

ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT
INTENTIONAL RADIATOR CERTIFICATION TO
FCC PART 22 SUBPART H, PART 24 SUBPART E and PART 27 SUBPART
B, C & SUBPART L REQUIREMENT

OF

Applicant: Sharp Corporation, Mobile Communication B.U.
2-13-1, Hachihonmatsu-lida, Higashi-hiroshima-shi,
Hiroshima 739-0192, Japan
Sharp Corporation

Manufacturer: 1 Takumi-cho, Sakai-ku, Sakai-Shi, Osaka 590-8522, Ja-
pan

Product Name: Smart Phone

Report Number: ER/2018/30046

FCC ID: APYHRO00261

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

Issue Date: Apr. 13, 2018

Date of Test: Mar. 20, 2018 ~ Mar. 31, 2018

Date of EUT Received: Mar. 20, 2018

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Electronics & Communication Labor-
atory The test data, data evaluation, test procedures, and equipment configurations shown in
this report were made in accordance with the procedures given in ANSI C63.26-2015 and
the energy emitted by the sample EUT tested as described in this report is in compliance with
conducted and radiated emission limits.

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

Tested By:

Marcus Tseng

Marcus Tseng / Engineer

Approved By:

Jim Chang

Jim Chang / Asst. Manager



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Revision History

Report Number	Revision	Description	Effectuated Page	Issue Date	Revised By
ER/2018/30046	Rev.00	Initial creation of document	All	Apr. 13, 2018	Tiffany Kao

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Contents

1. GENERAL PRODUCT INFORMATION	4
2. SYSTEM TEST CONFIGURATION	9
3. SUMMARY OF TEST RESULTS	12
4. DESCRIPTION OF TEST MODES	13
5. MEASUREMENT UNCERTAINTY	18
6. RF CONDUCTED OUTPUT POWER MEASUREMENT	19
7. EFFECTIVE RADIATED POWER AND EQUIVALENT ISOTROPIC RADIATED POWER MEASUREMENT	33
8. OCCUPIED BANDWIDTH MEASUREMENT	57
9. OUT OF BAND EMISSION AT ANTENNA TERMINALS	92
10. FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT	133
11. FREQUENCY STABILITY MEASUREMENT	186
12. PEAK TO AVERAGE RATIO	192

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1. GENERAL PRODUCT INFORMATION

1.1. Product Description

General:

Product Name:	Smart Phone	
Hardware Version:	DVT	
Software Version:	N/A	
Power Supply:	3.85V from Rechargeable Li-ion Battery	
	Battery:	Model No.: UBATIA287AFN2, Supplier: SCUD (FUJIAN) Electronics Co., Ltd.
IMEI:	004401116370772 / 004401116368966 / 004401116370137 004401116370186 / 004401116370574 / 004401116370004	

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1.2. GSM / WCDMA / LTE: Cellular Phone Standards Frequency Range

Operating Frequency (MHz)		
GSM/GPRS 850	824.2	- 848.8
GSM/GPRS 1900	1850.2	- 1909.8

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

LTE Band	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 - 1780.0
	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

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

	ERP / EIRP (dBm)		(W)	Type of Emission
GSM 850	25.16	ERP	0.328	249KGXW
GPRS 850	25.76	ERP	0.377	247KGXW
GSM 1900	23.63	EIRP	0.231	247KGXW
GPRS 1900	24.76	EIRP	0.299	247KGXW

	ERP / EIRP (dBm)		(W)	Type of Emission
WCDMA Band II	24.76	EIRP	0.299	4M15F9W
HSDPA Band II	26.60	EIRP	0.457	4M13F9W
HSUPA Band II	24.80	EIRP	0.302	4M13F9W
WCDMA Band IV	21.68	EIRP	0.147	4M13F9W
HSDPA Band IV	22.57	EIRP	0.181	4M14F9W
HSUPA Band IV	22.54	EIRP	0.179	4M13F9W
WCDMA Band V	17.80	ERP	0.060	4M15F9W
HSDPA Band V	17.96	ERP	0.063	4M14F9W
HSUPA Band V	19.36	ERP	0.086	4M14F9W

LTE Band	BW (MHz)	Modulation	ERP / EIRP (dBm)		(W)	Type of Emission	LTE Band	BW (MHz)	Modulation	ERP / EIRP (dBm)		(W)	Type of Emission
2	1.4	QPSK	23.52	EIRP	0.225	1M10G7D	4	1.4	QPSK	22.43	EIRP	0.175	1M10G7D
	1.4	16QAM	23.40	EIRP	0.219	1M10W7D		1.4	16QAM	21.62	EIRP	0.145	1M10W7D
	1.4	64QAM	22.81	EIRP	0.191	1M10W7D		1.4	64QAM	21.60	EIRP	0.145	1M10W7D
	3	QPSK	23.60	EIRP	0.229	2M70G7D		3	QPSK	22.41	EIRP	0.174	2M70G7D
	3	16QAM	23.93	EIRP	0.247	2M71W7D		3	16QAM	22.25	EIRP	0.168	2M71W7D
	3	64QAM	23.37	EIRP	0.217	2M70W7D		3	64QAM	21.96	EIRP	0.157	2M70W7D
	5	QPSK	23.88	EIRP	0.244	4M51G7D		5	QPSK	21.62	EIRP	0.145	4M51G7D
	5	16QAM	24.05	EIRP	0.254	4M52W7D		5	16QAM	22.01	EIRP	0.159	4M51W7D
	5	64QAM	23.66	EIRP	0.232	4M52W7D		5	64QAM	21.33	EIRP	0.136	4M51W7D
	10	QPSK	23.66	EIRP	0.232	9M00G7D		10	QPSK	22.07	EIRP	0.161	8M99G7D
	10	16QAM	23.84	EIRP	0.242	8M98W7D		10	16QAM	22.41	EIRP	0.174	8M99W7D
	10	64QAM	21.84	EIRP	0.153	8M99W7D		10	64QAM	22.03	EIRP	0.160	8M98W7D
	15	QPSK	23.08	EIRP	0.203	13M5G7D		15	QPSK	22.95	EIRP	0.197	13M5G7D
	15	16QAM	23.45	EIRP	0.221	13M5W7D		15	16QAM	23.96	EIRP	0.249	13M5W7D
	15	64QAM	22.70	EIRP	0.186	13M5W7D		15	64QAM	22.06	EIRP	0.161	13M5W7D
	20	QPSK	22.96	EIRP	0.198	17M9G7D		20	QPSK	21.83	EIRP	0.152	17M9G7D
	20	16QAM	23.54	EIRP	0.226	18M0W7D		20	16QAM	22.19	EIRP	0.166	18M0W7D
	20	64QAM	22.18	EIRP	0.165	17M9W7D		20	64QAM	21.59	EIRP	0.144	17M9W7D

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LTE Band	BW (MHz)	Modulation	ERP / EIRP (dBm)		(W)	Type of Emission
5	1.4	QPSK	17.65	ERP	0.058	1M10G7D
	1.4	16QAM	17.39	ERP	0.055	1M10W7D
	1.4	64QAM	17.05	ERP	0.051	1M10W7D
	3	QPSK	18.36	ERP	0.069	2M71G7D
	3	16QAM	18.86	ERP	0.077	2M70W7D
	3	64QAM	17.95	ERP	0.062	2M71W7D
	5	QPSK	19.32	ERP	0.086	4M51G7D
	5	16QAM	18.89	ERP	0.077	4M52W7D
	5	64QAM	18.71	ERP	0.074	4M51W7D
	10	QPSK	16.67	ERP	0.046	9M00G7D
	10	16QAM	18.88	ERP	0.077	8M96W7D
	10	64QAM	16.51	ERP	0.045	8M96W7D

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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

SGS Taiwan Ltd. Electronics & Communication Laboratory No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803 code 0513)

FCC Registration Numbers are: 509634 / TW0001

1.6. Special Accessories

No special accessories were used during testing.

1.7. Equipment Modifications

There were no modifications incorporated into the EUT.

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2. SYSTEM TEST CONFIGURATION

2.1. EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2. EUT Exercise

The EUT (Transmitter) was operated in the continuous transmission mode employed with the simulator of the Base Station that fixates at test default channels to fix the Tx frequency which was for the purpose of the measurements.

2.3. Test Procedure

2.3.1 Conducted Measurement at Antenna Port

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

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Note:

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Following shows an offset computation in physical test.

	RF cable loss (dB)	Attenuation factor(dB)	offset(dB)
Low Band (Below 1GHz)	11.2	10	21.2
High Band (Above 1 GHz)	11.6	10	21.6

2.5. Final Amplifier Voltage and Current Information:

Test Mode	DC voltage (V)	DC current (mA)
GSM 850	3.85	0.73
GPRS 850		0.70
GSM 1900		0.68
WCDMA B2		0.68
HSDPA B2		0.73
HSUPA B2		0.72
WCDMA B4		0.61
HSDPA B4		0.74
HSUPA B4		0.73
WCDMA B5		0.62
HSDPA B5		0.60
HSUPA B5		0.63
LTE Band 2		0.75
LTE Band 4		0.75
LTE Band 5		0.73

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2.6. Configuration of Tested System

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

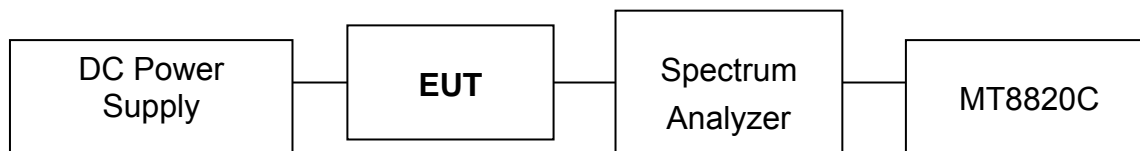


Fig. 2-2 Configuration of Tested System (Fixed Channel-Radiated)

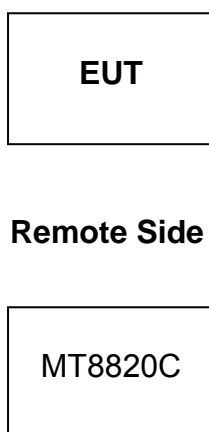


Table 2-1 Equipment Used in

Item	Equipment	Mfr/Brand	Model/ Type No.	Series No.	Data Cable	Power Cord
1.	Radio Communication Analyzer	Anritsu	MT8820C	6201465317	shielded	Un-shielded

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3. SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§2.1046(a)	RF Power Output	Compliant
§2.1046(a) §22.913(a)(5) §24.232(c) §27.50(c)(10) §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) §27.53(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) §27.53(h) §27.53(m)(4)	Field Strength of Spurious Radiation	Compliant
§24.232(d) §27.53(d) (5) §27.50(i) (B)	Peak to Average Ratio	Compliant
§2.1055(a)(1) §22.355 §24.235 §27.54	Frequency Stability	Compliant

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4. DESCRIPTION OF TEST MODES

4.1. The Worst Test Modes and Channel Details

1. The EUT has been tested under operating condition.
2. Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, 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	ERP/EIRP	RADIATED EMISSION
GSM/GPRS 850	H-plan	H-plan
GSM/GPRS 1900	H-plan	H-plan
WCDMA/HSPA Band II	H-plan	H-plan
WCDMA/HSPA Band IV	H-plan	H-plan
WCDMA/HSPA Band V	H-plan	H-plan
LTE Band 2	H-plan	H-plan
LTE Band 4	H-plan	H-plan
LTE Band 5	H-plan	H-plan

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GSM/GPRS MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
ERP	128 to 251	128, 190, 251	GSM/GPRS 850
EIRP	512 to 810	512, 661, 810	GSM/GPRS 1900
FREQUENCY STABILITY	128 to 251 512 to 810	190 661	GPRS 850 GPRS 1900
OCCUPIED BANDWIDTH	128 to 251 512 to 810	190 661	GSM/GPRS 850 GSM/GPRS 1900
PEAK TO AVERAGE RATIO	128 to 251 512 to 810	128, 190, 251 512, 661, 810	GSM/GPRS 850 GSM/GPRS 1900
BAND EDGE	128 to 251 512 to 810	128, 251 512, 810	GSM/GPRS 850 GSM/GPRS 1900
CONDCUDED EMISSION	128 to 251 512 to 810	128, 190, 251 512, 661, 810	GSM/GPRS 850 GSM/GPRS 1900
RADIATED EMISSION	128 to 251 512 to 810	128, 190, 251 512, 661, 810	GPRS 850 GPRS 1900

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 1312 to 1513	9262, 9400, 9583 1312, 1413, 1513	WCDMA/HSPA Band II WCDMA/HSPA Band IV
FREQUENCY STABILITY	4132 to 4233 1312 to 1513 9262 to 9538	4183 1413 9400	WCDMA Band II WCDMA Band IV WCDMA Band V
OCCUPIED BANDWIDTH	4132 to 4233 1312 to 1513 9262 to 9538	4132, 4183, 4233 1312, 1413, 1513 9262, 9400, 9583	WCDMA/HSPA Band II WCDMA/HSPA Band IV WCDMA/HSPA Band V
PEAK TO AVERAGE RATIO	4132 to 4233 1312 to 1513 9262 to 9538	4132, 4183, 4233 1312, 1413, 1513 9262, 9400, 9583	WCDMA/HSPA Band II WCDMA/HSPA Band IV WCDMA/HSPA Band V
BAND EDGE	4132 to 4233 1312 to 1513 9262 to 9538	4132, 4233 1312, 1513 9262, 9583	WCDMA Band II WCDMA Band IV WCDMA Band V
CONDCUDED EMISSION	4132 to 4233 1312 to 1513 9262 to 9538	4132, 4183, 4233 1312, 1413, 1513 9262, 9400, 9583	WCDMA Band II WCDMA Band IV WCDMA Band V
RADIATED EMISSION	4132 to 4233 1312 to 1513 9262 to 9538	4132, 4183, 4233 1312, 1413, 1513 9262, 9400, 9583	HSDPA Band II HSDPA Band IV HSUPA Band V

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LTE Band 2 MODE

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

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LTE Band 4 MODE

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

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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	1 RB/ 0,5 RB Offest
	20415 to 20635	20415, 20525, 20635	3MHz	QPSK, 16QAM	1 RB/ 0,14 RB Offest
	20425 to 20625	20425, 20525, 20625	5MHz	QPSK, 16QAM	1 RB/ 0,24 RB Offest
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK, 16QAM	1 RB/ 0,49 RB Offest
FREQUENCY STABILITY	20450 to 20600	20525	10MHz	QPSK	Full RB
OCCUPIED BAND-WIDTH	20470 to 20643	20470, 20525, 20643	1.4MHz	QPSK, 16QAM	Full RB
	20415 to 20635	20415, 20525, 20635	3MHz	QPSK, 16QAM	Full RB
	20425 to 20625	20425, 20525, 20625	5MHz	QPSK, 16QAM	Full RB
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK, 16QAM	Full RB
PEAK TO AVERAGE RATIO	20470 to 20643	20470, 20525, 20643	1.4MHz	16QAM	Full RB
	20415 to 20635	20415, 20525, 20635	3MHz	16QAM	Full RB
	20425 to 20625	20425, 20525, 20625	5MHz	16QAM	Full RB
	20450 to 20600	20450, 20525, 20600	10MHz	16QAM	Full RB
BAND EDGE	20470 to 20643	20470, 20643	1.4MHz	QPSK	1 RB/ 0,5 RB Offes Full RB
	20415 to 20635	20415, 20635	3MHz	QPSK	1 RB/ 0,14 RB Offest Full RB
	20425 to 20625	20425, 20625	5MHz	QPSK	1 RB/ 0,24 RB Offest Full RB
	20450 to 20600	20450, 20600	10MHz	QPSK	1 RB/ 0,49 RB Offest Full RB
CONDCUDED EMISSION	20470 to 20643	20470, 20525, 20643	1.4MHz	QPSK	1 RB, 0 RB Offest
	20415 to 20635	20415, 20525, 20635	3MHz	QPSK	1 RB, 0 RB Offest
	20425 to 20625	20425, 20525, 20625	5MHz	QPSK	1 RB, 0 RB Offest
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK	1 RB, 0 RB Offest
RADIATED EMISSION	20425 to 20625	20425, 20525, 20625	5MHz	QPSK	1 RB, 0 RB Offest

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5. MEASUREMENT UNCERTAINTY

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

Radiated Spurious Emission:

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

Measurement uncertainty (Polarization : Horizontal)	9kHz – 30MHz: +/- 2.87 dB
	30MHz - 167MHz: +/- 4.22dB
	167MHz -500MHz: +/- 3.44dB
	0.5GHz-1GHz: +/- 3.39dB
	1GHz - 18GHz: +/- 4.08dB
	18GHz - 40GHz: +/- 4.08dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

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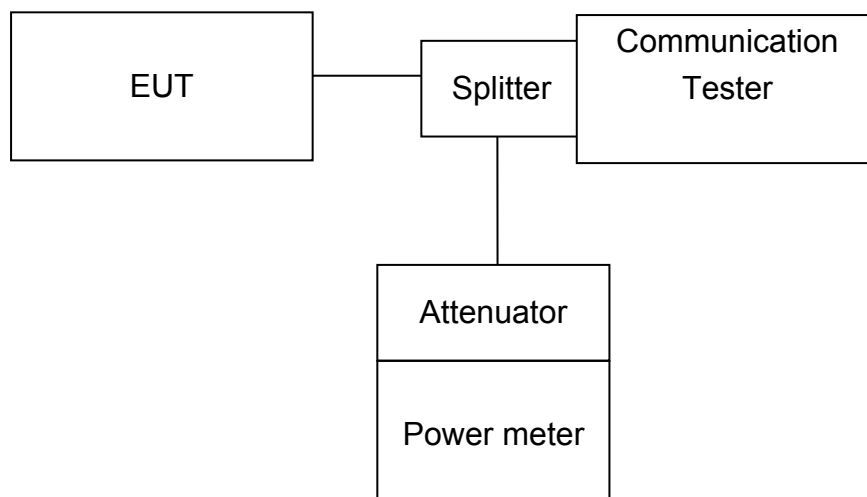
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6. RF CONDUCTED OUTPUT POWER MEASUREMENT

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.

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

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6.4. Measurement Equipment Used

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Radio Communication Analyser	Anritsu	MT8820C	6201465317	2018/01/17	2019/01/16
Attenuator	Mini-Circuit	BW-S10W2+	2	2018/01/02	2019/01/01
Splitter	RF-LAMBDA	RFLT2W1G18G	11-JSPF412-018	2018/01/02	2019/01/01
Coaxial Cables	N/A	WK CE Cable	N/A	2018/01/02	2019/01/01

6.5. Measurement Result

RF Conducted Output Power

GSM/GPRS/EDGE (GMSK; 8-PSK) Result:

GSM/GPRS/EDGE (GMSK; 8-PSK) Result:

EUT Mode	Freq. (MHz)	CH	Avg. Power (dBm)
GSM 850	824.2	128	31.9
	836.6	190	31.72
	848.8	251	31.95
GSM 1900	1850.2	512	29.3
	1880.0	661	29.42
	1909.8	810	29.54

EUT Mode	Frequency (MHz)	CH	Average Burst Power (1DN 1UP) Class 8 (dBm)	Average Burst Power (1DN 2UP) Class 10 (dBm)	Average Burst Power (1DN 3UP) Class 12 (dBm)	Average Burst Power (1DN 4UP) Class 12 (dBm)
GPRS 850	824.2	128	31.9	29.12	27.71	27.3
	836.6	190	31.72	29.31	27.88	27.35
	848.8	251	31.95	29.38	27.85	27.63
GPRS 1900	1850.2	512	29.3	27.3	25.4	24.63
	1880.0	661	29.42	27.09	25.45	24.7
	1909.8	810	29.54	27.1	25.3	24.56

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WCDMA 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:

BNAD II	Avg. Power (dBm) Channel		
	9262	9400	9538
WCDMA	22.82	22.81	22.65
HSDPA	21.78	21.83	21.74
HSUPA	21.76	21.75	21.63

BNAD IV	Avg. Power (dBm) Channel		
	1312	1413	1513
WCDMA	22.79	22.84	22.81
HSDPA	21.79	21.83	21.75
HSUPA	21.79	21.81	21.73

BNAD V	Avg. Power (dBm) Channel		
	4132	4183	4233
WCDMA	23.07	23.05	23.03
HSDPA	22.23	22.20	22.04
HSUPA	22.10	22.08	22.01

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LTE Result:

LTE Band 2_Uplink frequency band : 1850 to 1910 MHz											
BW (MHz)	RB Size	RB Offset	Conducted power (dBm)								
			QPSK			16QAM			64QAM		
			CH (Low) 18607	CH (Mid) 18900	CH (High) 19193	CH (Low) 18607	CH (Mid) 18900	CH (High) 19193	CH (Low) 18607	CH (Mid) 18900	CH (High) 19193
1.4	1	0	22.17	22.10	22.16	21.11	21.13	21.20	20.11	20.18	20.05
	1	5	22.01	22.15	22.06	21.19	21.15	21.09	20.02	20.09	20.04
	3	2	21.98	21.96	21.93	20.89	20.85	20.81	19.89	19.81	19.98
	6	0	21.13	21.09	21.11	20.19	20.19	20.17	19.16	19.14	19.07

LTE Band 2_Uplink frequency band : 1850 to 1910 MHz											
BW (MHz)	RB Size	RB Offset	Conducted power (dBm)								
			QPSK			16QAM			64QAM		
			CH (Low) 18615	CH (Mid) 18900	CH (High) 19185	CH (Low) 18615	CH (Mid) 18900	CH (High) 19185	CH (Low) 18615	CH (Mid) 18900	CH (High) 19185
3	1	0	22.10	22.12	22.11	21.03	21.07	21.19	20.16	20.14	20.18
	1	14	22.07	22.13	22.10	21.03	21.15	21.10	20.17	20.07	20.05
	8	4	21.86	21.81	21.91	20.95	20.98	21.00	19.83	19.86	19.83
	15	0	21.18	21.06	21.06	20.08	20.03	20.12	19.17	19.11	19.13

LTE Band 2_Uplink frequency band : 1850 to 1910 MHz											
BW (MHz)	RB Size	RB Offset	Conducted power (dBm)								
			QPSK			16QAM			64QAM		
			CH (Low) 18625	CH (Mid) 18900	CH (High) 19175	CH (Low) 18625	CH (Mid) 18900	CH (High) 19175	CH (Low) 18625	CH (Mid) 18900	CH (High) 19175
5	1	0	22.01	22.06	22.02	21.18	21.04	21.03	20.02	20.15	20.07
	1	24	22.06	22.16	22.03	21.03	21.17	21.18	20.13	20.01	20.15
	12	6	21.82	21.85	21.92	20.95	20.97	20.81	19.81	19.83	19.98
	25	0	21.18	21.12	21.14	20.13	20.01	20.19	19.06	19.06	19.15

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LTE Band 2_Uplink frequency band : 1850 to 1910 MHz											
BW (MHz)	RB Size	RB Offset	Conducted power (dBm)								
			QPSK			16QAM			64QAM		
			CH (Low) 18650	CH (Mid) 18900	CH (High) 19150	CH (Low) 18650	CH (Mid) 18900	CH (High) 19150	CH (Low) 18650	CH (Mid) 18900	CH (High) 19150
10	1	0	22.14	22.05	22.09	21.12	21.18	21.20	20.01	20.16	20.16
	1	49	22.07	22.08	22.18	21.09	21.06	21.09	20.20	20.18	20.09
	25	12	21.99	21.89	21.88	20.99	20.82	20.95	19.83	19.88	19.90
	50	0	21.03	21.08	21.02	20.11	20.11	20.19	19.18	19.15	19.03

LTE Band 2_Uplink frequency band : 1850 to 1910 MHz											
BW (MHz)	RB Size	RB Offset	Conducted power (dBm)								
			QPSK			16QAM			64QAM		
			CH (Low) 18675	CH (Mid) 18900	CH (High) 19125	CH (Low) 18675	CH (Mid) 18900	CH (High) 19125	CH (Low) 18675	CH (Mid) 18900	CH (High) 19125
15	1	0	22.11	22.06	22.05	21.03	21.13	21.00	20.03	20.20	20.13
	1	74	22.10	22.05	22.04	21.09	21.01	21.16	20.07	20.16	20.07
	36	19	21.89	21.92	21.96	20.81	20.91	20.99	19.84	19.94	19.97
	75	0	21.08	21.14	21.15	20.04	20.01	20.15	19.01	19.04	19.02

LTE Band 2_Uplink frequency band : 1850 to 1910 MHz											
BW (MHz)	RB Size	RB Offset	Conducted power (dBm)								
			(dBm)								
			QPSK			16QAM			64QAM		
			CH (Low) 18700	CH (Mid) 18900	CH (High) 19100	CH (Low) 18700	CH (Mid) 18900	CH (High) 19100	CH (Low) 18700	CH (Mid) 18900	CH (High) 19100
20	1	0	22.06	22.15	22.19	21.11	21.02	21.12	20.01	20.07	20.17
	1	99	22.13	22.13	22.10	21.02	21.07	21.05	20.13	20.09	20.16
	50	25	21.91	21.94	21.89	20.85	20.96	20.89	19.99	19.87	19.96
	100	0	21.14	21.10	21.10	20.08	20.16	20.02	19.10	19.02	19.04

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LTE Band 4_Uplink frequency band : 1710 to 1755 MHz											
BW (MHz)	RB Size	RB Offset	Conducted power (dBm)								
			QPSK			16QAM			64QAM		
			CH (Low) 19957	CH (Mid) 20175	CH (High) 20393	CH (Low) 19957	CH (Mid) 20175	CH (High) 20393	CH (Low) 19957	CH (Mid) 20175	CH (High) 20393
1.4	1	0	22.00	22.12	22.10	20.91	20.94	21.00	20.15	20.12	19.91
	1	5	21.91	21.90	22.06	21.19	20.95	20.99	20.14	20.07	20.14
	3	2	21.92	21.97	21.98	20.75	20.80	20.88	19.71	19.94	19.77
	6	0	21.12	20.95	21.08	19.91	19.92	19.94	19.08	19.19	19.16

LTE Band 4_Uplink frequency band : 1710 to 1755 MHz											
BW (MHz)	RB Size	RB Offset	Conducted power (dBm)								
			QPSK			16QAM			64QAM		
			CH (Low) 19965	CH (Mid) 20175	CH (High) 20385	CH (Low) 19965	CH (Mid) 20175	CH (High) 20385	CH (Low) 19965	CH (Mid) 20175	CH (High) 20385
3	1	0	22.05	21.93	21.99	21.01	21.18	20.94	19.93	19.97	20.19
	1	14	22.02	22.17	21.93	20.94	21.09	21.04	20.06	19.93	20.03
	8	4	21.91	21.81	21.96	20.87	20.71	20.83	19.93	19.74	19.85
	15	0	21.08	21.10	21.14	20.12	20.13	20.19	19.10	18.93	19.16

LTE Band 4_Uplink frequency band : 1710 to 1755 MHz											
BW (MHz)	RB Size	RB Offset	Conducted power (dBm)								
			QPSK			16QAM			64QAM		
			CH (Low) 19975	CH (Mid) 20175	CH (High) 20375	CH (Low) 19975	CH (Mid) 20175	CH (High) 20375	CH (Low) 19975	CH (Mid) 20175	CH (High) 20375
5	1	0	21.96	21.93	22.12	20.92	21.04	21.09	20.14	20.14	19.93
	1	24	22.15	22.02	22.11	20.90	21.03	20.93	20.08	20.09	20.05
	12	6	21.88	21.78	21.78	20.96	20.89	20.99	19.91	19.71	19.98
	25	0	21.07	21.09	21.15	19.96	19.92	20.11	19.10	19.05	19.16

