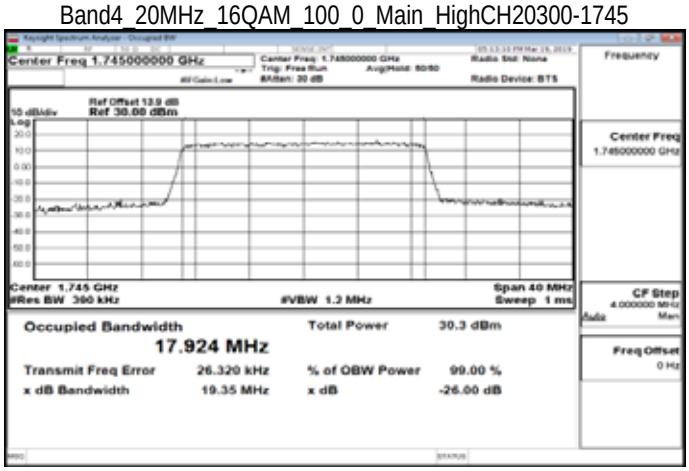
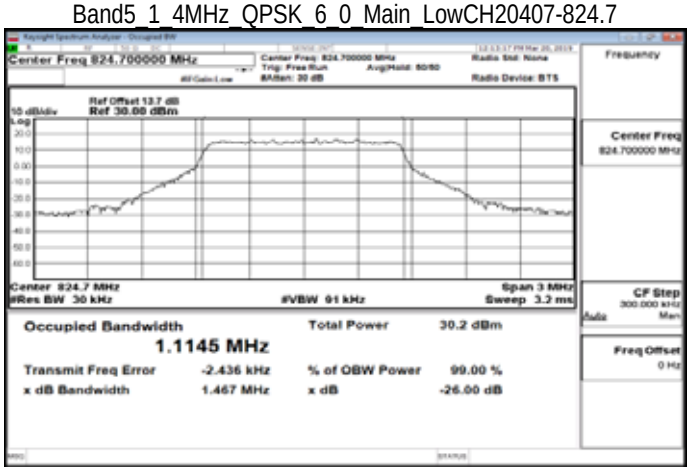
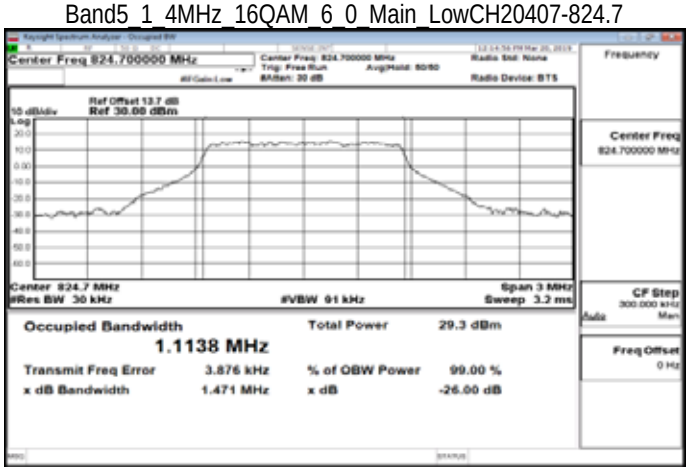


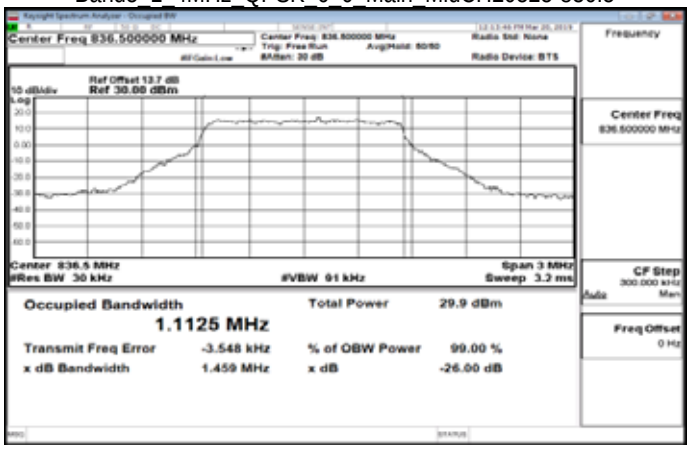
Band5_1_4MHz_QPSK_6_0_Main_LowCH20407-824.7



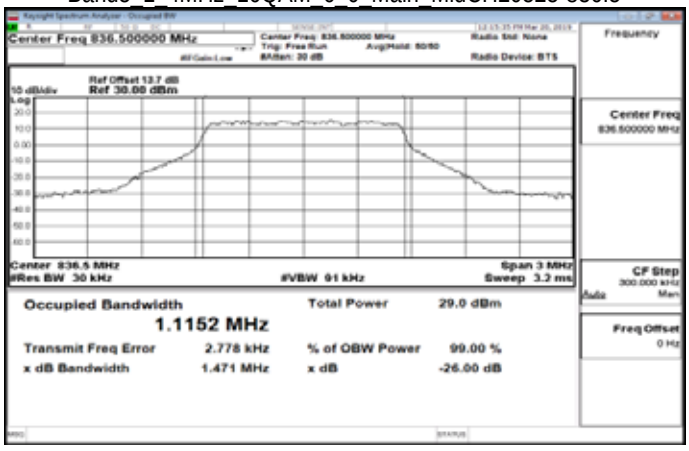
Band5_1_4MHz_16QAM_6_0_Main_LowCH20407-824.7



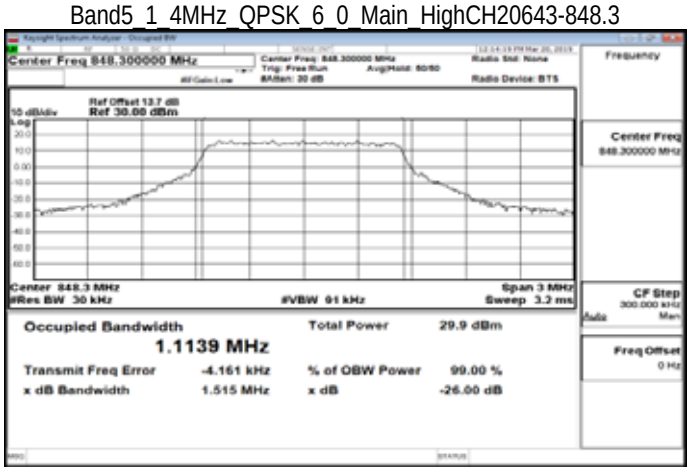
Band5_1_4MHz_QPSK_6_0_Main_MidCH20525-836.5



