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VERITAS

Test Report No.: RF160524W004-4



Test Lab  
Cert 2951.01

# FCC TEST REPORT

## (PART 24)

**Product:** LTE phone

**Model Name:** XP5700

**FCC ID:** WYPL23V013AA

**Applicant:** Sonim Technologies, Inc.

**Address:** 1825 S. Grant St., Suite 200., San Mateo, CA, 94402

**Manufacturer:** Sonim Technologies (Shenzhen) Limited

**Address:** 2nd Floor, No. 2 Building Phase B, Daqian Industrial park,  
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**Prepared by:** Bureau Veritas Shenzhen Co., Ltd. Dongguan Branch

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**Report No.:** RF160524W004-4

**Received Date:** May 24, 2016

**Test Date:** May 25, 2016 ~ Jun. 20, 2016

**Issued Date:** Jun. 22, 2016

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Test Report No.: RF160524W004-4

## TABLE OF CONTENTS

<b>RELEASE CONTROL RECORD .....</b>	<b>4</b>
<b>1 CERTIFICATION .....</b>	<b>5</b>
<b>2 SUMMARY OF TEST RESULTS.....</b>	<b>6</b>
2.1 MEASUREMENT UNCERTAINTY .....	6
2.2 TEST SITE AND INSTRUMENTS .....	7
<b>3 GENERAL INFORMATION .....</b>	<b>8</b>
3.1 GENERAL DESCRIPTION OF EUT.....	8
3.2 CONFIGURATION OF SYSTEM UNDER TEST .....	10
3.3 DESCRIPTION OF SUPPORT UNITS.....	11
3.4 TEST ITEM AND TEST CONFIGURATION .....	11
3.5 EUT OPERATING CONDITIONS.....	15
3.6 GENERAL DESCRIPTION OF APPLIED STANDARDS.....	15
<b>4 TEST TYPES AND RESULTS.....</b>	<b>16</b>
4.1 OUTPUT POWER MEASUREMENT .....	16
4.1.1 LIMITS OF OUTPUT POWER MEASUREMENT .....	16
4.1.2 TEST PROCEDURES .....	16
4.1.3 TEST SETUP .....	17
4.1.4 TEST RESULTS .....	18
4.2 FREQUENCY STABILITY MEASUREMENT .....	28
4.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT .....	28
4.2.2 TEST PROCEDURE.....	28
4.2.3 TEST SETUP .....	28
4.2.4 TEST RESULTS .....	29
4.3 OCCUPIED BANDWIDTH MEASUREMENT .....	31
4.3.1 TEST PROCEDURES .....	31
4.3.2 TEST SETUP .....	31
4.3.3 TEST RESULTS.....	32
4.4 BAND EDGE MEASUREMENT .....	40
4.4.1 LIMITS OF BAND EDGE MEASUREMENT.....	40
4.4.2 TEST SETUP .....	40
4.4.3 TEST PROCEDURES .....	40
4.4.4. TEST RESULTS .....	42
4.5 CONDUCTED SPURIOUS EMISSIONS .....	49
4.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT .....	49
4.5.2 TEST PROCEDURE.....	49
4.5.3 TEST SETUP .....	49
4.5.4 TEST RESULTS .....	50
4.6 RADIATED EMISSION MEASUREMENT .....	56
4.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT .....	56
4.6.2 TEST PROCEDURES .....	56
4.6.3 DEVIATION FROM TEST STANDARD .....	56
4.6.4 TEST SETUP .....	57
4.6.5 TEST RESULTS .....	58
4.7 PEAK TO AVERAGE RATIO .....	81
4.7.1 LIMITS OF PEAK TO AVERAGE RATIO MEASUREMENT.....	82
4.7.2 TEST SETUP .....	82



**Test Report No.: RF160524W004-4**

4.7.3 TEST PROCEDURES .....	82
4.7.4 TEST RESULTS .....	83
<b>5 INFORMATION ON THE TESTING LABORATORIES.....</b>	<b>92</b>
<b>6 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB .....</b>	<b>93</b>

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Test Report No.: RF160524W004-4

## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF160524W004-4	Original release	Jun. 22, 2016

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## 1 CERTIFICATION

**PRODUCT:** LTE phone

**BRAND NAME:** Sonim

**MODEL NAME:** XP5700

**APPLICANT:** Sonim Technologies, Inc.

**TESTED:** May 25, 2016 ~ Jun. 20, 2016

**TEST SAMPLE:** Identical Prototype

**STANDARDS:** FCC Part 24, Subpart E

The above equipment has been tested by **Bureau Veritas Shenzhen Co., Ltd.**

**Dongguan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

**PREPARED BY :** \_\_\_\_\_, **DATE:** Jun. 22, 2016  
(Amyee Qian / Engineer)

**APPROVED BY :** \_\_\_\_\_, **DATE:** Jun. 22, 2016  
(William Chung / Manager)

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Test Report No.: RF160524W004-4

## 2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 24 & Part 2			
STANDARD SECTION	TEST TYPE	RESULT	REMARK
2.1046 24.232	Equivalent Isotropic Radiated Power	PASS	Meet the requirement of limit.
2.1055 24.235	Frequency Stability	PASS	Meet the requirement of limit.
2.1049 24.238(b)	Occupied Bandwidth	PASS	Meet the requirement of limit.
24.232(d)	Peak to average ratio	PASS	Meet the requirement of limit.
24.238(b)	Band Edge Measurements	PASS	Meet the requirement of limit.
2.1051 24.238	Conducted Spurious Emissions	PASS	Meet the requirement of limit.
2.1053 24.238	Radiated Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -16.36dB at 5640.00MHz.

### 2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.66dB
Radiated emissions	9KHz ~ 30MHz	2.74dB
	30MHz ~ 1GHz	3.55dB
	1GHz ~ 18GHz	4.84dB
	18GHz ~ 40GHz	1.94dB

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

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Test Report No.: RF160524W004-4

## 2.2 TEST SITE AND INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESR7	101494	Apr. 05,16	Apr. 04,17
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV40	101094	Apr. 05,16	Apr. 04,17
Bilog Antenna 1	Teseq	CBL 6111D	30643	Jun. 25,15	Jun. 24,16
Bilog Antenna 2	Teseq	CBL 6111D	27089	Jun. 25,15	Jun. 24,16
Horn Antenna	ETS-Lindgren	3117	00062558	May 30,14	May 29,16
Horn Antenna (15GHz-40GHz)	SCHWARZBECK	BBHA 9170	BBHA9170147	Jan. 21,14	Jan. 20,17
Amplifier	Burgeon	BPA-530	100220	Apr. 05,16	Apr. 04,17
Pre-Amplifier	HP	8449B	3008A00409	Apr. 25,15	Apr. 24,17
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Nov. 11,15	Nov. 10,16
GPS Generator+Antenna	TOJOIN	GNSS-5000A	E1-010119	Aug. 08, 14	Aug. 07, 16
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	NSEMC003	Mar. 12,16	Mar. 11,18
Test Software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A	N/A
Power Meter	Anritsu	ML2495A	1139001	Feb.19,16	Feb. 18,17
Power Sensor	Anritsu	MA2411B	1126068	Feb.19,16	Feb. 18,17
Power Sensor	Keysight	U2021XA	MY55060016	May 27,15	May 26,17
Power Sensor	Keysight	U2021XA	MY55060018	May 27,15	May 26,17
Digital Multimeter	FLUKE	15B	A1220010DG	Oct. 12, 15	Oct.11, 16
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Sep.07,15	Sep. 06,16
Oscilloscope	Agilent	DSO9254A	MY51260160	Nov. 09,15	Nov. 08,16
Signal Analyzer	Rohde & Schwarz	FSV7	102331	Nov. 09,15	Nov. 08,16
Signal Generator	Agilent	N5183A	MY50140980	Apr. 22, 15	Apr. 21, 17
ESG Vector Signal Generator	Agilent	E4438C	MY49072505	Sep. 01,15	Aug. 31,16
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	Oct. 12, 15	Oct.11, 16

- NOTE:**
1. The calibration interval of the above test instruments is 12 months or 24 months and the calibrations are traceable to CEPREI/CHINA, GRRGT/CHINA and NIM/CHINA.
  2. The test was performed in Dongguan 966 Chamber.
  3. The horn antenna are used only for the measurement of emission frequency above 1GHz if tested.
  4. The FCC Site Registration No. is 502831.

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Test Report No.: RF160524W004-4

### 3 GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	LTE phone	
MODEL NAME	XP5700	
TYPE NUMBER	L23V013AA	
POWER SUPPLY	5.0Vdc (adapter or host equipment) 3.7Vdc (Li-ion, battery)	
MODULATION TYPE	CDMA BC 1 : GMSK LTE Band 2: QPSK, 16QAM	
FREQUENCY RANGE	CDMA BC 1 : 1851.25MHz ~ 1908.75MHz	
	LTE Band 2 Channel Bandwidth: 1.4MHz	1850.7MHz ~ 1909.3MHz
	LTE Band 2 Channel Bandwidth: 3MHz	1851.5MHz ~ 1908.5MHz
	LTE Band 2 Channel Bandwidth: 5MHz	1852.5MHz ~ 1907.5MHz
	LTE Band 2 Channel Bandwidth: 10MHz	1855.0MHz ~ 1905.0MHz
	LTE Band 2 Channel Bandwidth: 15MHz	1857.5MHz ~ 1902.5MHz
	LTE Band 2 Channel Bandwidth: 20MHz	1860.0MHz ~ 1900.0MHz
MAX. EIRP POWER	CDMA BC 1	305mW
	LTE Band 2 Channel Bandwidth: 1.4MHz	401mW
	LTE Band 2 Channel Bandwidth: 3MHz	407mW
	LTE Band 2 Channel Bandwidth: 5MHz	402mW
	LTE Band 2 Channel Bandwidth: 10MHz	403mW
	LTE Band 2 Channel Bandwidth: 15MHz	370mW
	LTE Band 2 Channel Bandwidth: 20MHz	323mW
EMISSION DESIGNATOR	CDMA BC 1	1M27F9W
	LTE Band 2 Channel Bandwidth: 1.4MHz	QPSK: 1M09G7D 16QAM: 1M09W7D
	LTE Band 2 Channel Bandwidth: 3MHz	QPSK: 2M69G7D 16QAM: 2M68W7D

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Test Report No.: RF160524W004-4

	<b>LTE Band 2</b>	QPSK: 4M48G7D
	<b>Channel Bandwidth: 5MHz</b>	16QAM: 4M48W7D
	<b>LTE Band 2</b> <b>Channel Bandwidth: 10MHz</b>	QPSK: 8M95G7D
		16QAM: 8M95W7D
	<b>LTE Band 2</b> <b>Channel Bandwidth: 15MHz</b>	QPSK: 13M4G7D
		16QAM: 13M4W7D
	<b>LTE Band 2</b> <b>Channel Bandwidth: 20MHz</b>	QPSK: 17M9G7D
		16QAM: 17M8W7D
<b>ANTENNA TYPE</b>	Fixed Internal antenna with 2dBi gain	
<b>HW VERSION</b>	A	
<b>SW VERSION</b>	5A.0.0-00-5.1.1-15.17.0	
<b>I/O PORTS</b>	Refer to user's manual	
<b>CABLE SUPPLIED</b>	USB cable: shielded, detachable, 1.1m Earphone Cable: Unshielded, Detachable, 1.2m	

**NOTE:**

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. The EUT was powered by the following adapter:

<b>ADAPTER</b>	
<b>BRAND:</b>	Sonim
<b>MODEL:</b>	S14C02
<b>INPUT:</b>	AC 100-240V, 200mA
<b>OUTPUT:</b>	DC 5V, 1200mA

3. The EUT matched the following USB cable and Earphone:

<b>USB CABLE</b>	
<b>BRAND:</b>	Sunway
<b>MODEL:</b>	N.A
<b>SIGNAL LINE:</b>	1.1 METER

<b>EARPHONE</b>	
<b>BRAND:</b>	Minami
<b>MODEL:</b>	ME-816B5-E
<b>SIGNAL LINE:</b>	1.2 METER

4. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.

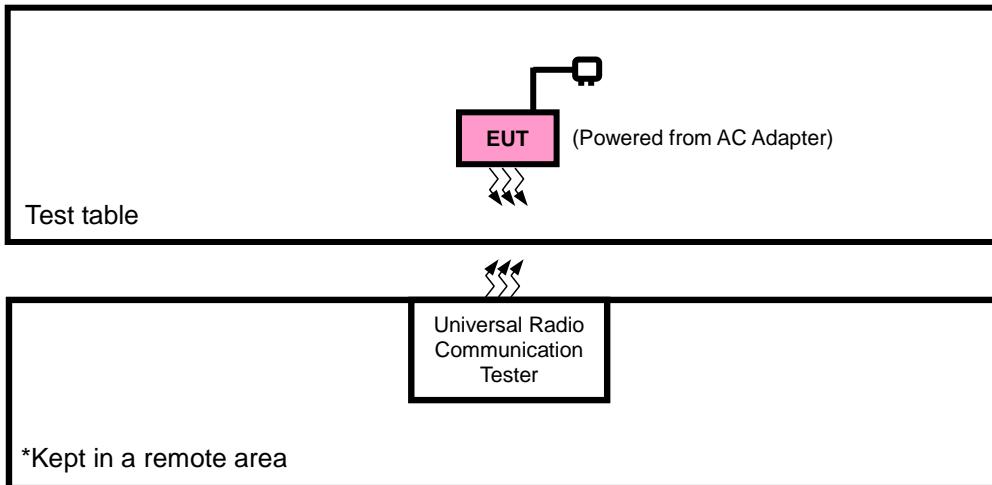


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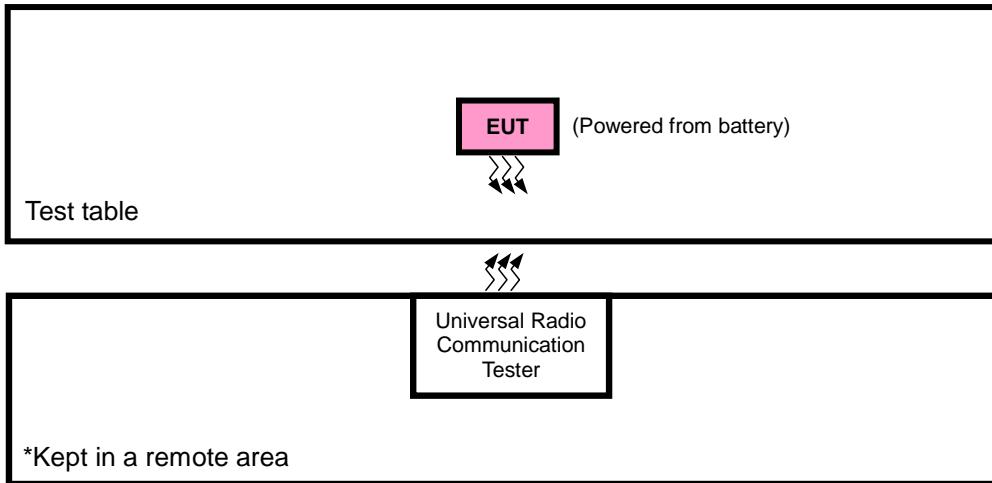
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### 3.2 CONFIGURATION OF SYSTEM UNDER TEST

#### FOR RADIATION EMISSION TEST



#### FOR E.I.R.P. TEST



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Test Report No.: RF160524W004-4

### 3.3 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	DC source	LONG WEI	PS-6403D	010934269	N/A
2	PC	HP	A6608CN	3CR83825X3	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	DC Line: Unshielded, Detachable 1.0m
2	AC Line: Unshielded, Detachable 1.5m

**NOTE:**

1. All power cords of the above support units are non shielded (1.8m).

### 3.4 TEST ITEM AND TEST CONFIGURATION

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports

The worst case in EIRP and radiated emission was found when positioned on X-plane for GSM/EDGE/WCDMA and Z-plane for LTE. Following channel(s) was (were) selected for the final test as listed below:

EUT CONFIGURE MODE	DESCRIPTION
A	EUT + Adapter + Earphone + USB Cable with CDMA BC 1 or LTE link
B	EUT + Battery+ Earphone + USB Cable with CDMA BC 1 or LTE link

#### CDMA BC 1 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
B	EIRP	25 to 1175	25, 600, 1175	CDMA BC 1
B	FREQUENCY STABILITY	25 to 1175	600	CDMA BC 1
B	OCCUPIED BANDWIDTH	25 to 1175	25, 600, 1175	CDMA BC 1
B	PEAK TO AVERAGE RATIO	25 to 1175	25, 600, 1175	CDMA BC 1
B	BAND EDGE	25 to 1175	25, 1175	CDMA BC 1
B	CONDUCDETED EMISSION	25 to 1175	25, 600, 1175	CDMA BC 1
A	RADIATED EMISSION	25 to 1175	25, 600, 1175	CDMA BC 1

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Test Report No.: RF160524W004-4

## LTE BAND 2

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
B	EIRP	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18615 to 19185	18615, 18900, 19185	3MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18625 to 19175	18625, 18900, 19175	5MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18650 to 19150	18650, 18900, 19150	10MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18675 to 19125	18675, 18900, 19125	15MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18700 to 19100	18700, 18900, 19100	20MHz	QPSK,16QAM	1 RB / 0 RB Offset
B	FREQUENCY STABILITY	18607 to 19193	18900	1.4MHz	QPSK	1 RB / 0 RB Offset
		18615 to 19185	18900	3MHz	QPSK	1 RB / 0 RB Offset
		18625 to 19175	18900	5MHz	QPSK	1 RB / 0 RB Offset
		18650 to 19150	18900	10MHz	QPSK	1 RB / 0 RB Offset
		18675 to 19125	18900	15MHz	QPSK	1 RB / 0 RB Offset
		18700 to 19100	18900	20MHz	QPSK	1 RB / 0 RB Offset
B	OCCUPIED BANDWIDTH	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK,16QAM	6 RB / 0 RB Offset
		18615 to 19185	18615, 18900, 19185	3MHz	QPSK,16QAM	15 RB / 0 RB Offset
		18625 to 19175	18625, 18900, 19175	5MHz	QPSK,16QAM	25 RB / 0 RB Offset
		18650 to 19150	18650, 18900, 19150	10MHz	QPSK,16QAM	50 RB / 0 RB Offset
		18675 to 19125	18675, 18900, 19125	15MHz	QPSK,16QAM	75 RB / 0 RB Offset
		18700 to 19100	18700, 18900, 19100	20MHz	QPSK,16QAM	100 RB / 0 RB Offset
B	PEAK TO AVERAGE RATIO	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18615 to 19185	18615, 18900, 19185	3MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18625 to 19175	18625, 18900, 19175	5MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18650 to 19150	18650, 18900, 19150	10MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18675 to 19125	18675, 18900, 19125	15MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18700 to 19100	18700, 18900, 19100	20MHz	QPSK,16QAM	1 RB / 0 RB Offset



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Test Report No.: RF160524W004-4

B	BAND EDGE	18607 to 19193	18607	1.4MHz	QPSK	1 RB / 0 RB Offset
			19193	1.4MHz		6 RB / 0 RB Offset
		18615 to 19185	18615	3MHz	QPSK	1 RB / 5 RB Offset
			19185	3MHz		6 RB / 0 RB Offset
		18625 to 19175	18625	5MHz	QPSK	1 RB / 0 RB Offset
			19175	5MHz		15 RB / 0 RB Offset
			18650	10MHz	QPSK	1 RB / 14 RB Offset
			19150	10MHz		15 RB / 0 RB Offset
		18675 to 19125	18675	15MHz	QPSK	1 RB / 0 RB Offset
			19125	15MHz		75 RB / 0 RB Offset
			18700	20MHz	QPSK	1 RB / 74 RB Offset
			19100	20MHz		75 RB / 0 RB Offset
B	CONDUCED EMISSION	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK	1 RB / 0 RB Offset
		18615 to 19185	18615, 18900, 19185	3MHz	QPSK	1 RB / 0 RB Offset
		18625 to 19175	18625, 18900, 19175	5MHz	QPSK	1 RB / 0 RB Offset
		18650 to 19150	18650, 18900, 19150	10MHz	QPSK	1 RB / 0 RB Offset
		18675 to 19125	18675, 18900, 19125	15MHz	QPSK	1 RB / 0 RB Offset
		18700 to 19100	18700, 18900, 19100	20MHz	QPSK	1 RB / 0 RB Offset
A	RADIATED EMISSION	18607 to 19193	18900	1.4MHz	QPSK	1 RB / 0 RB Offset
		18615 to 19185	18615, 18900, 19185	3MHz	QPSK	1 RB / 0 RB Offset
		18625 to 19175	18900	5MHz	QPSK	1 RB / 0 RB Offset
		18650 to 19150	18900	10MHz	QPSK	1 RB / 0 RB Offset
		18675 to 19125	18900	15MHz	QPSK	1 RB / 0 RB Offset
		18700 to 19100	18900	20MHz	QPSK	1 RB / 0 RB Offset



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Test Report No.: RF160524W004-4

**TEST CONDITION:**

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
EIRP	25deg. C, 57%RH	5Vdc from adapter	Alex Chen
FREQUENCY STABILITY	23deg. C, 61%RH	3.7Vdc from Battery	Yuqiang Yin
OCCUPIED BANDWIDTH	23deg. C, 61%RH	3.7Vdc from Battery	Yuqiang Yin
PEAK TO AVERAGE RATIO	23deg. C, 61%RH	3.7Vdc from Battery	Yuqiang Yin
BAND EDGE	23deg. C, 61%RH	3.7Vdc from Battery	Yuqiang Yin
CONDUCDETED EMISSION	23deg. C, 61%RH	3.7Vdc from Battery	Yuqiang Yin
RADIATED EMISSION	25deg. C, 57%RH	5Vdc from adapter	Alex Chen

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### 3.5 EUT OPERATING CONDITIONS

The EUT makes a call to the communication simulator. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency

### 3.6 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

**FCC 47 CFR Part 2**

**FCC 47 CFR Part 24**

**KDB 971168 D01 Power Meas License Digital Systems v02r02**

**ANSI/TIA/EIA-603-D**

**NOTE:** All test items have been performed and recorded as per the above standards.



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Test Report No.: RF160524W004-4

## 4 TEST TYPES AND RESULTS

### 4.1 OUTPUT POWER MEASUREMENT

#### 4.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

Mobile and portable stations are limited to 2 watts EIRP.