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LTE Band 4_Uplink frequency band : 1710 to 1755 MHz											
BW (MHz)	RB Size	RB Offset	Conducted power (dBm)								
			QPSK			16QAM			64QAM		
			CH (Low) 20000	CH (Mid) 20175	CH (High) 20350	CH (Low) 20000	CH (Mid) 20175	CH (High) 20350	CH (Low) 20000	CH (Mid) 20175	CH (High) 20350
10	1	0	21.92	21.96	21.97	21.10	21.17	21.15	19.93	20.12	20.03
	1	49	22.16	22.15	22.18	21.12	21.19	21.12	20.12	19.95	20.14
	25	12	21.86	21.84	21.89	20.91	20.74	20.87	19.78	19.89	19.89
	50	0	21.02	21.16	21.12	19.99	20.02	20.15	19.00	19.02	19.08

LTE Band 4_Uplink frequency band : 1710 to 1755 MHz											
BW (MHz)	RB Size	RB Offset	Conducted power (dBm)								
			QPSK			16QAM			64QAM		
			CH (Low) 20025	CH (Mid) 20175	CH (High) 20325	CH (Low) 20025	CH (Mid) 20175	CH (High) 20325	CH (Low) 20025	CH (Mid) 20175	CH (High) 20325
15	1	0	22.18	22.09	21.94	21.03	20.96	21.11	20.17	20.17	20.19
	1	74	22.15	22.15	22.13	21.09	21.20	21.01	19.92	20.18	20.19
	36	19	21.95	21.94	21.83	20.95	20.81	20.90	19.90	19.77	19.83
	75	0	21.11	20.97	20.92	20.18	20.11	20.03	18.98	18.96	19.02

LTE Band 4_Uplink frequency band : 1710 to 1755 MHz											
BW (MHz)	RB Size	RB Offset	Conducted power (dBm)								
			(dBm)								
			QPSK			16QAM			64QAM		
			CH (Low) 20050	CH (Mid) 20175	CH (High) 20300	CH (Low) 20050	CH (Mid) 20175	CH (High) 20300	CH (Low) 20050	CH (Mid) 20175	CH (High) 20300
20	1	0	22.10	22.11	22.00	20.92	20.99	20.95	20.02	20.06	20.15
	1	99	22.05	21.95	21.93	21.11	20.98	20.96	20.18	20.05	20.20
	50	25	21.96	21.72	21.72	20.98	20.89	20.81	19.75	19.90	19.81
	100	0	20.91	21.01	21.05	20.07	20.08	20.08	18.97	19.19	19.09

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LTE Band 5_Uplink frequency band : 824 to 849 MHz											
BW (MHz)	RB Size	RB Offset	Conducted power (dBm)								
			QPSK			16QAM			64QAM		
			CH (Low)	CH (Mid)	CH (High)	CH (Low)	CH (Mid)	CH (High)	CH (Low)	CH (Mid)	CH (High)
			20407	20525	20643	20407	20525	20643	20407	20525	20643
1.4	1	0	22.92	22.89	22.96	21.89	21.87	21.95	20.93	20.76	20.92
	1	5	22.82	22.88	22.80	21.78	21.80	21.86	20.89	20.92	20.83
	3	2	22.66	22.56	22.63	21.78	21.66	21.60	20.56	20.75	20.78
	6	0	21.78	21.87	21.94	20.76	20.82	20.85	19.77	19.81	19.99
LTE Band 5_Uplink frequency band : 824 to 849 MHz											
BW (MHz)	RB Size	RB Offset	Conducted power (dBm)								
			QPSK			16QAM			64QAM		
			CH (Low)	CH (Mid)	CH (High)	CH (Low)	CH (Mid)	CH (High)	CH (Low)	CH (Mid)	CH (High)
			20415	20525	20635	20415	20525	20635	20415	20525	20635
3	1	0	22.95	22.81	22.89	21.89	21.80	21.89	20.81	20.76	20.92
	1	14	22.83	22.90	22.79	21.91	21.98	21.91	20.99	20.94	20.96
	8	4	22.75	22.68	22.63	21.63	21.76	21.71	20.72	20.80	20.67
	15	0	21.85	21.94	21.82	20.75	20.84	20.98	19.77	19.92	19.79
LTE Band 5_Uplink frequency band : 824 to 849 MHz											
BW (MHz)	RB Size	RB Offset	Conducted power (dBm)								
			QPSK			16QAM			64QAM		
			CH (Low)	CH (Mid)	CH (High)	CH (Low)	CH (Mid)	CH (High)	CH (Low)	CH (Mid)	CH (High)
			20425	20525	20625	20425	20525	20625	20425	20525	20625
5	1	0	22.88	22.84	22.85	21.77	21.87	22.00	20.92	20.79	20.95
	1	24	22.84	22.91	22.76	21.83	21.76	21.85	20.86	20.95	20.95
	12	6	22.78	22.57	22.76	21.66	21.69	21.66	20.57	20.77	20.64
	25	0	21.99	21.84	21.89	20.94	20.79	20.97	19.82	19.91	19.89

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LTE Band 5_Uplink frequency band : 824 to 849 MHz											
BW (MHz)	RB Size	RB Offset	Conducted power (dBm)								
			QPSK			16QAM			64QAM		
			CH (Low) 20450	CH (Mid) 20525	CH (High) 20600	CH (Low) 20450	CH (Mid) 20525	CH (High) 20600	CH (Low) 20450	CH (Mid) 20525	CH (High) 20600
10	1	0	22.81	22.91	22.99	21.75	21.96	21.79	20.96	20.97	20.91
	1	49	22.93	22.91	22.84	21.80	21.79	21.84	20.97	20.99	20.89
	25	12	22.75	22.73	22.77	21.65	21.58	21.76	20.75	20.70	20.68
	50	0	21.92	21.87	21.82	20.76	20.89	20.81	19.96	19.79	19.97

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HSDPA Release 6 MODE:

The following 4 Sub-Tests were completed according to the test requirements outlined in section 5.2A of the 3GPP TS34.121-1 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} (Note 1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)	RMC (Kbps)
1	2/15	15/15	64	2/15	4/15	0.0	0.0	12.2
2	12/15 (Note 4)	15/15 (Note 4)	64	12/15 (Note 4)	24/15	1.0	0.0	12.2
3	15/15	8/15	64	15/8	30/15	1.5	0.5	12.2
4	15/15	4/15	64	15/4	30/15	1.5	0.5	12.2

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

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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Results:

Mode	Sub test	Avg. Power (dBm) Channel			Power Class 3 Limitation (dBm)	Comments
		9262	9400	9538		
HSDPA II	1	21.78	21.83	21.74	20.3dBm – 25.7dBm	Pass
	2	21.76	21.82	21.69	20.3dBm – 25.7dBm	Pass
	3	21.34	21.33	21.16	19.8dBm – 25.7dBm	Pass
	4	21.29	21.36	21.17	19.8dBm – 25.7dBm	Pass

Mode	Sub test	Avg. Power (dBm) Channel			Power Class 3 Limitation (dBm)	Comments
		1312	1413	1513		
HSDPA IV	1	21.79	21.83	21.75	20.3dBm – 25.7dBm	Pass
	2	21.78	21.81	21.73	20.3dBm – 25.7dBm	Pass
	3	21.27	21.44	21.30	19.8dBm – 25.7dBm	Pass
	4	21.30	21.37	21.29	19.8dBm – 25.7dBm	Pass

Mode	Sub test	Avg. Power (dBm) Channel			Power Class 3 Limitation (dBm)	Comments
		4132	4183	4233		
HSDPA V	1	22.23	22.20	22.04	20.3dBm – 25.7dBm	Pass
	2	22.21	22.12	22.02	20.3dBm – 25.7dBm	Pass
	3	21.79	21.86	21.80	19.8dBm – 25.7dBm	Pass
	4	21.89	21.88	21.85	19.8dBm – 25.7dBm	Pass

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HSPA (HSDPA & HSUPA) Release 6 MODE

The following 5 Sub-Tests were completed according to the test requirements outlined in section 5.2A of the 3GPP TS34.121-1 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} (Code s)	CM (dB)	MPR (dB)	AG Index	E-TFCI	RMC (Kbps)
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/225	1309/225	4	1	1.0	0.0	20	75	12.2
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67	12.2
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed1} : 47/15 β_{ed2} : 47/15	4 4	2	2.0	1.0	15	92	12.2
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71	12.2
5	15/15 (Note 4)	15/15 (Note 4)	64	15/15 (Note 4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81	12.2

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

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Results:

Mode	Sub test	Avg. Power (dBm) Channel			Power Class 3 Limitation (dBm)	Comments
		9262	9400	9538		
HSUPA II	1	21.76	21.75	21.63	18.8dBm – 25.7dBm	Pass
	2	21.20	21.19	21.10	16.8dBm – 25.7dBm	Pass
	3	21.75	21.76	21.70	17.8dBm – 25.7dBm	Pass
	4	21.78	21.75	21.59	16.8dBm – 25.7dBm	Pass
	5	21.79	21.79	21.68	18.8dBm – 25.7dBm	Pass

Mode	Sub test	Avg. Power (dBm) Channel			Power Class 3 Limitation (dBm)	Comments
		1312	1413	1513		
HSDPA IV	1	21.79	21.81	21.73	20.3dBm – 25.7dBm	Pass
	2	21.06	21.17	21.20	20.3dBm – 25.7dBm	Pass
	3	21.78	21.87	21.74	19.8dBm – 25.7dBm	Pass
	4	21.34	21.40	21.37	19.8dBm – 25.7dBm	Pass
	5	21.81	21.82	21.74	19.8dBm – 25.7dBm	Pass

Mode	Sub test	Avg. Power (dBm) Channel			Power Class 3 Limitation (dBm)	Comments
		4132	4183	4233		
HSUPA V	1	22.10	22.08	22.01	18.8dBm – 25.7dBm	Pass
	2	21.56	21.52	21.39	16.8dBm – 25.7dBm	Pass
	3	22.03	21.98	21.94	17.8dBm – 25.7dBm	Pass
	4	22.05	21.99	21.95	16.8dBm – 25.7dBm	Pass
	5	22.13	22.12	22.07	18.8dBm – 25.7dBm	Pass

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Minimum Communications Power Measurement

PCS 1900 band

PCL	0	1	2	3	4	5	6	7	8
Output power (dBm)	29.68	27.43	25.13	23.55	21.66	19.61	17.75	15.62	13.52

PCL	9	10	11	12	13	14	15
Output power (dBm)	11.39	9.45	7.33	5.45	3.22	1.78	-0.9

Note: The EUT output power was controlled by simulator. Set Communication Tester MT8820C PCL as above, and get the mobile phone output power reading.

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.

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7. EFFECTIVE RADIATED POWER AND EQUIVALENT ISOTROPIC RADIATED POWER MEASUREMENT

7.1. Standard Applicable

According to FCC §2.1046

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

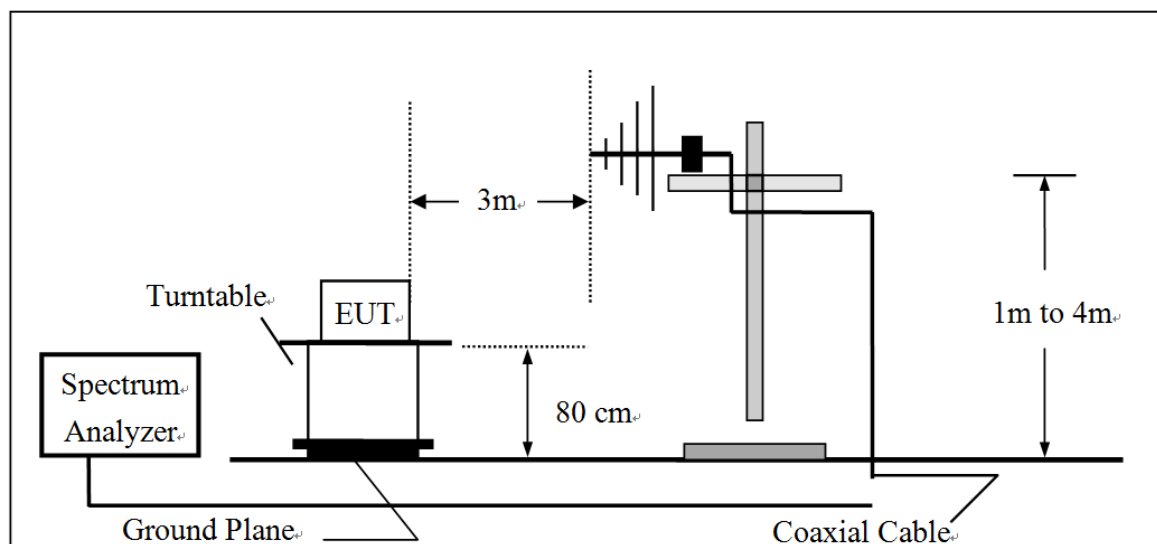
FCC 24.232(b) Mobile and portable stations are limited to 2W EIRP.

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

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

7.2. Test SET-UP

(A) Radiated Power Test Set-Up, Frequency Below 1000MHz



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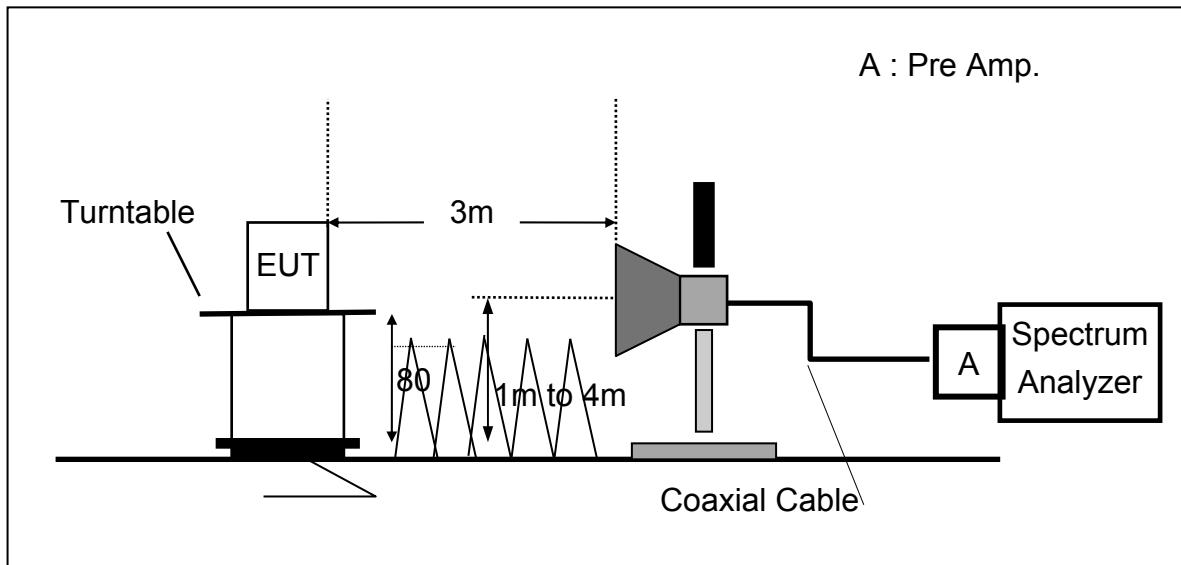
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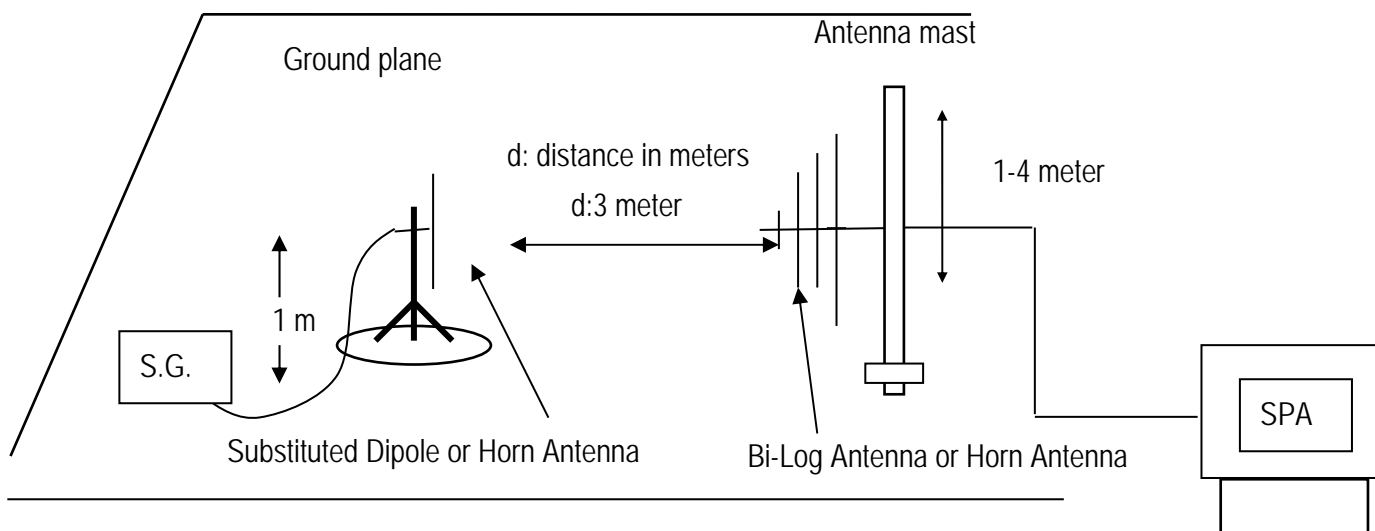
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(B) Radiated Power Test Set-UP Frequency Over 1 GHz



(C) Substituted Method Test Set-UP



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7.3. Measurement Procedure

1. The testing follows the Measurement Procedure of FCC KDB 971168 D01
2. The EUT was placed on a non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer.
3. During the measurement, the EUT was communication with the station. The highest emission was recorded with the rotation of the turntable and the lowering of the test antenna from 4m to 1m. The reading was recorded and the field strength (E in dBuV/m) was calculated
4. The testing follows the Measurement Procedure of FCC KDB 971168 D01
5. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a tx cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step b. Record the power level of S.G.
6. $ERP = S.G. \text{ output (dBm)} + \text{Antenna Gain (dBd)} - \text{Cable Loss (dB)}$
7. $EIRP = S.G. \text{ output (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable Loss (dB)}$
8. Spectrum setting:
 - (1) Detector = Peak, marker the highest value of the detector by maximum hold, set RBW wide enough to capture the entire signal of emission, and $VBW \geq 3 \times RBW$.
 - (2) KDB 971168 D01 is adopted, and the procedure as lists under item 4, Measurement of the Average Power over the Fundamental Signal Bandwidth, is followed to set correspondingly for the acquisition of proper measurement data.

Set frequency = nominal signal center frequency;
 Set span = 2 X occupied BW;
 Set RBW \approx 1~5% of the span, not to exceed 1 MHz
 Set VBW = 3 x RBW;
 Select average power (RMS) detector
 Set sweep time and number of measurement points to achieve a minimum of 1 millisecond/pt integration time (ex. Point = 601points, then sweep time = $601 \times 10^{-3} = 6s$).

Activate trace averaging routine over a minimum of 10 sweeps;

Activate marker/span pair and set span = signal or channel bandwidth;

Activate the band/interval power marker function;

Record the band power level;

Record adjusted value as the average signal power level. Then activate the occupied bandwidth measurement function.

The proper adjustment due to limitation of spectrum capability is given compensated to spectrum with conversion factor of $10 \times \log(TBW/RBW)$, where TBW is the transmission of UE exceeding the maximum BW UE can extends, and RBW is the resolution BW in UE.

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7.4. Measurement Equipment Used

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Bi-log Antenna	SCHWAZBECK	VULB9168	378	2017/12/29	2018/12/28
Bi-log Antenna	SCHWAZBECK	VULB9168	300	2017/12/20	2018/12/19
Horn Antenna	Schwarzbeck	BBHA9120D	309	2018/01/04	2019/01/03
Horn Antenna	Schwarzbeck	BBHA9120D	1441	2017/08/04	2018/08/03
Spectrum Analyzer	Agilent	E4446A	MY51100003	2017/05/10	2018/05/09
EMI Test Receiver	R&S	ESCI7	100760	2017/06/06	2018/06/05
Network Analyzer	Anritsu	MS4644A	1216312	2017/05/25	2018/05/24
Radio Communication Analyer	Anritsu	MT8820C	6201465317	2018/01/15	2019/01/14
Pre-Amplifier	HP	8449B	3008A00578	2018/01/02	2019/01/01
Pre-Amplifier	HP	8447D	2944A07676	2018/01/02	2019/01/01
Attenuator	Mini-Circuit	BW-S10W2+	N/A	2018/01/02	2019/01/01
Filter 800-1000	Micro-Tronics	EWT	M1	2018/01/02	2019/01/01
1GHz High Pass Filter	Micro-Tronics	HPM50108	32	2018/01/02	2019/01/01
Low Loss Cable	Huber Suhner	966_RX	9	2018/01/02	2019/01/01
Low Loss Cable	Huber Suhner	966 TX	1	2018/01/02	2019/01/01

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7.5. Measurement Result: (Peak) –using option of peak measurement

EUT			Measurement					
Operation Band	Fundamental Frequency	CH	Antenna Pol.	S.G. Output	Antenna Gain	Cable Loss	ERP	Limit
	MHz		V/H	dBm	dBd	dB	dBm	dBm
GSM 850	824.2	128	V	24.11	3.31	-2.92	24.50	38.45
			H	24.20	3.31	-2.92	24.59	38.45
	836.6	190	V	24.77	3.29	-2.96	25.10	38.45
			H	24.83	3.29	-2.96	25.16	38.45
	848.8	251	V	24.01	3.27	-3.00	24.28	38.45
			H	24.27	3.27	-3.00	24.54	38.45
GPRS 850	824.2	128	V	23.44	3.31	-2.92	23.83	38.45
			H	23.83	3.31	-2.92	24.22	38.45
	836.6	190	V	25.07	3.29	-2.96	25.40	38.45
			H	24.69	3.29	-2.96	25.02	38.45
	848.8	251	V	23.64	3.27	-3.00	23.91	38.45
			H	25.49	3.27	-3.00	25.76	38.45

Remark :

(1)The RBW,VBW of SPA for frequency RBW=300 KHz, VBW=1MHz

EUT			Measurement					
Operation Band	Fundamental Frequency	CH	Antenna Pol.	S.G. Output	Antenna Gain	Cable Loss	EIRP	Limit
	MHz		V/H	dBm	dB	dB	dBm	dBm
GSM 1900	1850.2	512	V	12.02	9.94	-4.46	17.50	33.00
			H	18.09	9.94	-4.46	23.57	33.00
	1880.0	661	V	14.44	10.03	-4.51	19.96	33.00
			H	18.11	10.03	-4.51	23.63	33.00
	1909.8	810	V	10.20	10.13	-4.55	15.78	33.00
			H	13.69	10.13	-4.55	19.27	33.00
GPRS 1900	1850.2	512	V	15.13	9.94	-4.46	20.61	33.00
			H	18.08	9.94	-4.46	23.56	33.00
	1880.0	661	V	14.87	10.03	-4.51	20.39	33.00
			H	19.24	10.03	-4.51	24.76	33.00
	1909.8	810	V	12.94	10.13	-4.55	18.52	33.00
			H	18.25	10.13	-4.55	23.83	33.00

Remark :

(1)The RBW,VBW of SPA for frequency RBW=300 KHz, VBW=1MHz

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EUT			Measurement					
Operation Band	Fundamental Frequency MHz	CH	Antenna Pol.	S.G. Output	Antenna Gain	Cable Loss	EIRP	Limit
	MHz		V/H	dBm	dBi	dB	dBm	dBm
WCDMA Band II	1852.4	9262	V	16.05	9.94	-4.46	21.53	33.00
			H	17.37	9.95	-4.46	22.86	33.00
	1880.0	9400	V	8.91	10.03	-4.51	14.43	33.00
			H	19.24	10.03	-4.51	24.76	33.00
	1907.6	9538	V	10.46	10.12	-4.55	16.03	33.00
			H	17.03	10.12	-4.55	22.60	33.00
HSDPA Band II	1852.4	9262	V	18.84	9.94	-4.46	24.32	33.00
			H	20.81	9.95	-4.46	26.30	33.00
	1880.0	9400	V	14.01	10.04	-4.51	19.54	33.00
			H	21.07	10.04	-4.51	26.60	33.00
	1907.6	9538	V	15.34	10.12	-4.55	20.91	33.00
			H	19.30	10.12	-4.55	24.87	33.00
HSUPA Band II	1852.4	9262	V	17.11	9.95	-4.46	22.60	33.00
			H	19.31	9.95	-4.46	24.80	33.00
	1880.0	9400	V	11.26	10.03	-4.51	16.78	33.00
			H	19.35	10.03	-4.51	24.87	33.00
	1907.6	9538	V	11.48	10.12	-4.55	17.05	33.00
			H	17.64	10.12	-4.55	23.21	33.00

Remark

: (1)The RBW,VBW of SPA for frequency RBW=300 KHz, VBW=1MHz

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EUT			Measurement					
Operation Band	Fundamental Frequency	CH	Antenna Pol.	S.G. Output	Antenna Gain	Cable Loss	EIRP	Limit
	MHz		V/H	dBm	dBi	dB	dBm	dBm
WCDMA Band IV	1712.4	1312	V	14.01	9.48	-4.31	19.18	30.00
			H	14.06	9.48	-4.31	19.23	30.00
	1732.6	1413	V	15.22	9.55	-4.31	20.46	30.00
			H	15.97	9.55	-4.31	21.21	30.00
	1752.6	1513	V	15.45	9.62	-4.33	20.74	30.00
			H	16.39	9.62	-4.33	21.68	30.00
HSDPA Band IV	1712.4	1312	V	14.38	9.48	-4.31	19.55	30.00
			H	14.73	9.48	-4.31	19.90	30.00
	1732.6	1413	V	14.31	9.55	-4.31	19.55	30.00
			H	17.33	9.55	-4.31	22.57	30.00
	1752.6	1513	V	14.61	9.62	-4.34	19.89	30.00
			H	16.33	9.62	-4.34	21.61	30.00
HSUPA Band IV	1712.4	1312	V	15.32	9.49	-4.31	20.50	30.00
			H	17.37	9.48	-4.31	22.54	30.00
	1732.6	1413	V	14.17	9.55	-4.31	19.41	30.00
			H	15.33	9.55	-4.31	20.57	30.00
	1752.6	1513	V	15.06	9.62	-4.34	20.34	30.00
			H	16.62	9.62	-4.34	21.90	30.00

Remark :