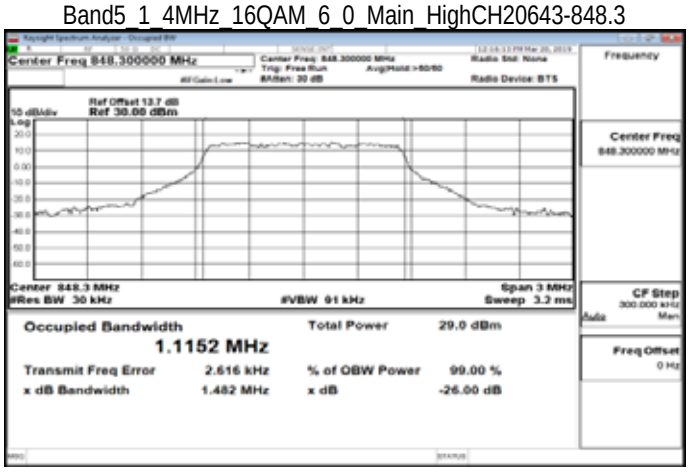
Band5_1_4MHz_16QAM_6_0_Main_MidCH20525-836.5



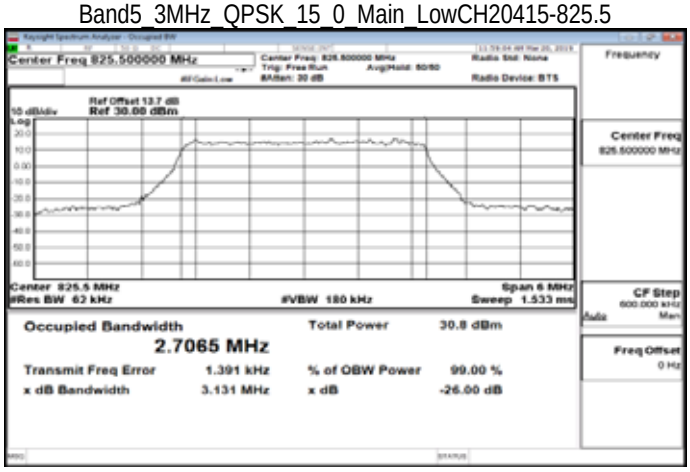
Band5_1_4MHz_QPSK_6_0_Main_HighCH20643-848.3



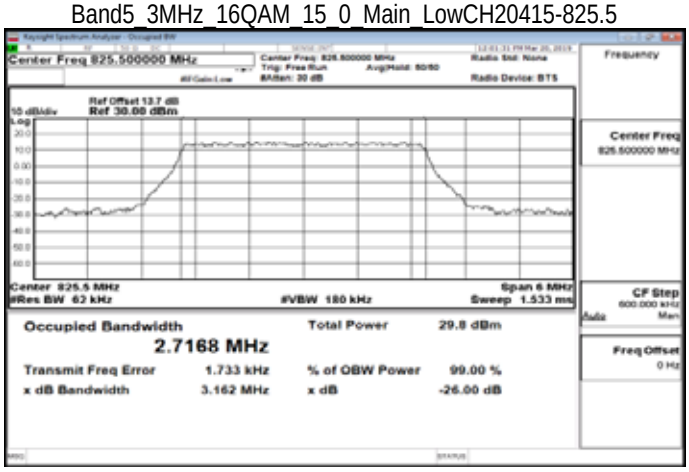
Band5_1_4MHz_16QAM_6_0_Main_HighCH20643-848.3



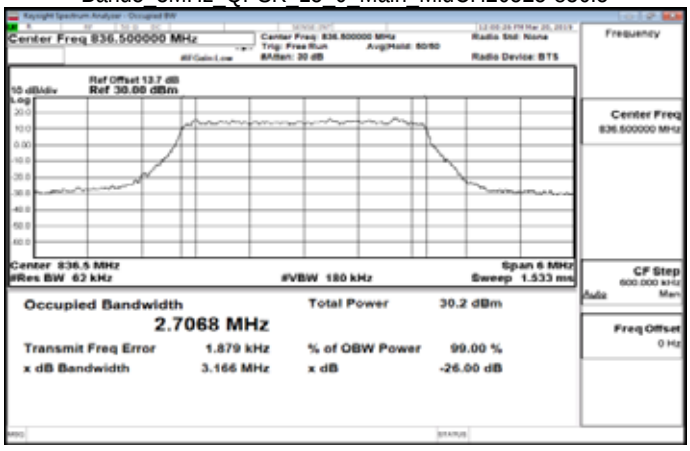
Band5_3MHz_QPSK_15_0_Main_LowCH20415-825.5



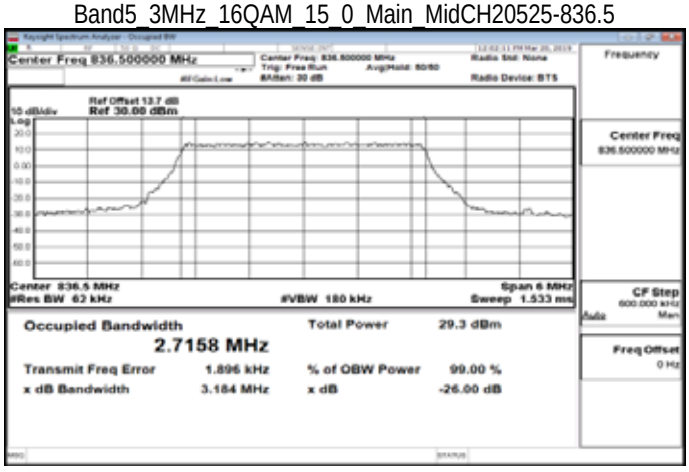
Band5_3MHz_16QAM_15_0_Main_LowCH20415-825.5



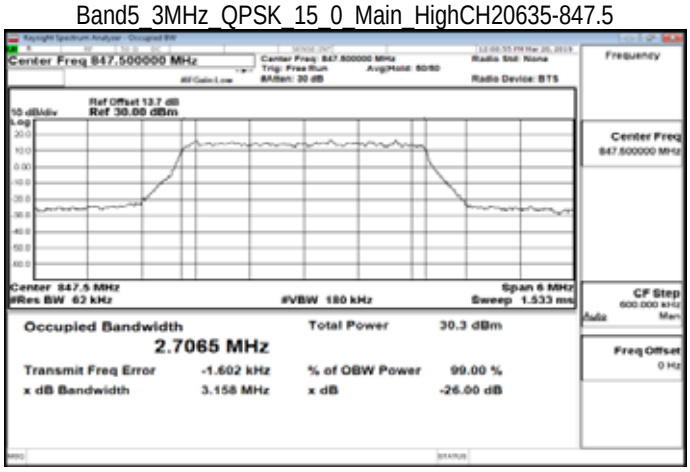
Band5_3MHz_QPSK_15_0_Main_MidCH20525-836.5