#### 4.1.2 TEST PROCEDURES

##### EIRP MEASUREMENT:

- a. All measurements were done at low, middle and high operational frequency range. RBW and VBW is 1MHz for CDMA.
- b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
- c. 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
- d.  $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn.}$

##### CONDUCTED POWER MEASUREMENT:

The EUT was set up for the maximum power with CDMA link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

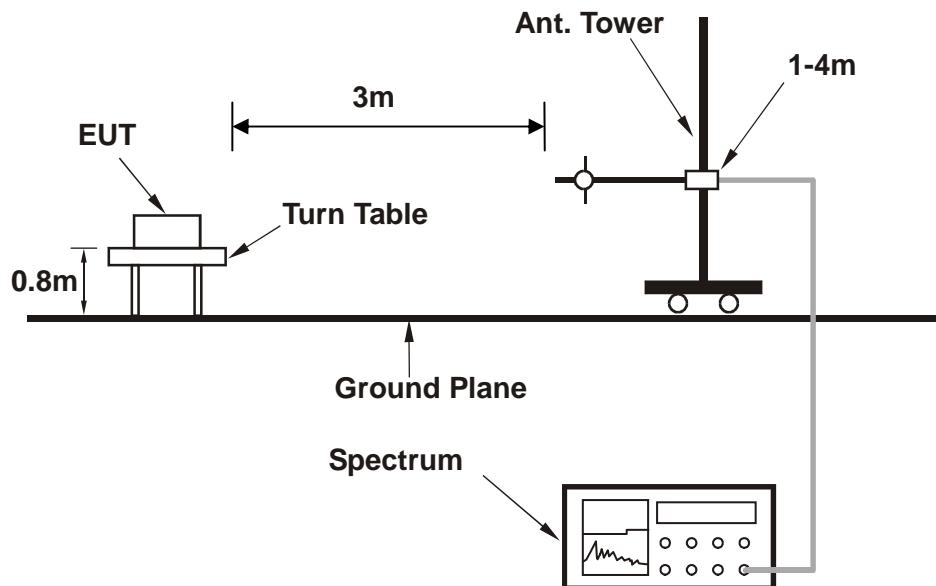


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Test Report No.: RF160524W004-4

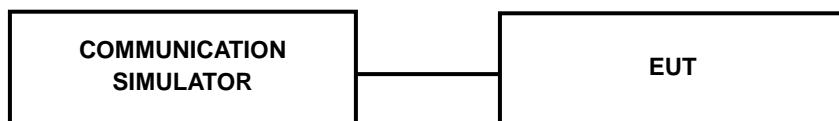
#### 4.1.3 TEST SETUP

##### EIRP MEASUREMENT:



For the actual test configuration, please refer to the attached file (Test Setup Photo).

##### CONDUCTED POWER MEASUREMENT:



For the actual test configuration, please refer to the attached file (Test Setup Photo).



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Test Report No.: RF160524W004-4

#### 4.1.4 TEST RESULTS

##### CONDUCTED OUTPUT POWER (dBm)

Band	CDMA2000 BC1		
Channel	25	600	1175
Frequency (MHz)	1851.25	1880	1908.75
RC1+SO55	24.53	24.55	24.61
RC3+SO55	24.62	24.56	24.59
RC3+SO32(FCH)	24.52	24.52	24.56
RC3+SO32(SCH)	24.50	24.50	24.53
RC1+SO3,1/8 Rate	24.48	24.54	24.55
RTAP 153.6	24.52	24.56	24.58
RETAP 4096	24.55	24.54	24.56

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Test Report No.: RF160524W004-4

LTE Band 2							
BW	Modulation	RB Size	RB Offset	Low CH 18607	Mid CH 18900	High CH 19193	3GPP MPR (dB)
				Frequency 1850.7 MHz	Frequency 1880 MHz	Frequency 1909.3 MHz	
1.4MHz	QPSK	1	0	23.30	23.31	23.40	0
		1	2	23.18	23.20	23.30	0
		1	5	23.20	23.25	23.32	0
		3	0	23.29	23.30	23.39	0
		3	1	23.17	23.19	23.29	0
		3	3	23.19	23.24	23.31	0
		6	0	22.38	22.35	22.40	1
	16QAM	1	0	22.50	22.37	22.57	1
		1	2	22.25	22.26	22.34	1
		1	5	22.34	22.32	22.42	1
		3	0	22.48	22.35	22.55	1
		3	1	22.23	22.24	22.32	1
		3	3	22.32	22.30	22.40	1
		6	0	21.28	21.30	21.36	2

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Test Report No.: RF160524W004-4

LTE Band 2							
BW	Modulation	RB Size	RB Offset	Low CH 18615	Mid CH 18900	High CH 19185	3GPP MPR (dB)
				Frequency 1851.5 MHz	Frequency 1880 MHz	Frequency 1908.5 MHz	
3 MHz	QPSK	1	0	23.33	23.34	23.43	0
		1	7	23.21	23.23	23.33	0
		1	14	23.23	23.28	23.35	0
		8	0	22.38	22.42	22.52	1
		8	3	22.37	22.37	22.31	1
		8	7	22.31	22.39	22.32	1
		15	0	22.41	22.38	22.43	1
	16QAM	1	0	22.53	22.40	22.60	1
		1	7	22.28	22.29	22.37	1
		1	14	22.37	22.35	22.45	1
		8	0	21.26	21.42	21.45	2
		8	3	21.29	21.36	21.31	2
		8	7	21.27	21.39	21.37	2
		15	0	21.31	21.33	21.39	2
5 MHz	QPSK	RB Size	RB Offset	Low CH 18625	Mid CH 18900	High CH 19175	3GPP MPR (dB)
				Frequency 1852.5 MHz	Frequency 1880 MHz	Frequency 1907.5 MHz	
		1	0	23.36	23.37	23.46	0
		1	12	23.24	23.26	23.36	0
		1	24	23.26	23.31	23.38	0
		12	0	22.41	22.45	22.55	1
		12	6	22.40	22.40	22.34	1
	16QAM	12	13	22.34	22.42	22.35	1
		25	0	22.44	22.41	22.46	1
		1	0	22.56	22.43	22.63	1
		1	12	22.31	22.32	22.40	1
		1	24	22.40	22.38	22.48	1
		12	0	21.29	21.45	21.48	2
		12	6	21.32	21.39	21.34	2
		12	13	21.30	21.42	21.40	2
		25	0	21.34	21.36	21.42	2

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Test Report No.: RF160524W004-4

LTE Band 2									
BW	Modulation	RB Size	RB Offset	Low CH 18650	Mid CH 18900	High CH 19150	3GPP MPR (dB)		
				Frequency 1855 MHz	Frequency 1880 MHz	Frequency 1905 MHz			
10 MHz	QPSK	1	0	23.38	23.39	23.48	0		
		1	24	23.26	23.28	23.38	0		
		1	49	23.28	23.33	23.40	0		
		25	0	22.43	22.47	22.57	1		
		25	12	22.42	22.42	22.36	1		
		25	25	22.36	22.44	22.37	1		
		50	0	22.46	22.43	22.48	1		
	16QAM	1	0	22.58	22.45	22.65	1		
		1	24	22.33	22.34	22.42	1		
		1	49	22.42	22.40	22.50	1		
		25	0	21.31	21.47	21.50	2		
		25	12	21.34	21.41	21.36	2		
		25	25	21.32	21.44	21.42	2		
		50	0	21.36	21.38	21.44	2		
15 MHz	QPSK	BW	Modulation	RB Size	RB Offset	Low CH 18675	Mid CH 18900	High CH 19125	3GPP MPR (dB)
						Frequency 1857.5 MHz	Frequency 1880 MHz	Frequency 1902.5 MHz	
		1	0	23.41	23.42	23.51	0	0	0
		1	37	23.29	23.31	23.41	0	0	0
		1	74	23.31	23.36	23.43	0	0	0
		36	0	22.46	22.50	22.60	1	1	1
		36	19	22.45	22.45	22.39	1	1	1
	16QAM	36	39	22.39	22.47	22.40	1	1	1
		75	0	22.49	22.46	22.51	1	1	1
		1	0	22.61	22.48	22.68	1	1	1
		1	37	22.36	22.37	22.45	1	1	1
		1	74	22.45	22.43	22.53	1	1	1
		36	0	21.34	21.50	21.53	2	2	2
		36	19	21.37	21.44	21.39	2	2	2
		36	39	21.35	21.47	21.45	2	2	2
		75	0	21.39	21.41	21.47	2	2	2



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Test Report No.: RF160524W004-4

LTE Band 2							
BW	Modulation	RB Size	RB Offset	Low CH 18700	Mid CH 18900	High CH 19100	3GPP MPR (dB)
				Frequency 1860 MHz	Frequency 1880 MHz	Frequency 1900 MHz	
20MHz	QPSK	1	0	23.46	23.47	<b>23.56</b>	0
		1	50	23.34	23.36	23.46	0
		1	99	23.36	23.41	23.48	0
		50	0	22.51	22.55	22.65	1
		50	25	22.50	22.50	22.44	1
		50	50	22.44	22.52	22.45	1
		100	0	22.54	22.51	22.56	1
	16QAM	1	0	22.66	22.53	22.73	1
		1	50	22.41	22.42	22.50	1
		1	99	22.50	22.48	22.58	1
		50	0	21.39	21.55	21.58	2
		50	25	21.42	21.49	21.44	2
		50	50	21.40	21.52	21.50	2
		100	0	21.44	21.46	21.52	2



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Test Report No.: RF160524W004-4

### EIRP POWER (dBm)

#### CDMA BC 1

Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
25	1851.3	-19.95	43.83	23.88	244.34	H
600	1880.0	-19.89	43.57	23.68	233.35	H
1175	1908.8	-19.72	44.57	24.85	<b>305.49</b>	H
25	1851.3	-25.37	46.39	21.02	126.47	V
600	1880.0	-25.92	47.10	21.18	131.16	V
1175	1908.8	-25.32	45.98	20.66	116.31	V

**REMARKS:** 1. EIRP Output Power (dBm) = LVL (dBm) + Correction Factor (dB).  
2. Correction factor (dB) = Free Space Loss + Antenna Factor + Cable Loss

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Test Report No.: RF160524W004-4

**LTE BAND 2****CHANNEL BANDWIDTH: 1.4MHz QPSK**

Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)	LIMIT (W)
18607	1850.7	-24.68	43.83	19.15	82.30	H	2
18900	1880.0	-24.34	43.57	19.23	83.75	H	2
19193	1909.3	-25.63	44.32	18.69	73.94	H	2
18607	1850.7	-20.38	46.41	26.03	<b>400.96</b>	V	2
18900	1880.0	-21.51	47.07	25.56	359.75	V	2
19193	1909.3	-22.26	45.88	23.62	230.36	V	2

NOTE: EIRP (dBm) = LVL (dBm) + Correction Factor (dB)

**CHANNEL BANDWIDTH: 1.4MHz 16QAM**

Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)	LIMIT (W)
18607	1850.7	-25.55	43.83	18.28	67.36	H	2
18900	1880.0	-25.27	43.57	18.30	67.61	H	2
19193	1909.3	-26.59	44.32	17.73	59.28	H	2
18607	1850.7	-21.25	46.41	25.16	328.17	V	2
18900	1880.0	-22.44	47.07	24.63	290.40	V	2
19193	1909.3	-23.22	45.88	22.66	184.67	V	2

NOTE: EIRP (dBm) = LVL (dBm) + Correction Factor (dB)

**CHANNEL BANDWIDTH: 3MHz QPSK**

Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)	LIMIT (W)
18615	1851.5	-24.66	43.82	19.16	82.45	H	2
18900	1880.0	-24.40	43.57	19.17	82.60	H	2
19185	1908.5	-25.58	44.38	18.80	75.79	H	2
18615	1851.5	-20.36	46.45	26.09	<b>406.54</b>	V	2
18900	1880.0	-21.57	47.07	25.50	354.81	V	2
19185	1908.5	-22.21	45.88	23.67	232.81	V	2

NOTE: EIRP (dBm) = LVL (dBm) + Correction Factor (dB)

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Test Report No.: RF160524W004-4

## CHANNEL BANDWIDTH: 3MHz 16QAM

Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)	LIMIT (W)
18615	1851.5	-25.73	43.82	18.09	64.45	H	2
18900	1880.0	-25.29	43.57	18.28	67.30	H	2
19185	1908.5	-26.57	44.38	17.81	60.34	H	2
18615	1851.5	-21.43	46.45	25.02	317.76	V	2
18900	1880.0	-22.46	47.07	24.61	289.07	V	2
19185	1908.5	-23.20	45.88	22.68	185.35	V	2

NOTE: EIRP (dBm) = LVL (dBm) + Correction Factor (dB)

## CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)	LIMIT (W)
18625	1852.5	-24.72	43.83	19.11	81.43	H	2
18900	1880.0	-24.35	43.57	19.22	83.56	H	2
19175	1907.5	-25.53	44.19	18.66	73.42	H	2
18625	1852.5	-20.42	46.46	26.04	402.07	V	2
18900	1880.0	-21.52	47.07	25.55	358.92	V	2
19175	1907.5	-22.16	45.89	23.73	236.10	V	2

NOTE: EIRP (dBm) = LVL (dBm) + Correction Factor (dB)

## CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)	LIMIT (W)
18625	1852.5	-25.55	43.83	18.28	67.27	H	2
18900	1880.0	-25.37	43.57	18.20	66.07	H	2
19175	1907.5	-26.63	44.19	17.56	56.99	H	2
18625	1852.5	-21.25	46.46	25.21	332.12	V	2
18900	1880.0	-22.54	47.07	24.53	283.79	V	2
19175	1907.5	-23.26	45.89	22.63	183.27	V	2

NOTE: EIRP (dBm) = LVL (dBm) + Correction Factor (dB)

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Test Report No.: RF160524W004-4

## CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)	LIMIT (W)
18650	1855.0	-24.53	43.86	19.33	85.72	H	2
18900	1880.0	-13.20	43.57	20.37	108.89	H	2
19150	1905.0	-25.40	43.99	18.59	72.34	H	2
18650	1855.0	-20.23	46.28	26.05	<b>402.53</b>	V	2
18900	1880.0	-21.46	47.07	25.61	363.92	V	2
19150	1905.0	-22.03	45.92	23.89	245.02	V	2

NOTE: EIRP (dBm) = LVL (dBm) + Correction Factor (dB)

## CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)	LIMIT (W)
18650	1855.0	-25.68	43.86	18.18	65.78	H	2
18900	1880.0	-25.39	43.57	18.18	65.77	H	2
19150	1905.0	-26.56	43.99	17.43	55.39	H	2
18650	1855.0	-21.38	46.28	24.90	308.89	V	2
18900	1880.0	-22.56	47.07	24.51	282.49	V	2
19150	1905.0	-23.19	45.92	22.73	187.59	V	2

NOTE: EIRP (dBm) = LVL (dBm) + Correction Factor (dB)

## CHANNEL BANDWIDTH: 15MHz QPSK

Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)	LIMIT (W)
18675	1857.5	-24.54	43.99	19.45	88.15	H	2
18900	1880.0	-24.36	43.57	19.21	83.37	H	2
19125	1902.5	-25.47	43.66	18.19	65.84	H	2
18675	1857.5	-20.24	45.93	25.69	<b>370.42</b>	V	2
18900	1880.0	-21.53	47.07	25.54	358.10	V	2
19125	1902.5	-22.10	46.20	24.10	257.16	V	2

NOTE: EIRP (dBm) = LVL (dBm) + Correction Factor (dB)

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Test Report No.: RF160524W004-4

## CHANNEL BANDWIDTH: 15MHz 16QAM

Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)	LIMIT (W)
18675	1857.5	-25.40	43.99	18.59	72.31	H	2
18900	1880.0	-25.23	43.57	18.34	68.23	H	2
19125	1902.5	-26.32	43.66	17.34	54.14	H	2
18675	1857.5	-21.10	45.93	24.83	303.88	V	2
18900	1880.0	-22.40	47.07	24.67	293.09	V	2
19125	1902.5	-22.95	46.20	23.25	211.45	V	2

NOTE: EIRP (dBm) = LVL (dBm) + Correction Factor (dB)

## CHANNEL BANDWIDTH: 20MHz QPSK

Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)	LIMIT (W)
18700	1860.0	-25.12	43.50	18.38	68.85	H	2
18900	1880.0	-24.81	43.57	18.76	75.16	H	2
19100	1900.0	-26.05	43.62	17.57	57.10	H	2
18700	1860.0	-20.82	45.57	24.75	298.54	V	2
18900	1880.0	-21.98	47.07	25.09	<b>322.85</b>	V	2
19100	1900.0	-22.68	46.26	23.58	228.09	V	2

NOTE: EIRP (dBm) = LVL (dBm) + Correction Factor (dB)

## CHANNEL BANDWIDTH: 20MHz 16QAM

Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)	LIMIT (W)
18700	1860.0	-26.05	43.50	17.45	55.58	H	2
18900	1880.0	-25.88	43.57	17.69	58.75	H	2
19100	1900.0	-26.88	43.62	16.74	47.16	H	2
18700	1860.0	-21.75	45.57	23.82	240.99	V	2
18900	1880.0	-23.05	47.07	24.02	252.35	V	2
19100	1900.0	-23.51	46.26	22.75	188.41	V	2

NOTE: EIRP (dBm) = LVL (dBm) + Correction Factor (dB)



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Test Report No.: RF160524W004-4

## 4.2 FREQUENCY STABILITY MEASUREMENT

### 4.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

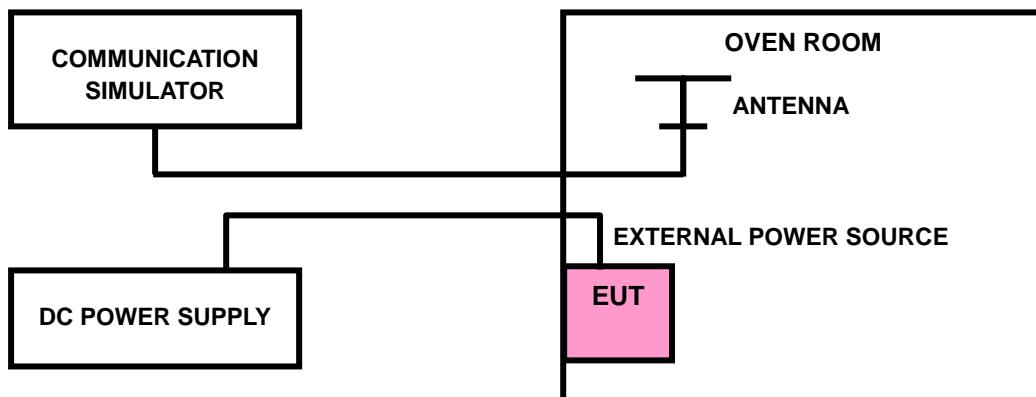
The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

### 4.2.2 TEST PROCEDURE

- a. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
- b. EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
- c. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the  $\pm 0.5^{\circ}\text{C}$  during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

**NOTE:** The frequency error was recorded frequency error from the communication simulator.

### 4.2.3 TEST SETUP



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Test Report No.: RF160524W004-4

#### 4.2.4 TEST RESULTS

##### FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	FREQUENCY ERROR (ppm)	LIMIT (ppm)
	CDMA BC 1	
3.5	0.0013	2.5
3.7	0.0011	2.5
4.2	0.0012	2.5

**NOTE:** The applicant defined the normal working voltage of the battery is from 3.6Vdc to 4.2Vdc.

##### FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	FREQUENCY ERROR (ppm)	LIMIT (ppm)
	CDMA BC 1	
-30	0.0053	2.5
-20	0.0037	2.5
-10	0.0042	2.5
0	0.0021	2.5
10	0.0032	2.5
20	0.0026	2.5
30	0.0037	2.5
40	0.0042	2.5
50	0.0016	2.5
60	0.0047	2.5

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Test Report No.: RF160524W004-4

## LTE BAND 2

AFC FREQUENCY ERROR vs. VOLTAGE							
VOLTAGE (Volts)	FREQUENCY ERROR (ppm)						LIMIT (ppm)
	1.4MHz	3MHz	5MHz	10MHz	15MHz	20MHz	
3.5	0.0025	0.0027	0.0025	0.0028	0.0025	0.0025	2.5
3.7	0.0029	0.0029	0.0027	0.0027	0.0028	0.0025	2.5
4.2	0.0023	0.0025	0.0025	0.0025	0.0025	0.0028	2.5

**NOTE:** The applicant defined the normal working voltage of the battery is from 3.5Vdc to 4.2Vdc.

AFC FREQUENCY ERROR vs. TEMPERATURE							
TEMP. (°C)	FREQUENCY ERROR (ppm)						LIMIT (ppm)
	1.4MHz	3MHz	5MHz	10MHz	15MHz	20MHz	
-30	0.0041	0.0046	0.0039	0.0046	0.0039	0.0033	2.5
-20	0.0051	0.0041	0.0044	0.0039	0.0046	0.0038	2.5
-10	0.0060	0.0044	0.0044	0.0033	0.0029	0.0034	2.5
0	0.0030	0.0034	0.0049	0.0028	0.0034	0.0029	2.5
10	0.0040	0.0026	0.0029	0.0018	0.0033	0.0028	2.5
20	0.0049	0.0030	0.0031	0.0035	0.0028	0.0038	2.5
30	0.0029	0.0042	0.0022	0.0038	0.0032	0.0023	2.5
40	0.0044	0.0033	0.0044	0.0044	0.0025	0.0017	2.5
50	0.0039	0.0035	0.0034	0.0022	0.0050	0.0038	2.5
60	0.0026	0.0040	0.0044	0.0036	0.0023	0.0028	2.5



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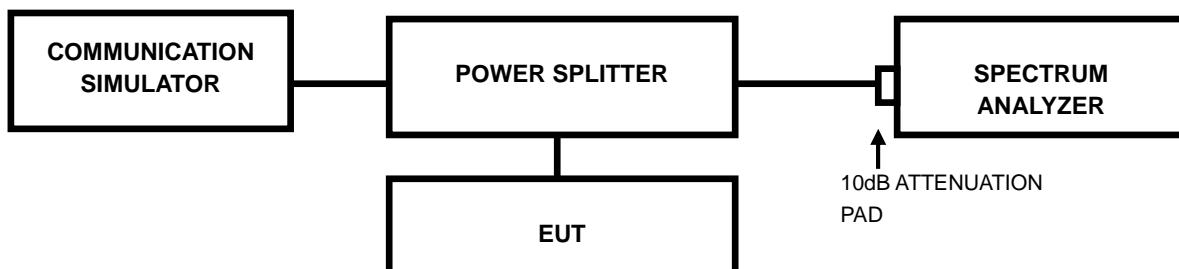
Test Report No.: RF160524W004-4

## 4.3 OCCUPIED BANDWIDTH MEASUREMENT

### 4.3.1 TEST PROCEDURES

The EUT makes a call to the communication simulator. All measurements were done at low, middle and high operational frequency range. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