(1)The RBW,VBW of SPA for frequency RBW= 5MHz , VBW= 8MHz

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EUT			Measurement					
Operation Band	Fundamental Frequency	CH	Antenna Pol.	S.G. Output	Antenna Gain	Cable Loss	ERP	Limit
	MHz		V/H	dBm	dBd	dB	dBm	dBm
WCDMA Band V	826.4	4132	V	10.39	3.30	-2.93	10.76	38.45
			H	17.30	3.30	-2.93	17.67	38.45
	836.6	4183	V	9.06	3.29	-2.96	9.39	38.45
			H	17.47	3.29	-2.96	17.80	38.45
	846.6	4233	V	8.84	3.27	-2.99	9.12	38.45
			H	17.45	3.27	-2.99	17.73	38.45
HSDPA Band V	826.4	4132	V	10.39	3.30	-2.93	10.76	38.45
			H	18.06	3.30	-2.93	18.43	38.45
	836.6	4183	V	10.42	3.29	-2.96	10.75	38.45
			H	17.63	3.29	-2.96	17.96	38.45
	846.6	4233	V	8.67	3.27	-2.99	8.95	38.45
			H	18.05	3.27	-2.99	18.33	38.45
HSUPA Band V	826.4	4132	V	10.41	3.30	-2.93	10.78	38.45
			H	18.09	3.30	-2.93	18.46	38.45
	836.6	4183	V	9.40	3.29	-2.96	9.73	38.45
			H	18.33	3.29	-2.97	18.65	38.45
	846.6	4233	V	8.51	3.27	-2.99	8.79	38.45
			H	19.09	3.27	-3.00	19.36	38.45

Remark :

(1)The RBW,VBW of SPA for frequency RBW=5MHz, VBW=8MHz

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Operation Band	Fundamental Frequency	CH	Antenna Pol.	S.G. Output	Antenna Gain	Cable Loss	EIRP	Limit
	MHz		V/H	dBm	dB	dB	dBm	dBm
LTE BAND 2 BW: 1.4M QPSK RB: 1,0	1850.7	18607	V	18.10	9.77	-4.67	23.20	33.01
			H	13.44	9.77	-4.67	18.54	33.01
	1880.0	18900	V	18.36	9.85	-4.69	23.52	33.01
			H	13.64	9.85	-4.69	18.80	33.01
	1909.3	19193	V	16.95	9.94	-4.72	22.17	33.01
			H	11.59	9.94	-4.72	16.81	33.01
LTE BAND 2 BW: 1.4M QPSK RB: 1,5	1850.7	18607	V	18.77	9.77	-4.66	23.88	33.01
			H	12.07	9.77	-4.66	17.18	33.01
	1880.0	18900	V	17.23	9.85	-4.70	22.38	33.01
			H	13.26	9.85	-4.70	18.41	33.01
	1909.3	19193	V	16.37	9.94	-4.72	21.59	33.01
			H	12.69	9.94	-4.72	17.91	33.01
LTE BAND 2 BW: 1.4M 16QAM RB: 1,0	1850.7	18607	V	17.50	9.77	-4.67	22.60	33.01
			H	12.89	9.77	-4.67	17.99	33.01
	1880.0	18900	V	17.26	9.85	-4.69	22.42	33.01
			H	12.26	9.85	-4.69	17.42	33.01
	1909.3	19193	V	16.82	9.94	-4.72	22.04	33.01
			H	12.59	9.94	-4.72	17.81	33.01
LTE BAND 2 BW: 1.4M 16QAM RB: 1,5	1850.7	18607	V	18.29	9.77	-4.66	23.40	33.01
			H	12.77	9.77	-4.66	17.88	33.01
	1880.0	18900	V	17.45	9.85	-4.70	22.60	33.01
			H	12.58	9.85	-4.69	17.74	33.01
	1909.3	19193	V	18.03	9.94	-4.72	23.25	33.01
			H	12.33	9.94	-4.72	17.55	33.01
LTE BAND 2 BW: 1.4M 64QAM RB: 1,0	1850.7	18607	V	17.18	9.77	-4.67	22.28	33.01
			H	12.89	9.77	-4.67	17.99	33.01
	1880.0	18900	V	16.36	9.85	-4.69	21.52	33.01
			H	11.56	9.85	-4.69	16.72	33.01
	1909.3	19193	V	16.17	9.94	-4.72	21.39	33.01
			H	12.11	9.94	-4.72	17.33	33.01
LTE BAND 2 BW: 1.4M 64QAM RB: 1,5	1850.7	18607	V	17.70	9.77	-4.66	22.81	33.01
			H	12.62	9.77	-4.66	17.73	33.01
	1880.0	18900	V	17.16	9.85	-4.70	22.31	33.01
			H	12.09	9.85	-4.69	17.25	33.01
	1909.3	19193	V	17.39	9.94	-4.72	22.61	33.01
			H	12.24	9.94	-4.72	17.46	33.01

Remark : (1)The RBW,VBW of SPA for frequency RBW= 8MHz , VBW= 8MHz

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EUT			Measurement					
Operation Band	Fundamental Frequency	CH	Antenna Pol.	S.G. Output	Antenna Gain	Cable Loss	EIRP	Limit
	MHz		V/H	dBm	dBi	dB	dBm	dBm
LTE BAND 2 BW: 3M QPSK RB: 1,0	1851.5	18615	V	18.50	9.77	-4.67	23.60	33.01
			H	11.50	9.77	-4.67	16.60	33.01
	1880.0	18900	V	17.66	9.85	-4.69	22.82	33.01
			H	12.69	9.85	-4.69	17.85	33.01
	1908.5	19185	V	16.14	9.93	-4.72	21.35	33.01
			H	12.16	9.93	-4.72	17.37	33.01
LTE BAND 2 BW: 3M QPSK RB: 1,14	1851.5	18615	V	17.98	9.77	-4.67	23.08	33.01
			H	13.27	9.77	-4.66	18.38	33.01
	1880.0	18900	V	17.29	9.85	-4.70	22.44	33.01
			H	13.59	9.85	-4.70	18.74	33.01
	1908.5	19185	V	16.77	9.94	-4.72	21.99	33.01
			H	12.45	9.94	-4.72	17.67	33.01
LTE BAND 2 BW: 3M 16QAM RB: 1,0	1851.5	18615	V	18.35	9.77	-4.67	23.45	33.01
			H	13.74	9.77	-4.67	18.84	33.01
	1880.0	18900	V	17.96	9.85	-4.69	23.12	33.01
			H	12.87	9.85	-4.69	18.03	33.01
	1908.5	19185	V	16.62	9.93	-4.72	21.83	33.01
			H	12.05	9.93	-4.72	17.26	33.01
LTE BAND 2 BW: 3M 16QAM RB: 1,14	1851.5	18615	V	18.82	9.77	-4.66	23.93	33.01
			H	12.66	9.77	-4.67	17.76	33.01
	1880.0	18900	V	17.53	9.85	-4.70	22.68	33.01
			H	12.73	9.86	-4.70	17.89	33.01
	1908.5	19185	V	17.80	9.94	-4.72	23.02	33.01
			H	13.30	9.94	-4.72	18.52	33.01
LTE BAND 2 BW: 3M 64QAM RB: 1,0	1851.5	18615	V	18.27	9.77	-4.67	23.37	33.01
			H	11.22	9.77	-4.67	16.32	33.01
	1880.0	18900	V	17.16	9.85	-4.69	22.32	33.01
			H	12.31	9.85	-4.69	17.47	33.01
	1908.5	19185	V	15.34	9.93	-4.72	20.55	33.01
			H	11.72	9.93	-4.72	16.93	33.01
LTE BAND 2 BW: 3M 64QAM RB: 1,14	1851.5	18615	V	17.10	9.77	-4.67	22.20	33.01
			H	13.08	9.77	-4.66	18.19	33.01
	1880.0	18900	V	17.18	9.85	-4.70	22.33	33.01
			H	13.44	9.85	-4.70	18.59	33.01
	1908.5	19185	V	15.87	9.94	-4.72	21.09	33.01
			H	12.34	9.94	-4.72	17.56	33.01

Remark :

(1)The RBW,VBW of SPA for frequency RBW= 8MHz , VBW= 8MHz

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EUT			Measurement					
Operation Band	Fundamental Frequency	CH	Antenna Pol.	S.G. Output	Antenna Gain	Cable Loss	EIRP	Limit
	MHz		V/H	dBm	dBi	dB	dBm	dBm
LTE BAND 2 BW: 5M QPSK RB: 1,0	1852.5	18625	V	18.78	9.77	-4.67	23.88	33.01
			H	12.19	9.77	-4.67	17.29	33.01
	1880.0	18900	V	17.40	9.84	-4.69	22.55	33.01
			H	12.62	9.84	-4.69	17.77	33.01
	1907.5	19175	V	15.69	9.93	-4.72	20.90	33.01
			H	10.97	9.93	-4.72	16.18	33.01
LTE BAND 2 BW: 5M QPSK RB: 1,24	1852.5	18625	V	17.57	9.78	-4.67	22.68	33.01
			H	13.55	9.77	-4.67	18.65	33.01
	1880.0	18900	V	17.01	9.86	-4.70	22.17	33.01
			H	12.70	9.86	-4.70	17.86	33.01
	1907.5	19175	V	16.74	9.94	-4.72	21.96	33.01
			H	11.75	9.94	-4.72	16.97	33.01
LTE BAND 2 BW: 5M 16QAM RB: 1,0	1852.5	18625	V	18.95	9.77	-4.67	24.05	33.01
			H	12.38	9.77	-4.67	17.48	33.01
	1880.0	18900	V	17.72	9.84	-4.69	22.87	33.01
			H	11.36	9.84	-4.69	16.51	33.01
	1907.5	19175	V	16.02	9.93	-4.72	21.23	33.01
			H	11.19	9.93	-4.72	16.40	33.01
LTE BAND 2 BW: 5M 16QAM RB: 1,24	1852.5	18625	V	18.86	9.78	-4.67	23.97	33.01
			H	12.41	9.78	-4.67	17.52	33.01
	1880.0	18900	V	17.15	9.86	-4.70	22.31	33.01
			H	13.20	9.86	-4.70	18.36	33.01
	1907.5	19175	V	17.14	9.94	-4.72	22.36	33.01
			H	12.91	9.94	-4.72	18.13	33.01
LTE BAND 2 BW: 5M 64QAM RB: 1,0	1852.5	18625	V	18.56	9.77	-4.67	23.66	33.01
			H	11.93	9.77	-4.67	17.03	33.01
	1880.0	18900	V	17.15	9.84	-4.69	22.30	33.01
			H	12.33	9.84	-4.69	17.48	33.01
	1907.5	19175	V	15.51	9.93	-4.72	20.72	33.01
			H	10.45	9.93	-4.72	15.66	33.01
LTE BAND 2 BW: 5M 64QAM RB: 1,24	1852.5	18625	V	17.23	9.78	-4.67	22.34	33.01
			H	12.88	9.77	-4.67	17.98	33.01
	1880.0	18900	V	16.03	9.86	-4.70	21.19	33.01
			H	12.34	9.86	-4.70	17.50	33.01
	1907.5	19175	V	16.32	9.94	-4.72	21.54	33.01
			H	11.18	9.94	-4.72	16.40	33.01

Remark :

(1)The RBW,VBW of SPA for frequency RBW= 8MHz , VBW= 8MHz

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EUT			Measurement					
Operation Band	Fundamental Frequency	CH	Antenna Pol.	S.G. Output	Antenna Gain	Cable Loss	EIRP	Limit
	MHz		V/H	dBm	dBi	dB	dBm	dBm
LTE BAND 2 BW: 10M QPSK RB: 1,0	1855.0	18650	V	17.42	9.77	-4.67	22.52	33.01
			H	12.85	9.77	-4.67	17.95	33.01
	1880.0	18900	V	16.91	9.84	-4.69	22.06	33.01
			H	11.92	9.84	-4.69	17.07	33.01
	1905.0	19150	V	15.78	9.91	-4.71	20.98	33.01
			H	12.48	9.91	-4.71	17.68	33.01
LTE BAND 2 BW: 10M QPSK RB: 1,49	1855.0	18650	V	18.54	9.79	-4.67	23.66	33.01
			H	12.71	9.79	-4.67	17.83	33.01
	1880.0	18900	V	16.62	9.86	-4.70	21.78	33.01
			H	13.26	9.86	-4.70	18.42	33.01
	1905.0	19150	V	15.97	9.94	-4.72	21.19	33.01
			H	11.35	9.94	-4.72	16.57	33.01
LTE BAND 2 BW: 10M 16QAM RB: 1,0	1855.0	18650	V	18.44	9.77	-4.67	23.54	33.01
			H	12.49	9.77	-4.67	17.59	33.01
	1880.0	18900	V	16.03	9.84	-4.69	21.18	33.01
			H	11.28	9.84	-4.69	16.43	33.01
	1905.0	19150	V	15.42	9.91	-4.71	20.62	33.01
			H	12.70	9.91	-4.71	17.90	33.01
LTE BAND 2 BW: 10M 16QAM RB: 1,49	1855.0	18650	V	18.72	9.79	-4.67	23.84	33.01
			H	12.60	9.79	-4.67	17.72	33.01
	1880.0	18900	V	18.66	9.86	-4.70	23.82	33.01
			H	13.04	9.86	-4.70	18.20	33.01
	1905.0	19150	V	16.51	9.94	-4.72	21.73	33.01
			H	12.88	9.94	-4.72	18.10	33.01
LTE BAND 2 BW: 10M 64QAM RB: 1,0	1855.0	18650	V	16.74	9.77	-4.67	21.84	33.01
			H	12.68	9.77	-4.67	17.78	33.01
	1880.0	18900	V	16.34	9.84	-4.69	21.49	33.01
			H	10.97	9.84	-4.69	16.12	33.01
	1905.0	19150	V	15.63	9.91	-4.71	20.83	33.01
			H	11.75	9.91	-4.71	16.95	33.01
LTE BAND 2 BW: 10M 64QAM RB: 1,49	1855.0	18650	V	17.77	9.79	-4.67	22.89	33.01
			H	12.30	9.79	-4.67	17.42	33.01
	1880.0	18900	V	16.33	9.86	-4.70	21.49	33.01
			H	12.70	9.86	-4.70	17.86	33.01
	1905.0	19150	V	15.74	9.94	-4.72	20.96	33.01
			H	11.11	9.94	-4.72	16.33	33.01

Remark :

(1)The RBW,VBW of SPA for frequency RBW= 8MHz , VBW= 8MHz

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EUT			Measurement					
Operation Band	Fundamental Frequency	CH	Antenna Pol.	S.G. Output	Antenna Gain	Cable Loss	EIRP	Limit
	MHz		V/H	dBm	dBi	dB	dBm	dBm
LTE BAND 2 BW: 15M QPSK RB: 1,0	1857.5	18675	V	17.15	9.77	-4.67	22.25	33.01
			H	12.58	9.77	-4.66	17.69	33.01
	1880.0	18900	V	16.78	9.83	-4.69	21.92	33.01
			H	11.09	9.83	-4.69	16.23	33.01
	1902.5	19125	V	16.49	9.90	-4.71	21.68	33.01
			H	11.90	9.90	-4.71	17.09	33.01
LTE BAND 2 BW: 15M QPSK RB: 1,74	1857.5	18675	V	17.96	9.80	-4.68	23.08	33.01
			H	12.44	9.80	-4.68	17.56	33.01
	1880.0	18900	V	17.35	9.87	-4.70	22.52	33.01
			H	13.02	9.87	-4.70	18.19	33.01
	1902.5	19125	V	17.06	9.94	-4.72	22.28	33.01
			H	11.80	9.94	-4.72	17.02	33.01
LTE BAND 2 BW: 15M 16QAM RB: 1,0	1857.5	18675	V	18.35	9.77	-4.67	23.45	33.01
			H	12.67	9.77	-4.67	17.77	33.01
	1880.0	18900	V	15.01	9.83	-4.69	20.15	33.01
			H	11.06	9.83	-4.69	16.20	33.01
	1902.5	19125	V	16.95	9.90	-4.71	22.14	33.01
			H	11.57	9.90	-4.71	16.76	33.01
LTE BAND 2 BW: 15M 16QAM RB: 1,74	1857.5	18675	V	16.73	9.80	-4.68	21.85	33.01
			H	12.27	9.80	-4.68	17.39	33.01
	1880.0	18900	V	17.79	9.87	-4.70	22.96	33.01
			H	14.13	9.87	-4.70	19.30	33.01
	1902.5	19125	V	16.39	9.94	-4.72	21.61	33.01
			H	12.21	9.94	-4.72	17.43	33.01
LTE BAND 2 BW: 15M 64QAM RB: 1,0	1857.5	18675	V	16.77	9.77	-4.67	21.87	33.01
			H	12.45	9.77	-4.66	17.56	33.01
	1880.0	18900	V	16.56	9.83	-4.69	21.70	33.01
			H	10.64	9.83	-4.69	15.78	33.01
	1902.5	19125	V	16.37	9.90	-4.71	21.56	33.01
			H	11.66	9.90	-4.71	16.85	33.01
LTE BAND 2 BW: 15M 64QAM RB: 1,74	1857.5	18675	V	17.58	9.80	-4.68	22.70	33.01
			H	11.64	9.80	-4.68	16.76	33.01
	1880.0	18900	V	17.12	9.87	-4.70	22.29	33.01
			H	12.80	9.87	-4.70	17.97	33.01
	1902.5	19125	V	16.28	9.94	-4.72	21.50	33.01
			H	10.87	9.94	-4.72	16.09	33.01

Remark :

(1)The RBW,VBW of SPA for frequency RBW= 8MHz , VBW= 8MHz

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EUT			Measurement					
Operation Band	Fundamental Frequency	CH	Antenna Pol.	S.G. Output	Antenna Gain	Cable Loss	EIRP	Limit
	MHz		V/H	dBm	dB	dB	dBm	dBm
LTE BAND 2 BW: 20M QPSK RB: 1,0	1860.0	18700	V	17.85	9.77	-4.66	22.96	33.01
			H	12.41	9.77	-4.66	17.52	33.01
	1880.0	18900	V	16.61	9.83	-4.69	21.75	33.01
			H	11.90	9.83	-4.69	17.04	33.01
	1900.0	19100	V	16.82	9.89	-4.71	22.00	33.01
			H	12.35	9.89	-4.71	17.53	33.01
LTE BAND 2 BW: 20M QPSK RB: 1,99	1860.0	18700	V	16.69	9.82	-4.68	21.83	33.01
			H	10.88	9.82	-4.68	16.02	33.01
	1880.0	18900	V	16.98	9.88	-4.70	22.16	33.01
			H	13.45	9.88	-4.70	18.63	33.01
	1900.0	19100	V	16.47	9.94	-4.72	21.69	33.01
			H	11.70	9.94	-4.72	16.92	33.01
LTE BAND 2 BW: 20M 16QAM RB: 1,0	1860.0	18700	V	17.48	9.77	-4.67	22.58	33.01
			H	12.42	9.77	-4.67	17.52	33.01
	1880.0	18900	V	17.04	9.83	-4.69	22.18	33.01
			H	11.30	9.83	-4.69	16.44	33.01
	1900.0	19100	V	18.36	9.89	-4.71	23.54	33.01
			H	14.09	9.89	-4.71	19.27	33.01
LTE BAND 2 BW: 20M 16QAM RB: 1,99	1860.0	18700	V	16.58	9.82	-4.68	21.72	33.01
			H	11.02	9.82	-4.68	16.16	33.01
	1880.0	18900	V	17.76	9.88	-4.70	22.94	33.01
			H	14.06	9.88	-4.70	19.24	33.01
	1900.0	19100	V	17.22	9.94	-4.72	22.44	33.01
			H	12.25	9.94	-4.72	17.47	33.01
LTE BAND 2 BW: 20M 64QAM RB: 1,0	1860.0	18700	V	17.07	9.77	-4.66	22.18	33.01
			H	11.67	9.77	-4.66	16.78	33.01
	1880.0	18900	V	16.40	9.83	-4.69	21.54	33.01
			H	11.54	9.83	-4.69	16.68	33.01
	1900.0	19100	V	16.14	9.89	-4.71	21.32	33.01
			H	11.44	9.89	-4.71	16.62	33.01
LTE BAND 2 BW: 20M 64QAM RB: 1,99	1860.0	18700	V	16.50	9.82	-4.68	21.64	33.01
			H	10.28	9.82	-4.68	15.42	33.01
	1880.0	18900	V	16.00	9.88	-4.70	21.18	33.01
			H	13.40	9.88	-4.70	18.58	33.01
	1900.0	19100	V	16.19	9.94	-4.72	21.41	33.01
			H	11.36	9.94	-4.72	16.58	33.01

Remark :

(1)The RBW,VBW of SPA for frequency RBW= 8MHz , VBW= 8MHz

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EUT			Measurement					
Operation Band	Fundamental Frequency	CH	Antenna Pol.	S.G. Output	Antenna Gain	Cable Loss	EIRP	Limit
	MHz		V/H	dBm	dBi	dB	dBm	dBm
LTE BAND 4 BW: 1.4M QPSK RB: 1,0	1710.7	19957	V	17.24	9.33	-4.45	22.12	30.00
			H	10.23	9.34	-4.45	15.12	30.00
	1732.5	20175	V	16.58	9.39	-4.48	21.49	30.00
			H	10.69	9.39	-4.48	15.60	30.00
	1754.3	20393	V	15.78	9.46	-4.50	20.74	30.00
			H	9.30	9.46	-4.50	14.26	30.00
LTE BAND 4 BW: 1.4M QPSK RB: 1,5	1710.7	19957	V	17.54	9.34	-4.45	22.43	30.00
			H	10.80	9.33	-4.45	15.68	30.00
	1732.5	20175	V	17.14	9.40	-4.48	22.06	30.00
			H	9.85	9.40	-4.48	14.77	30.00
	1754.3	20393	V	15.33	9.47	-4.50	20.30	30.00
			H	9.71	9.47	-4.50	14.68	30.00
LTE BAND 4 BW: 1.4M 16QAM RB: 1,0	1710.7	19957	V	16.74	9.33	-4.45	21.62	30.00
			H	9.89	9.33	-4.45	14.77	30.00
	1732.5	20175	V	16.33	9.39	-4.48	21.24	30.00
			H	10.09	9.39	-4.48	15.00	30.00
	1754.3	20393	V	16.22	9.46	-4.49	21.19	30.00
			H	9.09	9.46	-4.49	14.06	30.00
LTE BAND 4 BW: 1.4M 16QAM RB: 1,5	1710.7	19957	V	16.39	9.34	-4.45	21.28	30.00
			H	9.88	9.33	-4.45	14.76	30.00
	1732.5	20175	V	16.62	9.40	-4.48	21.54	30.00
			H	9.68	9.40	-4.48	14.60	30.00
	1754.3	20393	V	16.63	9.47	-4.50	21.60	30.00
			H	9.16	9.47	-4.50	14.13	30.00
LTE BAND 4 BW: 1.4M 64QAM RB: 1,0	1710.7	19957	V	15.75	9.33	-4.45	20.63	30.00
			H	9.25	9.33	-4.45	14.13	30.00
	1732.5	20175	V	16.06	9.39	-4.48	20.97	30.00
			H	9.70	9.39	-4.48	14.61	30.00
	1754.3	20393	V	15.98	9.46	-4.49	20.95	30.00
			H	8.54	9.46	-4.49	13.51	30.00
LTE BAND 4 BW: 1.4M 64QAM RB: 1,5	1710.7	19957	V	16.05	9.34	-4.45	20.94	30.00
			H	9.50	9.33	-4.45	14.38	30.00
	1732.5	20175	V	15.73	9.40	-4.48	20.65	30.00
			H	9.68	9.40	-4.48	14.60	30.00
	1754.3	20393	V	16.63	9.47	-4.50	21.60	30.00
			H	8.37	9.47	-4.50	13.34	30.00

Remark :

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EUT			Measurement					
Operation Band	Fundamental Frequency	CH	Antenna Pol.	S.G. Output	Antenna Gain	Cable Loss	EIRP	Limit
	MHz		V/H	dBm	dBi	dB	dBm	dBm
LTE BAND 4 BW: 3M QPSK RB: 1,0	1711.5	19965	V	16.97	9.33	-4.45	21.85	30.00
			H	11.61	9.33	-4.45	16.49	30.00
	1732.5	20175	V	16.67	9.39	-4.47	21.59	30.00
			H	9.19	9.39	-4.47	14.11	30.00
	1753.5	20385	V	16.54	9.46	-4.49	21.51	30.00
			H	9.58	9.46	-4.49	14.55	30.00
LTE BAND 4 BW: 3M QPSK RB: 1,14	1711.5	19965	V	17.53	9.33	-4.45	22.41	30.00
			H	10.15	9.33	-4.45	15.03	30.00
	1732.5	20175	V	16.85	9.40	-4.48	21.77	30.00
			H	10.66	9.40	-4.48	15.58	30.00
	1753.5	20385	V	16.34	9.47	-4.50	21.31	30.00
			H	9.66	9.47	-4.50	14.63	30.00
LTE BAND 4 BW: 3M 16QAM RB: 1,0	1711.5	19965	V	16.47	9.34	-4.45	21.36	30.00
			H	9.87	9.33	-4.45	14.75	30.00
	1732.5	20175	V	16.42	9.39	-4.47	21.34	30.00
			H	8.36	9.39	-4.47	13.28	30.00
	1753.5	20385	V	17.28	9.46	-4.49	22.25	30.00
			H	10.39	9.46	-4.49	15.36	30.00
LTE BAND 4 BW: 3M 16QAM RB: 1,14	1711.5	19965	V	16.49	9.33	-4.45	21.37	30.00
			H	11.35	9.33	-4.45	16.23	30.00
	1732.5	20175	V	16.49	9.40	-4.48	21.41	30.00
			H	10.06	9.40	-4.48	14.98	30.00
	1753.5	20385	V	17.20	9.47	-4.50	22.17	30.00
			H	9.95	9.47	-4.50	14.92	30.00
LTE BAND 4 BW: 3M 64QAM RB: 1,0	1711.5	19965	V	16.00	9.34	-4.45	20.89	30.00
			H	8.99	9.33	-4.45	13.87	30.00
	1732.5	20175	V	16.08	9.39	-4.47	21.00	30.00
			H	7.60	9.39	-4.47	12.52	30.00
	1753.5	20385	V	16.54	9.46	-4.49	21.51	30.00
			H	9.68	9.46	-4.49	14.65	30.00
LTE BAND 4 BW: 3M 64QAM RB: 1,14	1711.5	19965	V	16.18	9.33	-4.45	21.06	30.00
			H	10.43	9.33	-4.45	15.31	30.00
	1732.5	20175	V	16.41	9.40	-4.48	21.33	30.00
			H	9.15	9.40	-4.48	14.07	30.00
	1753.5	20385	V	16.99	9.47	-4.50	21.96	30.00
			H	9.05	9.47	-4.5	14.02	30.00

Remark :