Band5_3MHz_16QAM_15_0_Main_MidCH20525-836.5



Band5_3MHz_QPSK_15_0_Main_HighCH20635-847.5



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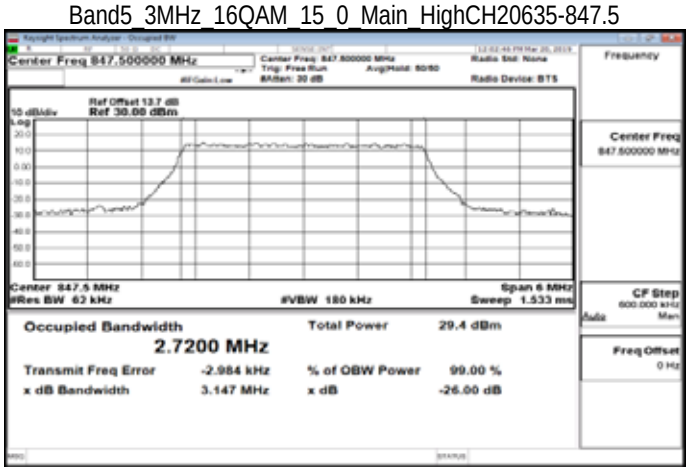
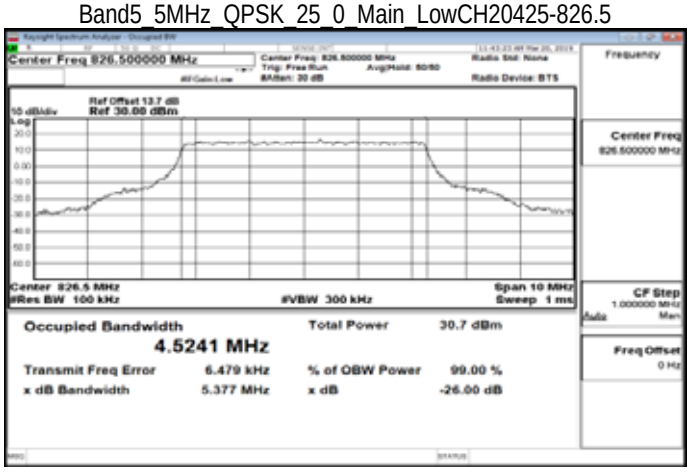
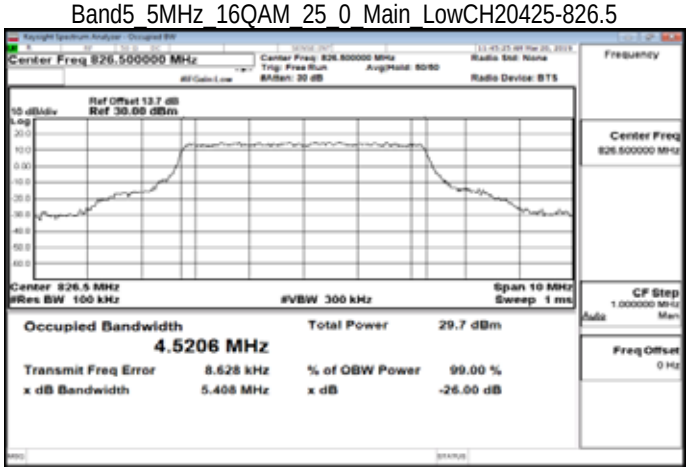


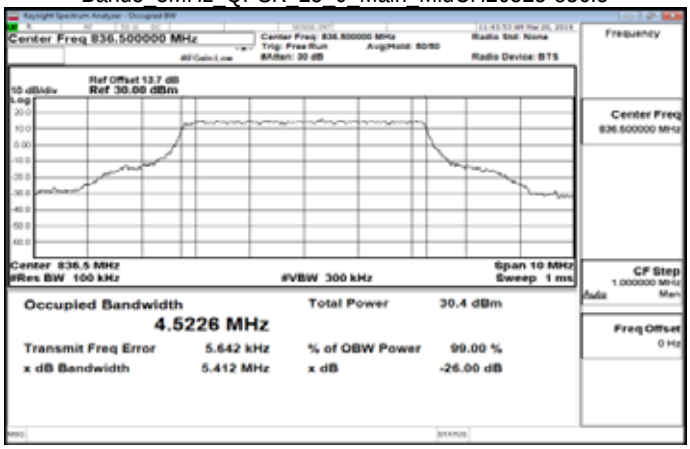
Band5_5MHz_QPSK_25_0_Main_LowCH20425-826.5



Band5_5MHz_16QAM_25_0_Main_LowCH20425-826.5



Band5_5MHz_QPSK_25_0_Main_MidCH20525-836.5



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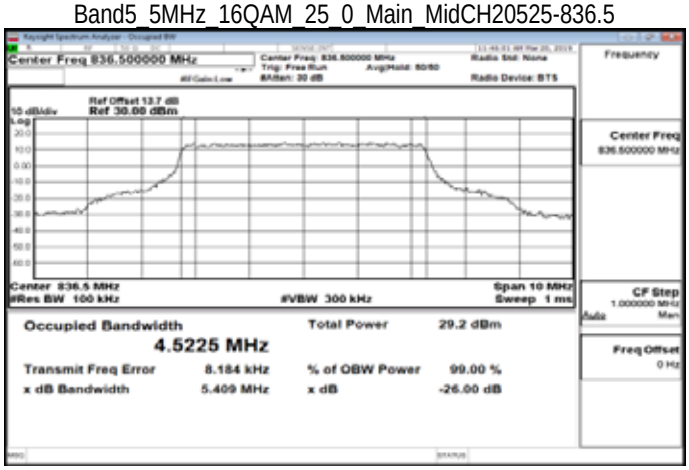
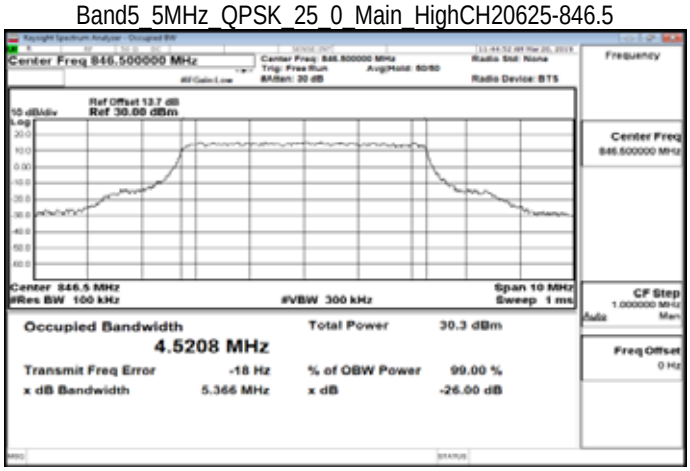