### 4.3.2 TEST SETUP





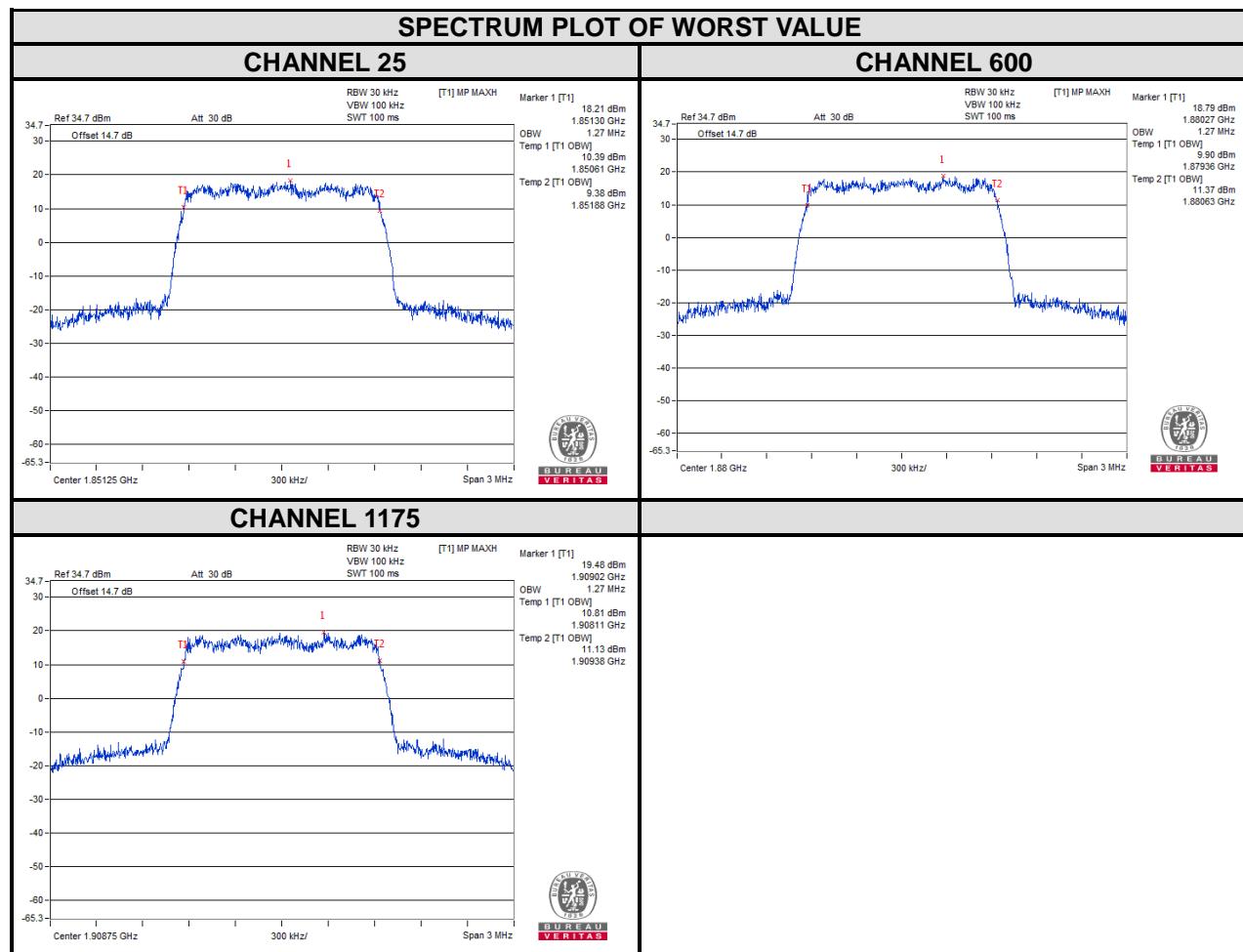
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Test Report No.: RF160524W004-4

### 4.3.3 TEST RESULTS

#### CDMA BC 1

CHANNEL	Frequency (MHz)	99% OCCUPIED Bandwidth (MHz)
25	1851.25	1.27
600	1880.00	1.27
1175	1908.75	1.27



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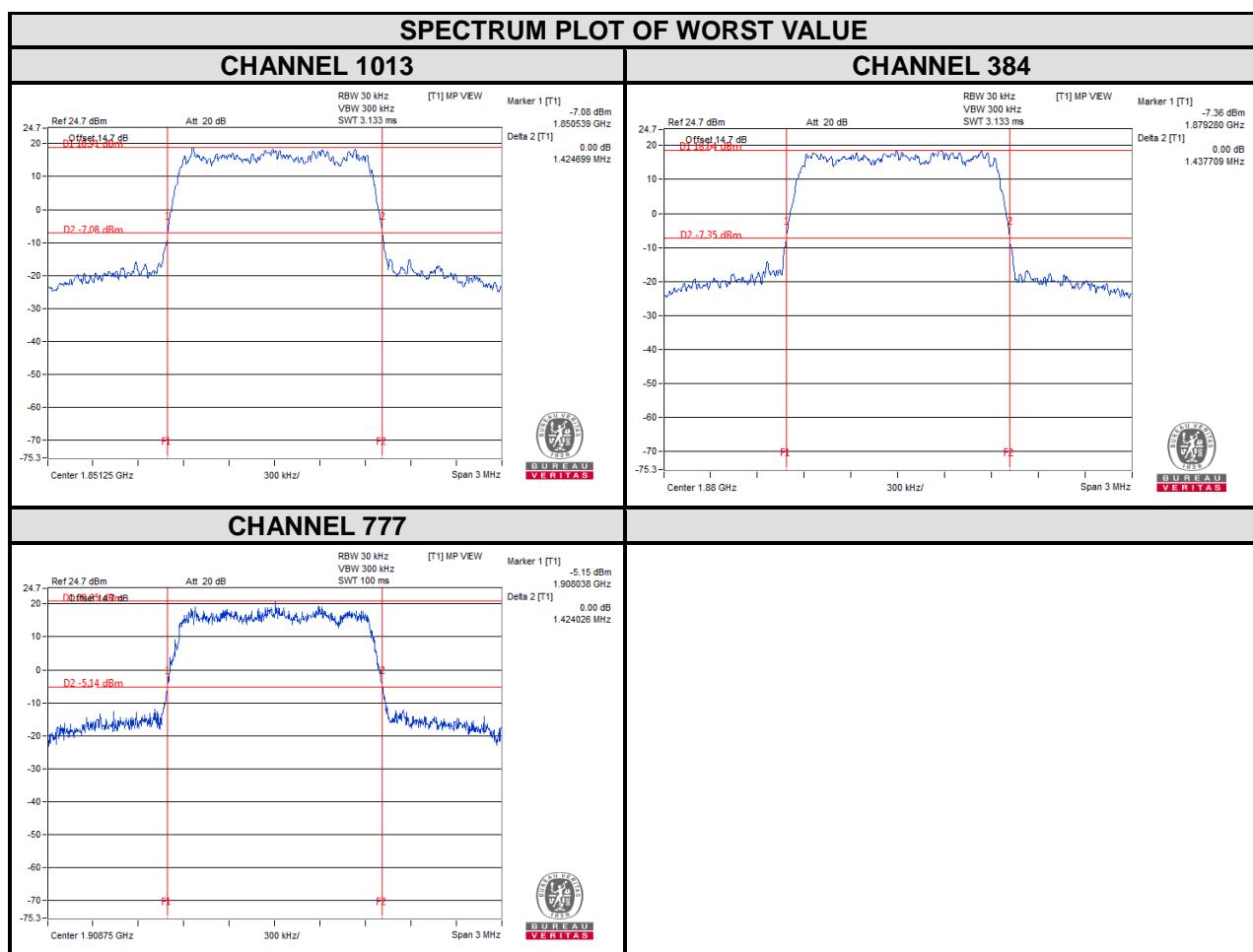
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CHANNEL	Frequency (MHz)	26dB Bandwidth (MHz)
25	1851.25	1.42
600	1880.00	1.44
1175	1908.75	1.42



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LTE band 2							
Channel Bandwidth : 1.4MHz							
Channel	Frequency (MHz)	99% Occupied bandwidth (MHz)		Channel	Frequency (MHz)	26 dB bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
18607	1850.7	1.09	1.09	18607	1850.7	1.27	1.28
18900	1880	1.09	1.08	18900	1880	1.28	1.27
19193	1909.3	1.09	1.09	19193	1909.3	1.27	1.26



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LTE band 2							
Channel Bandwidth : 3MHz							
Channel	Frequency (MHz)	99% Occupied bandwidth (MHz)		Channel	Frequency (MHz)	26 dB bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
18615	1851.5	2.69	2.68	18615	1851.5	2.93	2.90
18900	1880	2.68	2.68	18900	1880	2.94	2.93
19185	1908.5	2.69	2.68	19185	1908.5	2.96	2.92



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LTE band 2							
Channel Bandwidth : 5 MHz							
Channel	Frequency (MHz)	99% Occupied bandwidth (MHz)		Channel	Frequency (MHz)	26 dB bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
18625	1852.5	4.48	4.47	18625	1852.5	4.90	4.86
18900	1880	4.46	4.48	18900	1880	4.87	4.92
19175	1907.5	4.48	4.46	19175	1907.5	4.85	4.85



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LTE band 2							
Channel Bandwidth : 10 MHz							
Channel	Frequency (MHz)	99% Occupied bandwidth (MHz)		Channel	Frequency (MHz)	26 dB bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
18650	1855	8.95	8.95	18650	1855	9.69	9.72
18900	1880	8.95	8.95	18900	1880	9.75	9.67
19150	1905	8.93	8.94	19150	1905	9.76	9.73



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LTE band 2							
Channel Bandwidth : 15 MHz							
Channel	Frequency (MHz)	99% Occupied bandwidth (MHz)		Channel	Frequency (MHz)	26 dB bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
18675	1857.5	13.39	13.41	18675	1857.5	14.29	14.47
18900	1880	13.43	13.42	18900	1880	14.58	14.51
19125	1902.5	13.43	13.43	19125	1902.5	14.46	14.36



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LTE band 2							
Channel Bandwidth : 20 MHz							
Channel	Frequency (MHz)	99% Occupied bandwidth (MHz)		Channel	Frequency (MHz)	26 dB bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
18700	1860	17.85	17.79	18700	1860	19.00	18.92
18900	1880	17.88	17.84	18900	1880	19.15	18.97
19100	1900	17.89	17.84	19100	1900	19.09	19.08



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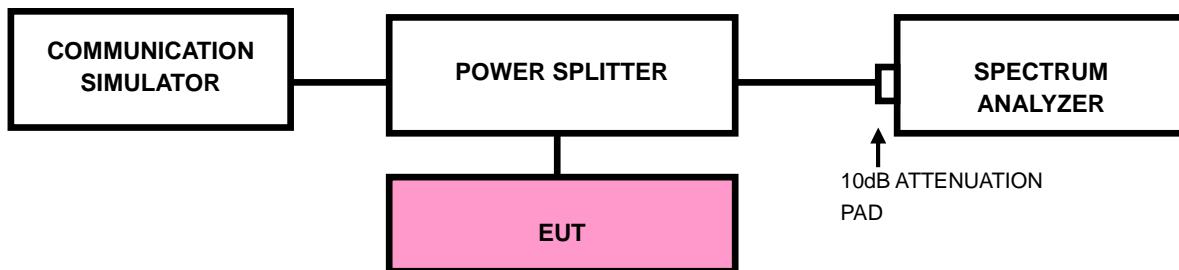
Test Report No.: RF160524W004-4

## 4.4 BAND EDGE MEASUREMENT

### 4.4.1 LIMITS OF BAND EDGE MEASUREMENT

Power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

### 4.4.2 TEST SETUP



### 4.4.3 TEST PROCEDURES

- a. All measurements were done at low and high operational frequency range.
- b. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 15kHz and VBW of the spectrum is 15kHz (CDMA BC 1).
- c. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RB of the spectrum is 20kHz and VB of the spectrum is 100 kHz. (LTE bandwidth 1.4MHz)
- d. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RB of the spectrum is 30kHz and VB of the spectrum is 100kHz. (LTE bandwidth 3MHz)
- e. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RB of the spectrum is 50kHz and VB of the spectrum is 200kHz. (LTE bandwidth 5MHz)



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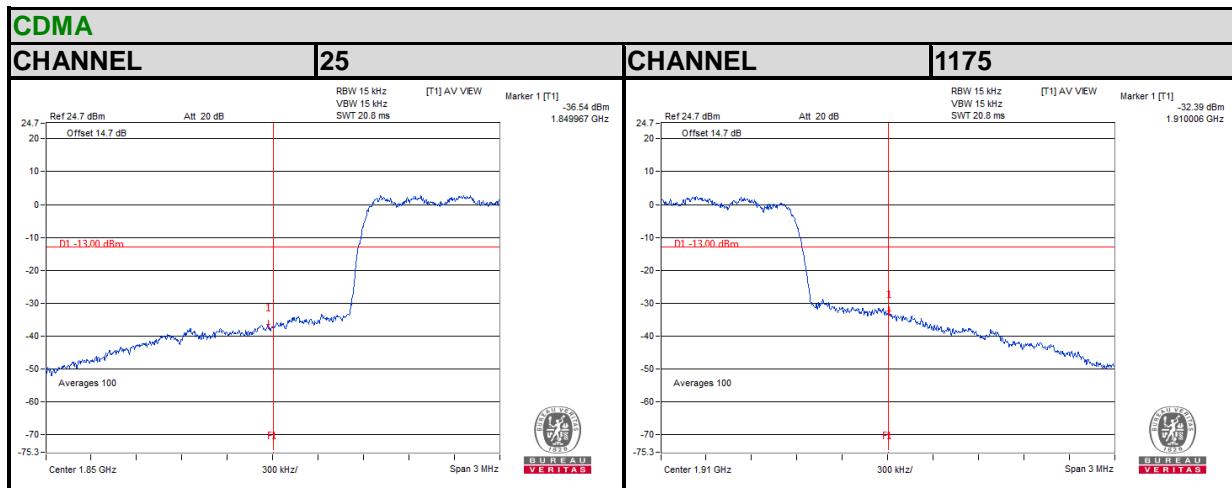
- f. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz. (LTE bandwidth 10MHz)
- g. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RB of the spectrum is 200kHz and VB of the spectrum is 1MHz. (LTE bandwidth 15MHz)
- h. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RB of the spectrum is 200kHz and VB of the spectrum is 1MHz. (LTE bandwidth 20MHz)
- i. Record the max trace plot into the test report.



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#### 4.4.4. TEST RESULTS



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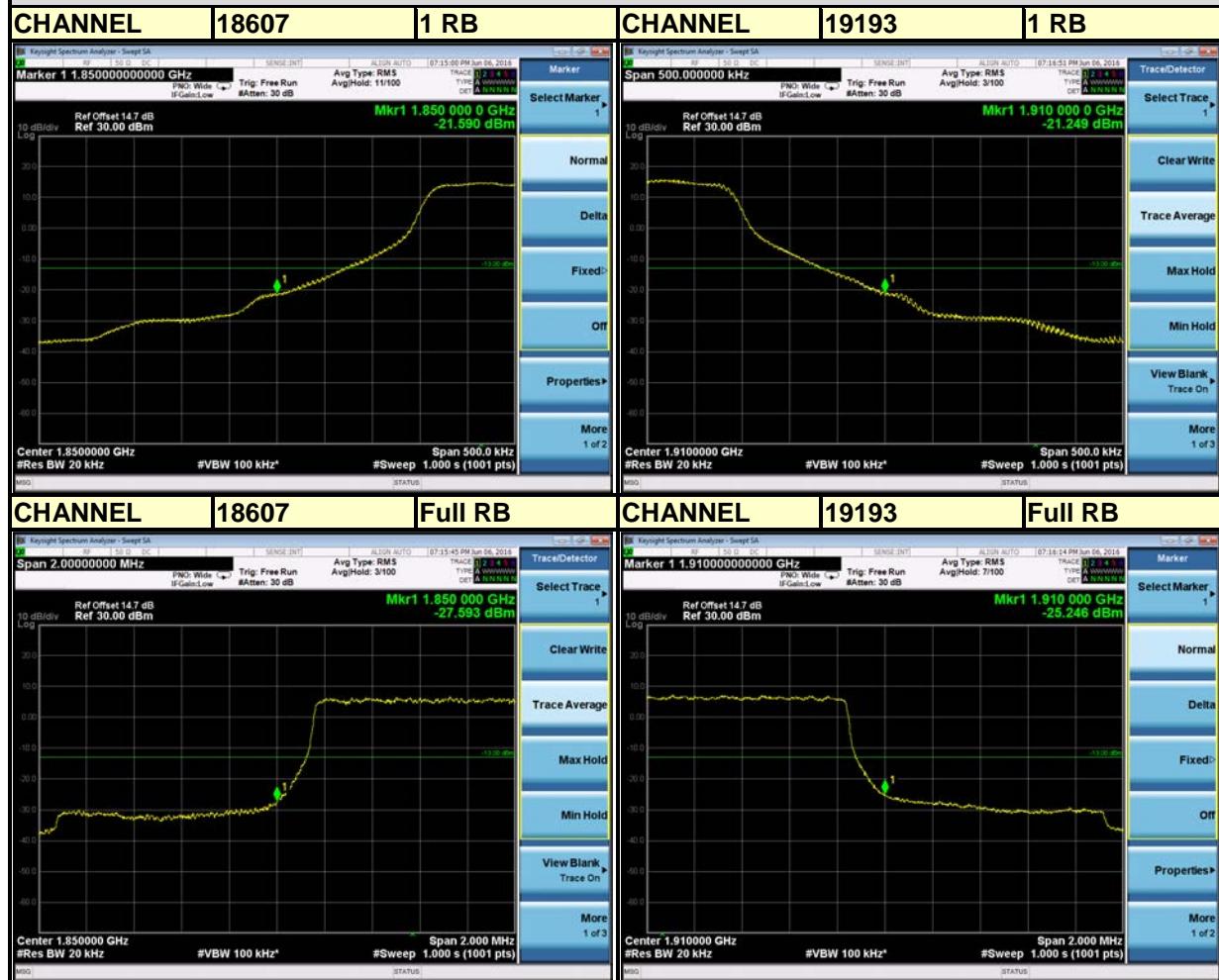


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## LTE BAND 2

### Channel Bandwidth: 1.4MHz



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## LTE BAND 2

Channel Bandwidth: 3MHz



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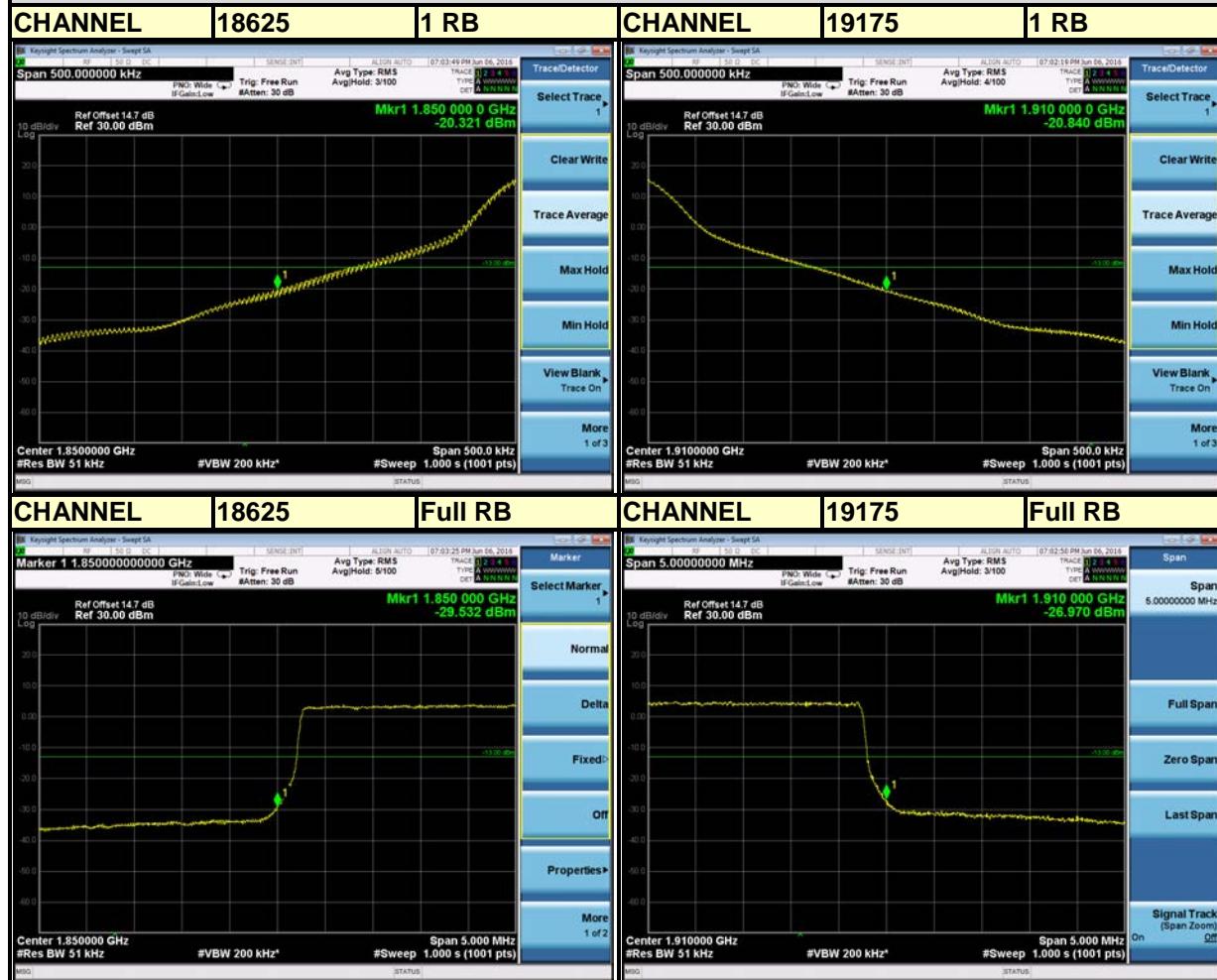