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Operation Band	Fundamental Frequency	CH	Antenna Pol.	S.G. Output	Antenna Gain	Cable Loss	EIRP	Limit
	MHz		V/H	dBm	dBi	dB	dBm	dBm
LTE BAND 4 BW: 5M QPSK RB: 1,0	1712.5	19975	V	16.62	9.34	-4.45	21.51	30.00
			H	10.30	9.34	-4.45	15.19	30.00
	1732.5	20175	V	15.82	9.39	-4.47	20.74	30.00
			H	10.27	9.39	-4.47	15.19	30.00
	1752.5	20375	V	16.15	9.45	-4.49	21.11	30.00
			H	9.82	9.45	-4.49	14.78	30.00
LTE BAND 4 BW: 5M QPSK RB: 1,24	1712.5	19975	V	16.22	9.34	-4.45	21.11	30.00
			H	11.11	9.34	-4.45	16.00	30.00
	1732.5	20175	V	16.39	9.40	-4.48	21.31	30.00
			H	8.89	9.40	-4.48	13.81	30.00
	1752.5	20375	V	16.65	9.47	-4.50	21.62	30.00
			H	8.90	9.47	-4.50	13.87	30.00
LTE BAND 4 BW: 5M 16QAM RB: 1,0	1712.5	19975	V	17.12	9.34	-4.45	22.01	30.00
			H	10.77	9.34	-4.45	15.66	30.00
	1732.5	20175	V	16.97	9.39	-4.47	21.89	30.00
			H	9.66	9.39	-4.47	14.58	30.00
	1752.5	20375	V	15.59	9.45	-4.49	20.55	30.00
			H	11.61	9.45	-4.49	16.57	30.00
LTE BAND 4 BW: 5M 16QAM RB: 1,24	1712.5	19975	V	16.28	9.34	-4.45	21.17	30.00
			H	12.28	9.34	-4.45	17.17	30.00
	1732.5	20175	V	15.80	9.40	-4.48	20.72	30.00
			H	8.93	9.40	-4.48	13.85	30.00
	1752.5	20375	V	16.69	9.47	-4.50	21.66	30.00
			H	10.17	9.47	-4.50	15.14	30.00
LTE BAND 4 BW: 5M 64QAM RB: 1,0	1712.5	19975	V	15.78	9.34	-4.45	20.67	30.00
			H	9.58	9.34	-4.45	14.47	30.00
	1732.5	20175	V	15.39	9.39	-4.47	20.31	30.00
			H	10.19	9.39	-4.47	15.11	30.00
	1752.5	20375	V	15.21	9.45	-4.49	20.17	30.00
			H	9.63	9.45	-4.49	14.59	30.00
LTE BAND 4 BW: 5M 64QAM RB: 1,24	1712.5	19975	V	16.13	9.34	-4.45	21.02	30.00
			H	10.33	9.34	-4.45	15.22	30.00
	1732.5	20175	V	16.35	9.40	-4.48	21.27	30.00
			H	8.14	9.40	-4.48	13.06	30.00
	1752.5	20375	V	16.36	9.47	-4.50	21.33	30.00
			H	8.30	9.47	-4.50	13.27	30.00

Remark :

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	MHz		V/H	dBm	dBi	dB	dBm	dBm
LTE BAND 4 BW: 10M QPSK RB: 1,0	1715.0	20000	V	16.54	9.34	-4.45	21.43	30.00
			H	10.86	9.34	-4.45	15.75	30.00
	1732.0	20175	V	17.15	9.39	-4.47	22.07	30.00
			H	9.58	9.39	-4.47	14.50	30.00
	1750.0	20350	V	16.26	9.45	-4.49	21.22	30.00
			H	9.09	9.45	-4.49	14.05	30.00
LTE BAND 4 BW: 10M QPSK RB: 1,49	1715.0	20000	V	16.55	9.35	-4.46	21.44	30.00
			H	11.00	9.35	-4.46	15.89	30.00
	1732.0	20175	V	16.25	9.41	-4.48	21.18	30.00
			H	9.53	9.41	-4.48	14.46	30.00
	1750.0	20350	V	15.94	9.47	-4.50	20.91	30.00
			H	9.97	9.46	-4.50	14.93	30.00
LTE BAND 4 BW: 10M 16QAM RB: 1,0	1715.0	20000	V	16.94	9.34	-4.45	21.83	30.00
			H	10.80	9.33	-4.45	15.68	30.00
	1732.0	20175	V	16.05	9.39	-4.48	20.96	30.00
			H	9.58	9.39	-4.47	14.50	30.00
	1750.0	20350	V	17.45	9.45	-4.49	22.41	30.00
			H	10.33	9.45	-4.49	15.29	30.00
LTE BAND 4 BW: 10M 16QAM RB: 1,49	1715.0	20000	V	16.95	9.35	-4.46	21.84	30.00
			H	11.78	9.35	-4.46	16.67	30.00
	1732.0	20175	V	16.84	9.41	-4.48	21.77	30.00
			H	9.61	9.41	-4.48	14.54	30.00
	1750.0	20350	V	16.36	9.47	-4.50	21.33	30.00
			H	10.12	9.47	-4.50	15.09	30.00
LTE BAND 4 BW: 10M 64QAM RB: 1,0	1715.0	20000	V	16.10	9.34	-4.45	20.99	30.00
			H	10.64	9.34	-4.45	15.53	30.00
	1732.0	20175	V	17.11	9.39	-4.47	22.03	30.00
			H	8.63	9.39	-4.47	13.55	30.00
	1750.0	20350	V	15.94	9.45	-4.49	20.90	30.00
			H	8.18	9.45	-4.49	13.14	30.00
LTE BAND 4 BW: 10M 64QAM RB: 1,49	1715.0	20000	V	16.01	9.35	-4.46	20.90	30.00
			H	10.39	9.35	-4.46	15.28	30.00
	1732.0	20175	V	15.80	9.41	-4.48	20.73	30.00
			H	9.41	9.41	-4.48	14.34	30.00
	1750.0	20350	V	15.52	9.47	-4.50	20.49	30.00
			H	9.50	9.46	-4.50	14.46	30.00

Remark :

(1)The RBW,VBW of SPA for frequency RBW= 8MHz , VBW= 8MHz

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EUT			Measurement					
Operation Band	Fundamental Frequency	CH	Antenna Pol.	S.G. Output	Antenna Gain	Cable Loss	EIRP	Limit
	MHz		V/H	dBm	dBi	dB	dBm	dBm
LTE BAND 4 BW: 15M QPSK RB: 1,0	1717.5	20025	V	16.07	9.34	-4.45	20.96	30.00
			H	10.32	9.33	-4.45	15.20	30.00
	1732.5	20175	V	17.84	9.38	-4.47	22.75	30.00
			H	10.54	9.39	-4.47	15.46	30.00
	1747.5	20325	V	15.94	9.43	-4.49	20.88	30.00
			H	9.73	9.43	-4.49	14.67	30.00
LTE BAND 4 BW: 15M QPSK RB: 1,74	1717.5	20025	V	18.05	9.37	-4.47	22.95	30.00
			H	9.79	9.37	-4.47	14.69	30.00
	1732.5	20175	V	15.80	9.42	-4.48	20.74	30.00
			H	10.12	9.42	-4.48	15.06	30.00
	1747.5	20325	V	16.45	9.46	-4.50	21.41	30.00
			H	9.02	9.46	-4.50	13.98	30.00
LTE BAND 4 BW: 15M 16QAM RB: 1,0	1717.5	20025	V	16.51	9.34	-4.45	21.40	30.00
			H	10.46	9.34	-4.45	15.35	30.00
	1732.5	20175	V	17.53	9.39	-4.47	22.45	30.00
			H	8.89	9.38	-4.47	13.80	30.00
	1747.5	20325	V	16.08	9.43	-4.49	21.02	30.00
			H	9.24	9.43	-4.49	14.18	30.00
LTE BAND 4 BW: 15M 16QAM RB: 1,74	1717.5	20025	V	19.05	9.37	-4.46	23.96	30.00
			H	10.58	9.37	-4.47	15.48	30.00
	1732.5	20175	V	17.11	9.42	-4.48	22.05	30.00
			H	11.09	9.42	-4.48	16.03	30.00
	1747.5	20325	V	16.41	9.46	-4.50	21.37	30.00
			H	10.01	9.46	-4.50	14.97	30.00
LTE BAND 4 BW: 15M 64QAM RB: 1,0	1717.5	20025	V	15.09	9.34	-4.45	19.98	30.00
			H	9.92	9.33	-4.45	14.80	30.00
	1732.5	20175	V	17.58	9.38	-4.47	22.49	30.00
			H	10.36	9.39	-4.47	15.28	30.00
	1747.5	20325	V	15.54	9.43	-4.49	20.48	30.00
			H	8.98	9.43	-4.49	13.92	30.00
LTE BAND 4 BW: 15M 64QAM RB: 1,74	1717.5	20025	V	17.16	9.37	-4.47	22.06	30.00
			H	9.00	9.37	-4.47	13.90	30.00
	1732.5	20175	V	15.45	9.42	-4.48	20.39	30.00
			H	9.96	9.42	-4.48	14.90	30.00
	1747.5	20325	V	15.55	9.46	-4.50	20.51	30.00
			H	8.95	9.46	-4.50	13.91	30.00

Remark :

(1)The RBW,VBW of SPA for frequency RBW= 8MHz , VBW= 8MHz

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Operation Band	Fundamental Frequency	CH	Antenna Pol.	S.G. Output	Antenna Gain	Cable Loss	EIRP	Limit
	MHz		V/H	dBm	dBi	dB	dBm	dBm
LTE BAND 4 BW: 20M QPSK RB: 1,0	1720.0	20050	V	16.94	9.34	-4.45	21.83	30.00
			H	11.25	9.34	-4.45	16.14	30.00
	1732.5	20175	V	15.94	9.37	-4.47	20.84	30.00
			H	10.09	9.37	-4.47	14.99	30.00
	1745.0	20300	V	16.54	9.41	-4.48	21.47	30.00
			H	9.23	9.41	-4.48	14.16	30.00
LTE BAND 4 BW: 20M QPSK RB: 1,99	1720.0	20050	V	15.72	9.38	-4.47	20.63	30.00
			H	10.13	9.38	-4.47	15.04	30.00
	1732.5	20175	V	16.60	9.42	-4.48	21.54	30.00
			H	9.04	9.42	-4.48	13.98	30.00
	1745.0	20300	V	15.89	9.46	-4.50	20.85	30.00
			H	9.39	9.46	-4.50	14.35	30.00
LTE BAND 4 BW: 20M 16QAM RB: 1,0	1720.0	20050	V	16.12	9.33	-4.45	21.00	30.00
			H	11.18	9.33	-4.45	16.06	30.00
	1732.5	20175	V	18.32	9.37	-4.47	23.22	30.00
			H	11.00	9.37	-4.47	15.90	30.00
	1745.0	20300	V	15.64	9.41	-4.48	20.57	30.00
			H	10.29	9.41	-4.48	15.22	30.00
LTE BAND 4 BW: 20M 16QAM RB: 1,99	1720.0	20050	V	16.50	9.38	-4.47	21.41	30.00
			H	9.28	9.38	-4.47	14.19	30.00
	1732.5	20175	V	17.25	9.42	-4.48	22.19	30.00
			H	9.94	9.42	-4.48	14.88	30.00
	1745.0	20300	V	16.93	9.47	-4.50	21.90	30.00
			H	9.90	9.46	-4.50	14.86	30.00
LTE BAND 4 BW: 20M 64QAM RB: 1,0	1720.0	20050	V	16.70	9.34	-4.45	21.59	30.00
			H	11.15	9.34	-4.45	16.04	30.00
	1732.5	20175	V	15.30	9.37	-4.47	20.20	30.00
			H	9.62	9.37	-4.47	14.52	30.00
	1745.0	20300	V	15.68	9.41	-4.48	20.61	30.00
			H	8.28	9.41	-4.48	13.21	30.00
LTE BAND 4 BW: 20M 64QAM RB: 1,99	1720.0	20050	V	15.50	9.38	-4.47	20.41	30.00
			H	9.68	9.38	-4.47	14.59	30.00
	1732.5	20175	V	15.79	9.42	-4.48	20.73	30.00
			H	8.44	9.42	-4.48	13.38	30.00
	1745.0	20300	V	15.51	9.46	-4.50	20.47	30.00
			H	8.53	9.46	-4.50	13.49	30.00

Remark :

(1)The RBW,VBW of SPA for frequency RBW= 8MHz , VBW= 8MHz

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EUT			Measurement					
Operation Band	Fundamental Frequency	CH	Antenna Pol.	S.G. Output	Antenna Gain	Cable Loss	ERP	Limit
	MHz		V/H	dBm	dBd	dB	dBm	dBm
LTE BAND 5 BW: 1.4M QPSK RB: 1,0	824.7	20407	V	15.05	3.45	-3.17	15.33	38.45
			H	15.35	3.45	-3.17	15.63	38.45
	836.5	20525	V	17.48	3.45	-3.28	17.65	38.45
			H	14.57	3.45	-3.28	14.74	38.45
	848.3	20643	V	15.89	3.46	-3.35	16.00	38.45
			H	13.51	3.46	-3.36	13.61	38.45
LTE BAND 5 BW: 1.4M QPSK RB: 1,5	824.7	20407	V	16.44	3.45	-3.10	16.79	38.45
			H	16.57	3.45	-3.14	16.88	38.45
	836.5	20525	V	16.16	3.45	-3.30	16.31	38.45
			H	14.34	3.45	-3.30	14.49	38.45
	848.3	20643	V	14.83	3.46	-3.29	15.00	38.45
			H	13.10	3.46	-3.27	13.29	38.45
LTE BAND 5 BW: 1.4M 16QAM RB: 1,0	824.7	20407	V	16.56	3.45	-3.17	16.84	38.45
			H	16.01	3.45	-3.17	16.29	38.45
	836.5	20525	V	17.22	3.45	-3.28	17.39	38.45
			H	15.89	3.45	-3.28	16.06	38.45
	848.3	20643	V	15.34	3.46	-3.33	15.47	38.45
			H	14.59	3.46	-3.25	14.80	38.45
LTE BAND 5 BW: 1.4M 16QAM RB: 1,5	824.7	20407	V	16.72	3.45	-3.11	17.06	38.45
			H	17.94	3.45	-3.10	18.29	38.45
	836.5	20525	V	16.59	3.45	-3.30	16.74	38.45
			H	14.40	3.45	-3.30	14.55	38.45
	848.3	20643	V	14.08	3.46	-3.28	14.26	38.45
			H	13.18	3.46	-3.29	13.35	38.45
LTE BAND 5 BW: 1.4M 64QAM RB: 1,0	824.7	20407	V	14.77	3.45	-3.17	15.05	38.45
			H	14.82	3.45	-3.17	15.10	38.45
	836.5	20525	V	16.88	3.45	-3.28	17.05	38.45
			H	14.04	3.45	-3.28	14.21	38.45
	848.3	20643	V	15.86	3.46	-3.35	15.97	38.45
			H	13.41	3.46	-3.36	13.51	38.45
LTE BAND 5 BW: 1.4M 64QAM RB: 1,5	824.7	20407	V	16.43	3.45	-3.10	16.78	38.45
			H	15.97	3.45	-3.14	16.28	38.45
	836.5	20525	V	15.84	3.45	-3.30	15.99	38.45
			H	14.07	3.45	-3.30	14.22	38.45
	848.3	20643	V	14.39	3.46	-3.29	14.56	38.45
			H	12.60	3.46	-3.27	12.79	38.45

Remark :

(1)The RBW,VBW of SPA for frequency RBW= 8MHz , VBW= 8MHz

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Operation Band	Fundamental Frequency	CH	Antenna Pol.	S.G. Output	Antenna Gain	Cable Loss	ERP	Limit
	MHz		V/H	dBm	dBd	dB	dBm	dBm
LTE BAND 5 BW: 3M QPSK RB: 1,0	825.5	20415	V	15.52	3.45	-3.17	15.80	38.45
			H	18.08	3.45	-3.17	18.36	38.45
	836.5	20525	V	16.95	3.45	-3.28	17.12	38.45
			H	15.23	3.45	-3.28	15.40	38.45
	847.5	20635	V	15.37	3.46	-3.43	15.40	38.45
			H	13.85	3.46	-3.42	13.89	38.45
LTE BAND 5 BW: 3M QPSK RB: 1,14	825.5	20415	V	17.95	3.45	-3.16	18.24	38.45
			H	16.58	3.45	-3.16	16.87	38.45
	836.5	20525	V	16.17	3.45	-3.31	16.31	38.45
			H	14.21	3.45	-3.31	14.35	38.45
	847.5	20635	V	13.56	3.46	-3.29	13.73	38.45
			H	12.87	3.46	-3.29	13.04	38.45
LTE BAND 5 BW: 3M 16QAM RB: 1,0	825.5	20415	V	15.99	3.45	-3.18	16.26	38.45
			H	15.66	3.45	-3.17	15.94	38.45
	836.5	20525	V	17.88	3.45	-3.27	18.06	38.45
			H	15.74	3.45	-3.28	15.91	38.45
	847.5	20635	V	15.57	3.46	-3.43	15.60	38.45
			H	15.69	3.46	-3.42	15.73	38.45
LTE BAND 5 BW: 3M 16QAM RB: 1,14	825.5	20415	V	18.57	3.45	-3.16	18.86	38.45
			H	18.07	3.45	-3.15	18.37	38.45
	836.5	20525	V	15.00	3.45	-3.31	15.14	38.45
			H	13.83	3.45	-3.31	13.97	38.45
	847.5	20635	V	13.31	3.46	-3.30	13.47	38.45
			H	13.31	3.46	-3.28	13.49	38.45
LTE BAND 5 BW: 3M 64QAM RB: 1,0	825.5	20415	V	15.38	3.45	-3.17	15.66	38.45
			H	17.16	3.45	-3.17	17.44	38.45
	836.5	20525	V	16.54	3.45	-3.28	16.71	38.45
			H	14.95	3.45	-3.28	15.12	38.45
	847.5	20635	V	14.39	3.46	-3.43	14.42	38.45
			H	13.52	3.46	-3.42	13.56	38.45
LTE BAND 5 BW: 3M 64QAM RB: 1,14	825.5	20415	V	17.66	3.45	-3.16	17.95	38.45
			H	15.65	3.45	-3.16	15.94	38.45
	836.5	20525	V	15.71	3.45	-3.31	15.85	38.45
			H	13.56	3.45	-3.31	13.70	38.45
	847.5	20635	V	13.40	3.46	-3.29	13.57	38.45
			H	12.54	3.46	-3.29	12.71	38.45

Remark :

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	MHz		V/H	dBm	dBd	dB	dBm	dBm
LTE BAND 5 BW: 5M QPSK RB: 1,0	826.5	20425	V	19.04	3.45	-3.17	19.32	38.45
			H	18.62	3.45	-3.13	18.94	38.45
	836.5	20525	V	16.81	3.45	-3.26	17.00	38.45
			H	15.64	3.45	-3.26	15.83	38.45
	846.5	20625	V	17.74	3.46	-3.40	17.80	38.45
			H	16.29	3.46	-3.40	16.35	38.45
LTE BAND 5 BW: 5M QPSK RB: 1,24	826.5	20425	V	17.33	3.45	-3.18	17.60	38.45
			H	16.37	3.45	-3.19	16.63	38.45
	836.5	20525	V	15.11	3.45	-3.32	15.24	38.45
			H	12.80	3.45	-3.32	12.93	38.45
	846.5	20625	V	13.11	3.46	-3.29	13.28	38.45
			H	12.84	3.46	-3.29	13.01	38.45
LTE BAND 5 BW: 5M 16QAM RB: 1,0	826.5	20425	V	17.51	3.45	-3.17	17.79	38.45
			H	16.13	3.45	-3.18	16.40	38.45
	836.5	20525	V	18.70	3.45	-3.26	18.89	38.45
			H	16.53	3.45	-3.26	16.72	38.45
	846.5	20625	V	15.85	3.46	-3.40	15.91	38.45
			H	14.89	3.46	-3.39	14.96	38.45
LTE BAND 5 BW: 5M 16QAM RB: 1,24	826.5	20425	V	17.89	3.45	-3.19	18.15	38.45
			H	17.45	3.45	-3.18	17.72	38.45
	836.5	20525	V	15.63	3.46	-3.33	15.76	38.45
			H	13.69	3.45	-3.32	13.82	38.45
	846.5	20625	V	13.87	3.46	-3.28	14.05	38.45
			H	14.19	3.46	-3.25	14.40	38.45
LTE BAND 5 BW: 5M 64QAM RB: 1,0	826.5	20425	V	16.80	3.45	-3.17	17.08	38.45
			H	15.42	3.45	-3.18	15.69	38.45
	836.5	20525	V	18.52	3.45	-3.26	18.71	38.45
			H	16.04	3.45	-3.26	16.23	38.45
	846.5	20625	V	15.12	3.46	-3.40	15.18	38.45
			H	13.95	3.46	-3.39	14.02	38.45
LTE BAND 5 BW: 5M 64QAM RB: 1,24	826.5	20425	V	17.24	3.45	-3.19	17.50	38.45
			H	16.53	3.45	-3.18	16.80	38.45
	836.5	20525	V	15.21	3.46	-3.33	15.34	38.45
			H	13.55	3.45	-3.32	13.68	38.45
	846.5	20625	V	13.02	3.46	-3.28	13.20	38.45
			H	13.78	3.46	-3.25	13.99	38.45

Remark : (1)The RBW,VBW of SPA for frequency RBW= 8MHz , VBW= 8MHz

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EUT			Measurement					
Operation Band	Fundamental Frequency	CH	Antenna Pol.	S.G. Output	Antenna Gain	Cable Loss	ERP	Limit
	MHz		V/H	dBm	dBd	dB	dBm	dBm
LTE BAND 5 BW: 10M QPSK RB: 1,0	829.0	20450	V	15.77	3.45	-3.18	16.04	38.45
			H	14.95	3.45	-3.18	15.22	38.45
	836.5	20525	V	16.45	3.45	-3.23	16.67	38.45
			H	16.33	3.45	-3.23	16.55	38.45
	844.0	20600	V	14.30	3.46	-3.33	14.43	38.45
			H	11.62	3.46	-3.33	11.75	38.45
LTE BAND 5 BW: 10M QPSK RB: 1,49	829.0	20450	V	16.53	3.45	-3.25	16.73	38.45
			H	15.48	3.45	-3.25	15.68	38.45
	836.5	20525	V	14.32	3.46	-3.35	14.43	38.45
			H	12.46	3.46	-3.34	12.58	38.45
	844.0	20600	V	14.02	3.46	-3.30	14.18	38.45
			H	12.19	3.46	-3.31	12.34	38.45
LTE BAND 5 BW: 10M 16QAM RB: 1,0	829.0	20450	V	14.96	3.45	-3.17	15.24	38.45
			H	15.94	3.45	-3.18	16.21	38.45
	836.5	20525	V	18.66	3.45	-3.23	18.88	38.45
			H	17.43	3.45	-3.23	17.65	38.45
	844.0	20600	V	14.32	3.46	-3.34	14.44	38.45
			H	13.15	3.46	-3.35	13.26	38.45
LTE BAND 5 BW: 10M 16QAM RB: 1,49	829.0	20450	V	18.35	3.45	-3.25	18.55	38.45
			H	17.23	3.45	-3.25	17.43	38.45
	836.5	20525	V	15.36	3.46	-3.35	15.47	38.45
			H	11.97	3.46	-3.35	12.08	38.45
	844.0	20600	V	14.43	3.46	-3.34	14.55	38.45
			H	13.17	3.46	-3.32	13.31	38.45
LTE BAND 5 BW: 10M 64QAM RB: 1,0	829.0	20450	V	15.59	3.45	-3.18	15.86	38.45
			H	14.48	3.45	-3.18	14.75	38.45
	836.5	20525	V	16.29	3.45	-3.23	16.51	38.45
			H	15.49	3.45	-3.23	15.71	38.45
	844.0	20600	V	14.07	3.46	-3.33	14.20	38.45
			H	11.16	3.46	-3.33	11.29	38.45
LTE BAND 5 BW: 10M 64QAM RB: 1,49	829.0	20450	V	15.78	3.45	-3.25	15.98	38.45
			H	15.37	3.45	-3.25	15.57	38.45
	836.5	20525	V	13.99	3.46	-3.35	14.10	38.45
			H	12.14	3.46	-3.34	12.26	38.45
	844.0	20600	V	14.01	3.46	-3.30	14.17	38.45
			H	11.50	3.46	-3.31	11.65	38.45

Remark :

(1)The RBW,VBW of SPA for frequency RBW= 8MHz , VBW= 8MHz

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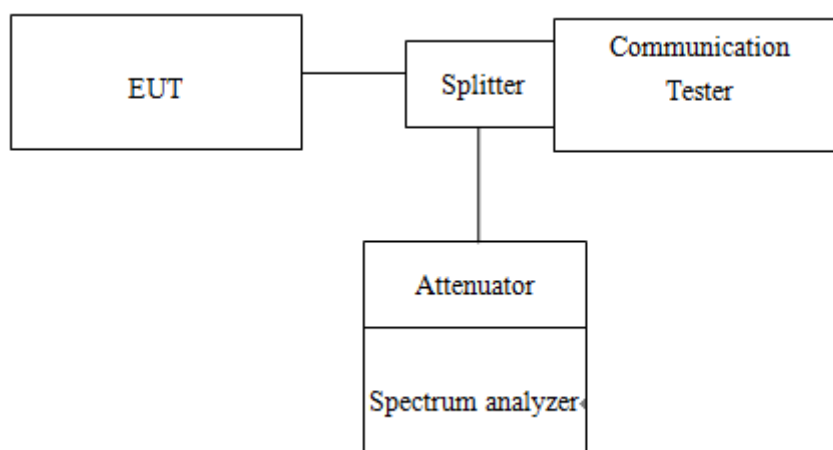
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8. OCCUPIED BANDWIDTH MEASUREMENT

8.1. 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.

8.2. Test Set-up



8.3. Measurement Procedure

99% & 26dB Bandwidth with detector peak

The EUT's output RF connector was connected with a short cable to the spectrum analyzer, RBW was set to about 1% of emission BW, VBW= 3 times RBW, -26dBc display line was placed on the screen (or 26dB bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace. Then set RBW to 99% bandwidth, RBW= 1%, VBW= 3 RBW, with span > 2 * Signal BW, set % Power = 99%.

99% Bandwidth with detector sample

The EUT's output RF connector was connected with a short cable to the spectrum analyzer, RBW was set to about 1% ~ 5% of emission BW, VBW= 3 times RBW, -20dBc display line was placed on the screen (or 20dB bandwidth). Set RBW to 99% bandwidth, RBW= 1% ~ 5%, VBW= 3 RBW, with span > 2 * Signal BW, set % Power = 99%.