Band5_5MHz_QPSK_25_0_Main_HighCH20625-846.5



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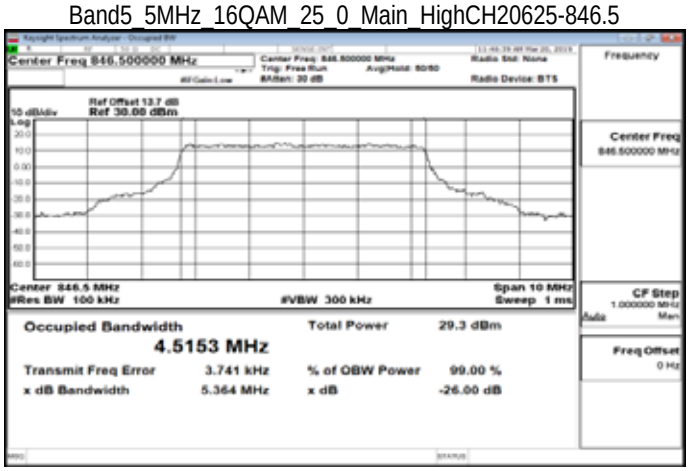
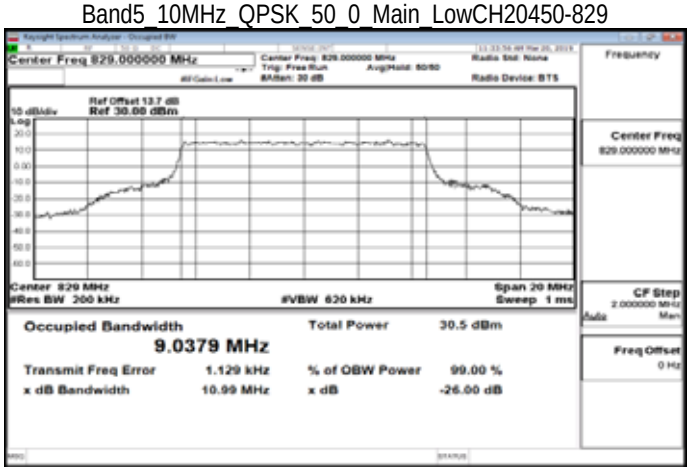
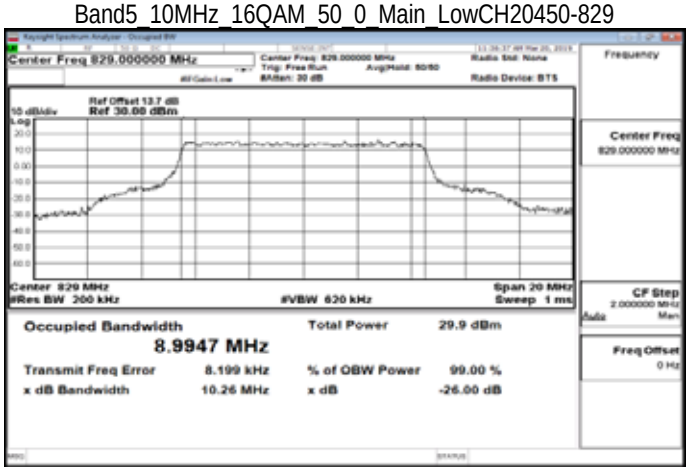


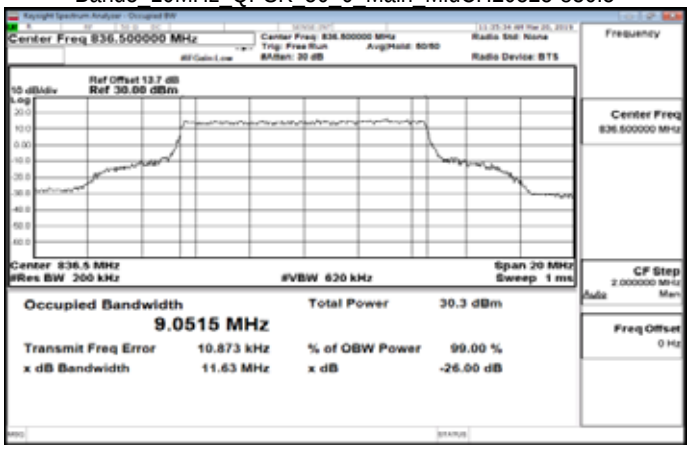
Band5_10MHz_QPSK_50_0_Main_LowCH20450-829



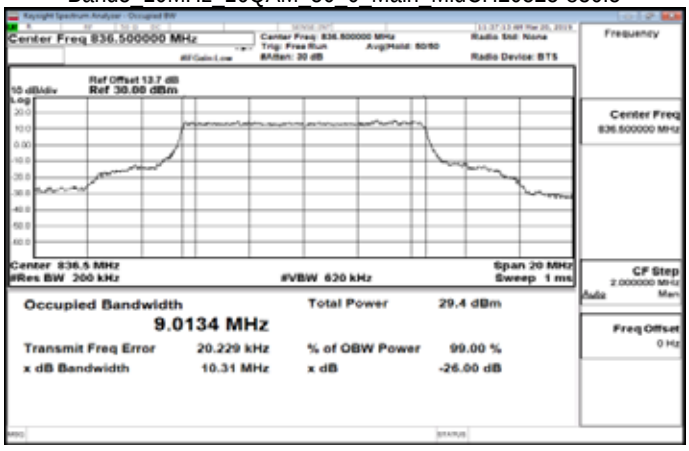
Band5_10MHz_16QAM_50_0_Main_LowCH20450-829