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## LTE BAND 2

Channel Bandwidth: 5MHz



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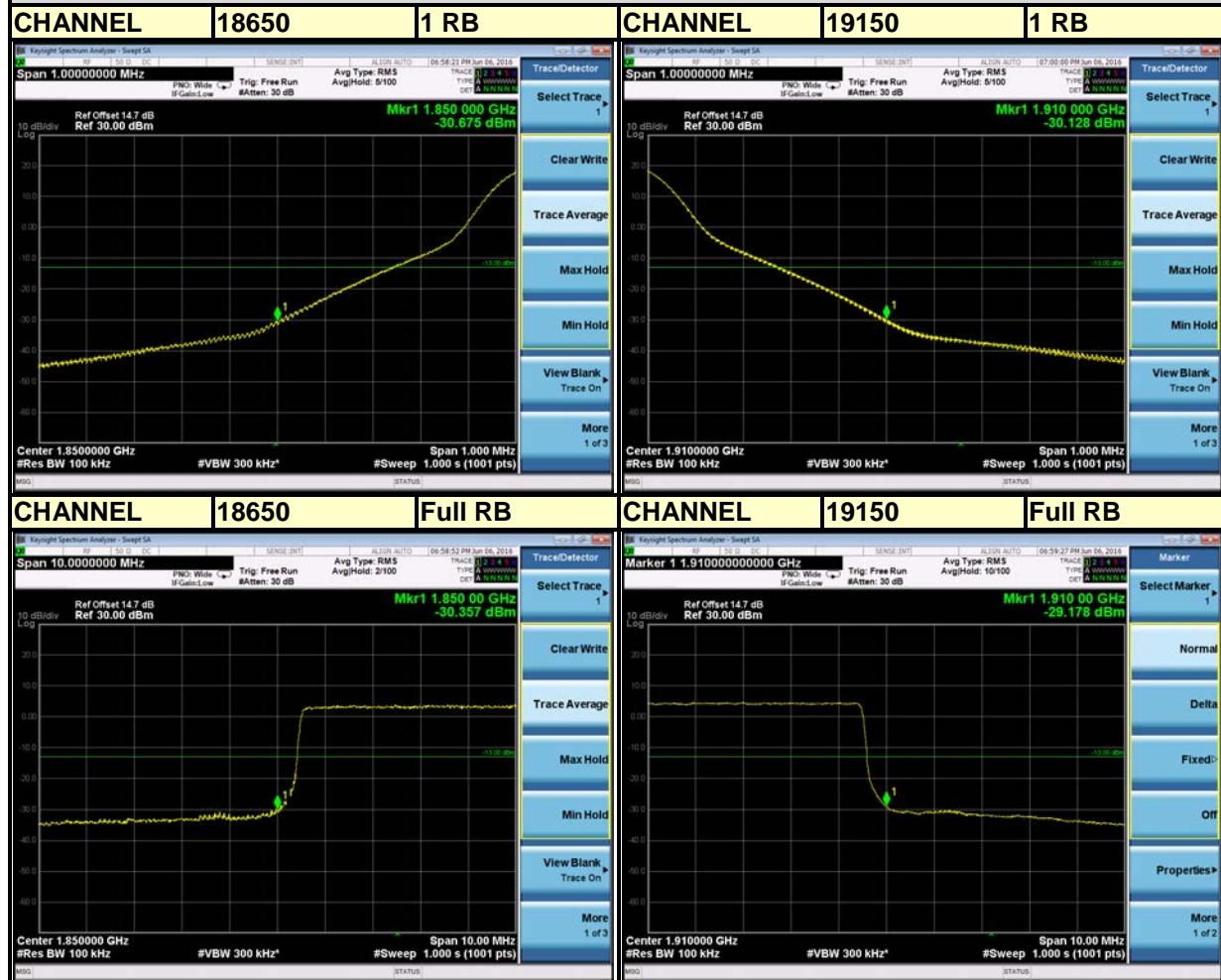


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## LTE BAND 2

### Channel Bandwidth: 10MHz



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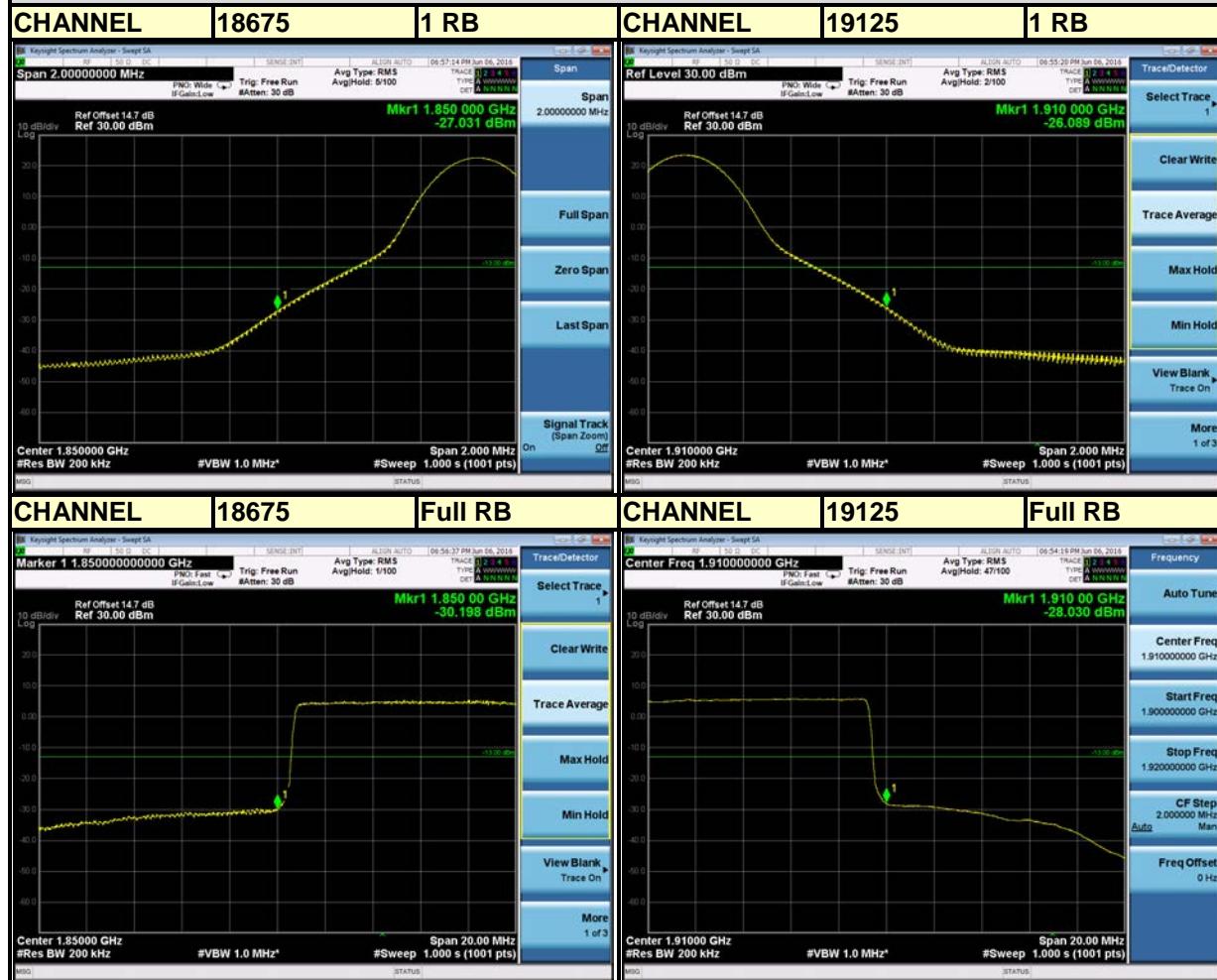


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## LTE BAND 2

### Channel Bandwidth: 15MHz



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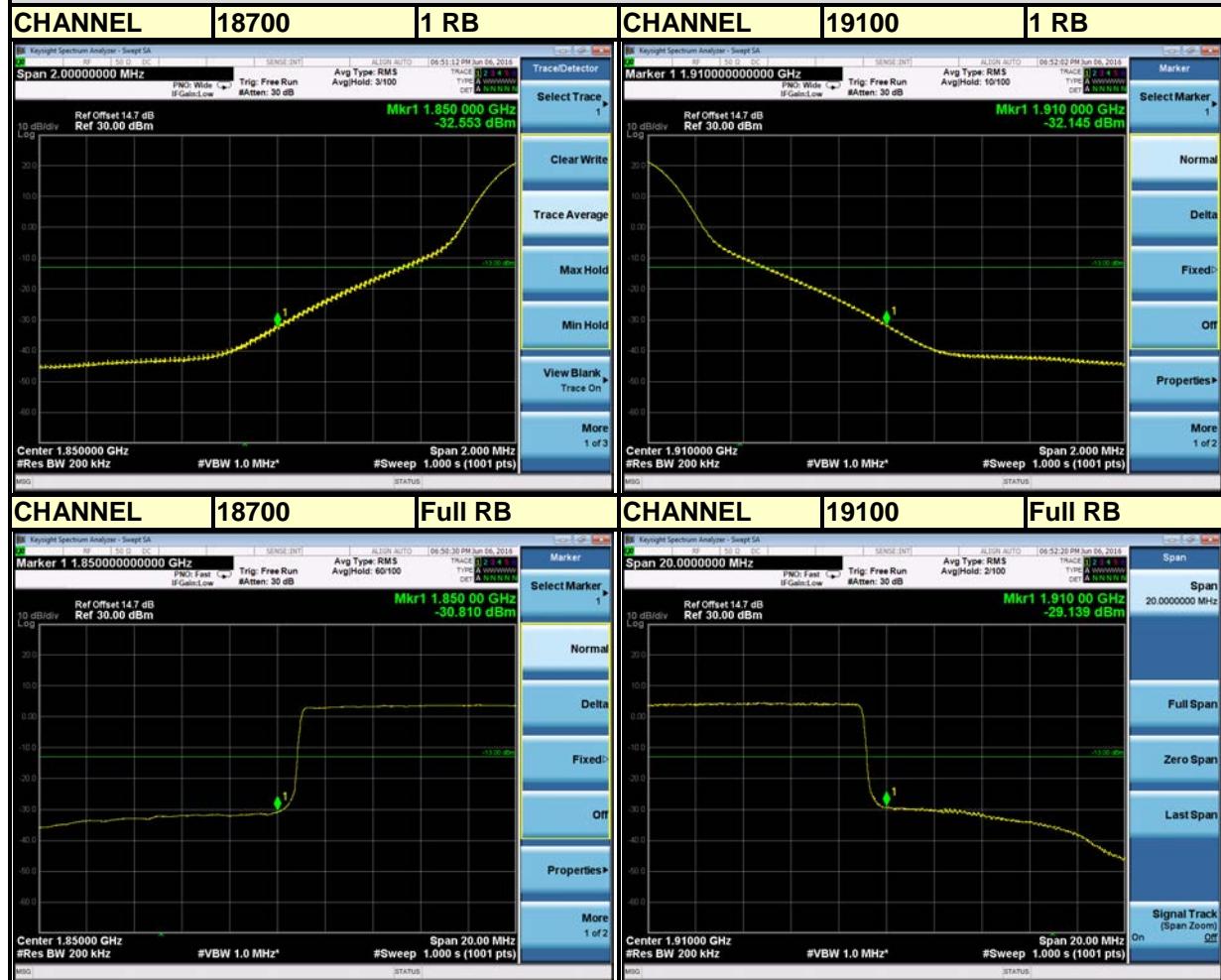


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## LTE BAND 2

### Channel Bandwidth: 20MHz



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## 4.5 CONDUCTED SPURIOUS EMISSIONS

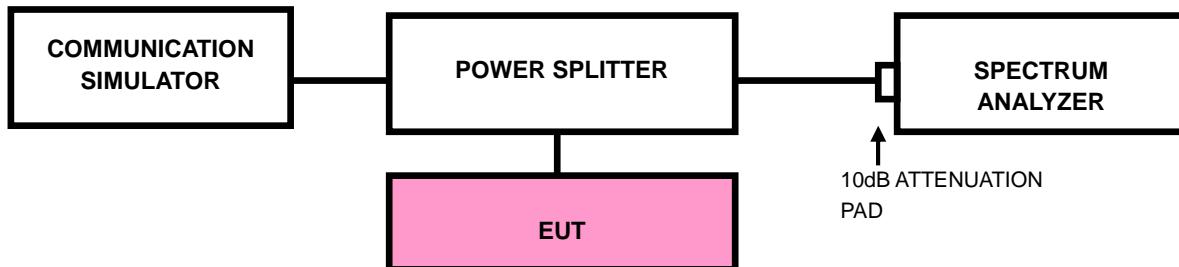
### 4.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. The emission limit equal to  $-13\text{dBm}$ .

### 4.5.2 TEST PROCEDURE

- a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- b. Measuring frequency range is from 9 kHz to 19.1GHz. 20dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

### 4.5.3 TEST SETUP





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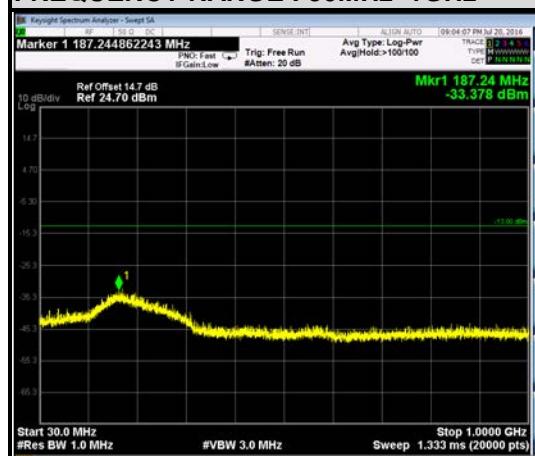
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#### 4.5.4 TEST RESULTS

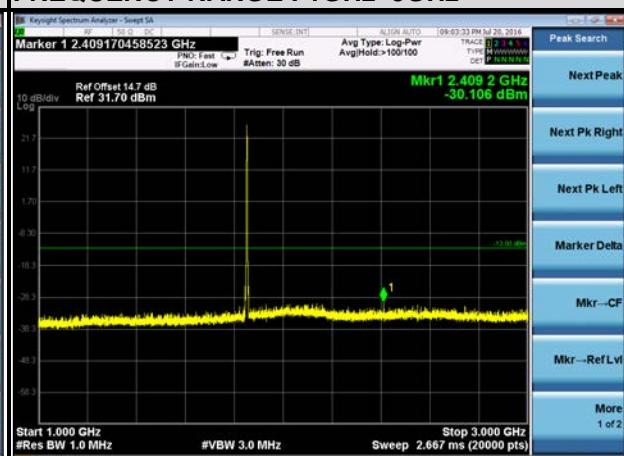
##### CDMA BC 1

##### CHANNEL 25

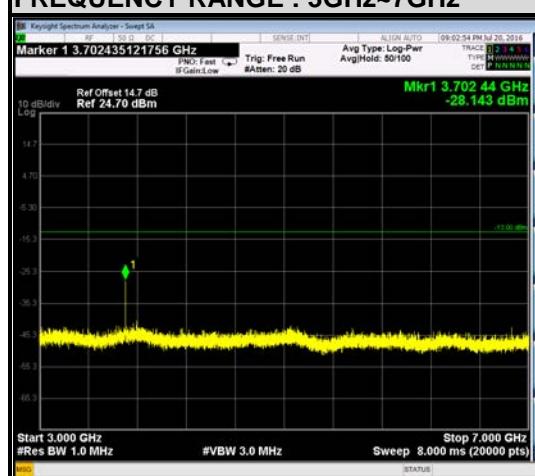
##### FREQUENCY RANGE : 30MHz~1GHz



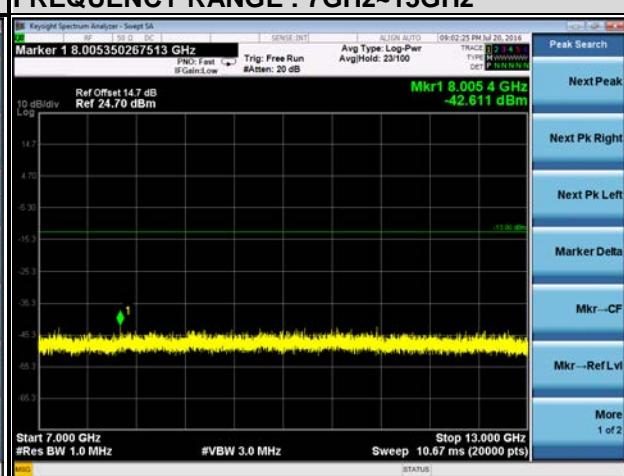
##### FREQUENCY RANGE : 1GHz~3GHz



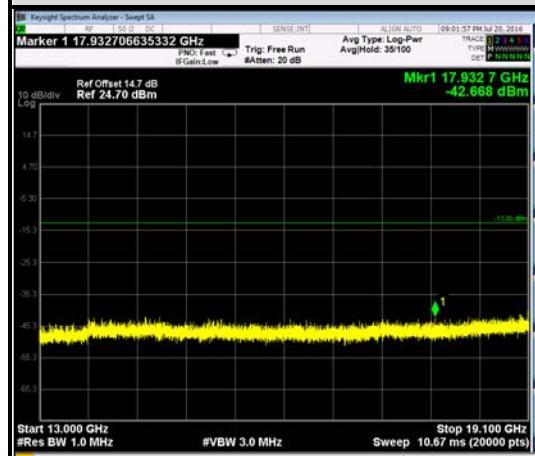
##### FREQUENCY RANGE : 3GHz~7GHz



##### FREQUENCY RANGE : 7GHz~13GHz



##### FREQUENCY RANGE : 13GHz~19.1GHz



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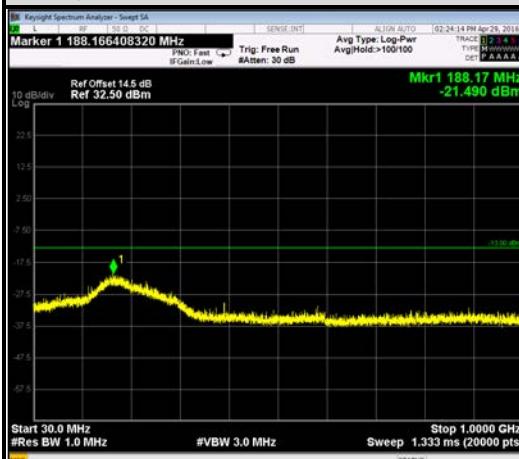
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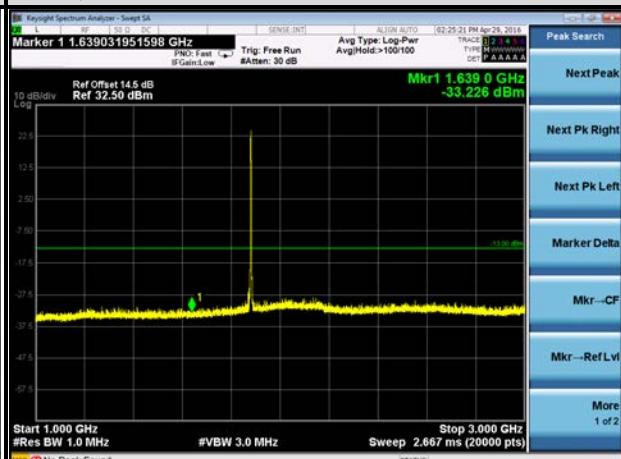
## CDMA BC 1

### CHANNEL 600

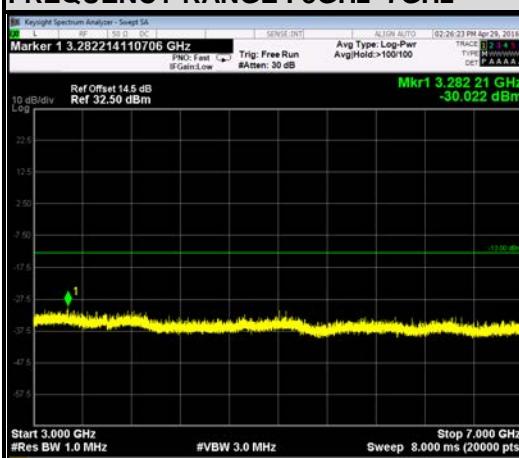
#### FREQUENCY RANGE : 30MHz~1GHz



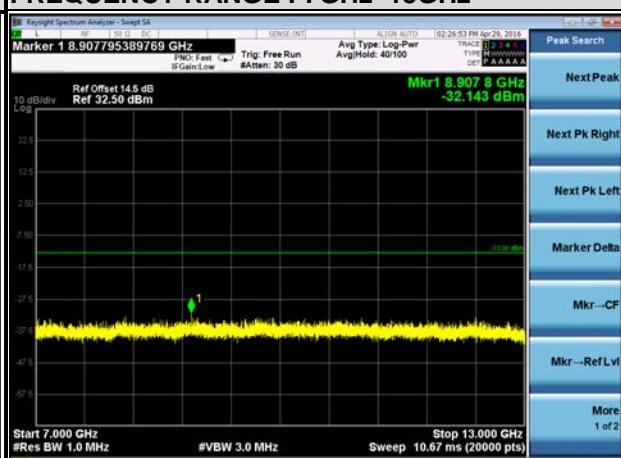
#### FREQUENCY RANGE : 1GHz~3GHz



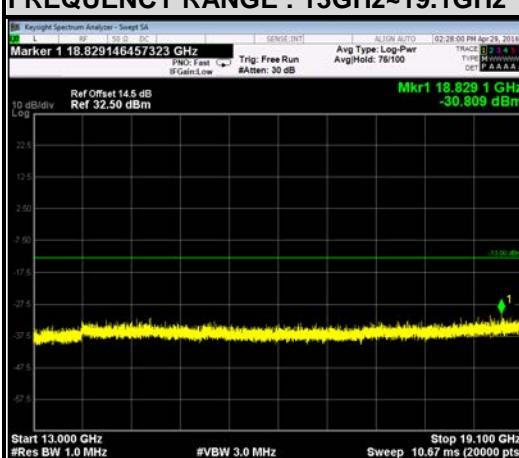
#### FREQUENCY RANGE : 3GHz~7GHz



#### FREQUENCY RANGE : 7GHz~13GHz



#### FREQUENCY RANGE : 13GHz~19.1GHz



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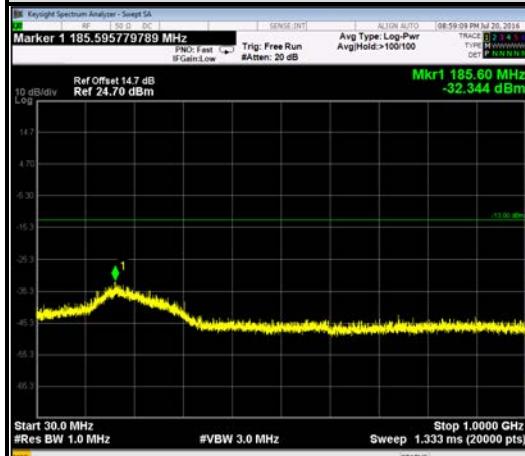
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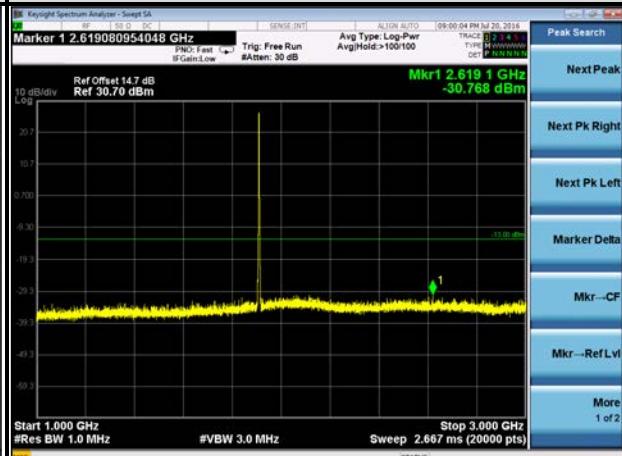
## CDMA BC 1