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8.4. Measurement Equipment Used

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EXA Spectrum Analyzer	Agilent	N9010A	MY54200716	2017/10/16	2018/10/15
Radio Communication Analyzer	Anritsu	MT8820C	6201465317	2018/01/17	2019/01/16
Attenuator	Mini-Circuit	BW-S10W2+	2	2018/01/02	2019/01/01
Splitter	RF-LAMBDA	RFLT2W1G18G	11-JSPF412-018	2018/01/02	2019/01/01
Coaxial Cables	N/A	WK CE Cable	N/A	2018/01/02	2019/01/01
Temperature Chamber	TERCHY	MHG-120LF	911009	2017/05/19	2018/5/18

8.5. Measurement Result

Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		GSM 850	GPRS 850	GPRS 850	GPRS 850
824.2	128	0.23986	0.24432	0.30520	0.30750
836.6	190	0.24855	0.24707	0.30670	0.31160
848.8	251	0.23978	0.24502	0.30300	0.30740

Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		GSM 1900	GPRS 1900	GSM 1900	GPRS 1900
1850.2	512	0.24386	0.24438	0.31130	0.30740
1880.0	661	0.24724	0.24696	0.31020	0.31730
1909.8	810	0.24226	0.23767	0.30930	0.30190

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	4.1504	4.1168	4.1152	4.6620	4.6610	4.6820
1880.00	9400	4.1278	4.1268	4.1268	4.6840	4.6870	4.6680
1907.60	9538	4.1344	4.1342	4.1077	4.6790	4.6720	4.6790

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Freq. (MHz)	CH	99% BW (MHz)			26 dB BW (MHz)		
		WCDMA IV	HSDPA IV	HSUPA IV	WCDMA IV	HSDPA IV	HSUPA IV
1712.40	1312	4.1251	4.1205	4.1183	4.6870	4.6730	4.6820
1732.60	1413	4.1209	4.1404	4.1317	4.6880	4.6880	4.6930
1752.60	1513	4.1320	4.1242	4.1215	4.6890	4.6740	4.6800

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	4.1437	4.1371	4.1357	4.7030	4.6870	4.6710
836.60	4183	4.1231	4.1292	4.1303	4.6620	4.6960	4.6810
846.60	4233	4.1530	4.1333	4.1266	4.6560	4.6830	4.6790

LTE BAND 2 Channel bandwidth: 1.4MHz							
Freq. (MHz)	CH	99% BW (MHz)			26 dB BW (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
1850.7	18607	1.0932	1.0956	1.0964	1.2399	1.2330	1.2262
1880.0	18900	1.0938	1.0972	1.0989	1.2414	1.2314	1.2317
1909.3	19193	1.0956	1.0966	1.0911	1.2187	1.2376	1.2401

LTE BAND 2 Channel bandwidth: 3MHz							
Freq. (MHz)	CH	99% BW (MHz)			26 dB BW (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
1851.5	18615	2.6993	2.7036	2.7026	2.9941	2.9619	3.0109
1880.0	18900	2.7042	2.7034	2.6980	2.9811	3.0128	2.9578
1908.5	19185	2.7005	2.7103	2.7031	2.9789	3.0074	3.0005

LTE BAND 2 Channel bandwidth: 5MHz							
Freq. (MHz)	CH	99% BW (MHz)			26 dB BW (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
1852.5	18625	4.5101	4.5163	4.5145	4.9491	4.9869	4.9706
1880.0	18900	4.5085	4.5070	4.5159	5.0030	5.0281	4.9531
1907.5	19175	4.5014	4.5093	4.5090	4.9514	4.9629	4.9360

LTE BAND 2 Channel bandwidth: 10MHz							
Freq. (MHz)	CH	99% BW (MHz)			26 dB BW (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
1855.0	18650	8.9958	8.9607	8.9758	9.824	9.750	9.763
1880.0	18900	8.9756	8.9846	8.9860	9.822	9.725	9.699
1905.0	19150	8.9957	8.9723	8.9565	9.833	9.749	9.742

LTE BAND 2 Channel bandwidth: 15MHz							
Freq. (MHz)	CH	99% BW (MHz)			26 dB BW (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
1857.5	18675	13.465	13.453	13.446	14.628	14.568	14.523
1880.0	18900	13.481	13.474	13.469	14.560	14.566	14.725
1902.5	19125	13.482	13.478	13.459	14.499	14.618	14.700

LTE BAND 2 Channel bandwidth: 20MHz							
Freq. (MHz)	CH	99% BW (MHz)			26 dB BW (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
1860.0	18700	17.908	17.910	17.919	19.307	19.197	19.172
1880.0	18900	17.941	17.957	17.931	19.454	19.276	19.344
1900.0	19100	17.896	17.976	17.888	19.254	19.327	19.396

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LTE BAND 4 Channel bandwidth: 1.4MHz							
Freq. (MHz)	CH	99% BW (MHz)			26 dB BW (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
1710.7	19957	1.0922	1.0925	1.0916	1.2410	1.2334	1.2321
1732.5	20175	1.0953	1.0963	1.0903	1.2411	1.2433	0.0000
1754.3	20393	1.0921	1.0968	1.0957	1.2352	1.2313	0.0000

LTE BAND 4 Channel bandwidth: 3MHz							
Freq. (MHz)	CH	99% BW (MHz)			26 dB BW (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
1711.5	19965	2.7038	2.7014	2.6979	2.9978	3.0009	2.9966
1732.5	20175	2.6974	2.7071	2.7049	2.9842	3.0143	2.9916
1753.5	20385	2.7021	2.7079	2.7011	2.9916	2.9971	2.9899

LTE BAND 4 Channel bandwidth: 5MHz							
Freq. (MHz)	CH	99% BW (MHz)			26 dB BW (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
1712.5	19957	4.5057	4.5054	4.5083	4.9936	5.0048	4.9782
1732.5	20175	4.5090	4.5096	4.5096	4.9492	4.9451	4.9542
1752.5	20375	4.5095	4.5118	4.5104	4.9958	4.9814	4.9854

LTE BAND 4 Channel bandwidth: 10MHz							
Freq. (MHz)	CH	99% BW (MHz)			26 dB BW (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
1715.0	20000	8.9887	8.9863	8.9553	9.810	9.690	9.748
1732.5	20175	8.9818	8.9791	8.9516	9.771	9.717	9.732
1750.0	20350	8.9725	8.9633	8.9832	9.813	9.731	9.733

LTE BAND 4 Channel bandwidth: 15MHz							
Freq. (MHz)	CH	99% BW (MHz)			26 dB BW (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
1717.5	20025	13.487	13.455	13.472	14.569	14.577	14.612
1732.5	20175	13.470	13.461	13.461	14.623	14.757	14.569
1747.5	20325	13.441	13.446	13.453	14.614	14.719	14.548

LTE BAND 4 Channel bandwidth: 20MHz							
Freq. (MHz)	CH	99% BW (MHz)			26 dB BW (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
1720.0	20050	17.922	17.894	17.920	19.364	19.275	19.227
1732.5	20175	17.924	17.918	17.895	19.476	19.331	19.440
1745.0	20300	17.920	17.954	17.914	19.382	19.323	19.456

LTE BAND 5 Channel bandwidth: 1.4MHz							
Freq. (MHz)	CH	99% BW (MHz)			26 dB BW (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
824.7	20407	1.0954	1.0967	1.0955	1.2428	1.2348	1.2337
836.5	20525	1.0960	1.1001	1.0927	1.2298	1.2316	1.2313
848.3	20643	1.0938	1.0913	1.0982	1.2321	1.2278	1.2366

LTE BAND 5 Channel bandwidth: 3MHz							
Freq. (MHz)	CH	99% BW (MHz)			26 dB BW (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
825.5	20415	2.6986	2.7012	2.7080	3.0212	3.0095	3.0180
836.5	20525	2.7042	2.7044	2.7019	2.9912	3.0066	3.0117
847.5	20635	2.7054	2.7038	2.7002	2.9789	3.0022	3.0075

LTE BAND 5 Channel bandwidth: 5MHz							
Freq. (MHz)	CH	99% BW (MHz)			26 dB BW (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
826.5	20425	4.5113	4.5096	4.5141	4.9923	4.9732	4.9438
836.5	20525	4.5060	4.5151	4.5082	4.9589	4.9420	4.9800
846.5	20625	4.4965	4.5068	4.4958	4.9923	4.9353	4.9309

LTE BAND 5 Channel bandwidth: 10MHz							
Freq. (MHz)	CH	99% BW (MHz)			26 dB BW (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
829.0	20450	8.9945	8.9599	8.9597	9.784	9.678	9.758
836.5	20525	8.9681	8.9413	8.9391	9.723	9.751	9.702
844.0	20600	9.0043	8.9459	8.9510	9.733	9.718	9.753

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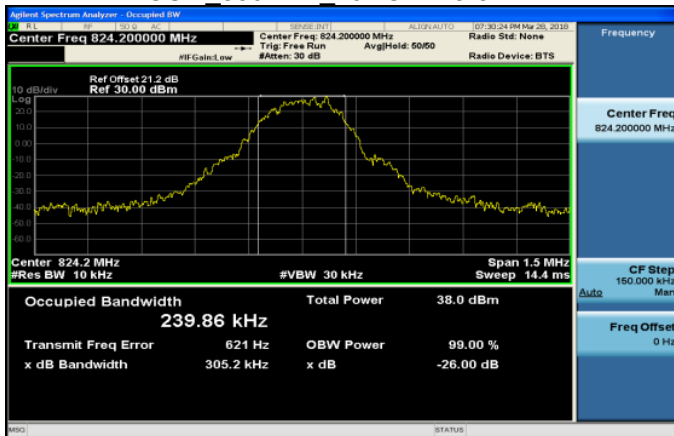
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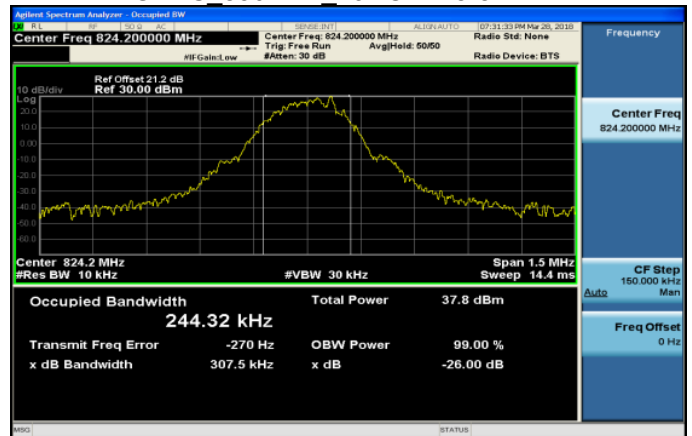
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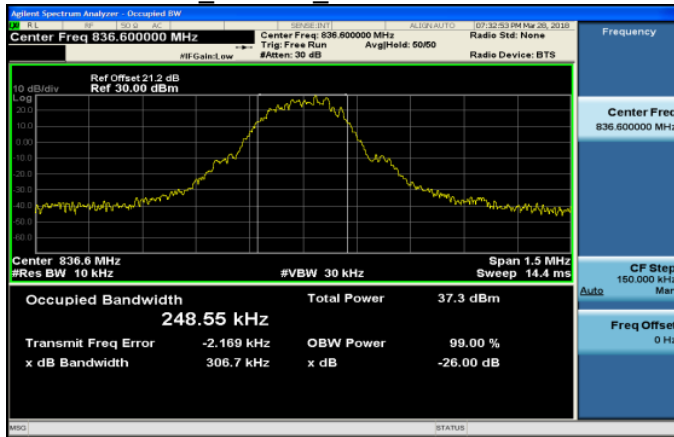
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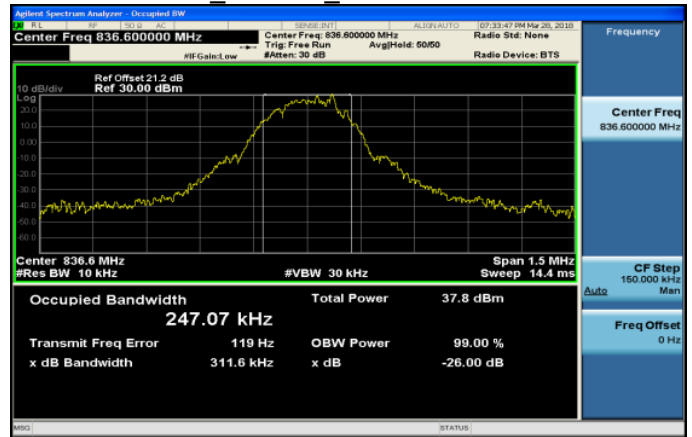
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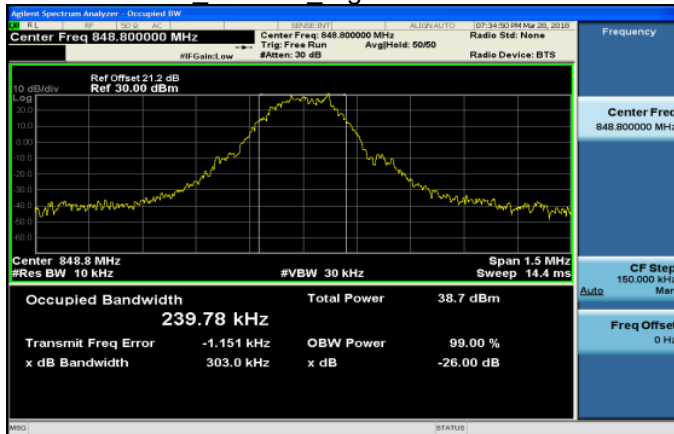
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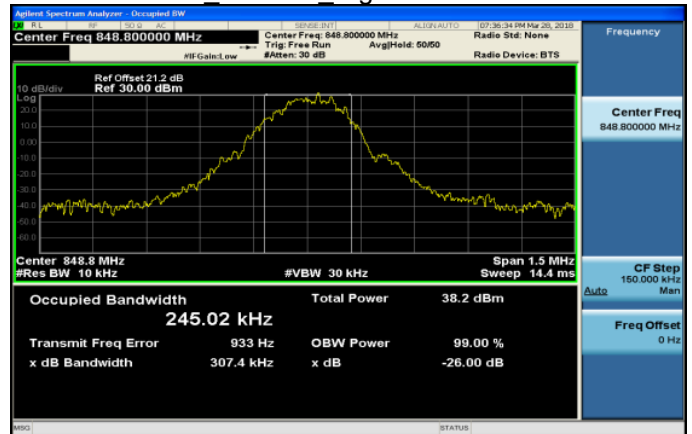
GPRS 850MHz MidCH190-836.6



GSM 850MHz HighCH251-848.8



GPRS 850MHz HighCH251-848.8



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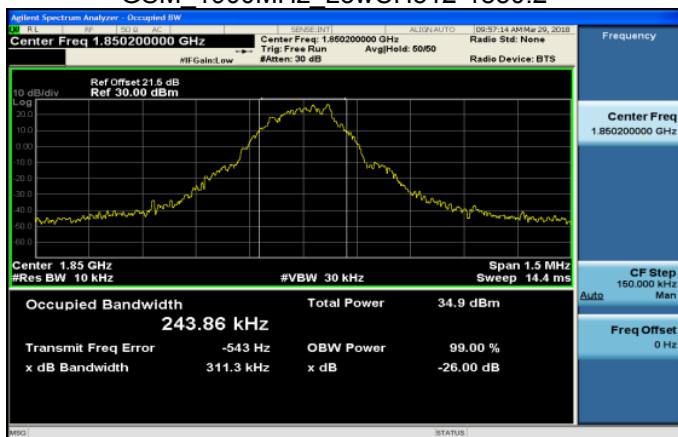
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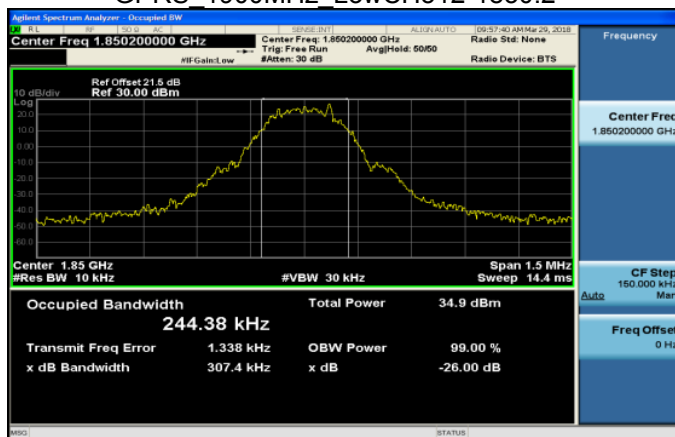
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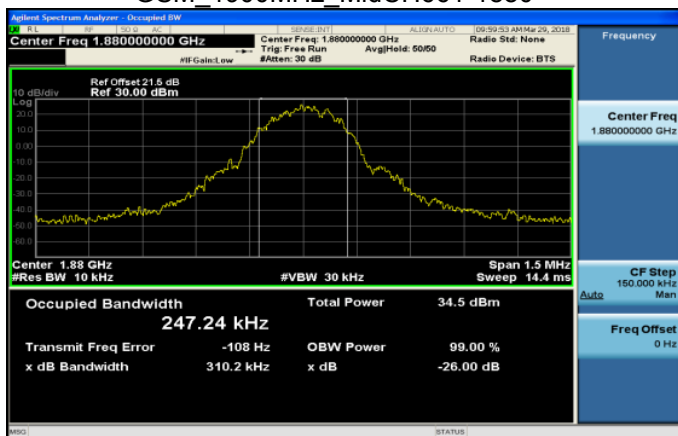
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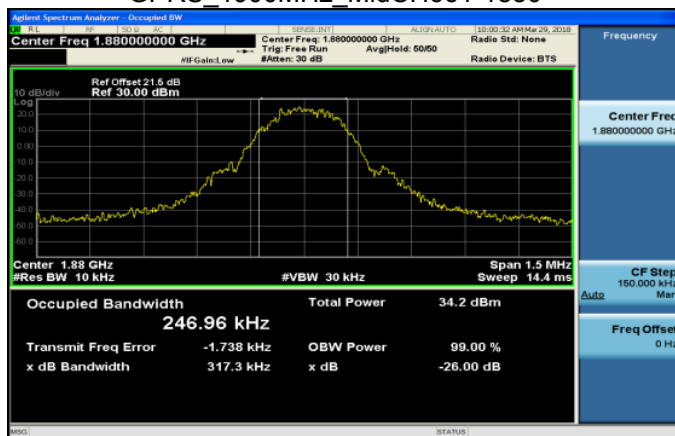
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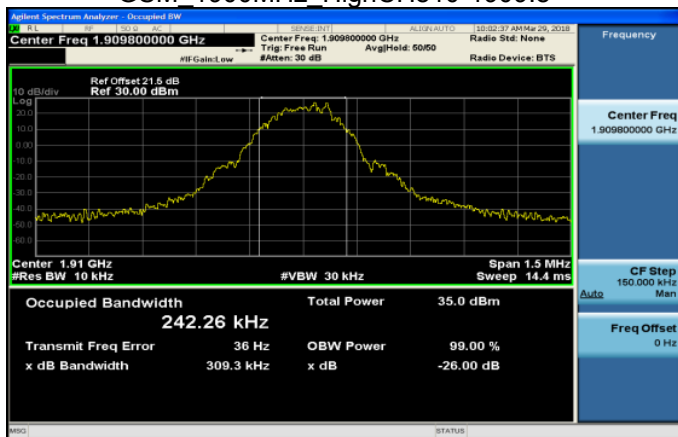
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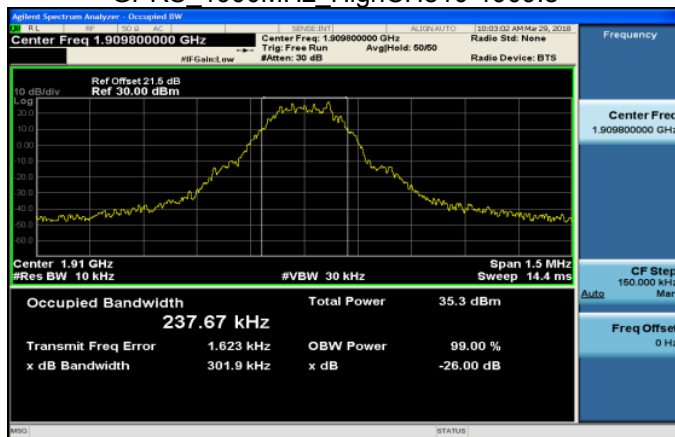
GPRS 1900MHz MidCH661-1880



GSM 1900MHz HighCH810-1909.8



GPRS 1900MHz HighCH810-1909.8



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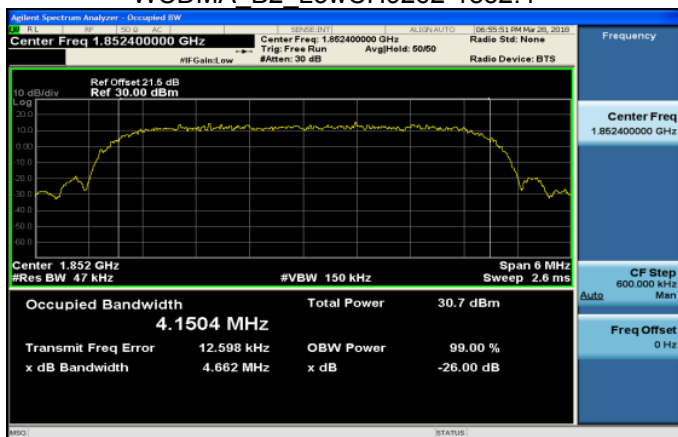
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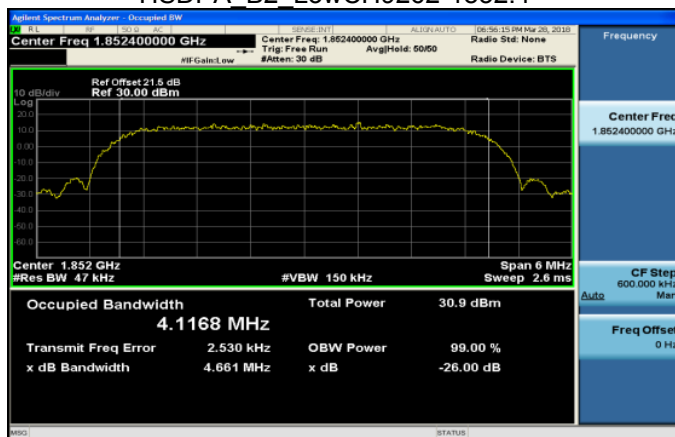
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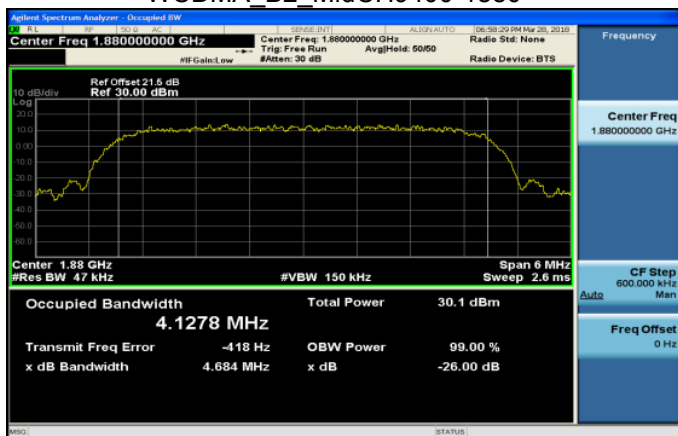
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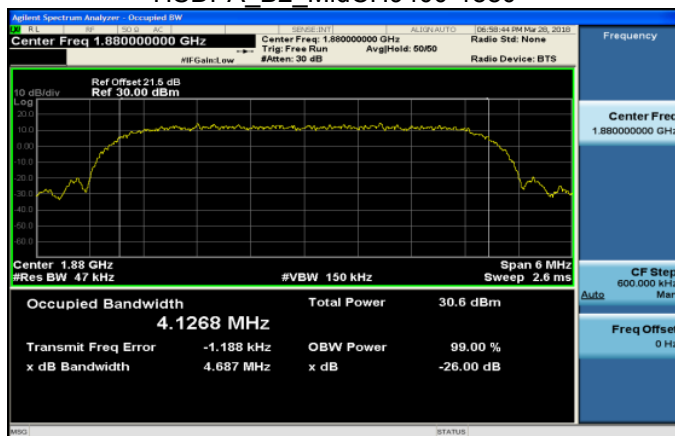
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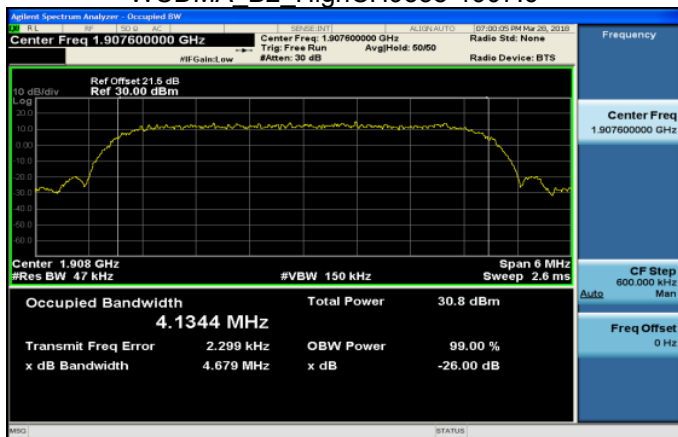
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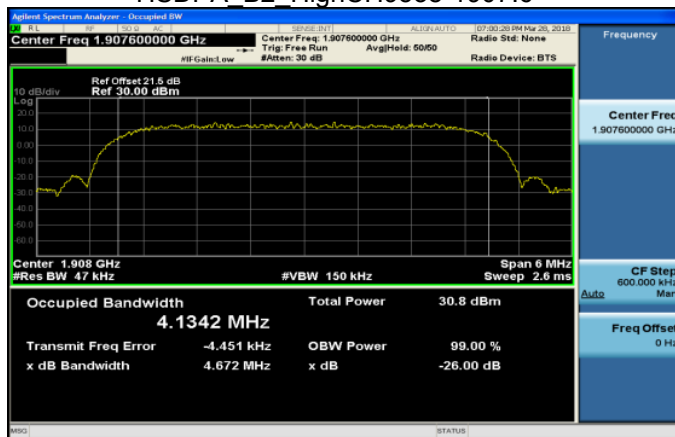
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WCDMA B2_HighCH9538-1907.6