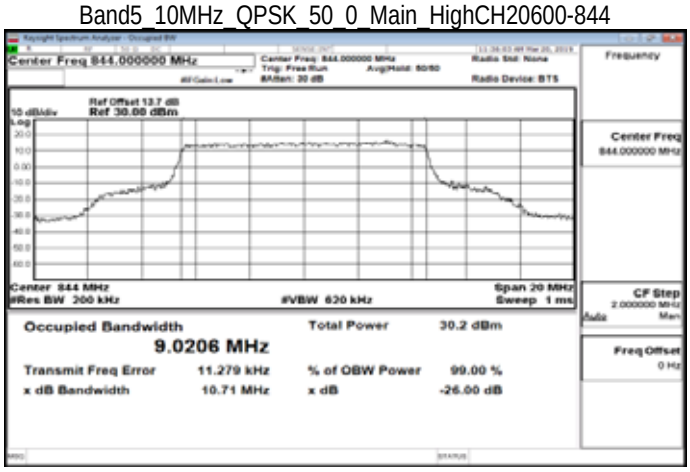
Band5_10MHz_QPSK_50_0_Main_MidCH20525-836.5



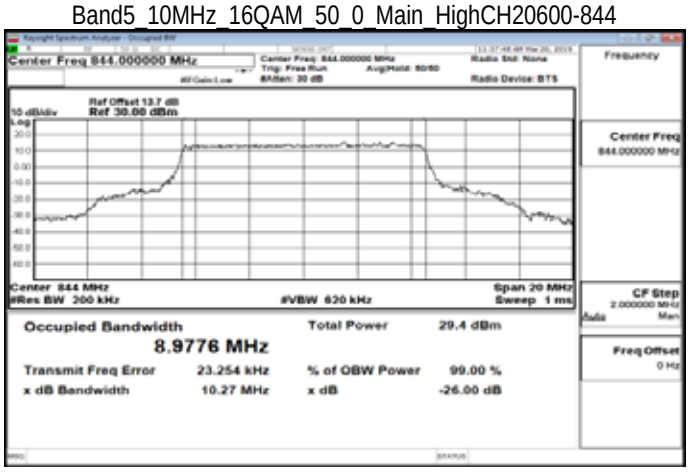
Band5_10MHz_16QAM_50_0_Main_MidCH20525-836.5



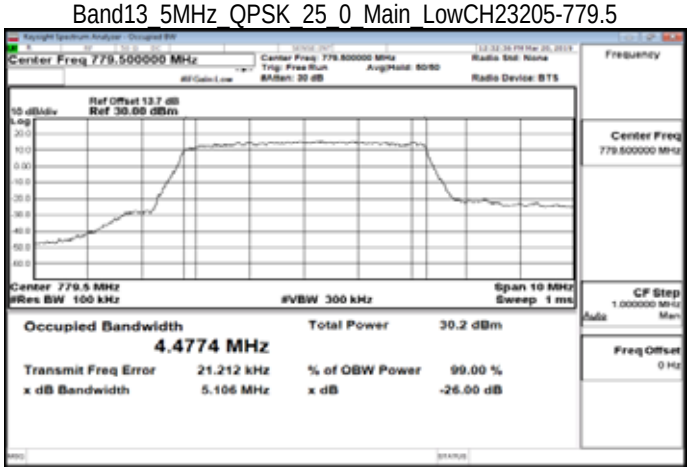
Band5_10MHz_QPSK_50_0_Main_HighCH20600-844



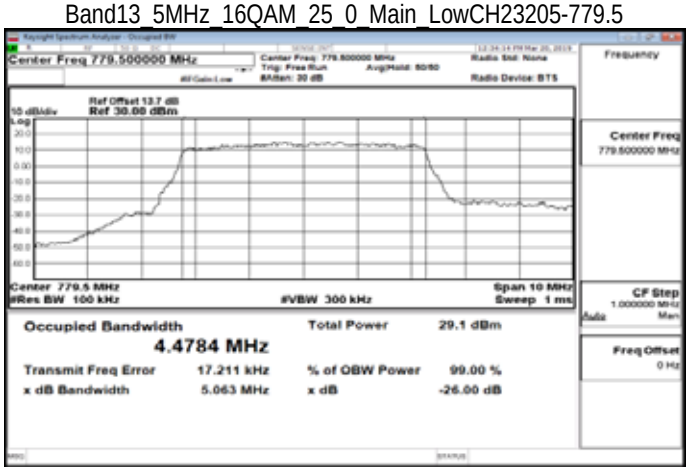
Band5_10MHz_16QAM_50_0_Main_HighCH20600-844



Band13_5MHz_QPSK_25_0_Main_LowCH23205-779.5



Band13_5MHz_16QAM_25_0_Main_LowCH23205-779.5



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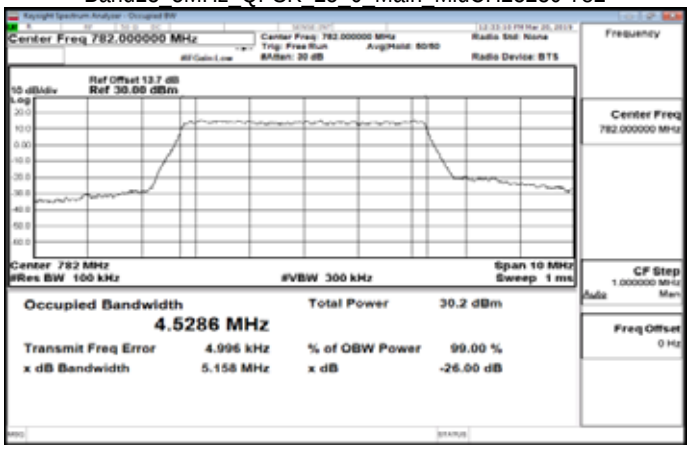

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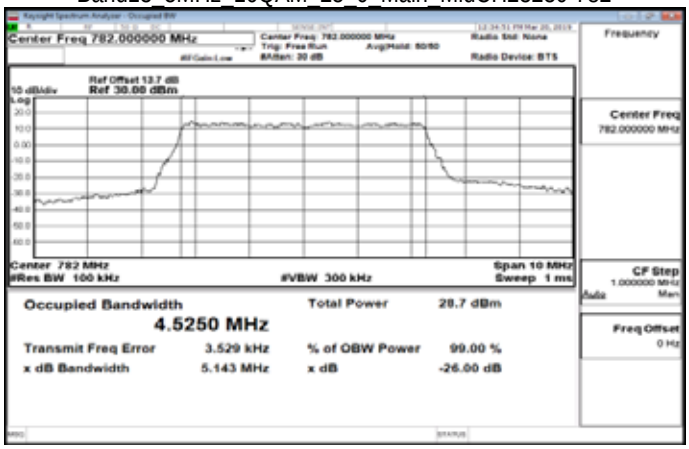