### CHANNEL 1175

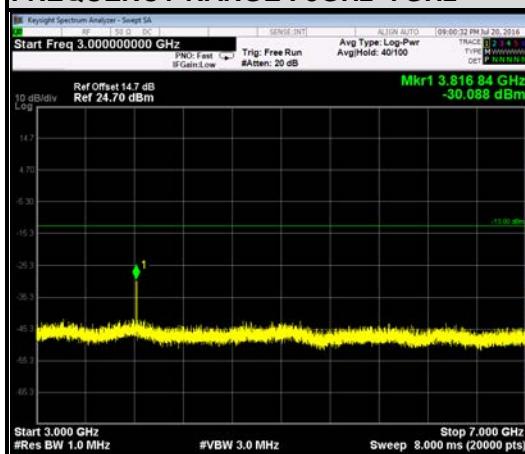
#### FREQUENCY RANGE : 30MHz~1GHz



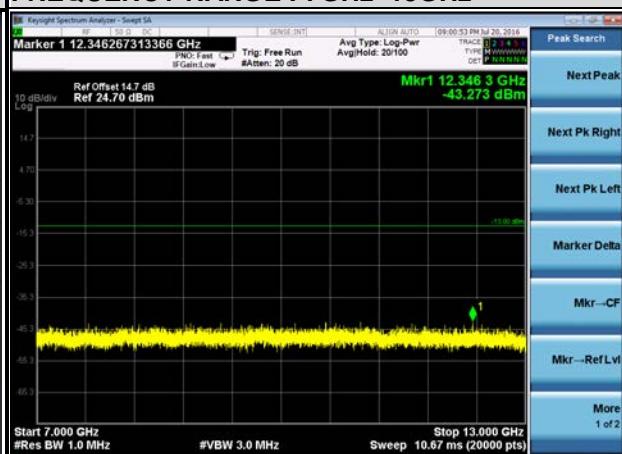
#### FREQUENCY RANGE : 1GHz~3GHz



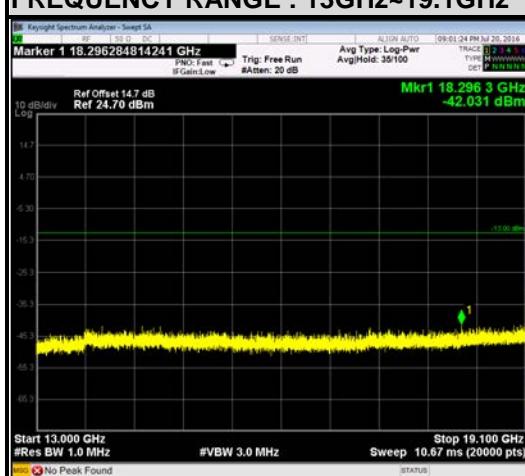
#### FREQUENCY RANGE : 3GHz~7GHz



#### FREQUENCY RANGE : 7GHz~13GHz



#### FREQUENCY RANGE : 13GHz~19.1GHz



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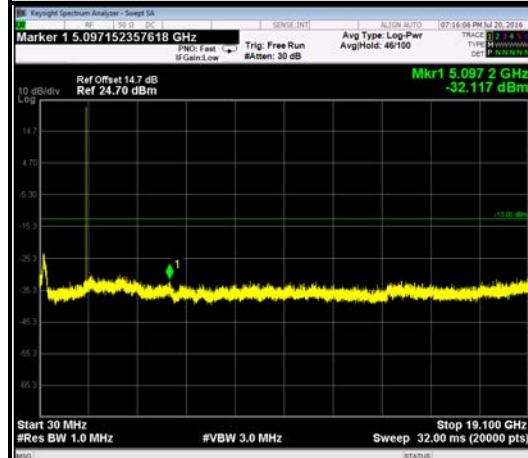
Test Report No.: RF160524W004-4

## LTE BAND 2

### CHANNEL 18607

1.4MHz / QPSK

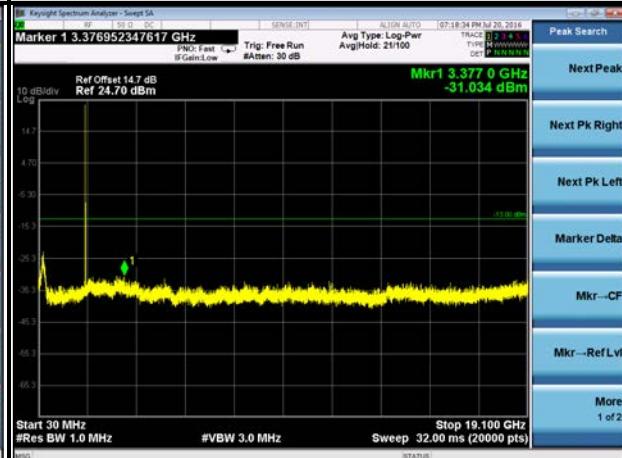
FREQUENCY RANGE : 30MHz~19.1GHz



### CHANNEL 18615

3MHz / QPSK

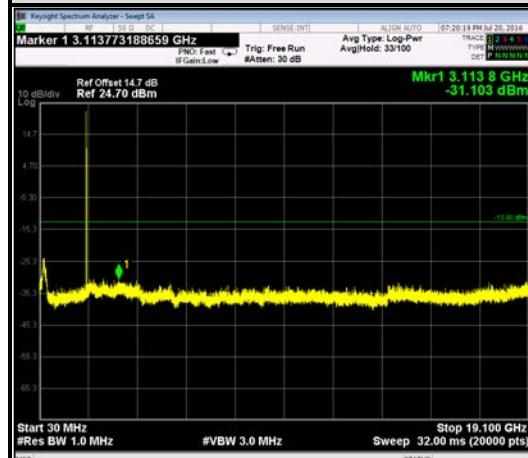
FREQUENCY RANGE : 30MHz~19.1GHz



### CHANNEL 18625

5MHz / QPSK

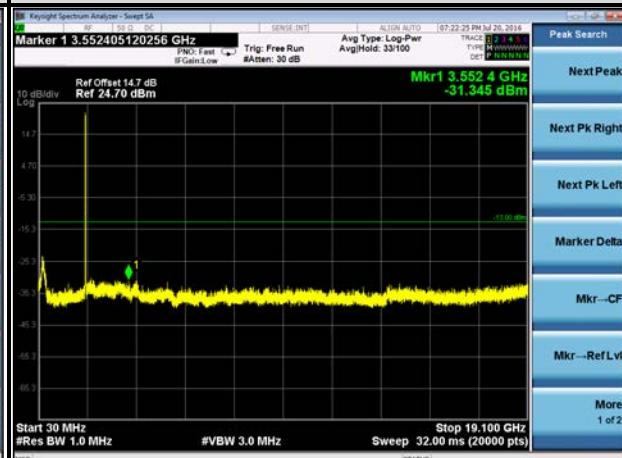
FREQUENCY RANGE : 30MHz~19.1GHz



### CHANNEL 18650

10MHz / QPSK

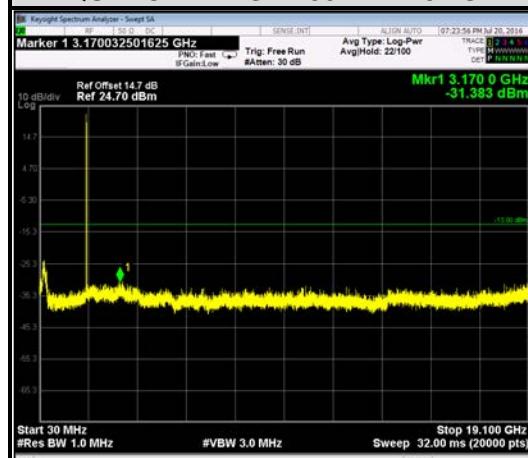
FREQUENCY RANGE : 30MHz~19.1GHz



### CHANNEL 18675

15MHz / QPSK

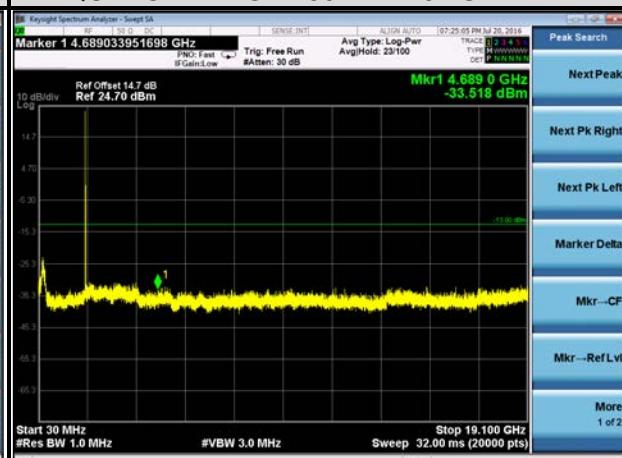
FREQUENCY RANGE : 30MHz~19.1GHz



### CHANNEL 18700

20MHz / QPSK

FREQUENCY RANGE : 30MHz~19.1GHz



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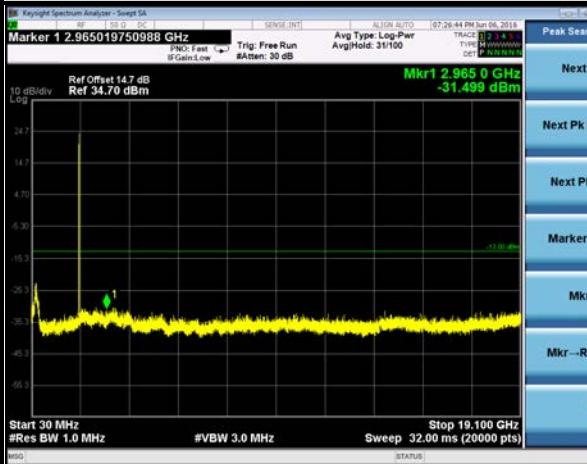
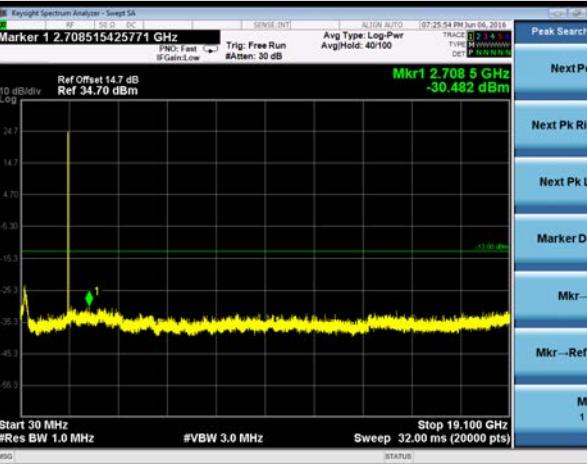
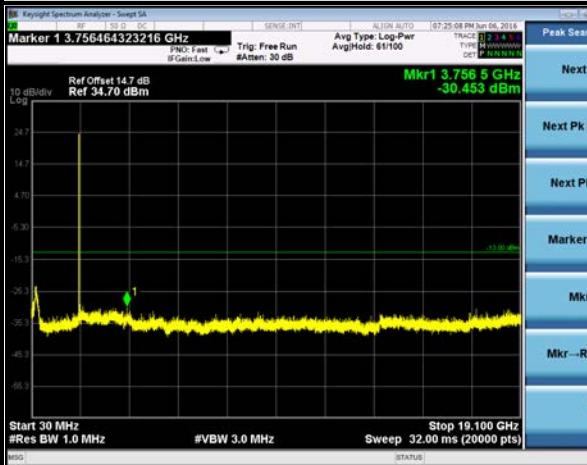
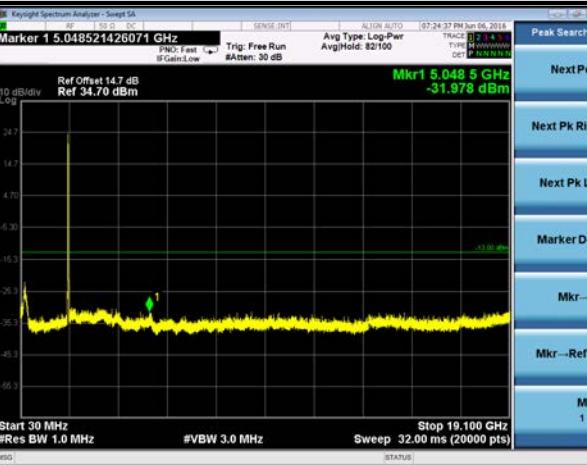
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## LTE BAND 2

CHANNEL 18900	CHANNEL 18900
5MHz / QPSK	10MHz / QPSK
FREQUENCY RANGE : 30MHz~19.1GHz	FREQUENCY RANGE : 30MHz~19.1GHz
	
CHANNEL 18900	CHANNEL 18900
15MHz / QPSK	20MHz / QPSK
FREQUENCY RANGE : 30MHz~19.1GHz	FREQUENCY RANGE : 30MHz~19.1GHz
	

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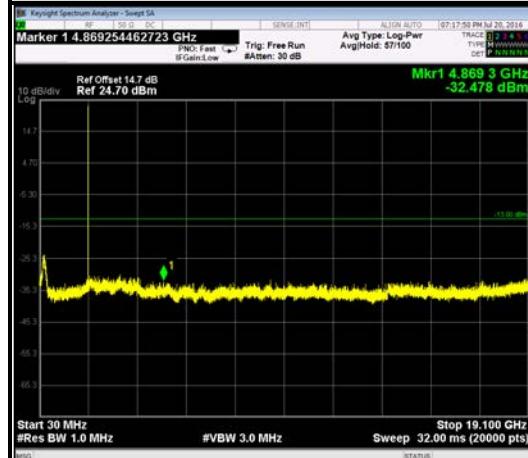
Test Report No.: RF160524W004-4

## LTE BAND 2

### CHANNEL 19193

1.4MHz / QPSK

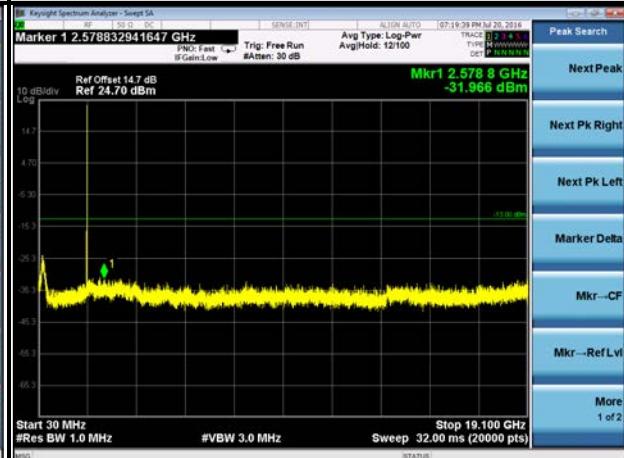
FREQUENCY RANGE : 30MHz~19.1GHz



### CHANNEL 19185

3MHz / QPSK

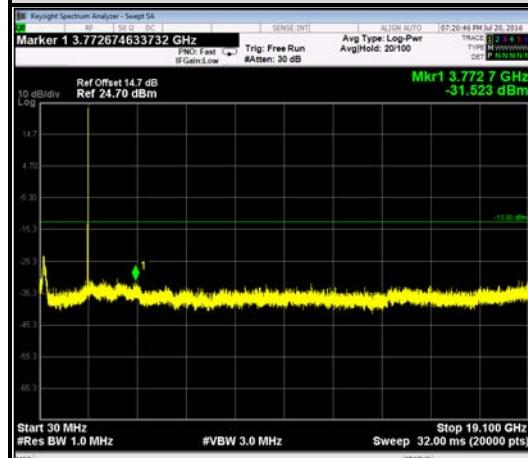
FREQUENCY RANGE : 30MHz~19.1GHz



### CHANNEL 19175

5MHz / QPSK

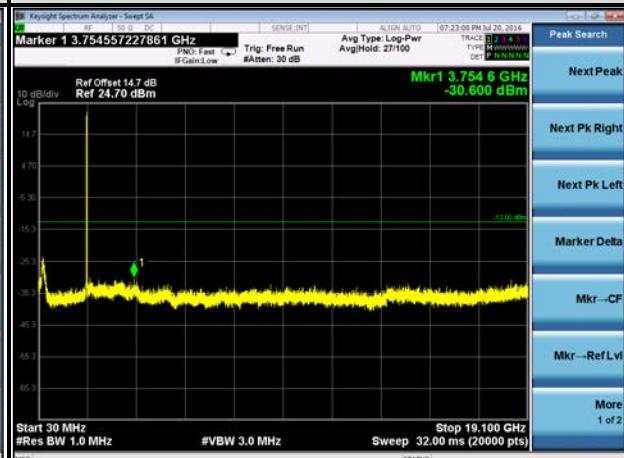
FREQUENCY RANGE : 30MHz~19.1GHz



### CHANNEL 19150

10MHz / QPSK

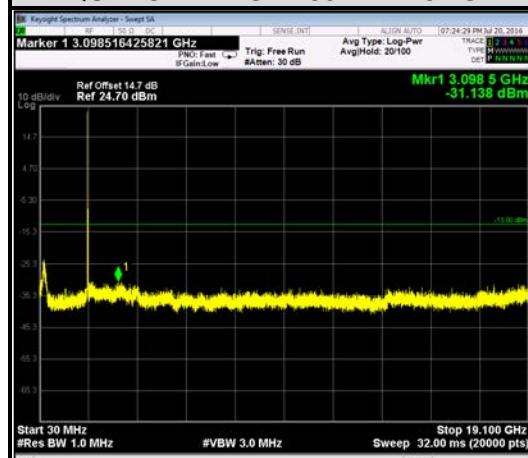
FREQUENCY RANGE : 30MHz~19.1GHz



### CHANNEL 19125

15MHz / QPSK

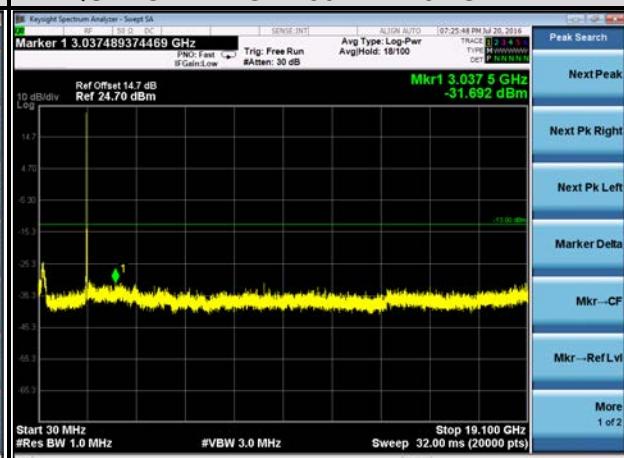
FREQUENCY RANGE : 30MHz~19.1GHz



### CHANNEL 19100

20MHz / QPSK

FREQUENCY RANGE : 30MHz~19.1GHz



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## 4.6 RADIATED EMISSION MEASUREMENT

### 4.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. The emission limit equal to  $-13\text{dBm}$ .

### 4.6.2 TEST PROCEDURES

- a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
- b. 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 a. Record the power level of S.G
- c.  $\text{EIRP} = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn.}$

**NOTE:** The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

### 4.6.3 DEVIATION FROM TEST STANDARD

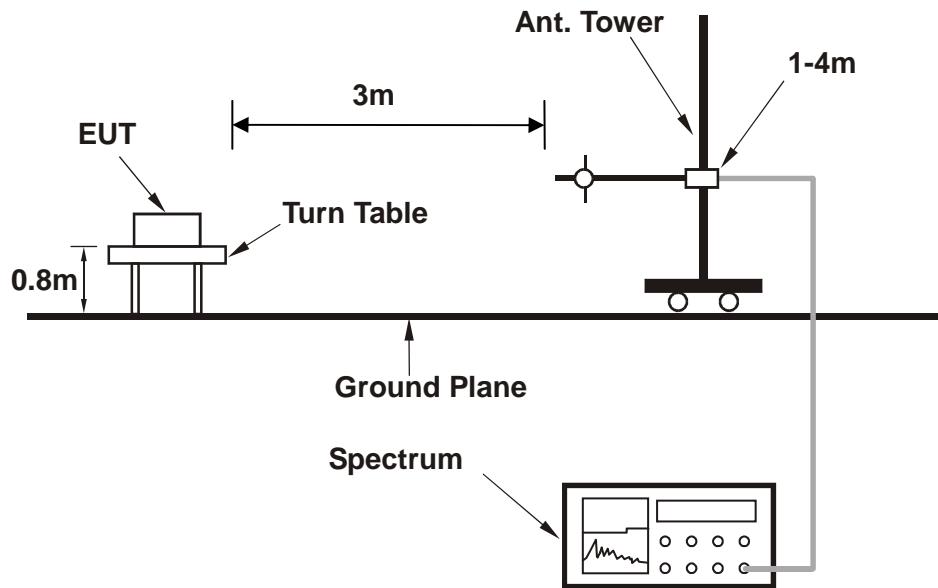
No deviation



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#### 4.6.4 TEST SETUP



For the actual test configuration, please refer to the attached file (Test Setup Photo).