HSDPA B2_HighCH9538-1907.6



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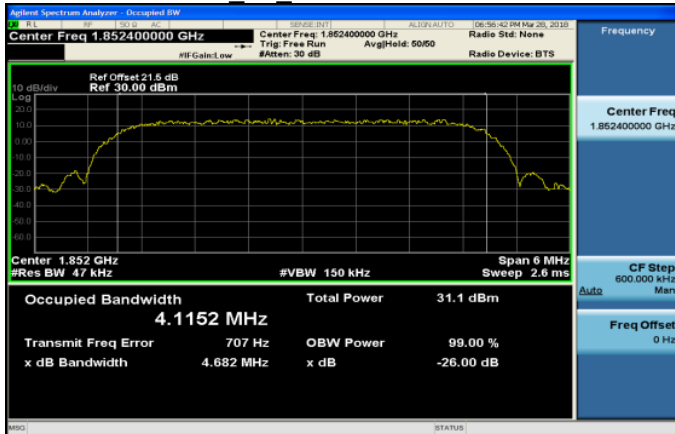
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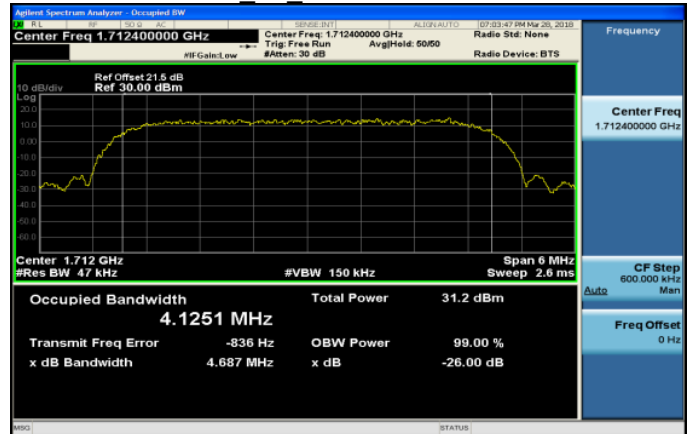
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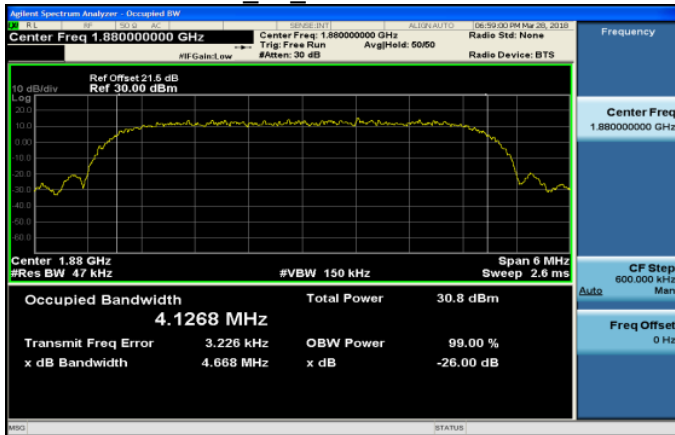
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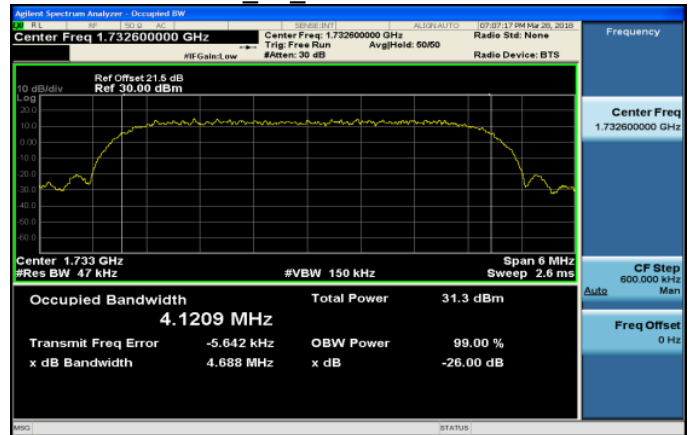
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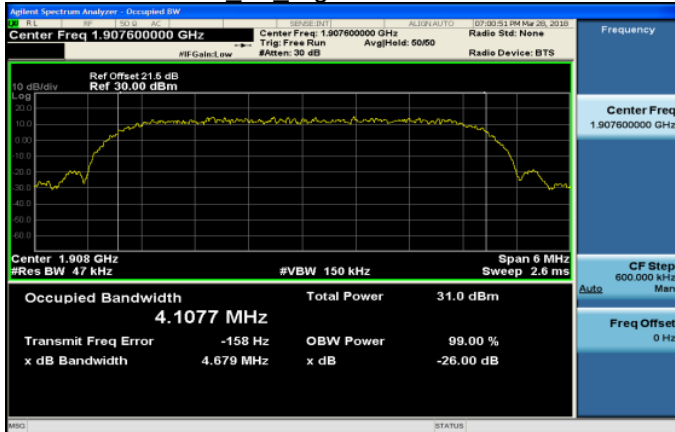
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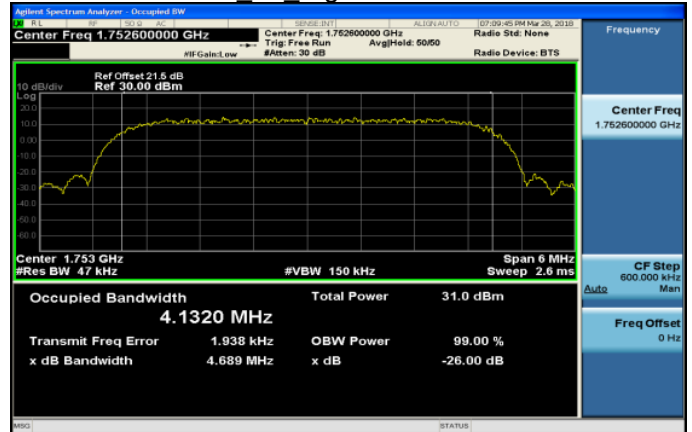
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HSUPA B2 HighCH9538-1907.6



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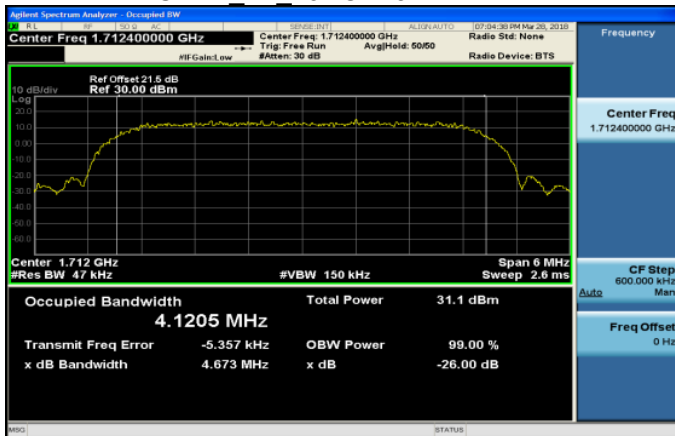
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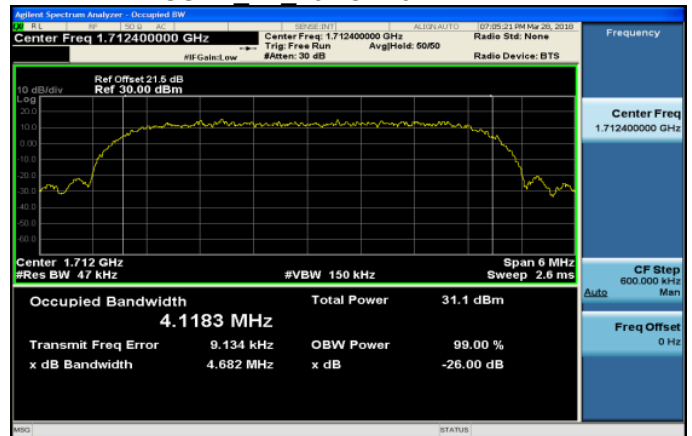
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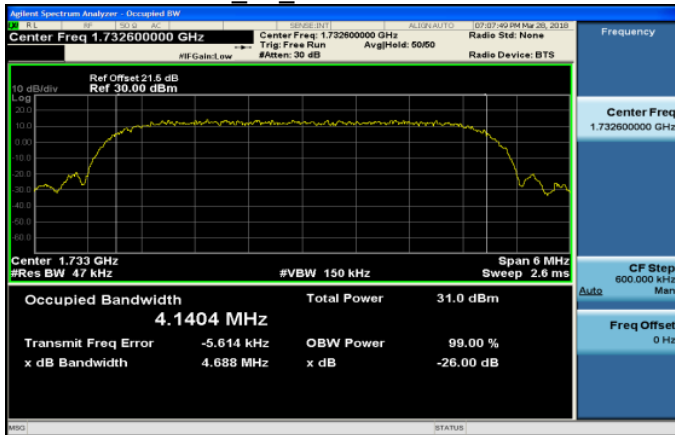
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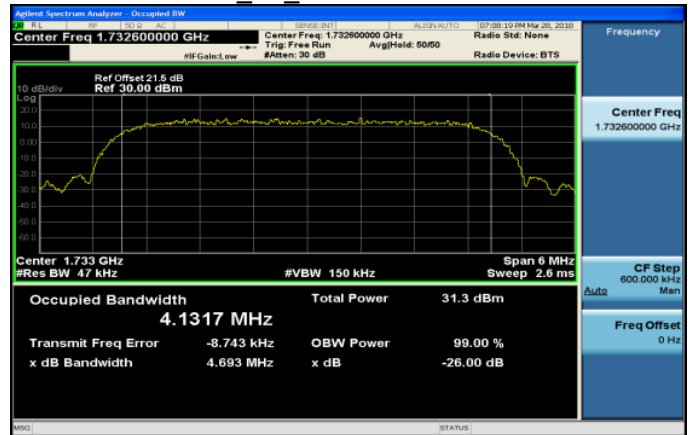
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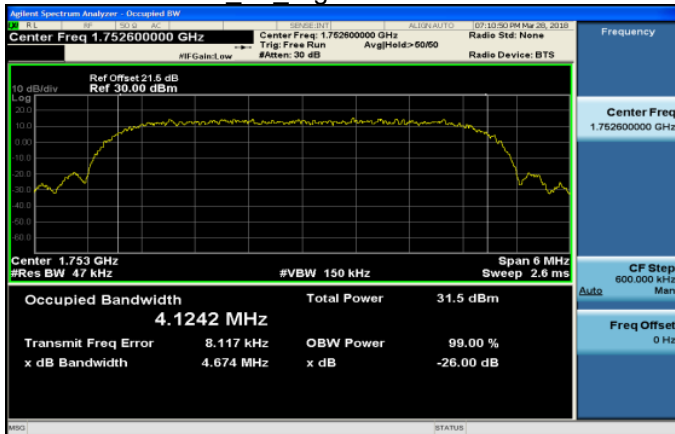
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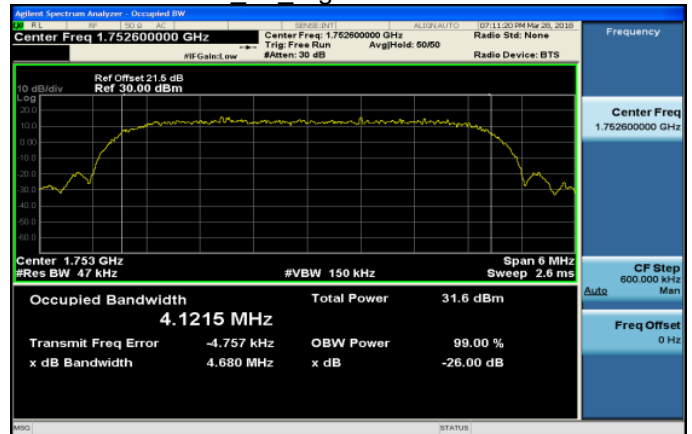
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HSDPA B4 HighCH1513-1752.6



HSUPA B4 HighCH1513-1752.6



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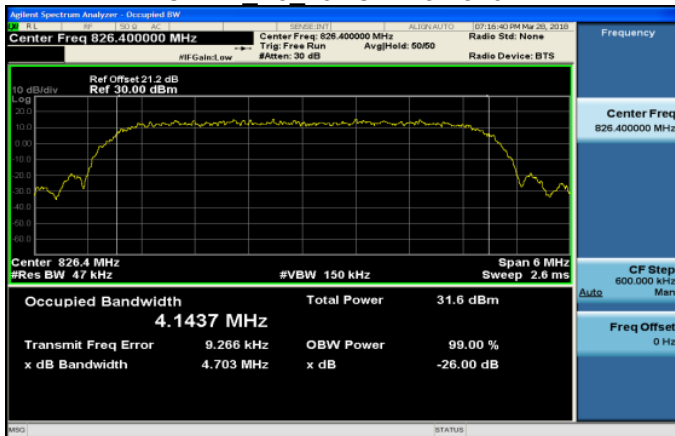
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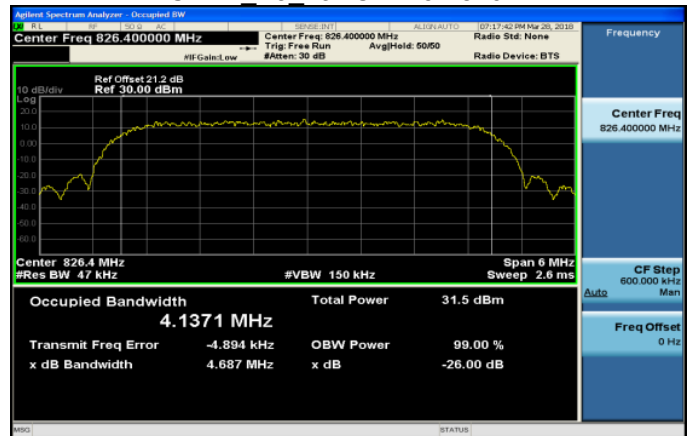
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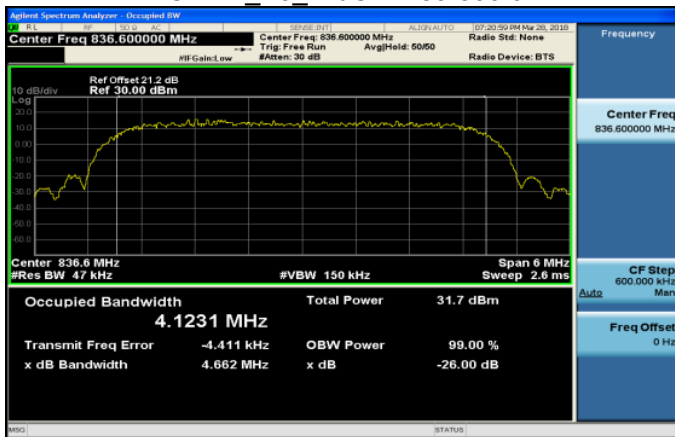
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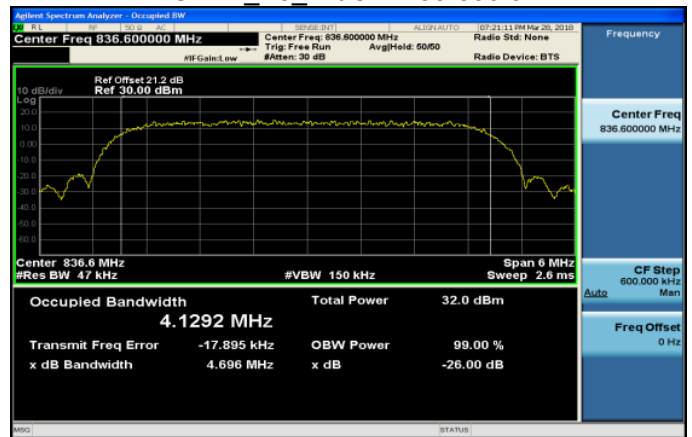
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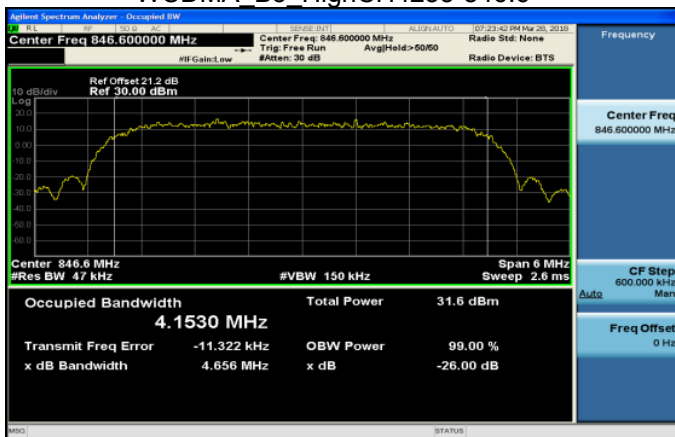
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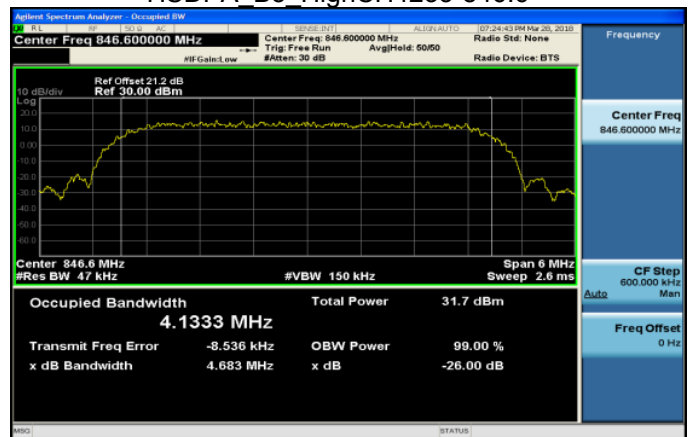
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WCDMA B5 HighCH4233-846.6



HSDPA B5 HighCH4233-846.6



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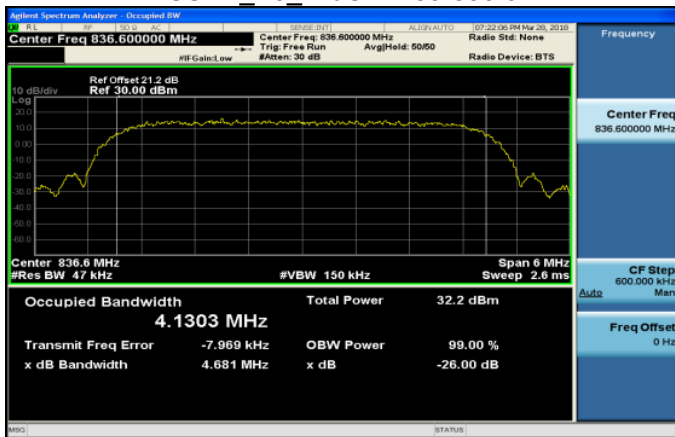
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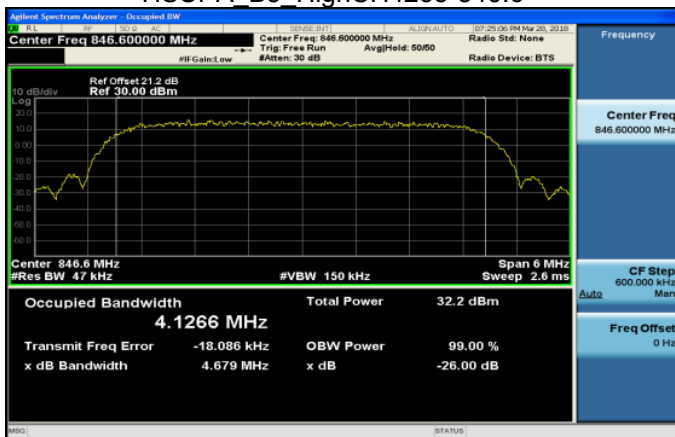
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HSUPA B5 MidCH4183-836.6



HSUPA B5 HighCH4233-846.6



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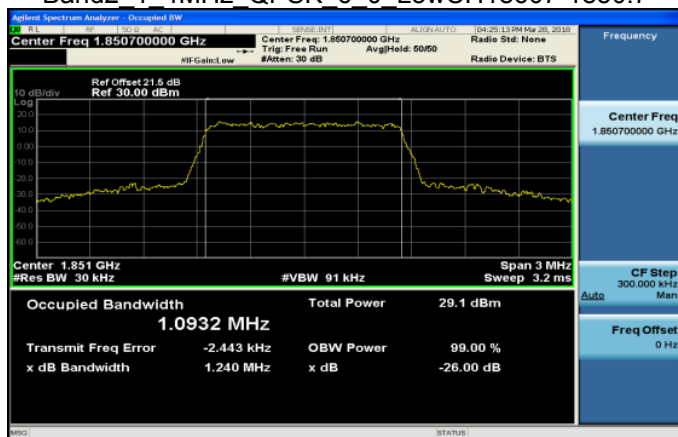
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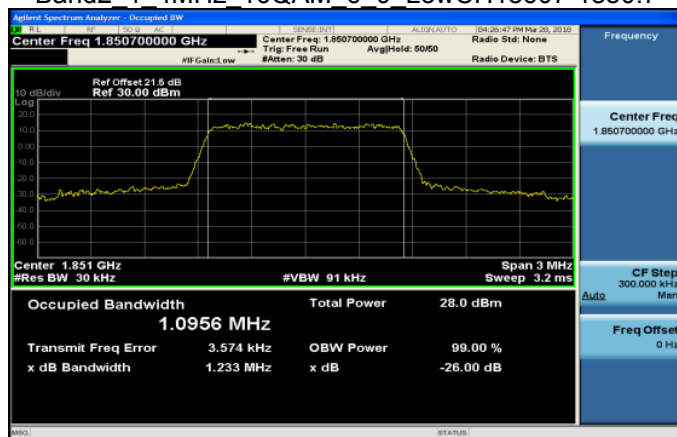
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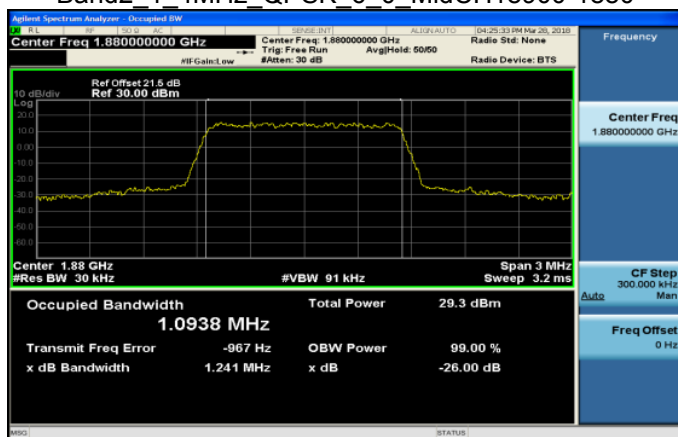
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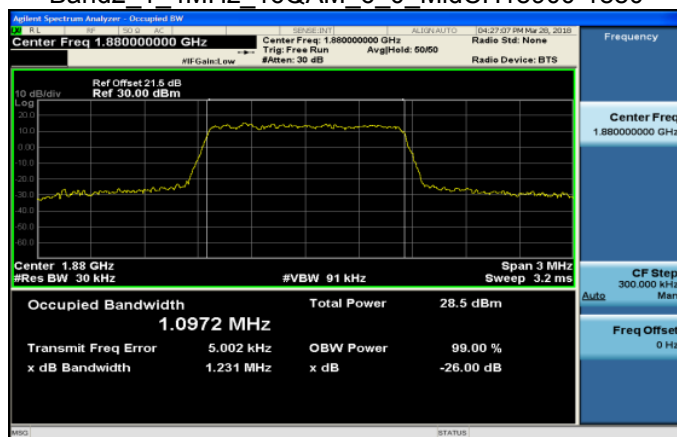
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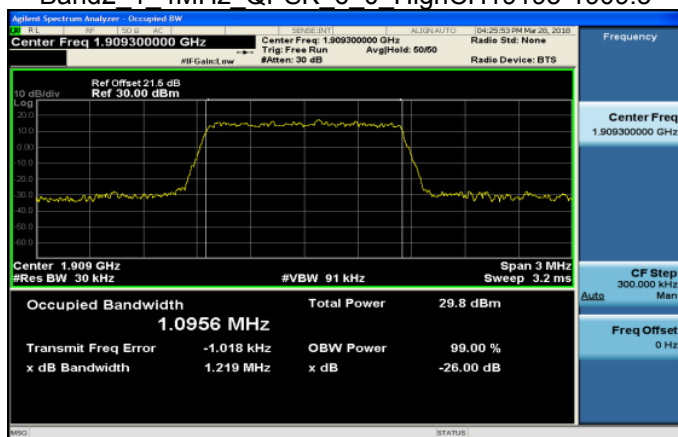
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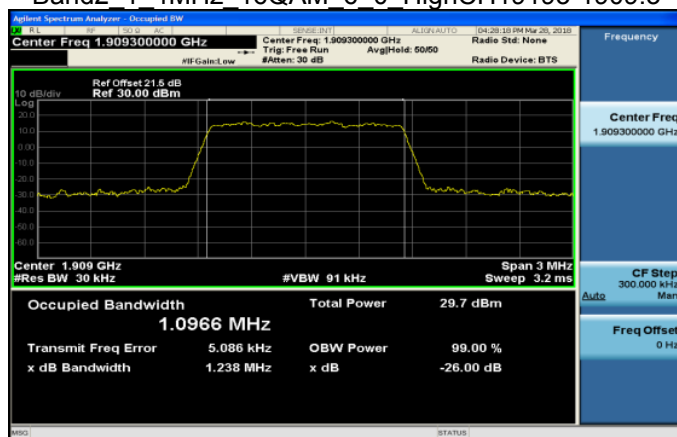
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Band2 1 4MHz QPSK 6 0 HighCH19193-1909.3



Band2 1 4MHz 16QAM 6 0 HighCH19193-1909.3



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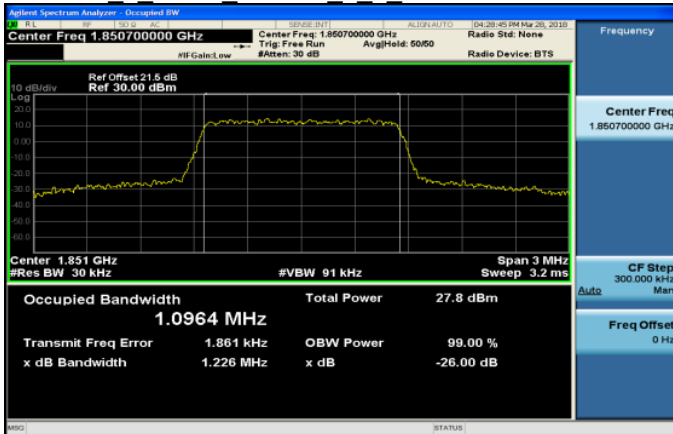
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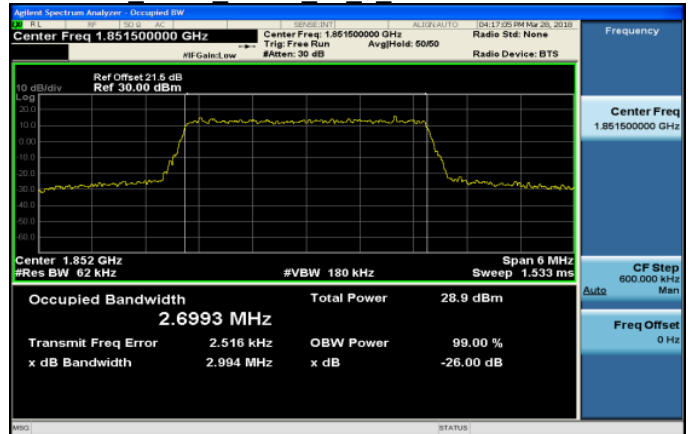
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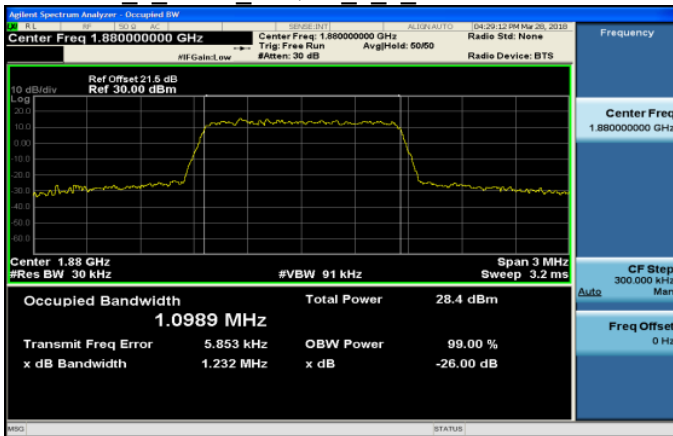
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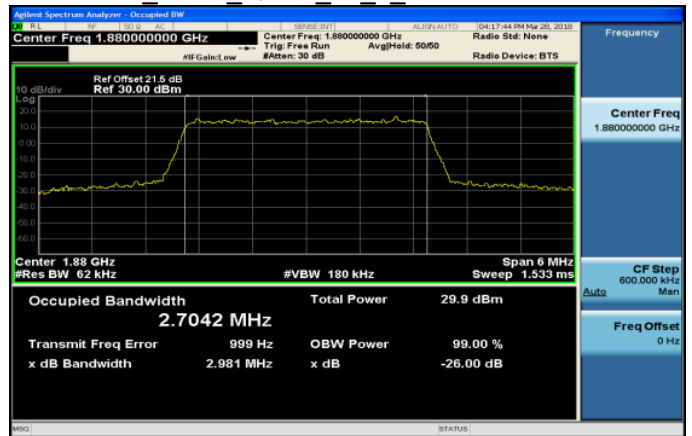
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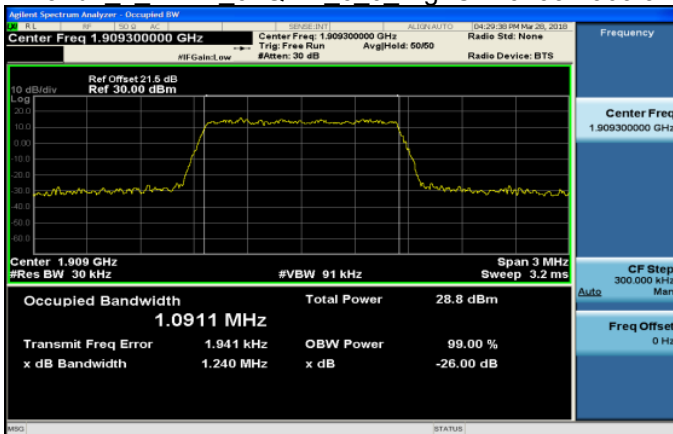
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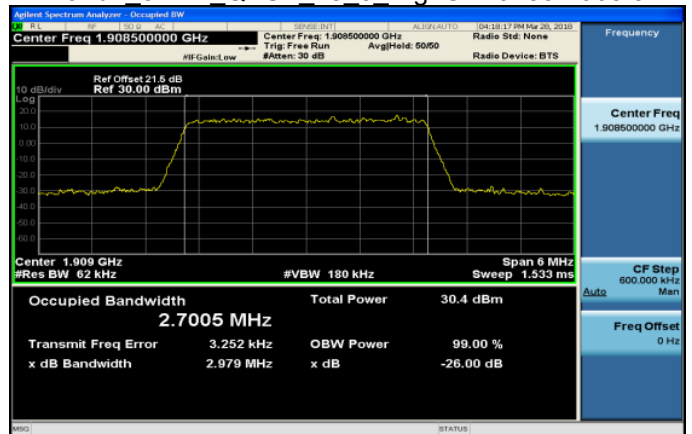
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Band2 1 4MHz 64QAM 6 0 HighCH19193-1909.3