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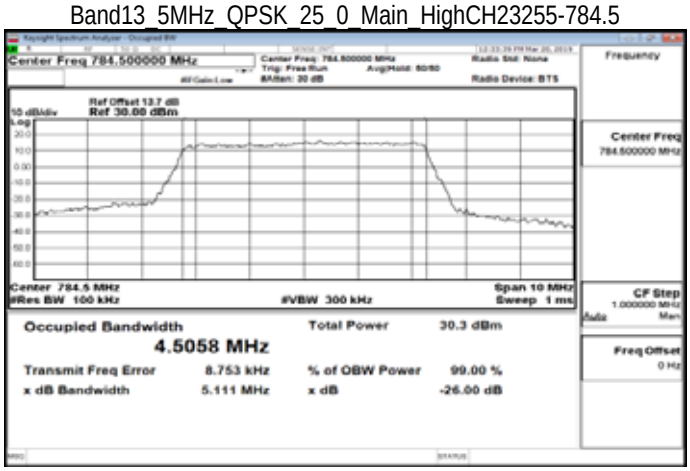

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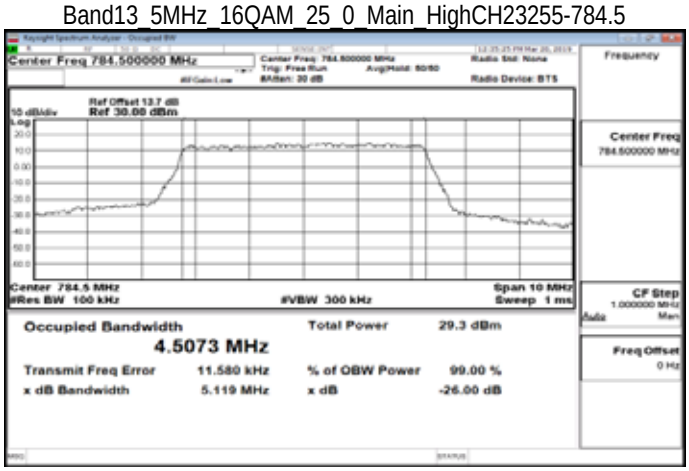

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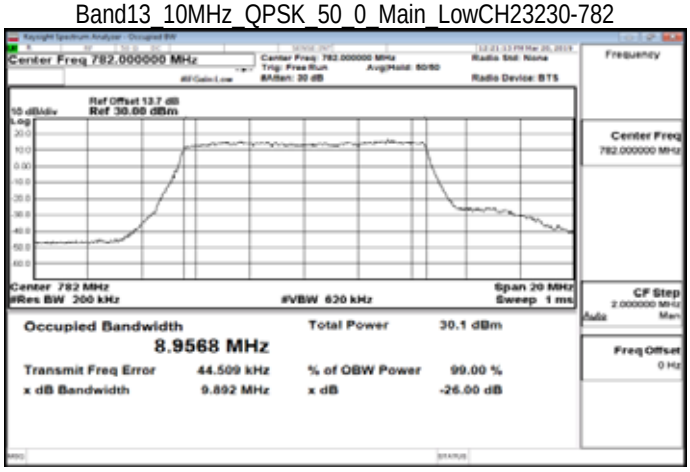
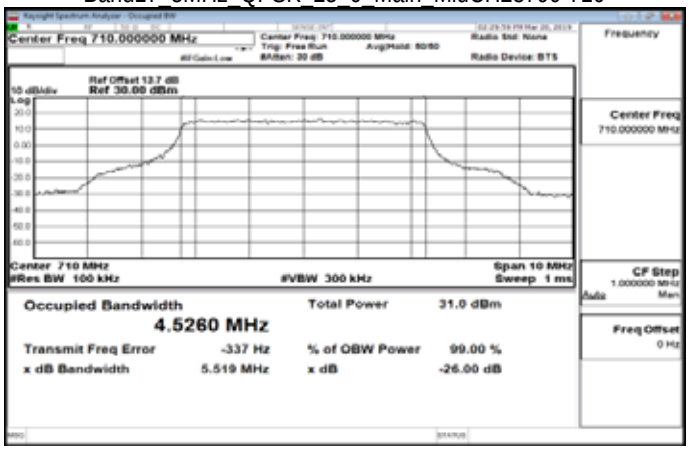
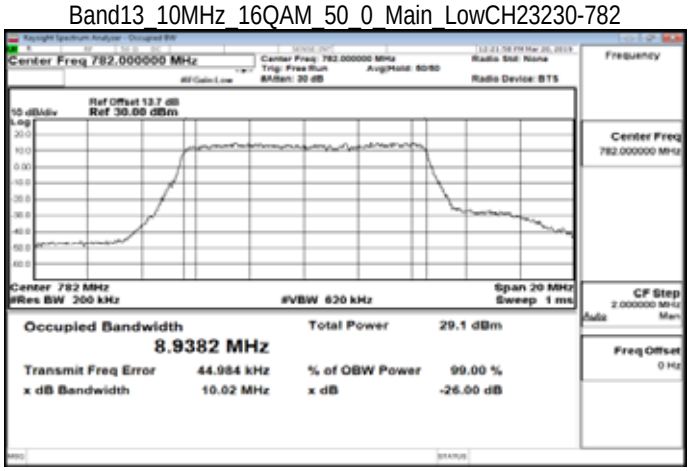


Band17_5MHz_QPSK_25_0_Main_MidCH23790-710



Band13_10MHz_16QAM_50_0_Main_LowCH23230-782



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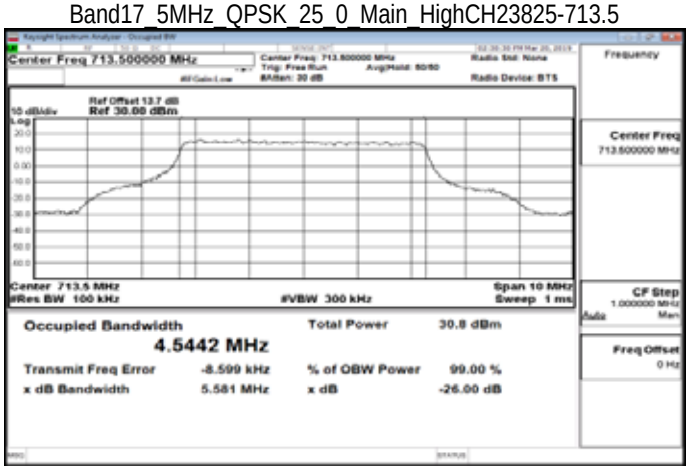