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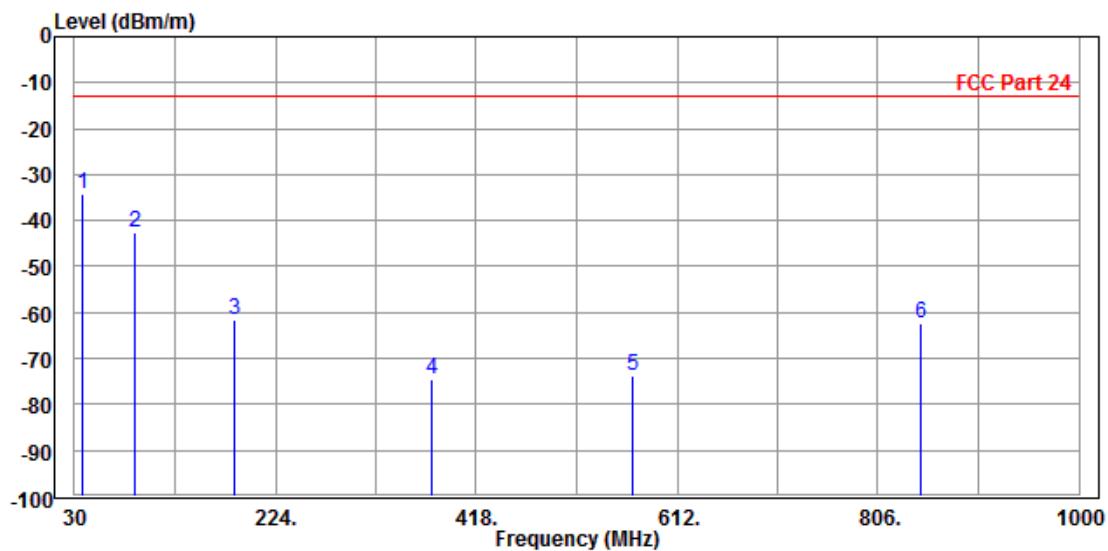
#### 4.6.5 TEST RESULTS

##### BELOW 1GHz WORST-CASE DATA

###### CDMA2000 BC1:

MODE	TX channel 600	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	26deg. C, 56%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Alex Chen		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Freq	Level	Read	Limit	Over	Factor	Remark	Pol/Phase
		Line	Line	Limit			
MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	37.760	-34.26	-46.50	-13.00	-21.26	12.24 Peak	Horizontal
2	88.200	-42.54	-33.74	-13.00	-29.54	-8.80 Peak	Horizontal
3	184.230	-61.72	-44.07	-13.00	-48.72	-17.65 Peak	Horizontal
4	374.350	-74.47	-63.15	-13.00	-61.47	-11.32 Peak	Horizontal
5	568.350	-73.94	-64.71	-13.00	-60.94	-9.23 Peak	Horizontal
6	847.710	-62.51	-58.69	-13.00	-49.51	-3.82 Peak	Horizontal



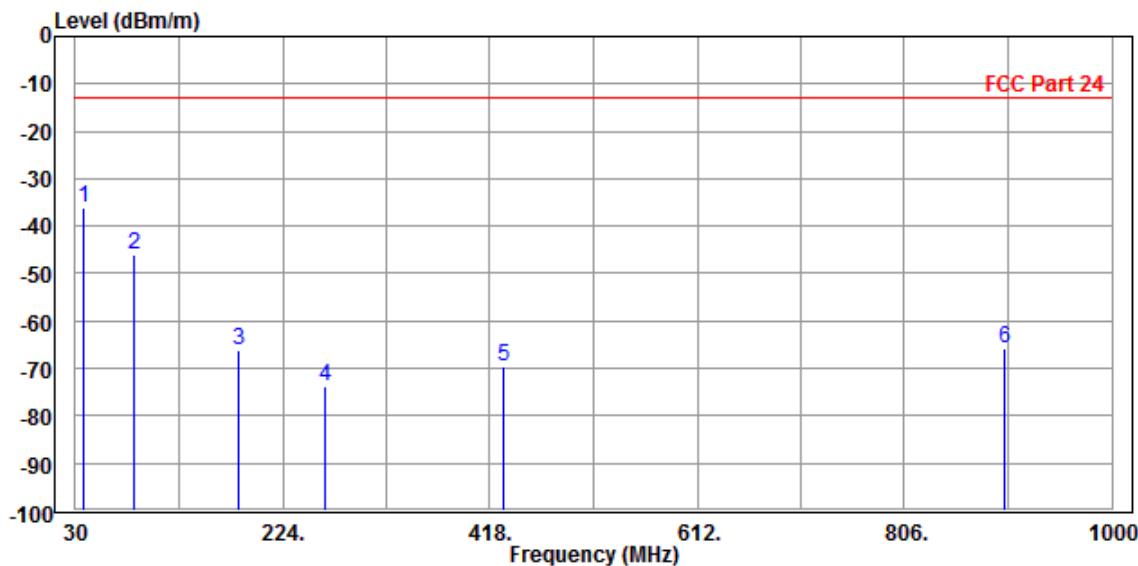


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Test Report No.: RF160524W004-4

MODE	TX channel 600	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	26deg. C, 56%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Alex Chen		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Freq	Level	Read	Limit	Over	Remark	Pol/Phase
		Line	dBm	dBm/m		
MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1 PP	37.760	-36.09	-34.79	-13.00	-23.09	-1.30 Peak Vertical
2	85.290	-46.03	-35.63	-13.00	-33.03	-10.40 Peak Vertical
3	182.290	-66.08	-53.20	-13.00	-53.08	-12.88 Peak Vertical
4	263.770	-73.68	-62.22	-13.00	-60.68	-11.46 Peak Vertical
5	430.610	-69.56	-59.75	-13.00	-56.56	-9.81 Peak Vertical
6	899.120	-65.83	-63.36	-13.00	-52.83	-2.47 Peak Vertical



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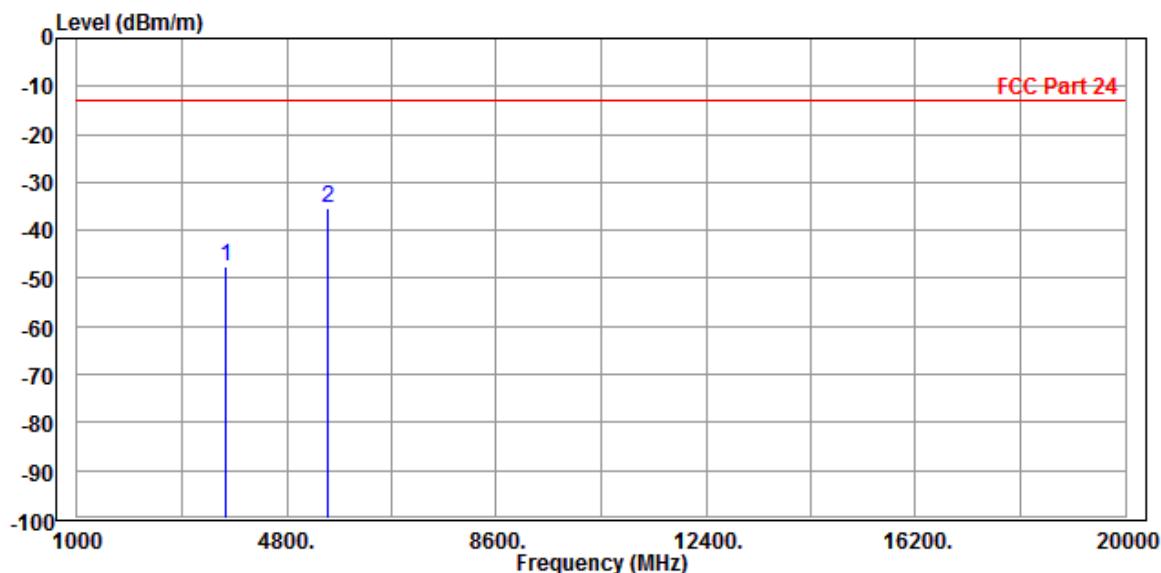
Test Report No.: RF160524W004-4

## ABOVE 1GHz DATA

### CDMA2000 BC1:

MODE	TX channel 25	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	26deg. C, 56%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Alex Chen		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Read Level	Limit Level	Over Line	Limit	Over Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3702.000	-47.36	-50.49	-13.00	-34.36	3.13	Peak	Horizontal
2	PP 5553.000	-35.45	-44.47	-13.00	-22.45	9.02	Peak	Horizontal



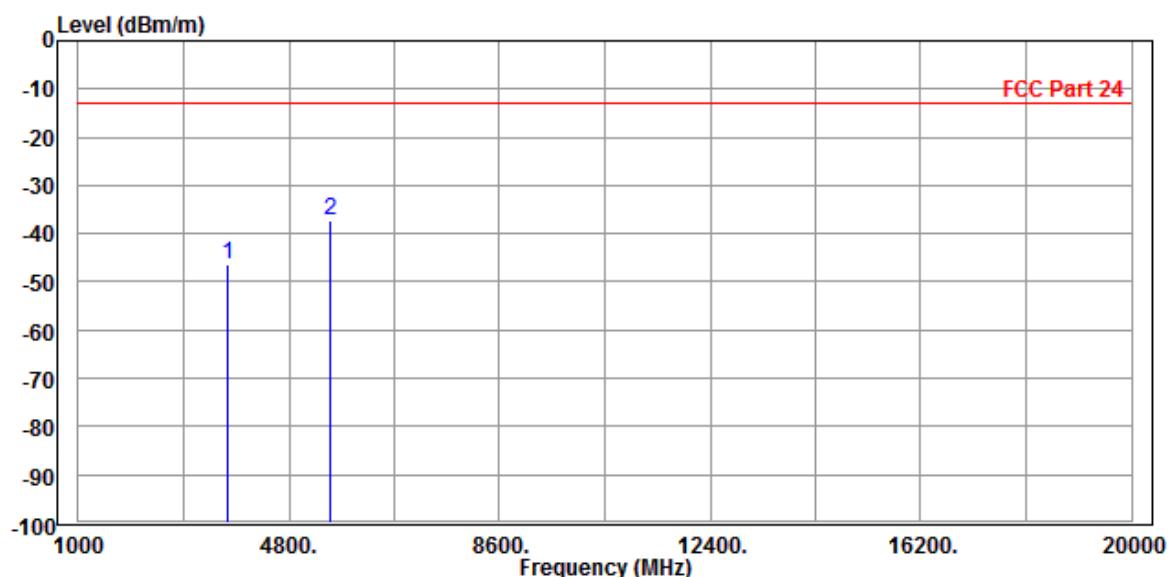


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Test Report No.: RF160524W004-4

MODE	TX channel 25	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	26deg. C, 56%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Alex Chen		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Freq MHz	Level dBm/m	Read Level	Limit Line	Over Limit	Over Factor	Remark	Pol/Phase
		dBm	dBm/m	dB	dB/m		
1 3702.000	-46.25	-49.84	-13.00	-33.25	3.59	Peak	Vertical
2 PP 5553.000	-37.24	-45.32	-13.00	-24.24	8.08	Peak	Vertical



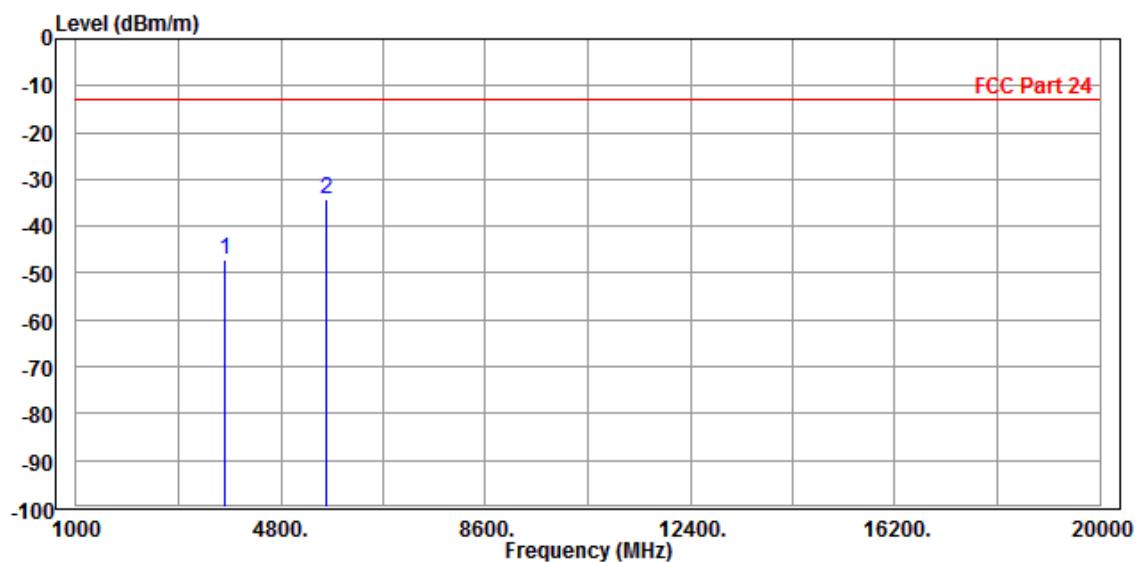


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Test Report No.: RF160524W004-4

MODE	TX channel 600	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	26deg. C, 56%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Alex Chen		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Read Level	Limit Level	Over Line	Limit	Over Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3755.000	-47.07	-50.46	-13.00	-34.07	3.39	Peak	Horizontal
2	PP 5640.000	-34.10	-43.22	-13.00	-21.10	9.12	Peak	Horizontal



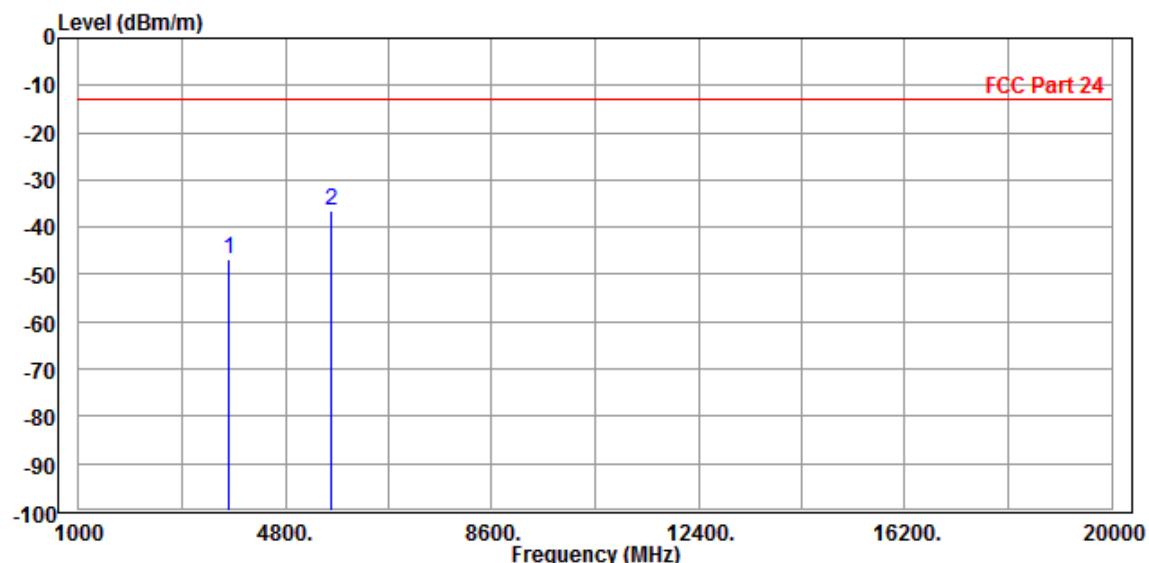


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Test Report No.: RF160524W004-4

MODE	TX channel 600	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	26deg. C, 56%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Alex Chen		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Freq	Level	Read	Limit	Over	Remark	Pol/Phase
		Level	Line	Limit Factor		
MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1	3755.000	-46.66	-50.51	-13.00	-33.66	3.85 Peak Vertical
2 PP	5640.000	-36.53	-44.79	-13.00	-23.53	8.26 Peak Vertical



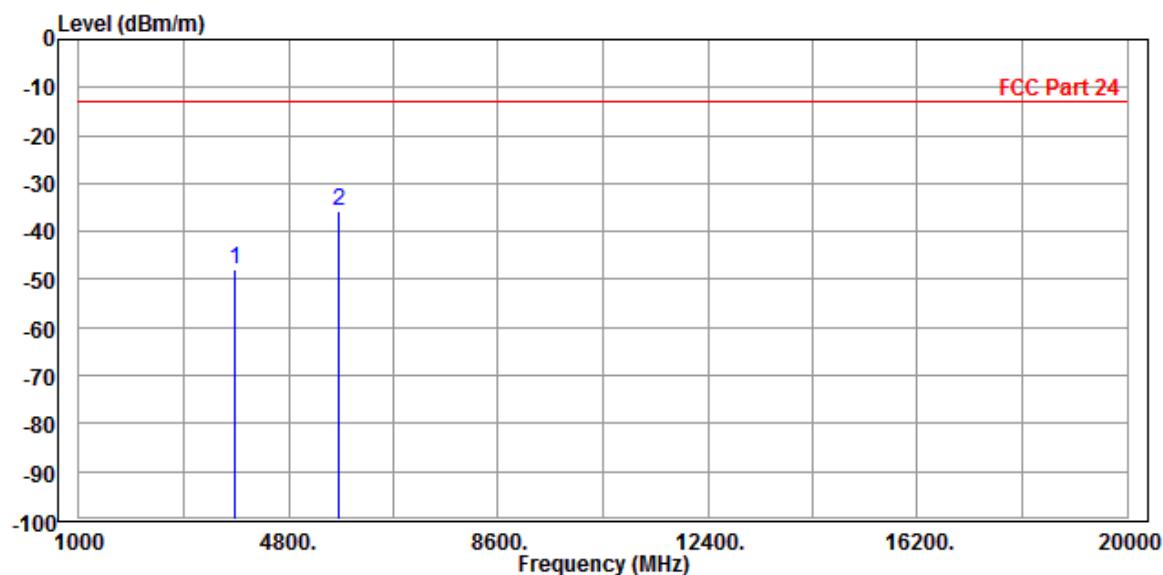


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Test Report No.: RF160524W004-4

MODE	TX channel 1175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	26deg. C, 56%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Alex Chen		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Freq	Level	Read	Limit	Over	Factor	Remark	Pol/Phase
		Line	Line	Limit			
MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3811.000	-47.96	-51.62	-13.00	-34.96	3.66 Peak	Horizontal
2	PP 5720.000	-35.68	-44.89	-13.00	-22.68	9.21 Peak	Horizontal



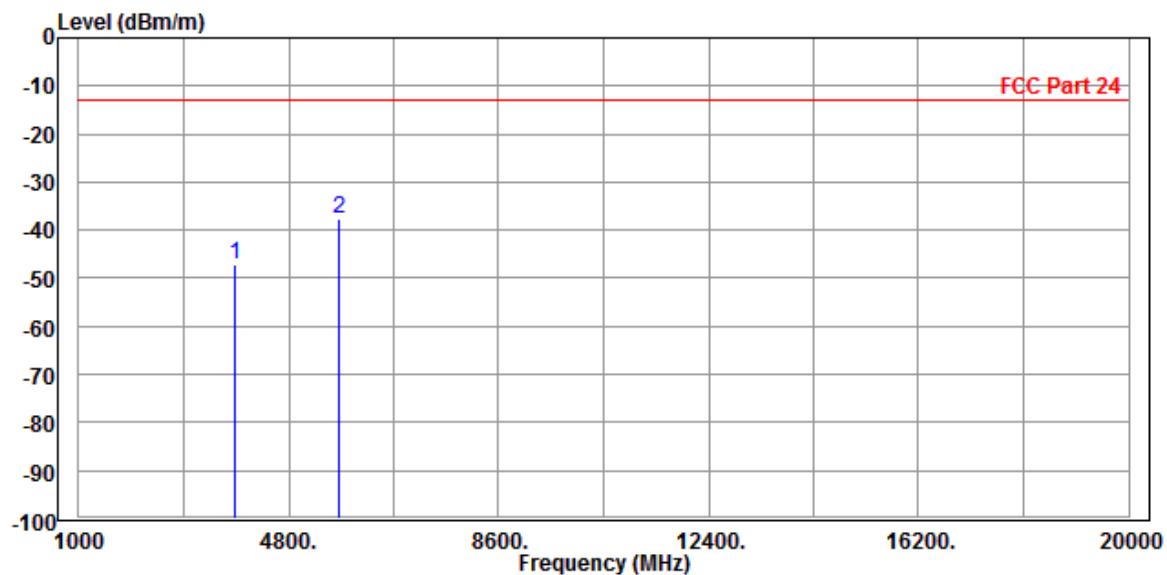


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Test Report No.: RF160524W004-4

MODE	TX channel 1175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	26deg. C, 56%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Alex Chen		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Freq	Level	Read	Limit	Over	Factor	Remark	Pol/Phase
		Line	dBm	dBm/m			
MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3811.000	-47.26	-51.39	-13.00	-34.26	4.13 Peak	Vertical
2	PP 5720.000	-37.48	-45.90	-13.00	-24.48	8.42 Peak	Vertical





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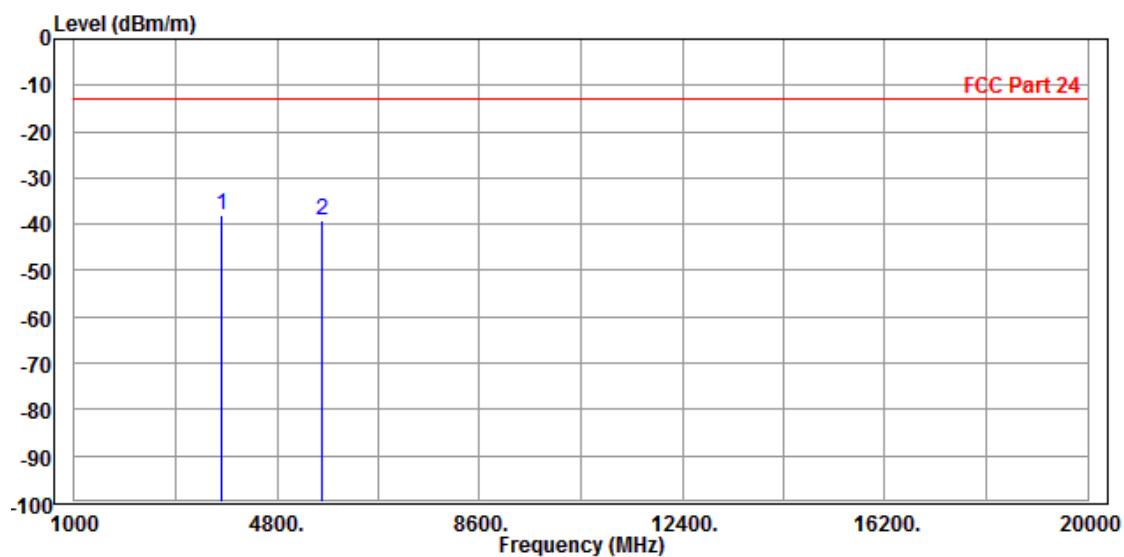
Test Report No.: RF160524W004-4

**LTE Band 2 data:** From EIRP/ERP test results, we chose worse modulation and Emission bandwidth (3MHz) to perform low/mid/high channel test, for other Bandwidth, only one mid channel test data was shown in the report.