Band2 3MHz QPSK 15 0 HighCH19185-1908.5



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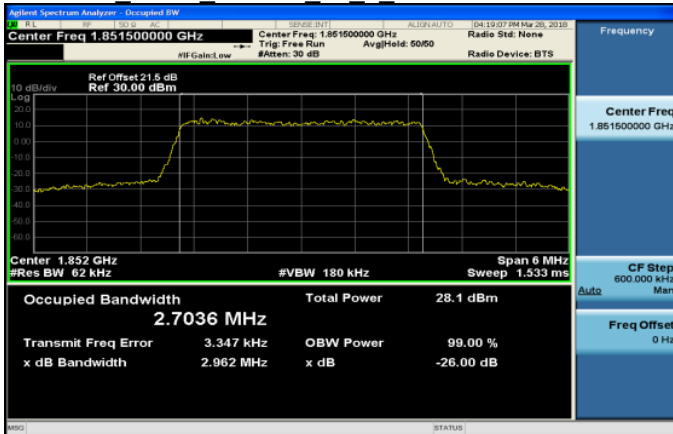
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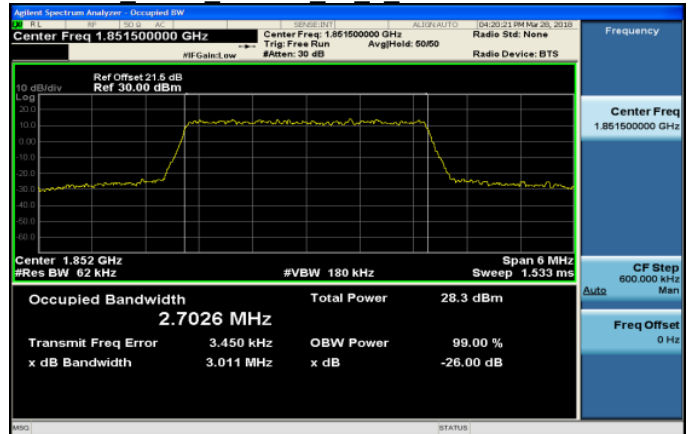
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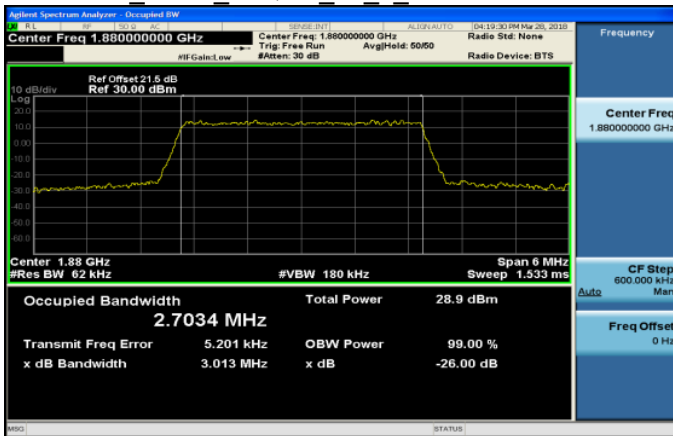
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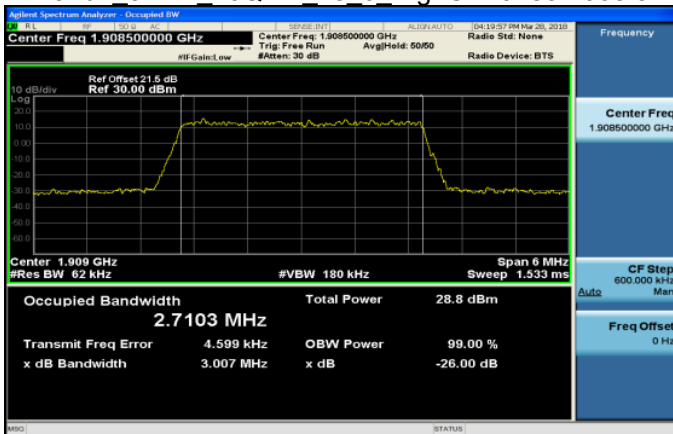
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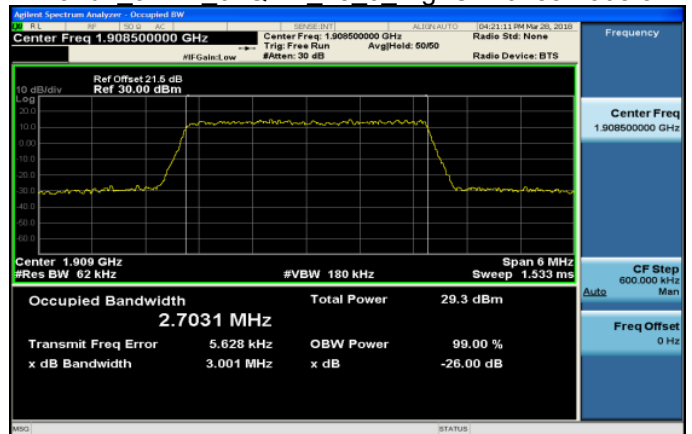
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Band2 3MHz 16QAM 15 0 HighCH19185-1908.5



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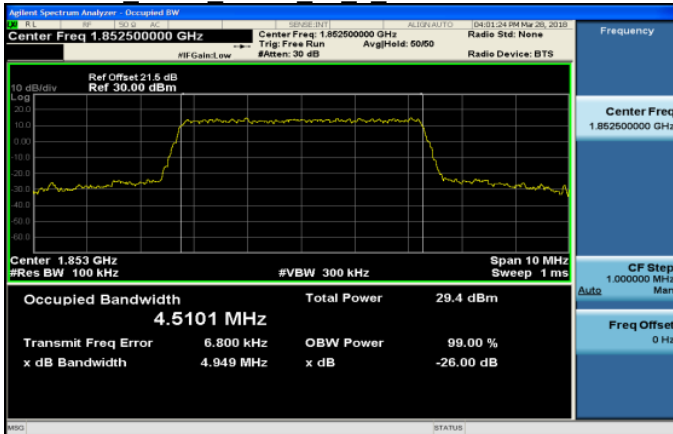
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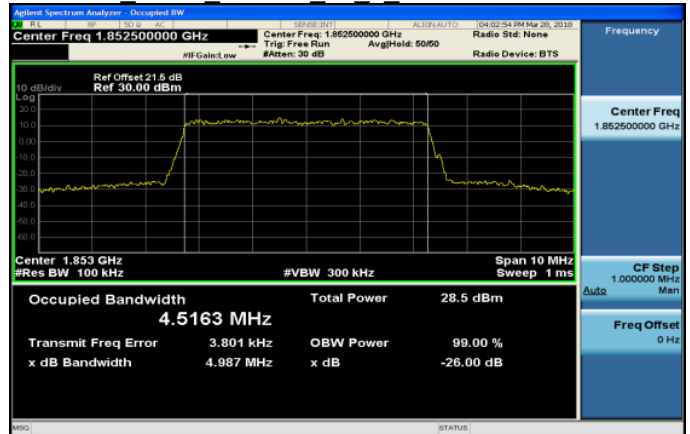
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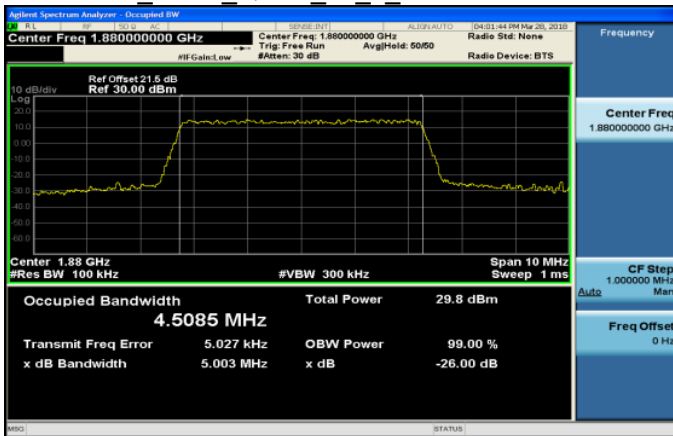
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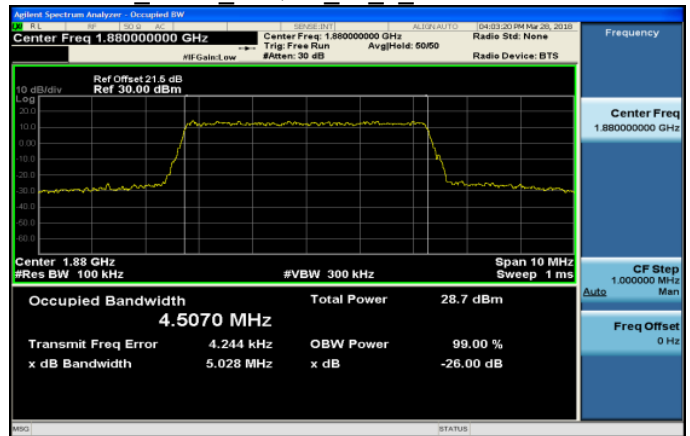
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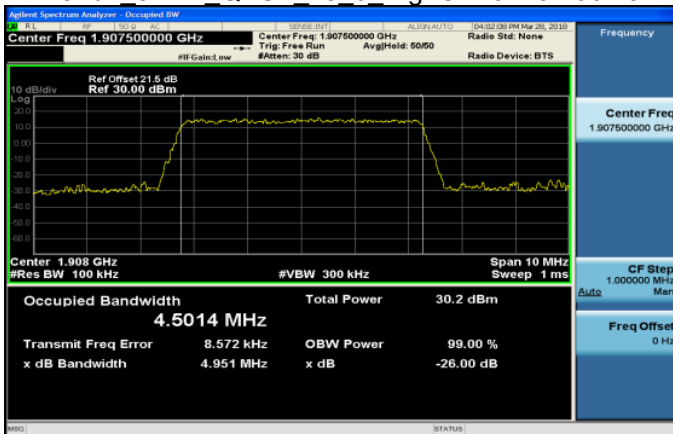
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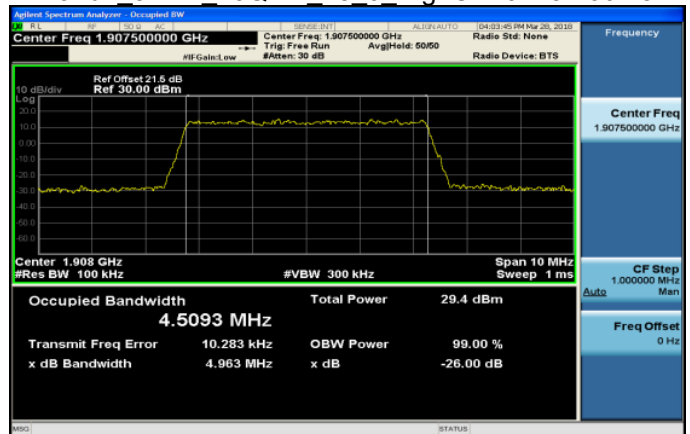
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Band2 5MHz QPSK 25 0 HighCH19175-1907.5



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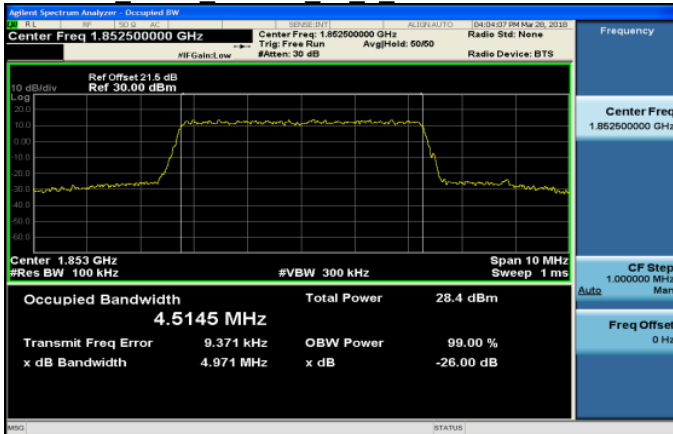
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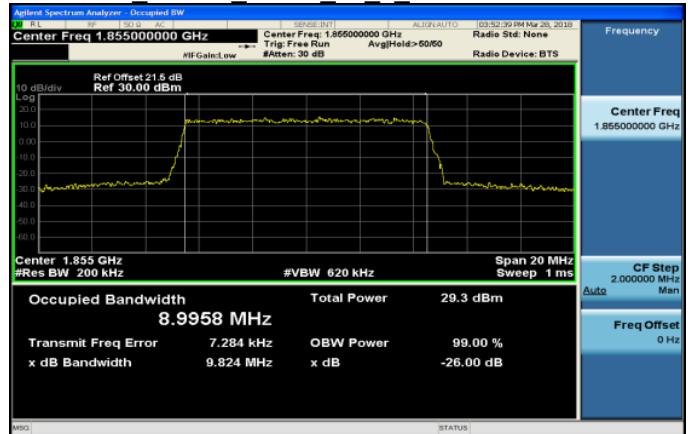
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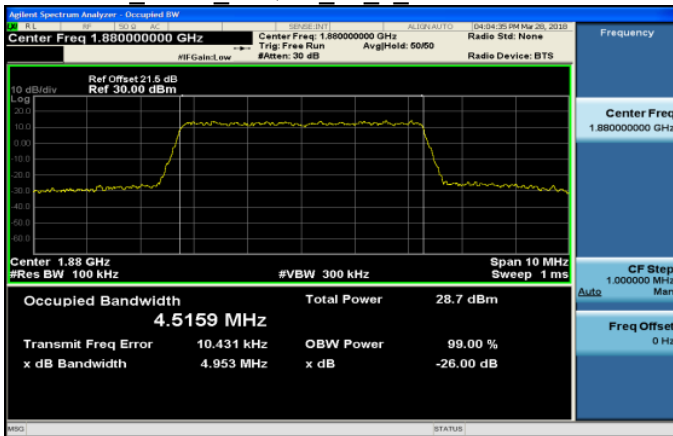
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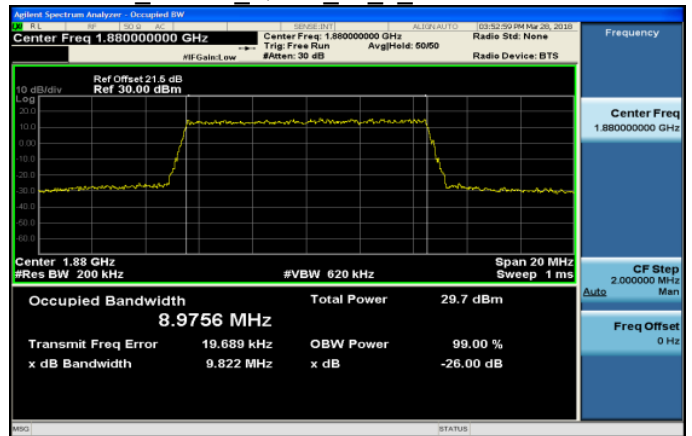
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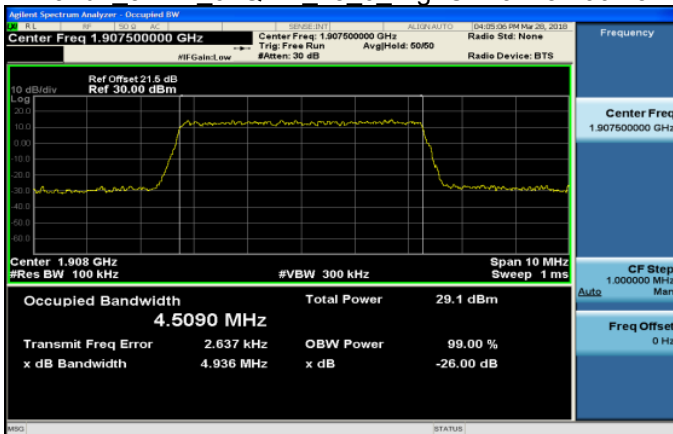
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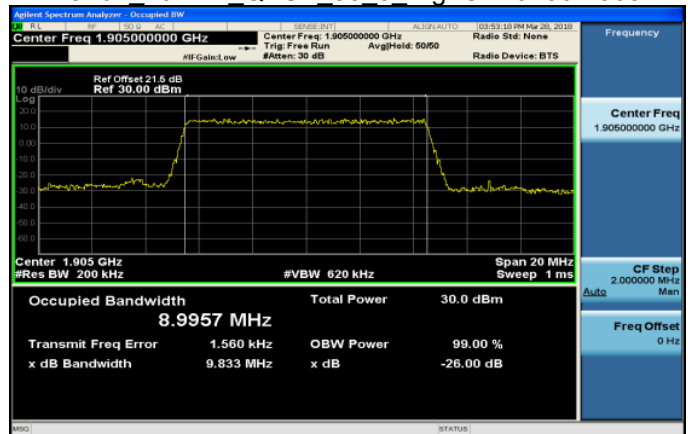
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Band2 5MHz 64QAM 25 0 HighCH19175-1907.5



Band2 10MHz QPSK 50 0 HighCH19150-1905



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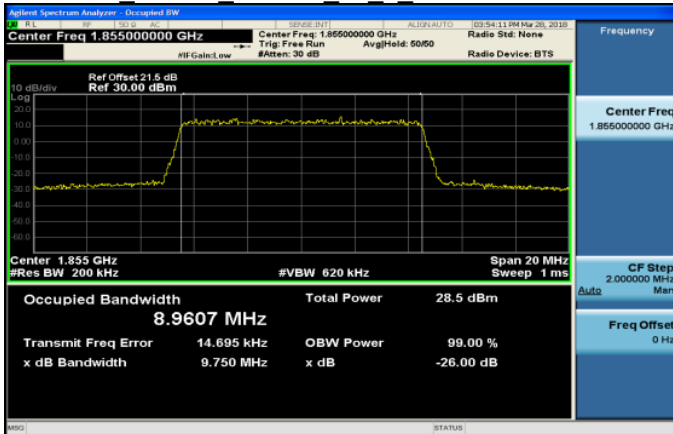
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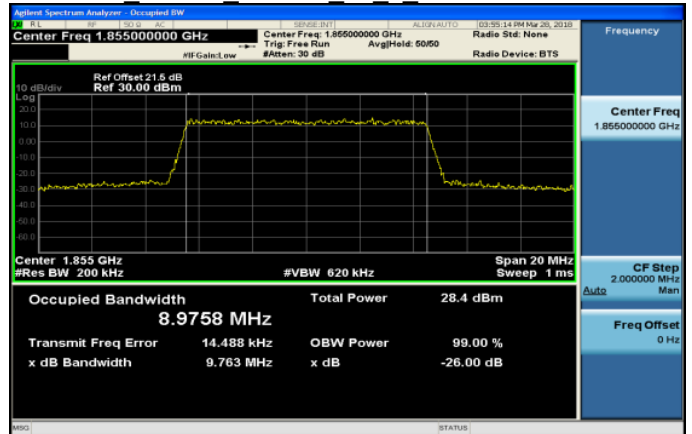
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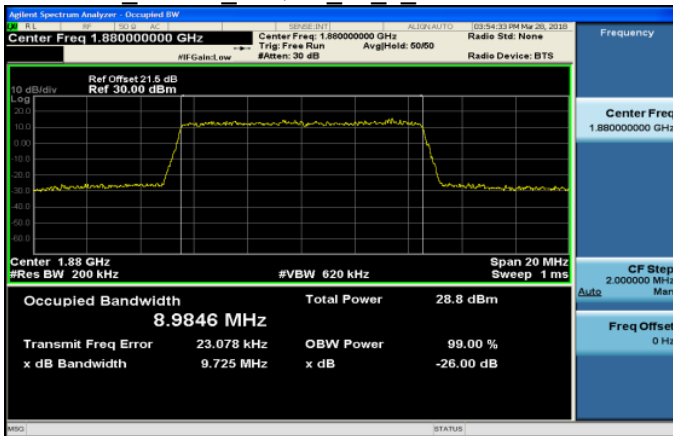
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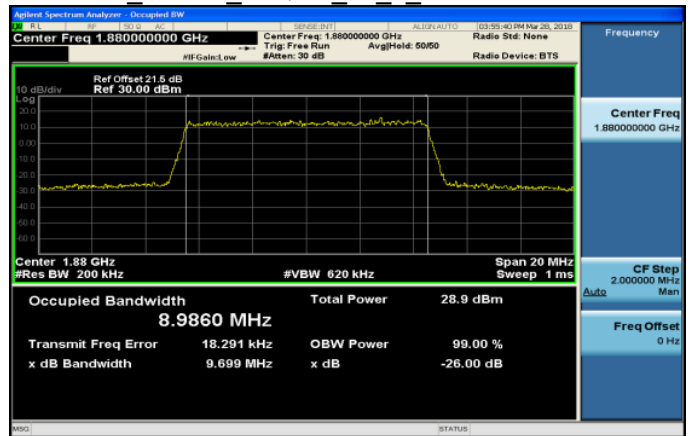
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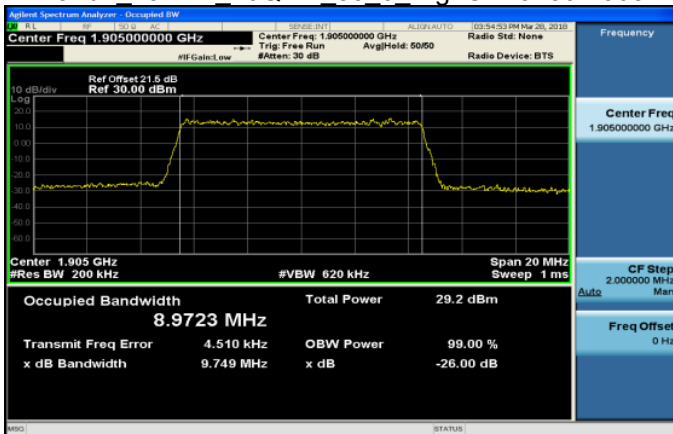
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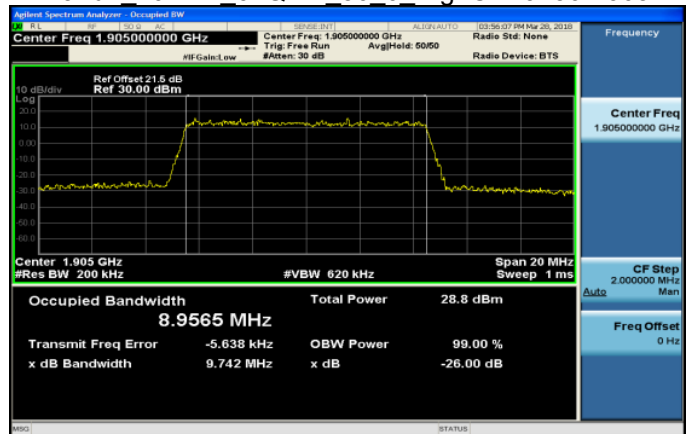
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Band2 10MHz 16QAM 50 0 HighCH19150-1905