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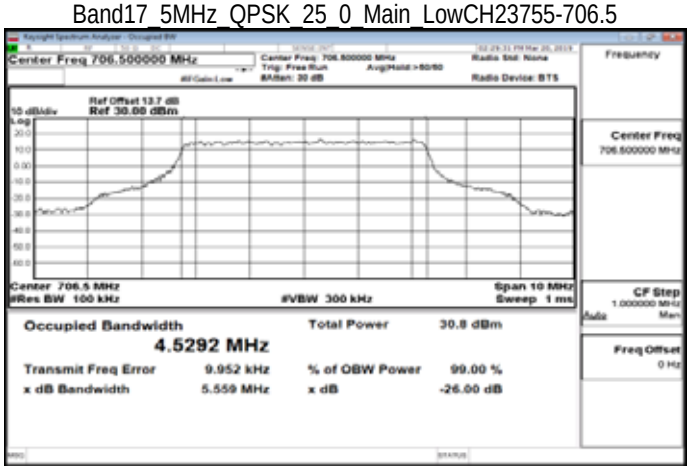

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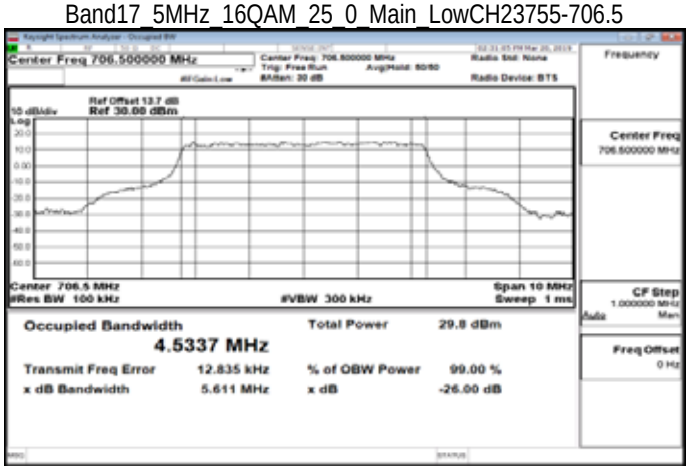

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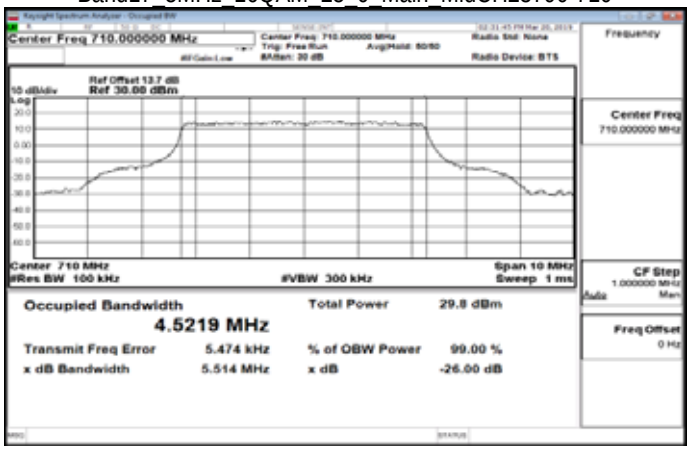

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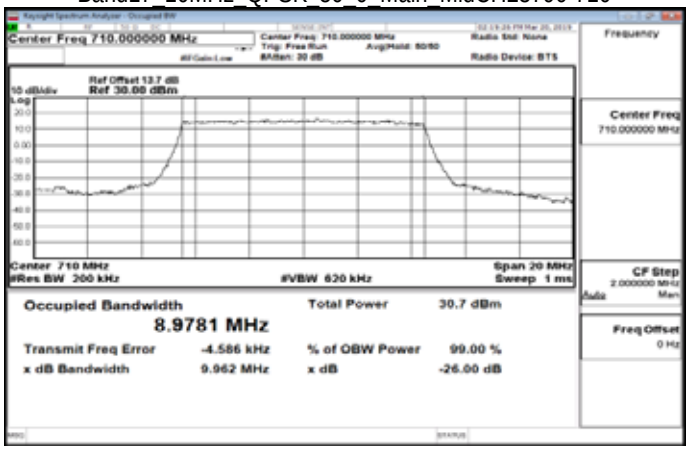
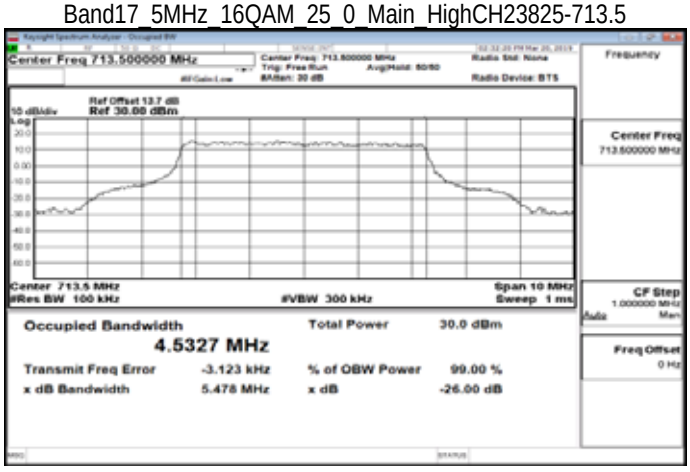


Band17_5MHz_16QAM_25_0_Main_HighCH23825-713.5



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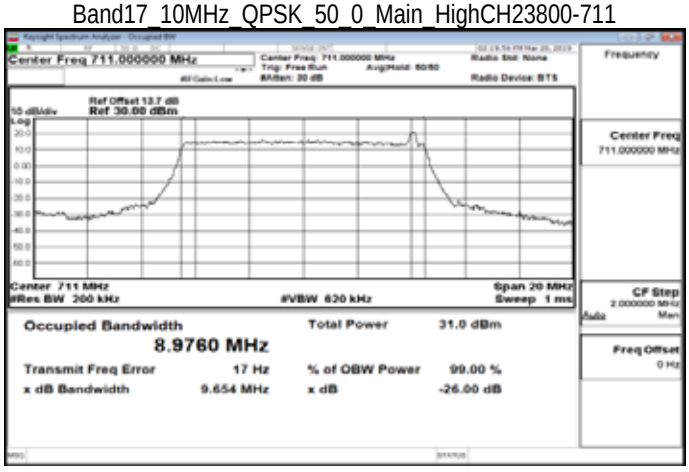