**CHANNEL BANDWIDTH: 1.4MHz / QPSK**

MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	26deg. C, 56%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Alex Chen		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Freq	Level	Read	Limit	Over	Factor	Remark	Pol/Phase
		Level	Line	Limit			
MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP 3755.000	-38.13	-41.52	-13.00	-25.13	3.39	Peak	Horizontal
2 5640.000	-39.28	-48.40	-13.00	-26.28	9.12	Peak	Horizontal



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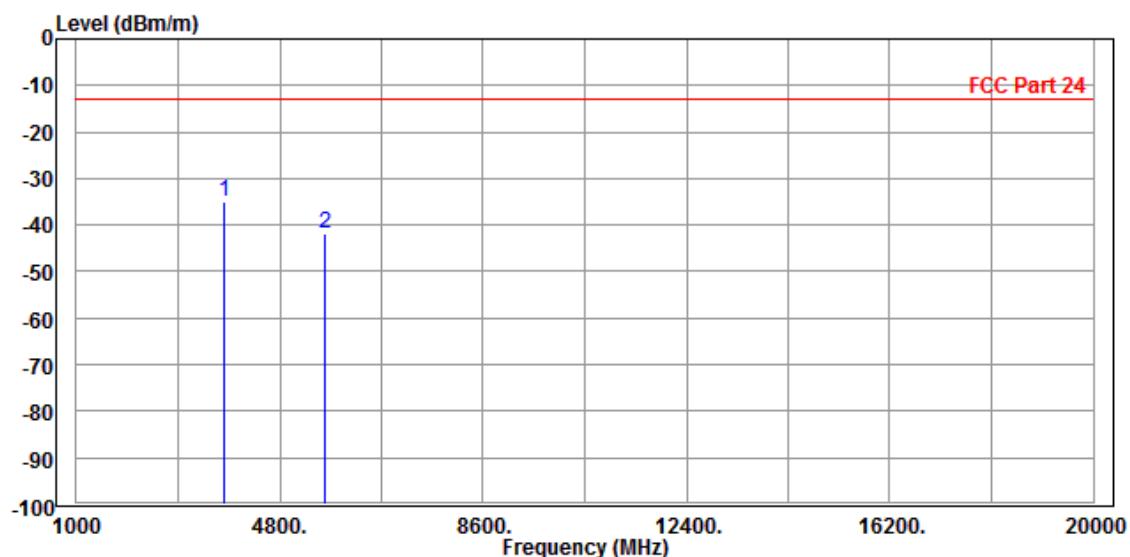


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Test Report No.: RF160524W004-4

MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	26deg. C, 56%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Alex Chen		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Freq	Level	Read	Limit	Over	Factor	Remark	Pol/Phase
		Level	Line	Limit			
MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP 3755.000	-34.86	-38.71	-13.00	-21.86	3.85	Peak	Vertical
2 5640.000	-41.83	-50.09	-13.00	-28.83	8.26	Peak	Vertical



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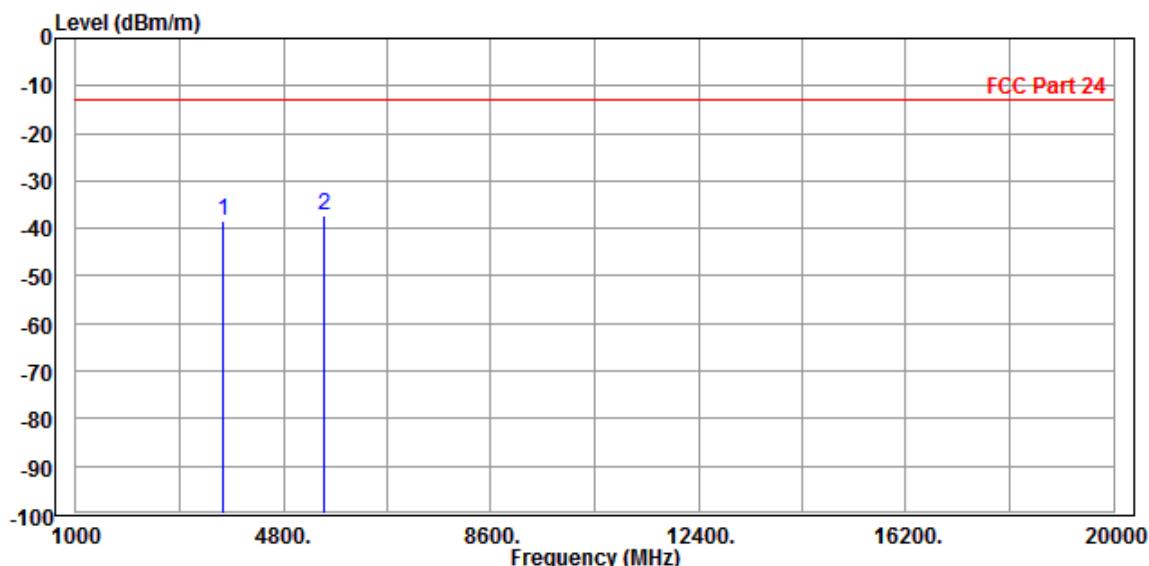
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Test Report No.: RF160524W004-4

CHANNEL BANDWIDTH: 3MHz / QPSK

MODE	TX channel 18615	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	26deg. C, 56%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Alex Chen		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Freq	Level	Read	Limit	Over	Factor	Remark	Pol/Phase
		Line	Limit	Factor			
1	3700.000	-38.52	-41.64	-13.00	-25.52	3.12 Peak	Horizontal
2 PP	5550.000	-37.42	-46.44	-13.00	-24.42	9.02 Peak	Horizontal



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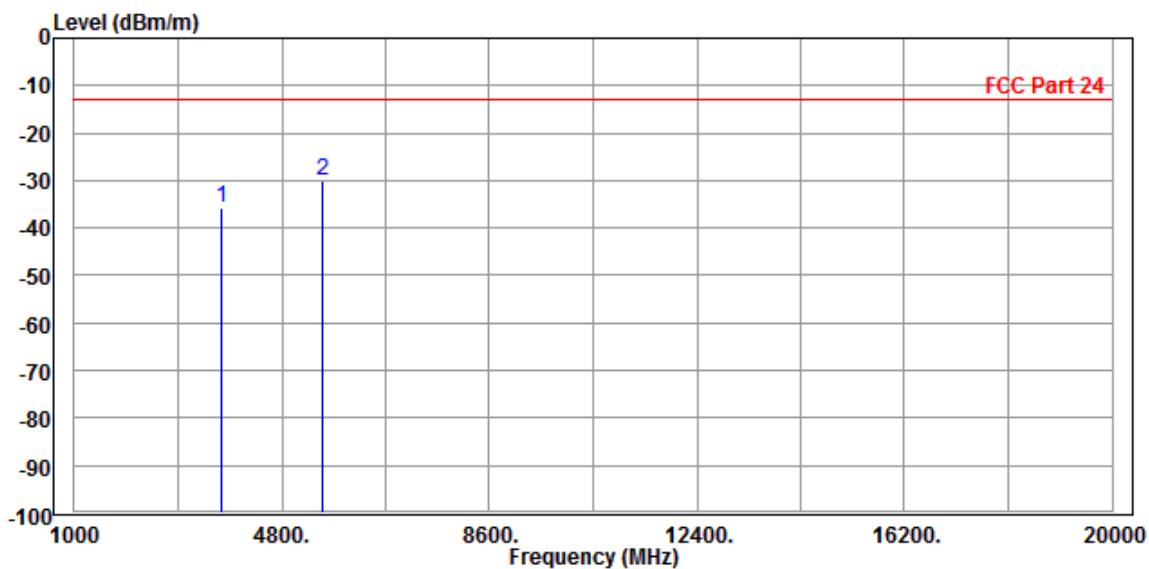


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Test Report No.: RF160524W004-4

MODE	TX channel 18615	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	26deg. C, 56%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Alex Chen		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Freq	Level	Read	Limit	Over	Factor	Remark	Pol/Phase
		Level	Line	Limit			
MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3700.000	-35.68	-39.26	-13.00	-22.68	3.58 Peak	Vertical
2 PP	5550.000	-30.02	-38.09	-13.00	-17.02	8.07 Peak	Vertical



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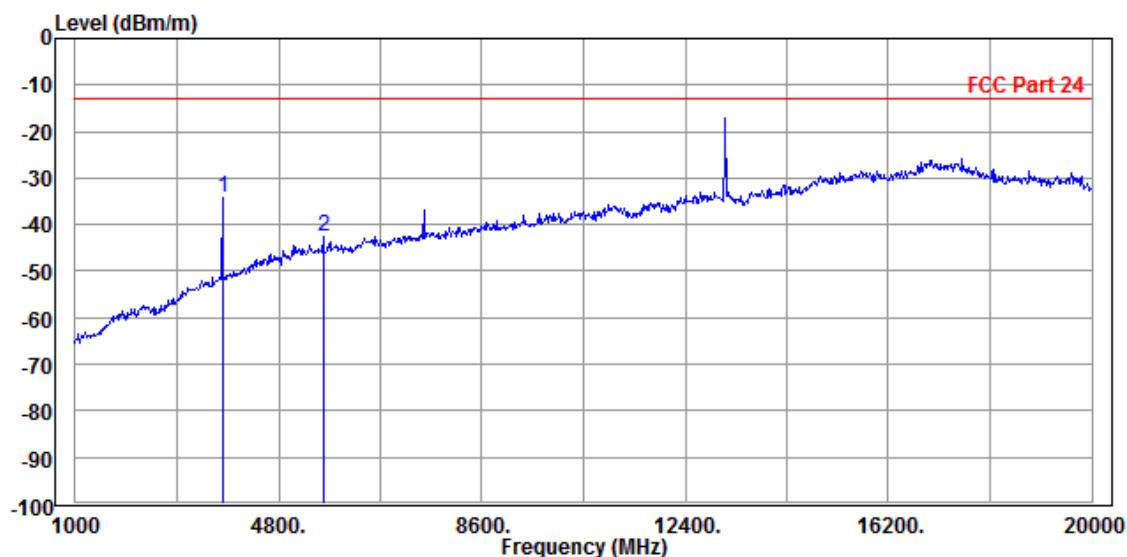


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Test Report No.: RF160524W004-4

MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	26deg. C, 56%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Alex Chen		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Freq	Level	Read	Limit	Over	Remark	Pol/Phase
		Line	dBm/m	dB		
MHz	dBm/m	dBM	dBm/m	dB	dB/m	
1 PP 3755.000	-34.21	-37.60	-13.00	-21.21	3.39 Peak	Horizontal
2 5636.000	-42.74	-51.86	-13.00	-29.74	9.12 Peak	Horizontal



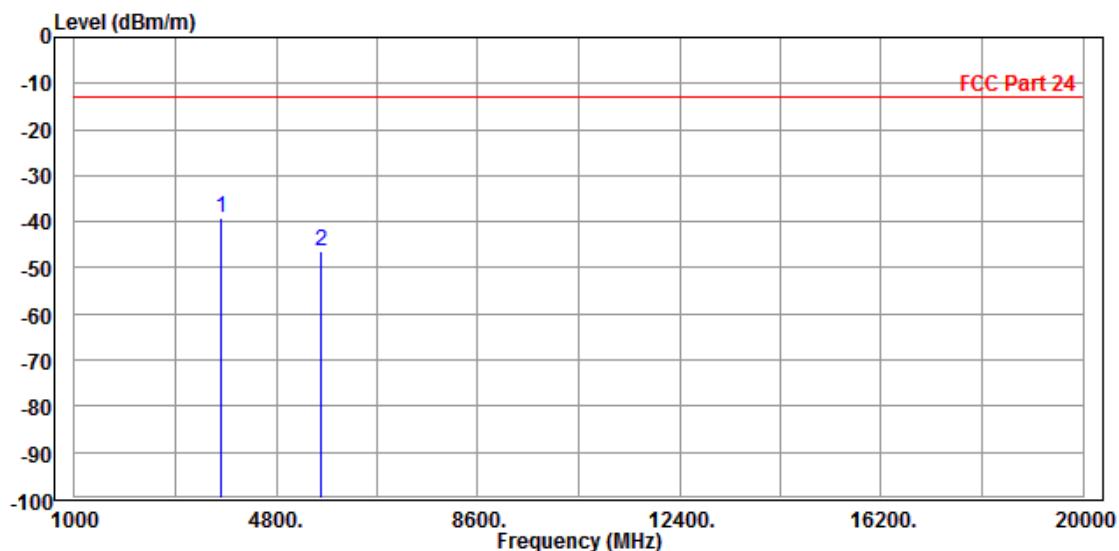


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Test Report No.: RF160524W004-4

MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	26deg. C, 56%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Alex Chen		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Freq	Level	Read	Limit	Over	Factor	Remark	Pol/Phase
		Level	Line	Limit			
MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	3755.000	-39.19	-43.04	-13.00	-26.19	3.85 Peak	Vertical
2	5640.000	-46.47	-54.73	-13.00	-33.47	8.26 Peak	Vertical



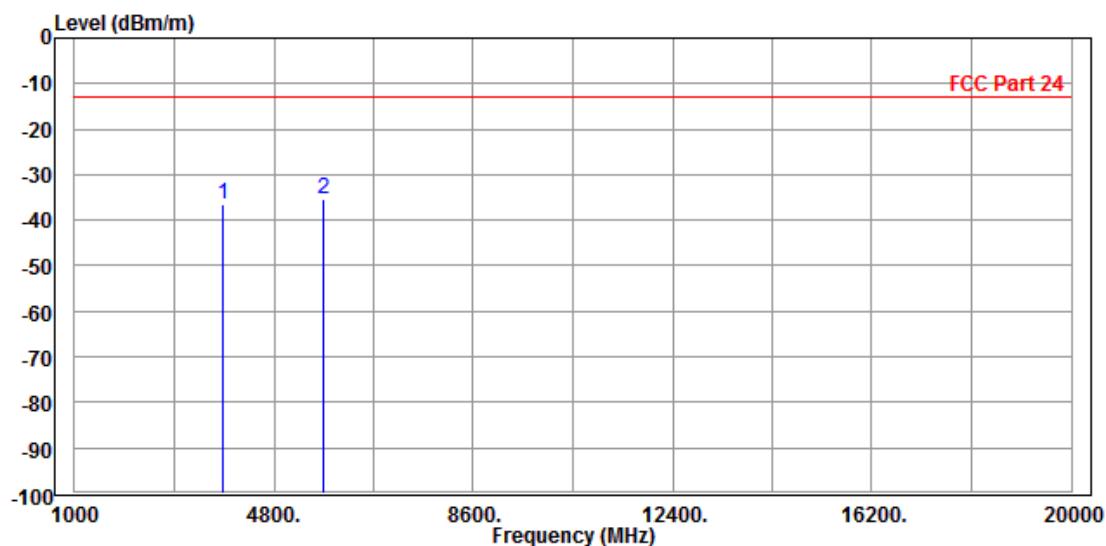


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Test Report No.: RF160524W004-4

MODE	TX channel 19185	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	26deg. C, 56%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Alex Chen		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Freq MHz	Read Level dBm/m	Limit Level dBm	Over Line dBm/m	Over Limit dB	Over Factor	Remark	Pol/Phase
1 3820.000	-36.56	-40.26	-13.00	-23.56	3.70	Peak	Horizontal
2 PP 5730.000	-35.23	-44.45	-13.00	-22.23	9.22	Peak	Horizontal



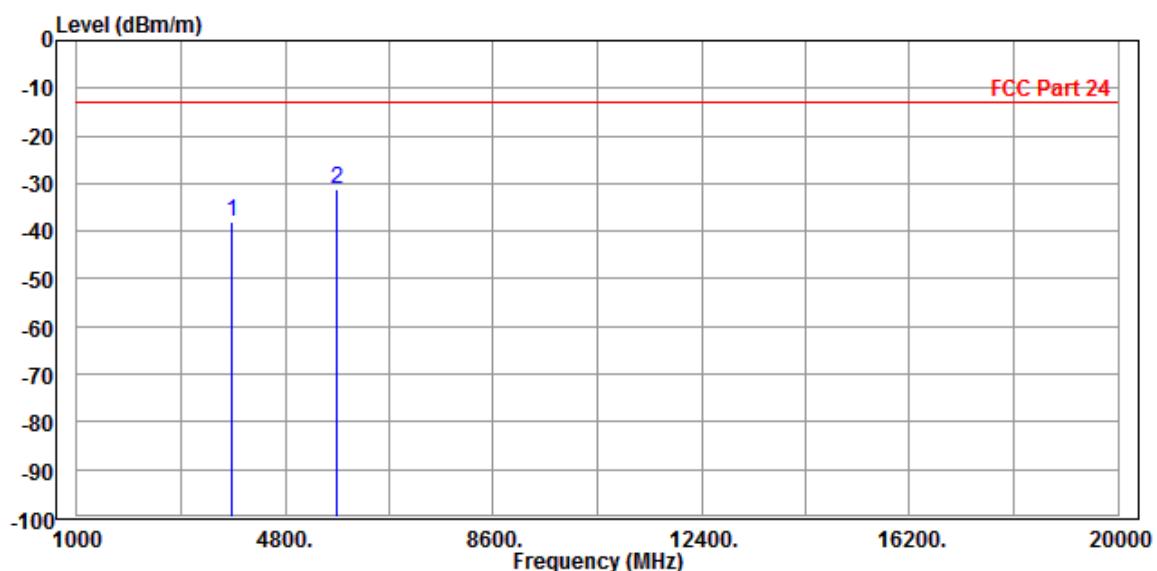


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Test Report No.: RF160524W004-4

MODE	TX channel 19185	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	26deg. C, 56%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Alex Chen		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

	Freq	Read Level	Limit Level	Over Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3820.000	-37.95	-42.13	-13.00	-24.95	4.18	Peak	Vertical
2 PP	5730.000	-31.12	-39.56	-13.00	-18.12	8.44	Peak	Vertical



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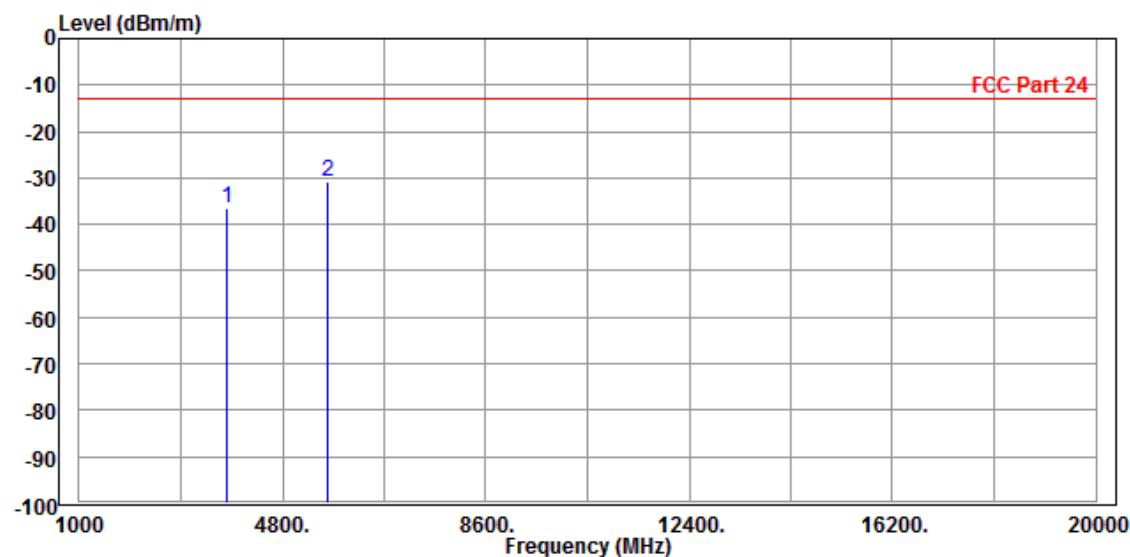
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Test Report No.: RF160524W004-4

CHANNEL BANDWIDTH: 5MHz / QPSK

MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	26deg. C, 56%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Alex Chen		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Freq	Level	Read	Limit	Over	Factor	Remark	Pol/Phase
		Level	Line	Limit			
MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3755.000	-36.48	-39.87	-13.00	-23.48	3.39 Peak	Horizontal
2 PP	5640.000	-30.67	-39.79	-13.00	-17.67	9.12 Peak	Horizontal



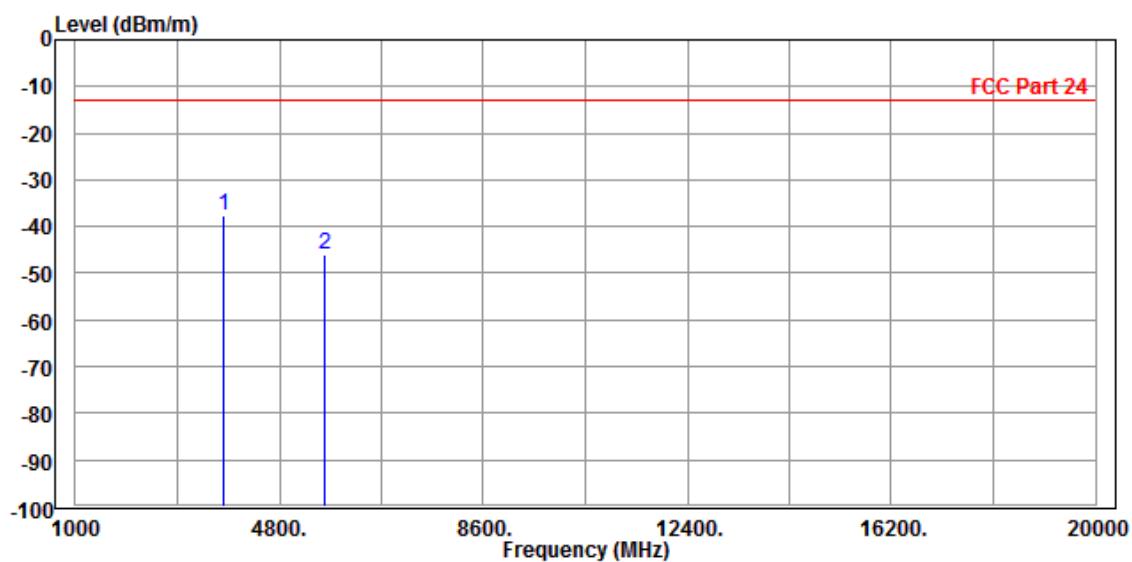


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Test Report No.: RF160524W004-4

MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	26deg. C, 56%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Alex Chen		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Freq MHz	Level dBm/m	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		dBm	dBm/m	dB			
1 PP 3755.000	-37.60	-41.45	-13.00	-24.60	3.85	Peak	Vertical
2 5640.000	-46.08	-54.34	-13.00	-33.08	8.26	Peak	Vertical



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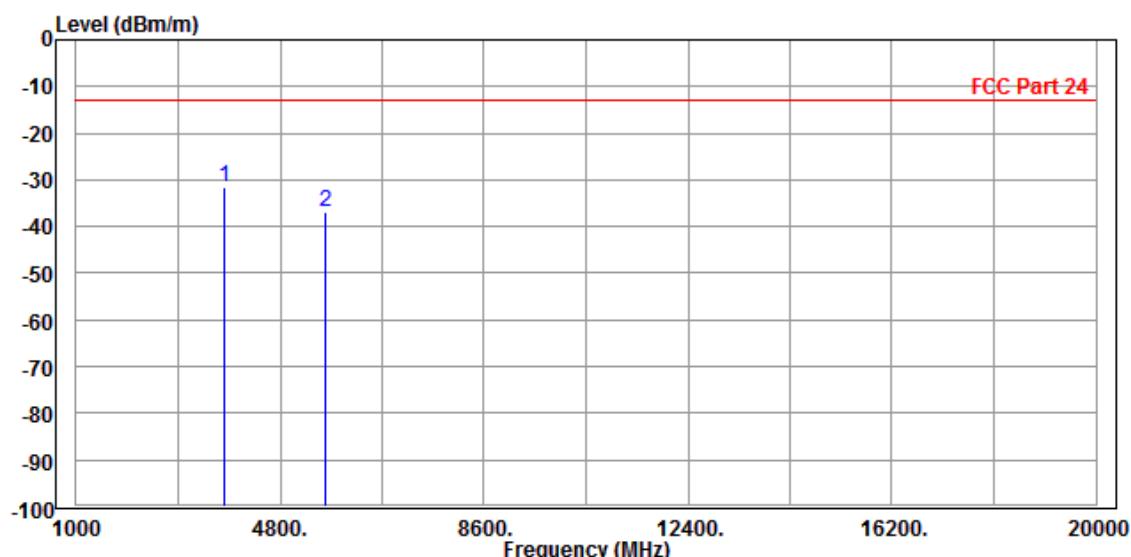
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Test Report No.: RF160524W004-4