Band2 10MHz 64QAM 50 0 HighCH19150-1905



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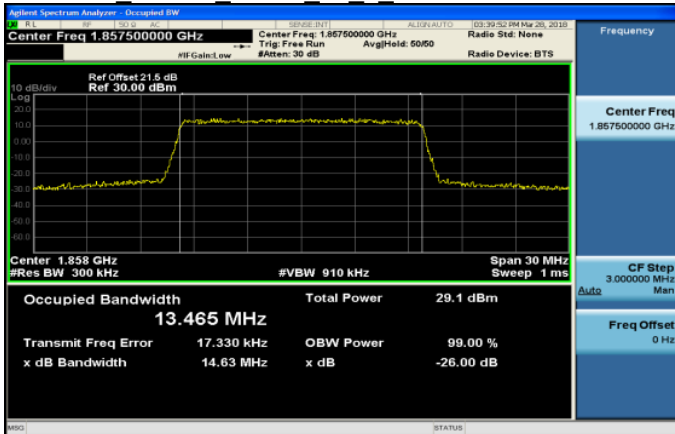
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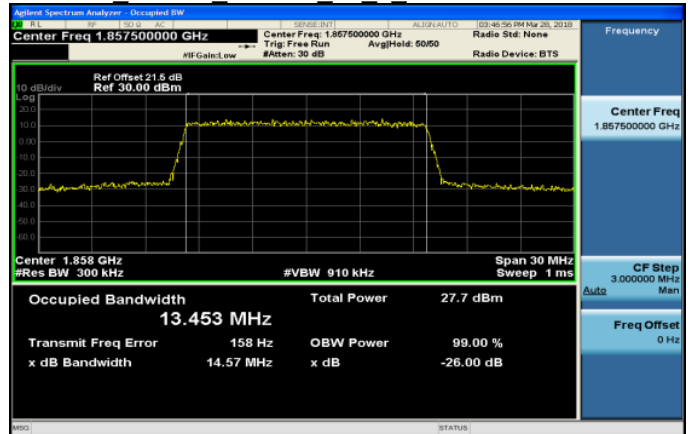
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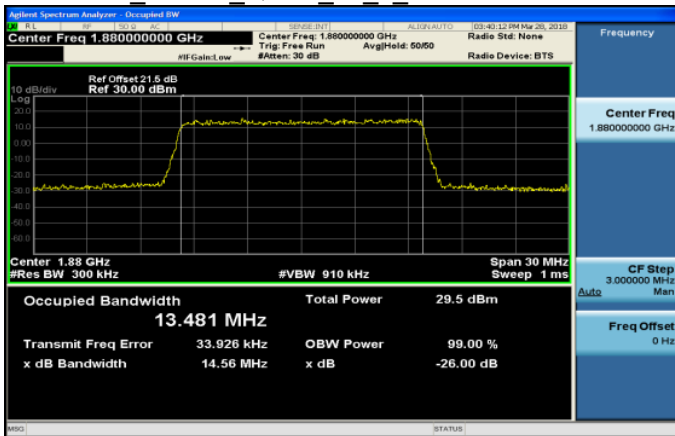
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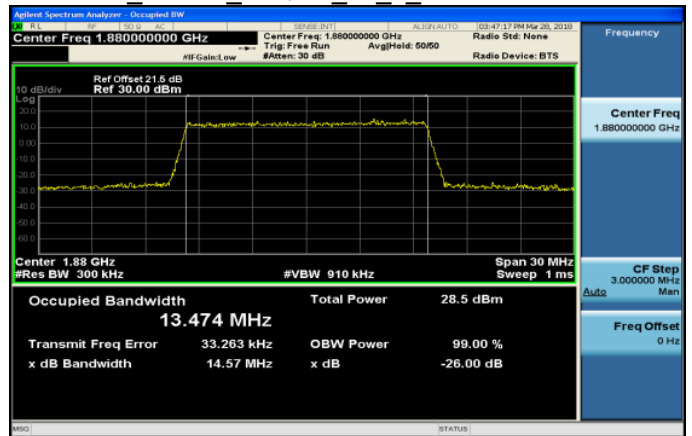
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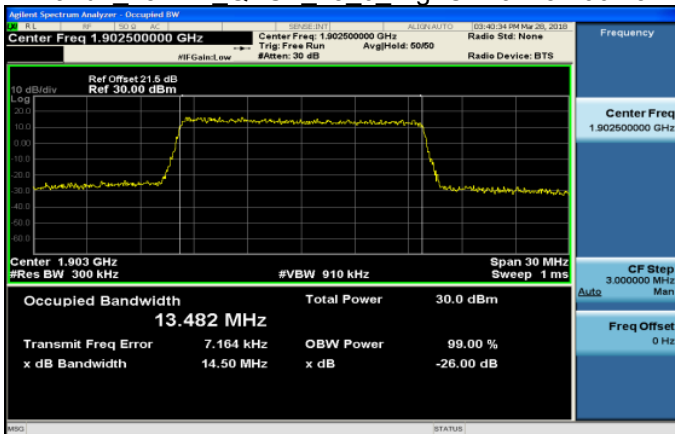
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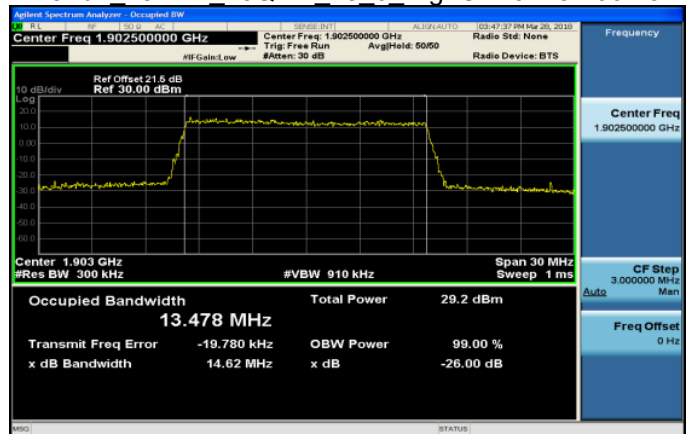
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Band2 15MHz QPSK 75 0 HighCH19125-1902.5



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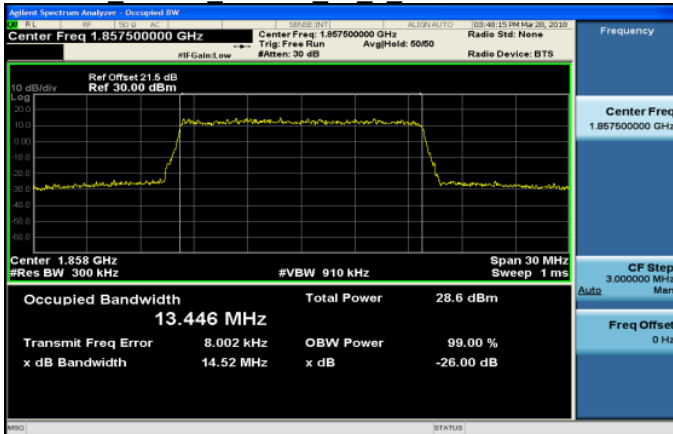
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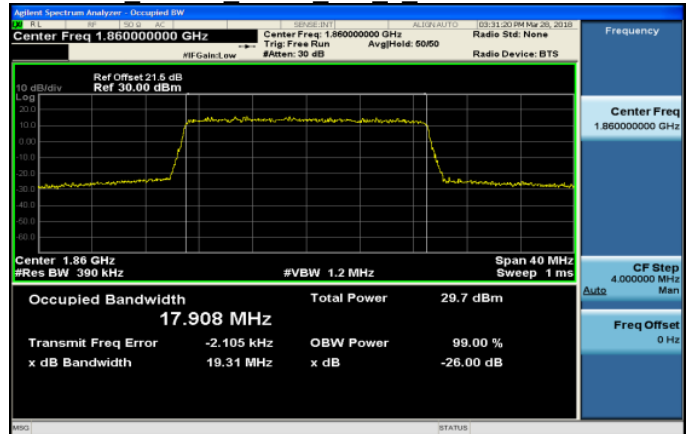
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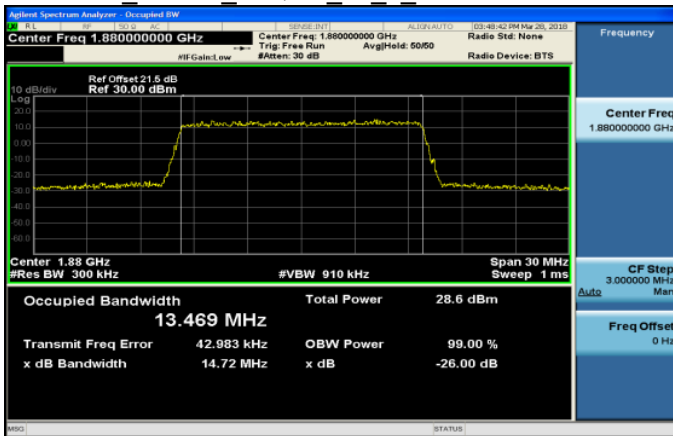
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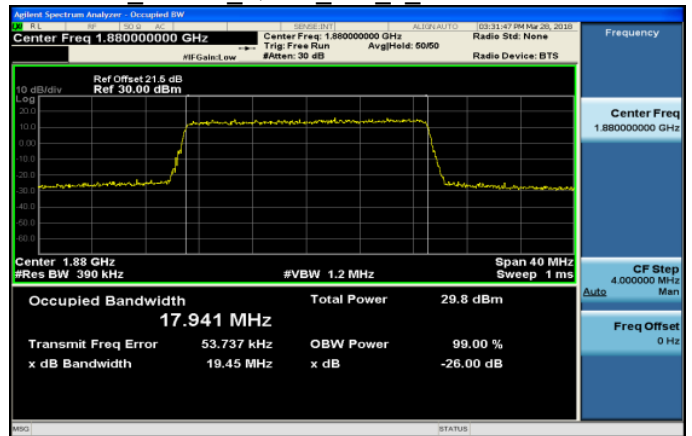
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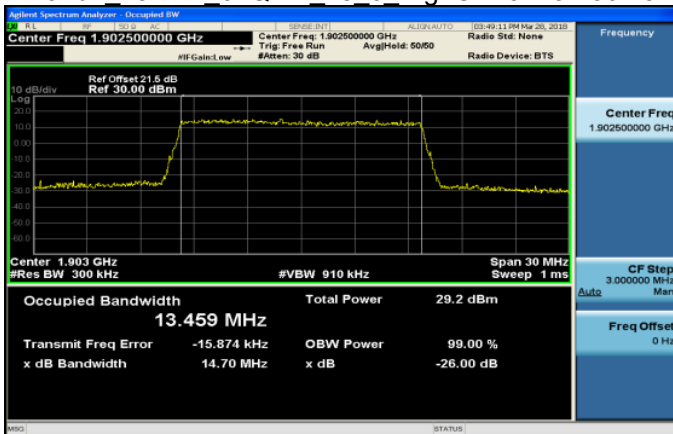
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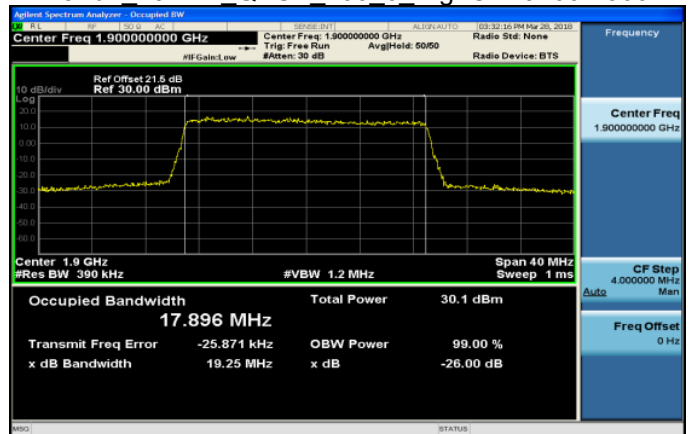
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Band2 15MHz 64QAM 75 0 HighCH19125-1902.5



Band2 20MHz QPSK 100 0 HighCH19100-1900



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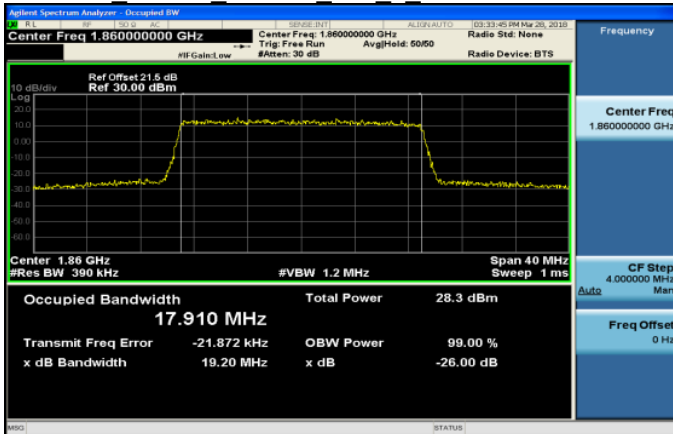
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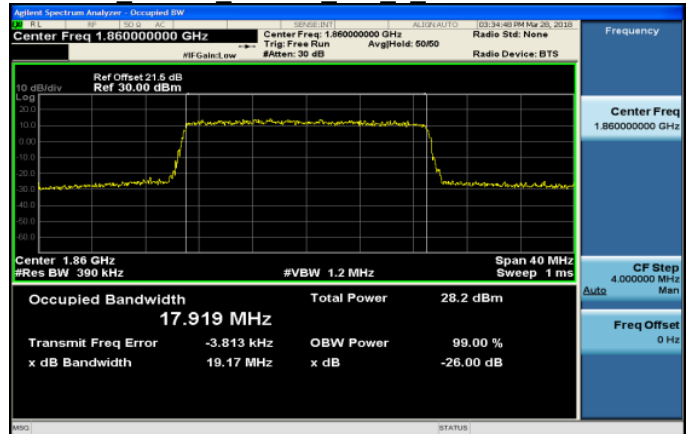
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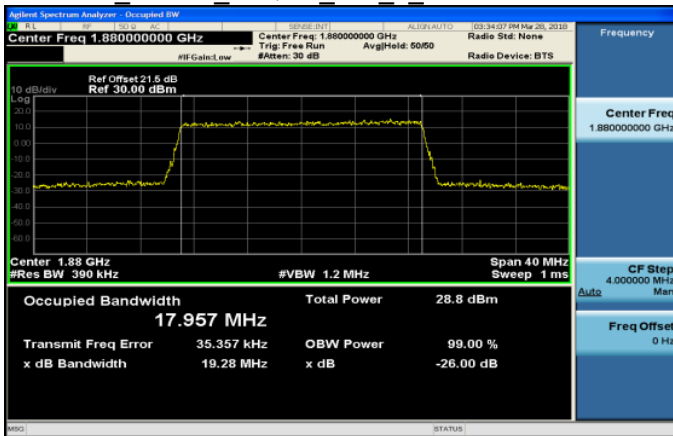
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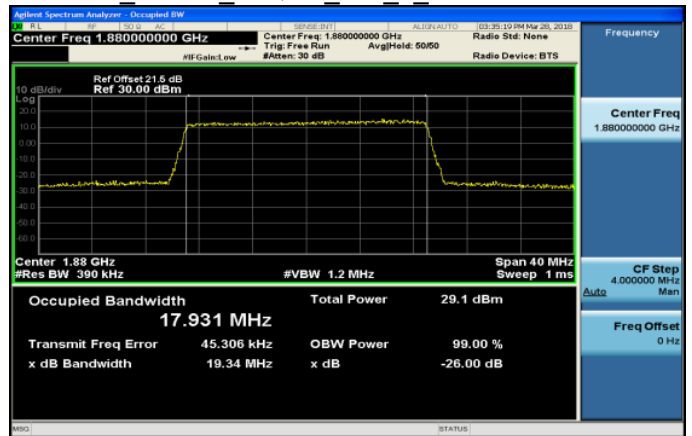
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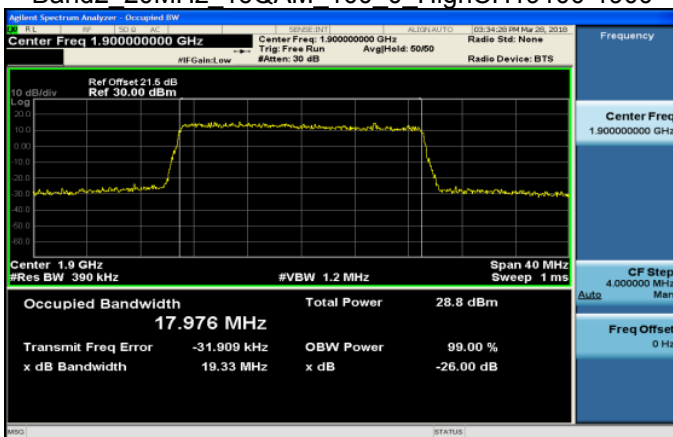
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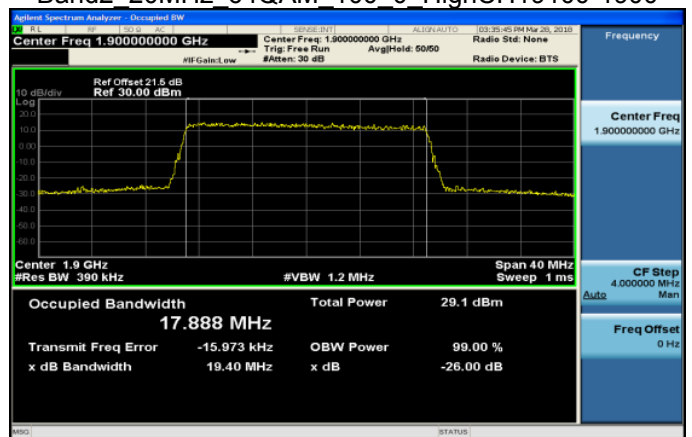
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Band2 20MHz 16QAM 100 0 HighCH19100-1900



Band2 20MHz 64QAM 100 0 HighCH19100-1900



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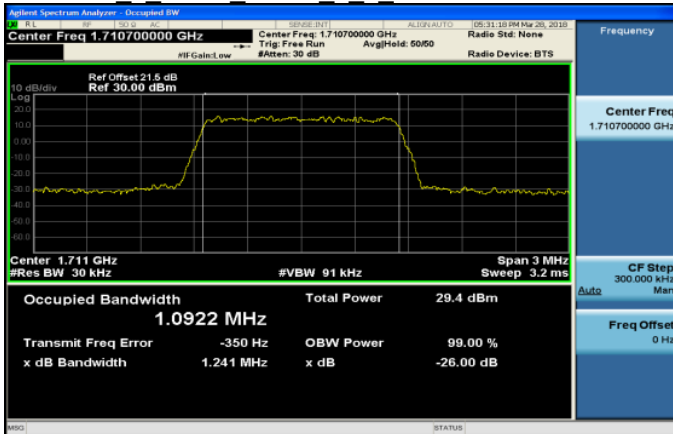
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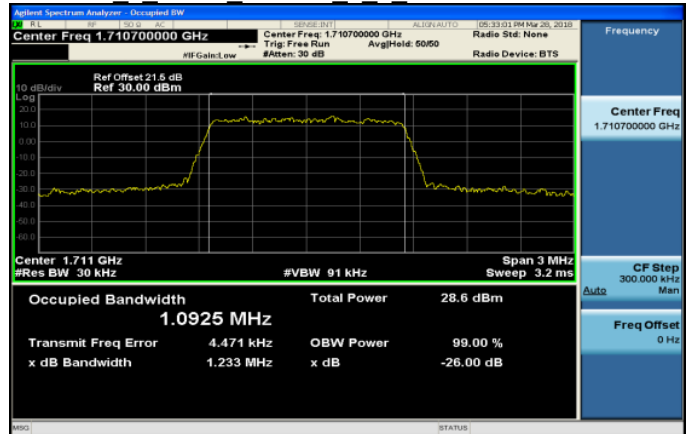
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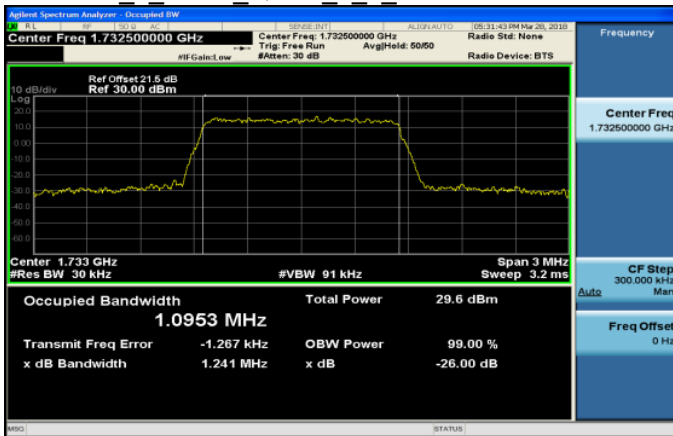
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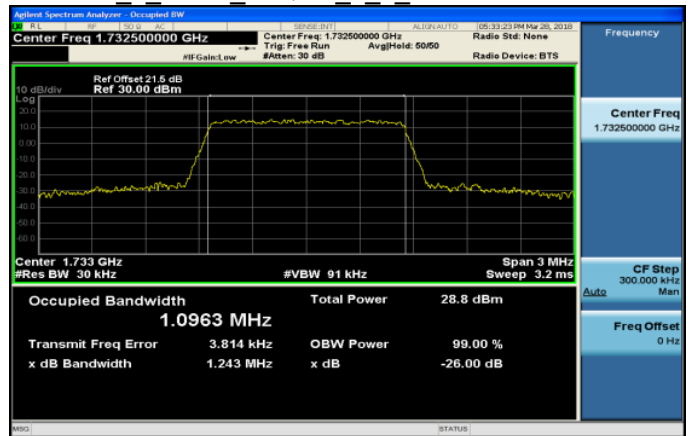
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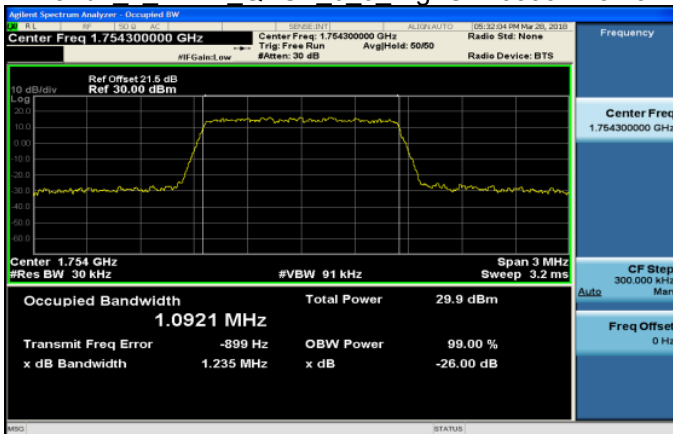
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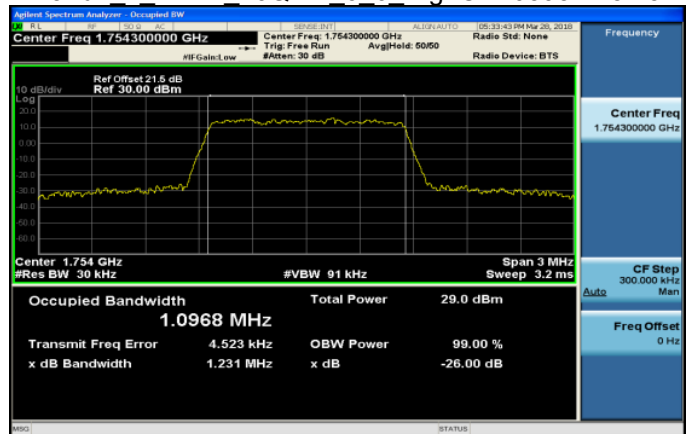
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Band4 1 4MHz QPSK 6 0 HighCH20393-1754.3



Band4 1 4MHz 16QAM 6 0 HighCH20393-1754.3



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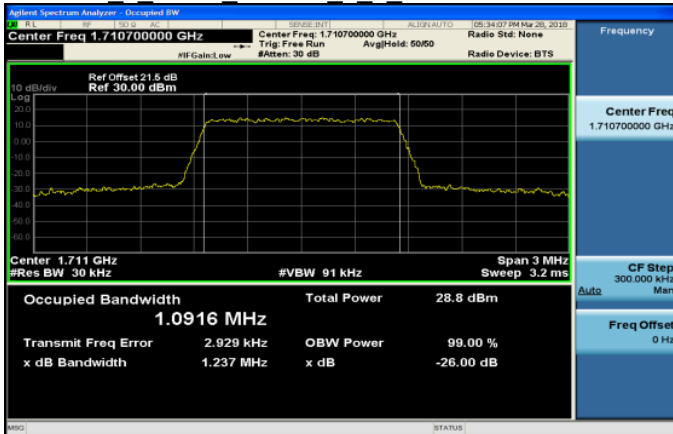
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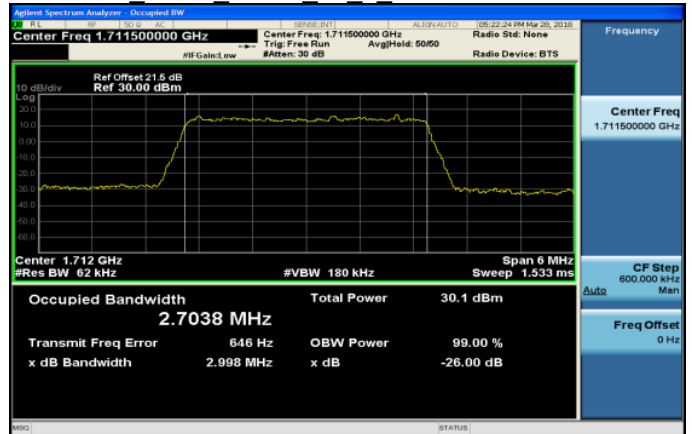
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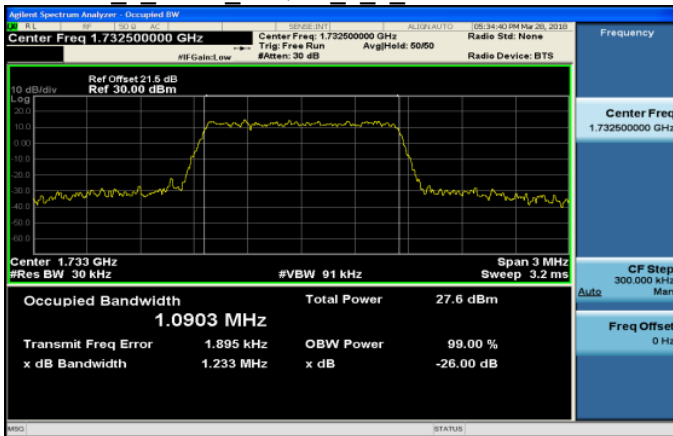
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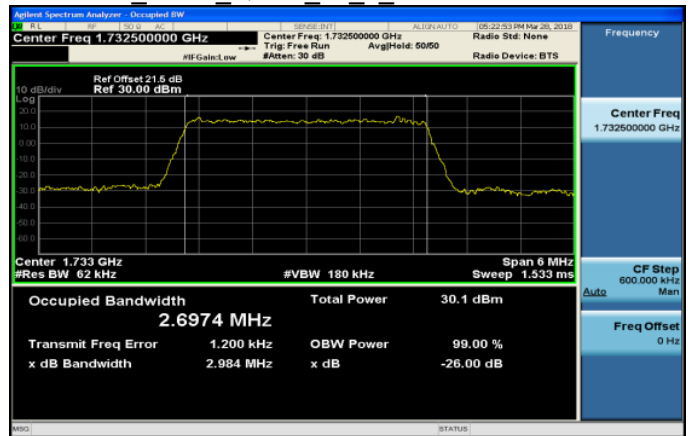
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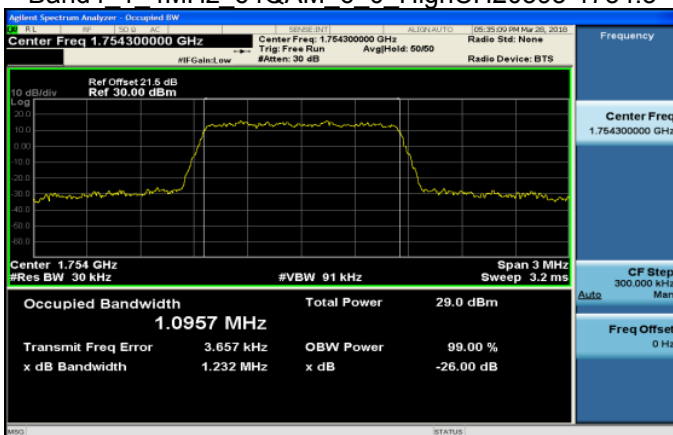
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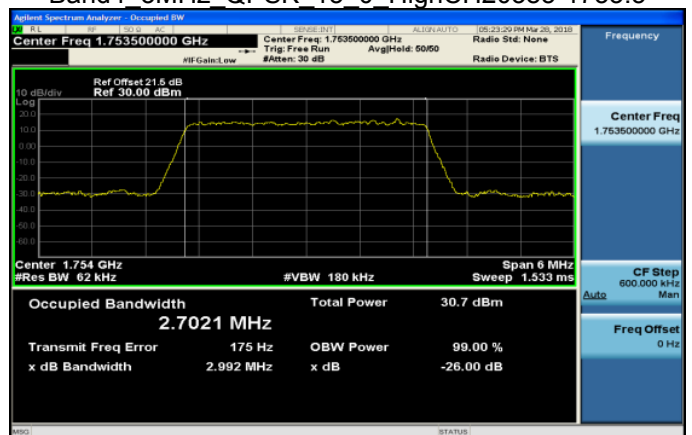
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Band4 1 4MHz 64QAM 6 0 HighCH20393-1754.3



Band4 3MHz QPSK 15 0 HighCH20385-1753.5



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