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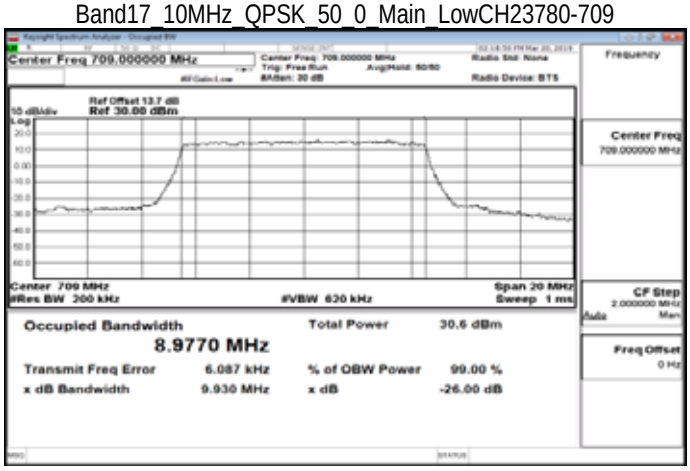

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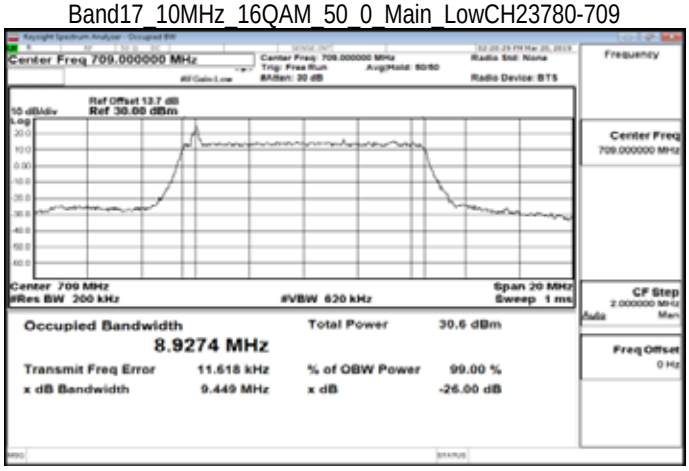
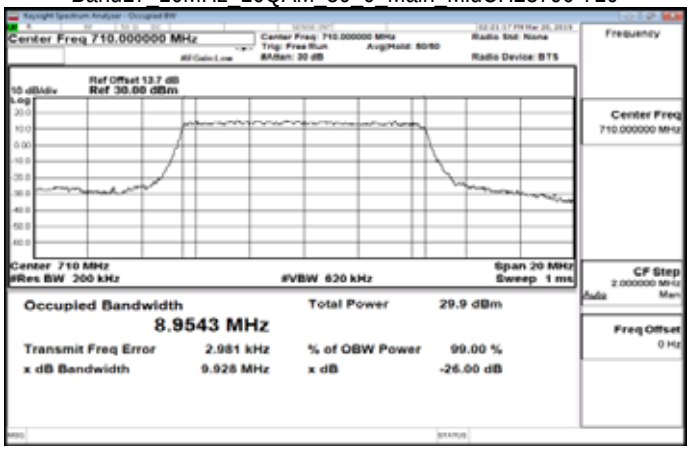


Band17_10MHz_16QAM_50_0_Main_MidCH23790-710



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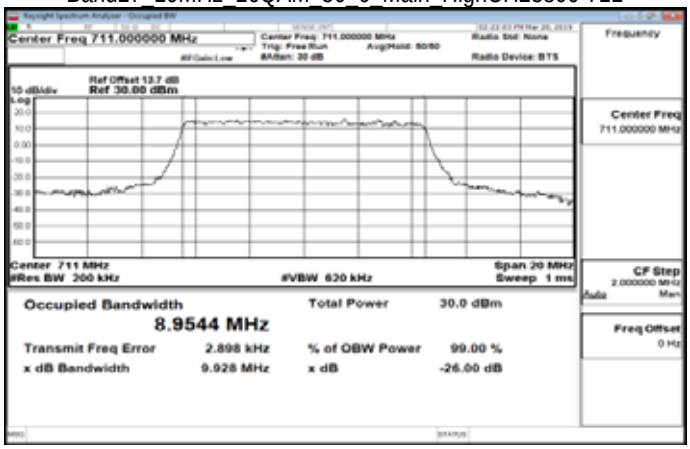


8. OUT OF BAND EMISSION AT ANTENNA TERMINALS

8.1. Standard Applicable

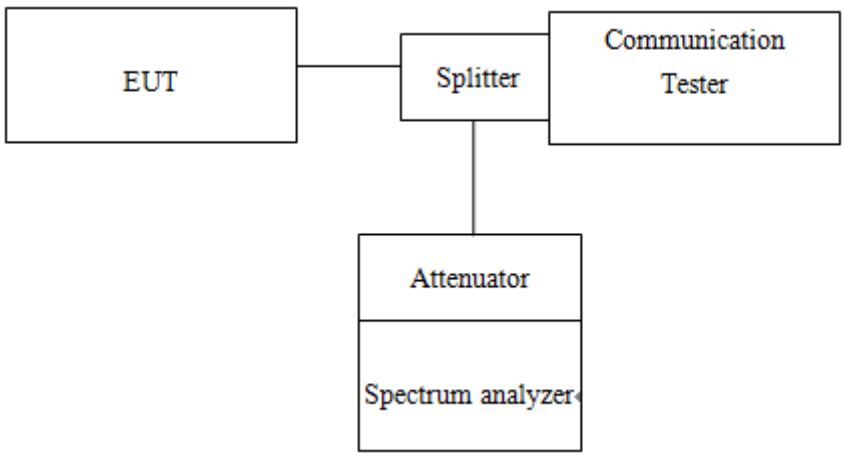
FCC §22.917(a), §24.238(a), Out of band emissions.The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

FCC §27.53(g) (h)
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.
The power of any emission outside a licensee's frequency block shall be
attenuated below the transmitter power (P) in watts by at least 43 + 10 log10 (P) dB.

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)
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 that 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 nstrumentation 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.

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. Allow trace to fully stabilize
4. 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 ≥ 1% EBW.
3. Allow trace to fully stabilize
4. Repeat above procedures until all default test channel measured were complete.

8.4. Measurement Equipment Used

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Radio Communication Analyer	Anritsu	MT8820C	6201465316	03/31/2018	03/30/2019
Spectrum Analyzer	Agilent	N9010A	MY51440113	06/20/2018	06/19/2019
DC Block	PASTERNACK	PE8210	RF29	02/26/2019	02/25/2020
Splitter	Woken	DOM35LW1A2	RF36	02/26/2019	02/25/2020
Attenuator	Marvelous	WATT-218FS-10	RF245	02/26/2019	02/25/2020
Coaxial Cables	Woken	00100A1F1A185C	RF12	02/26/2019	02/25/2020
Coaxial Cables	Woken	00100A1F1A185C	RF202	02/26/2019	02/25/2020
DC Power Supply	Agilent	E3640A	MY40000811	12/11/2018	12/10/2019

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.