CHANNEL BANDWIDTH: 10MHz / QPSK

MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	26deg. C, 56%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Alex Chen		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Freq MHz	Level dBm/m	Read Level dBm	Read Line dBm/m	Limit Line dBm/m	Over Limit Factor	Remark	Pol/Phase
			dB	dB/m			
1 PP 3755.000	-31.67	-35.06	-13.00	-18.67	3.39	Peak	Horizontal
2 5640.000	-36.87	-45.99	-13.00	-23.87	9.12	Peak	Horizontal



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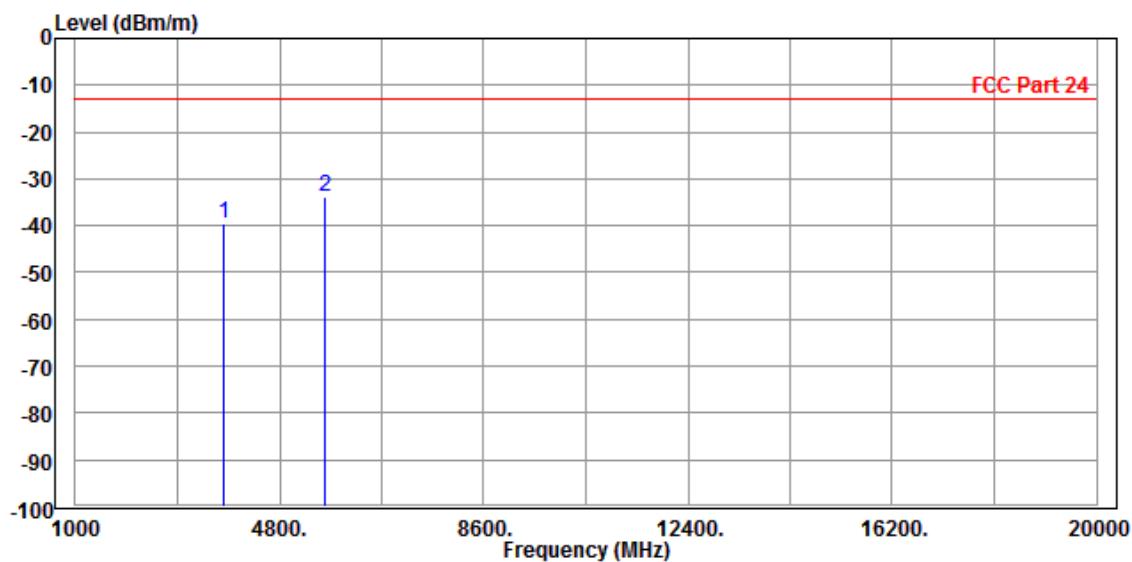


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Test Report No.: RF160524W004-4

MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	26deg. C, 56%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Alex Chen		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

	Freq	Read Level	Limit Level	Over Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3755.000	-39.51	-43.36	-13.00	-26.51	3.85	Peak	Vertical
2	PP 5640.000	-33.82	-42.08	-13.00	-20.82	8.26	Peak	Vertical



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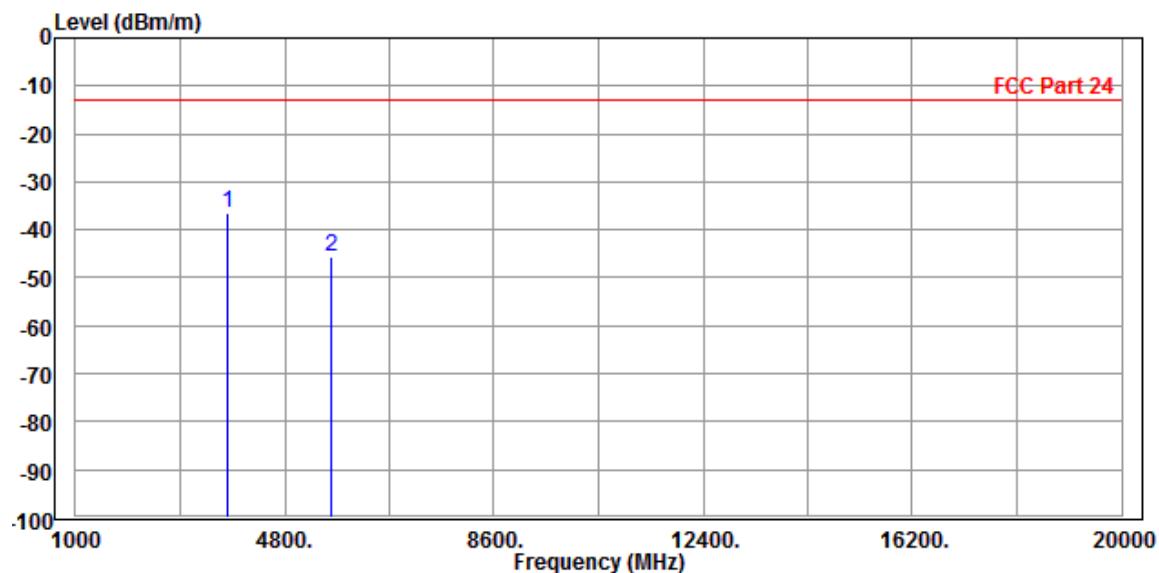
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Test Report No.: RF160524W004-4

CHANNEL BANDWIDTH: 15MHz / QPSK

MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	26deg. C, 56%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Alex Chen		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Freq MHz	Level dBm/m	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		dBm	dBm/m	dB			
1 PP 3755.000	-36.36	-39.75	-13.00	-23.36	3.39	Peak	Horizontal
2 5640.000	-45.63	-54.75	-13.00	-32.63	9.12	Peak	Horizontal



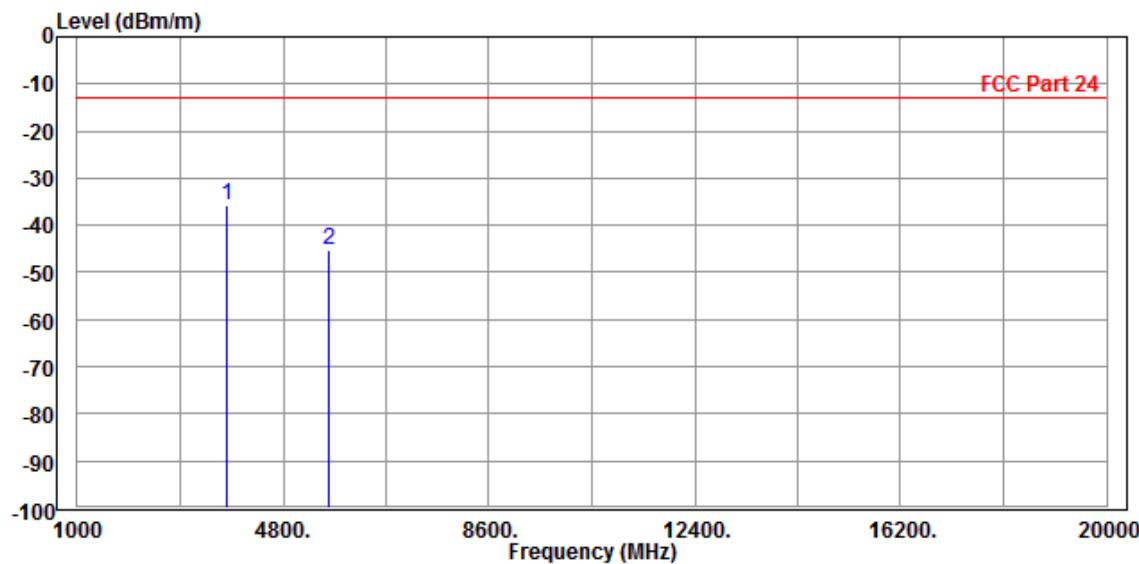


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Test Report No.: RF160524W004-4

MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	26deg. C, 56%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Alex Chen		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Freq MHz	Level dBm/m	Read Level dBm	Read	Limit	Over	Remark	Pol/Phase
			Line	dBm/m	dB		
1 PP 3755.000	-35.58	-39.43	-13.00	-22.58	3.85	Peak	Vertical
2 5640.000	-45.23	-53.49	-13.00	-32.23	8.26	Peak	Vertical





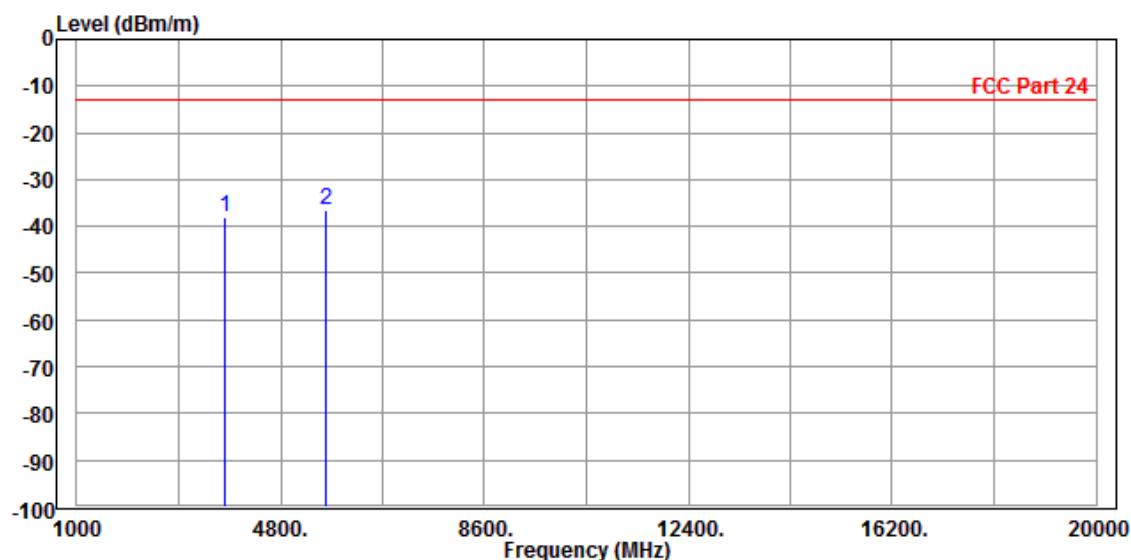
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Test Report No.: RF160524W004-4

CHANNEL BANDWIDTH: 20MHz / QPSK

MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	26deg. C, 56%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Alex Chen		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Freq MHz	Level dBm/m	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		dBm	dBm/m	dB			
1 3760.000	-37.87	-41.28	-13.00	-24.87	3.41	Peak	Horizontal
2 PP 5640.000	-36.41	-45.53	-13.00	-23.41	9.12	Peak	Horizontal



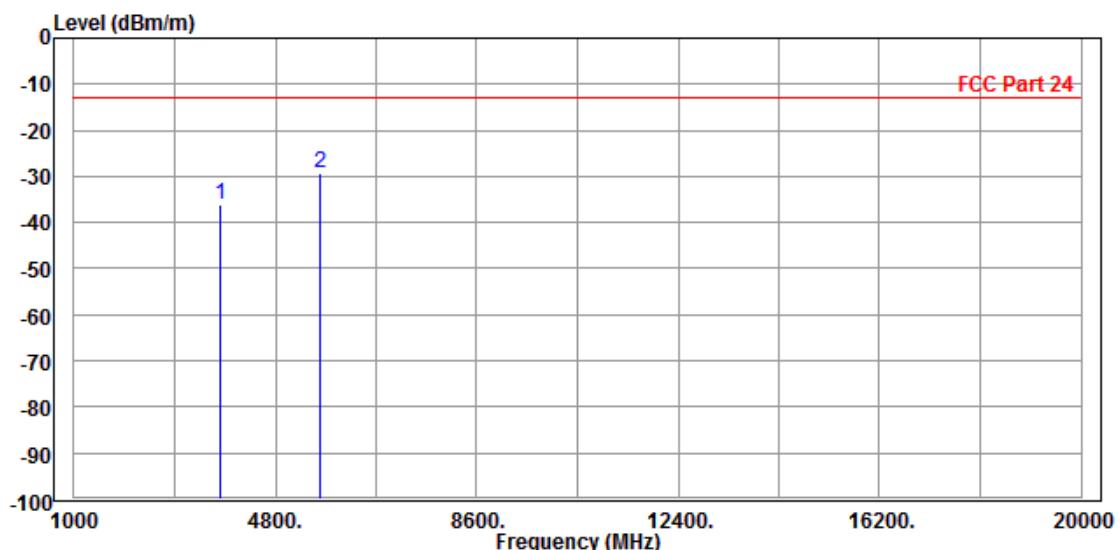


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Test Report No.: RF160524W004-4

MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	26deg. C, 56%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Alex Chen		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Freq	Level	Read	Limit	Over	Remark	Pol/Phase
		Level	Line	Limit Factor		
MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1	3760.000	-36.28	-40.16	-13.00	-23.28	3.88 Peak Vertical
2	PP 5640.000	-29.36	-37.62	-13.00	-16.36	8.26 Peak Vertical



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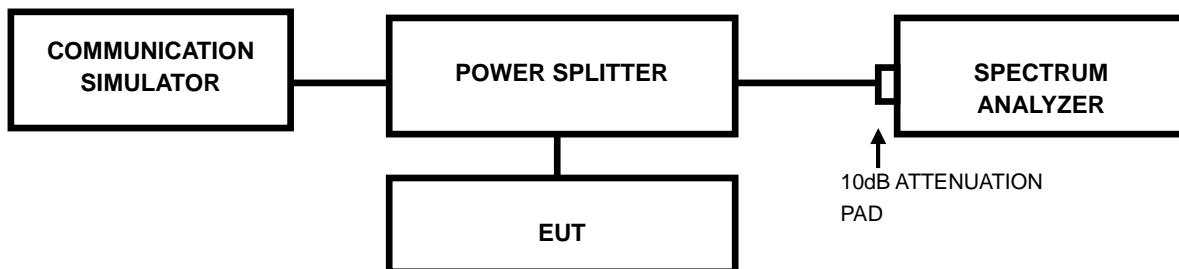
Test Report No.: RF160524W004-4

## 4.7 PEAK TO AVERAGE RATIO

### 4.7.1 LIMITS OF peak to average ratio MEASUREMENT

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB

### 4.7.2 TEST SETUP



### 4.7.3 TEST PROCEDURES

1. Set resolution/measurement bandwidth  $\geq$  signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Record the maximum PAPR level associated with a probability of 0.1%.



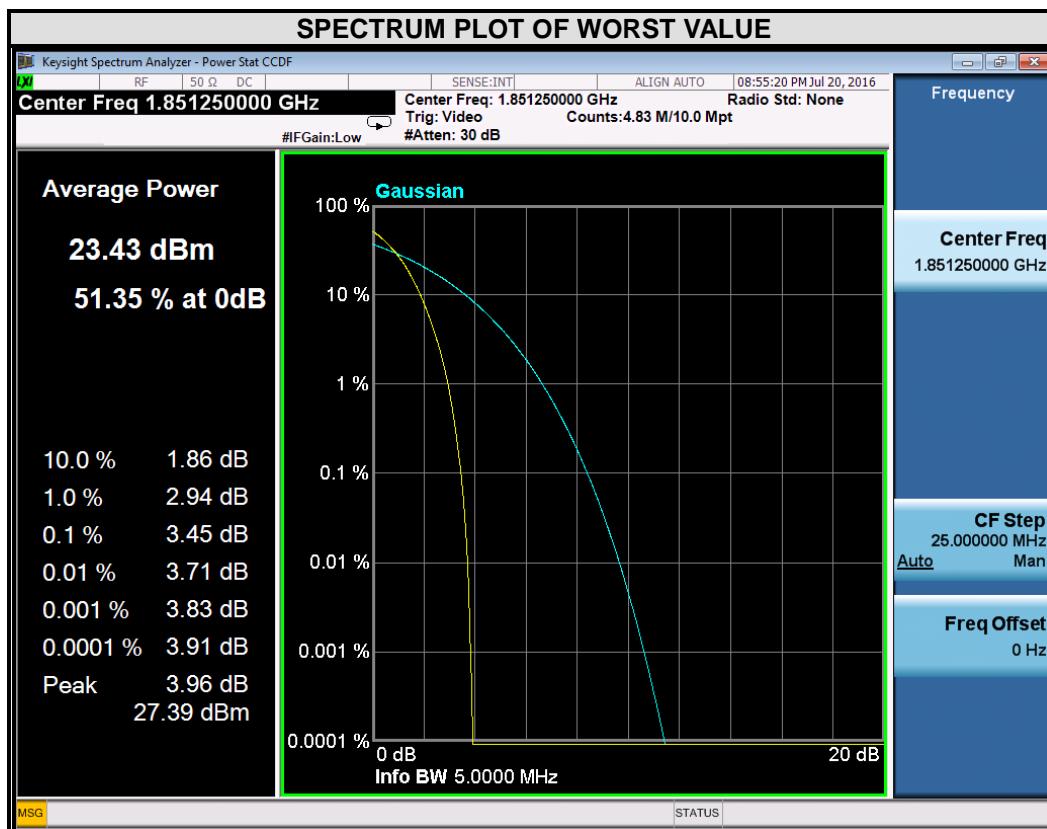
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#### 4.7.4 TEST RESULTS

##### CDMA BC 1

CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
25	1851.25	3.45



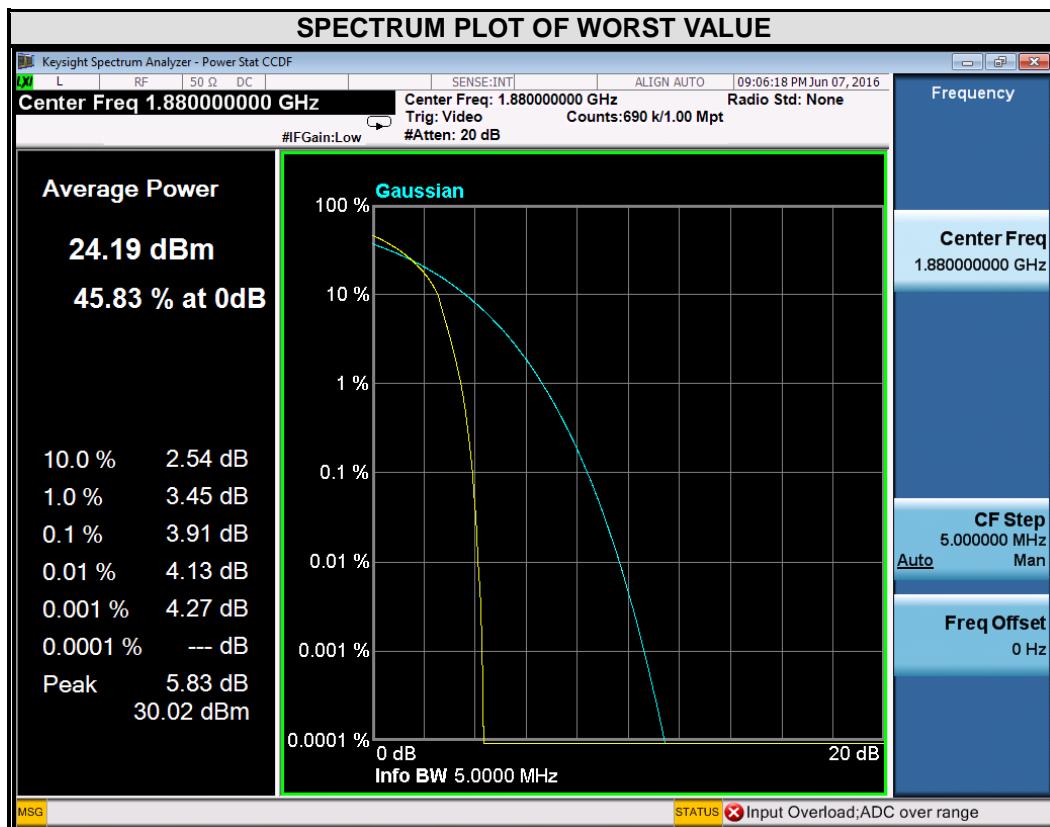


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## CDMA BC 1

CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
600	1880	3.91



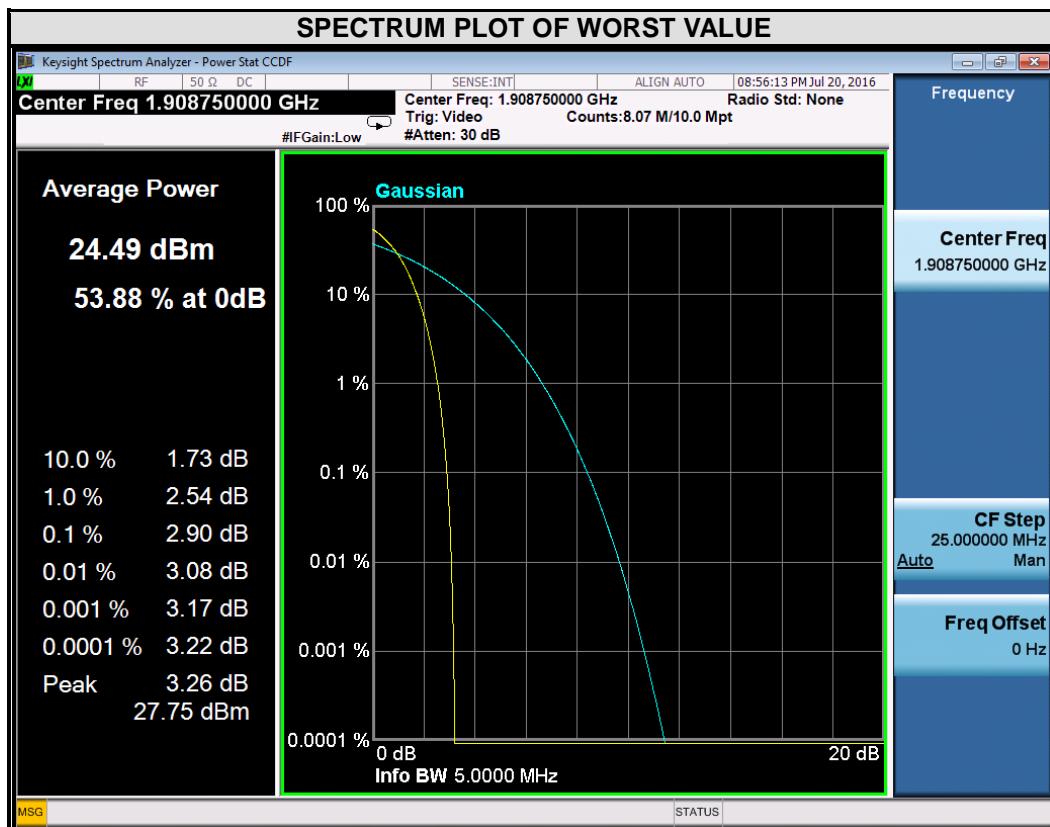


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## CDMA BC 1

CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
1175	1908.75	2.90



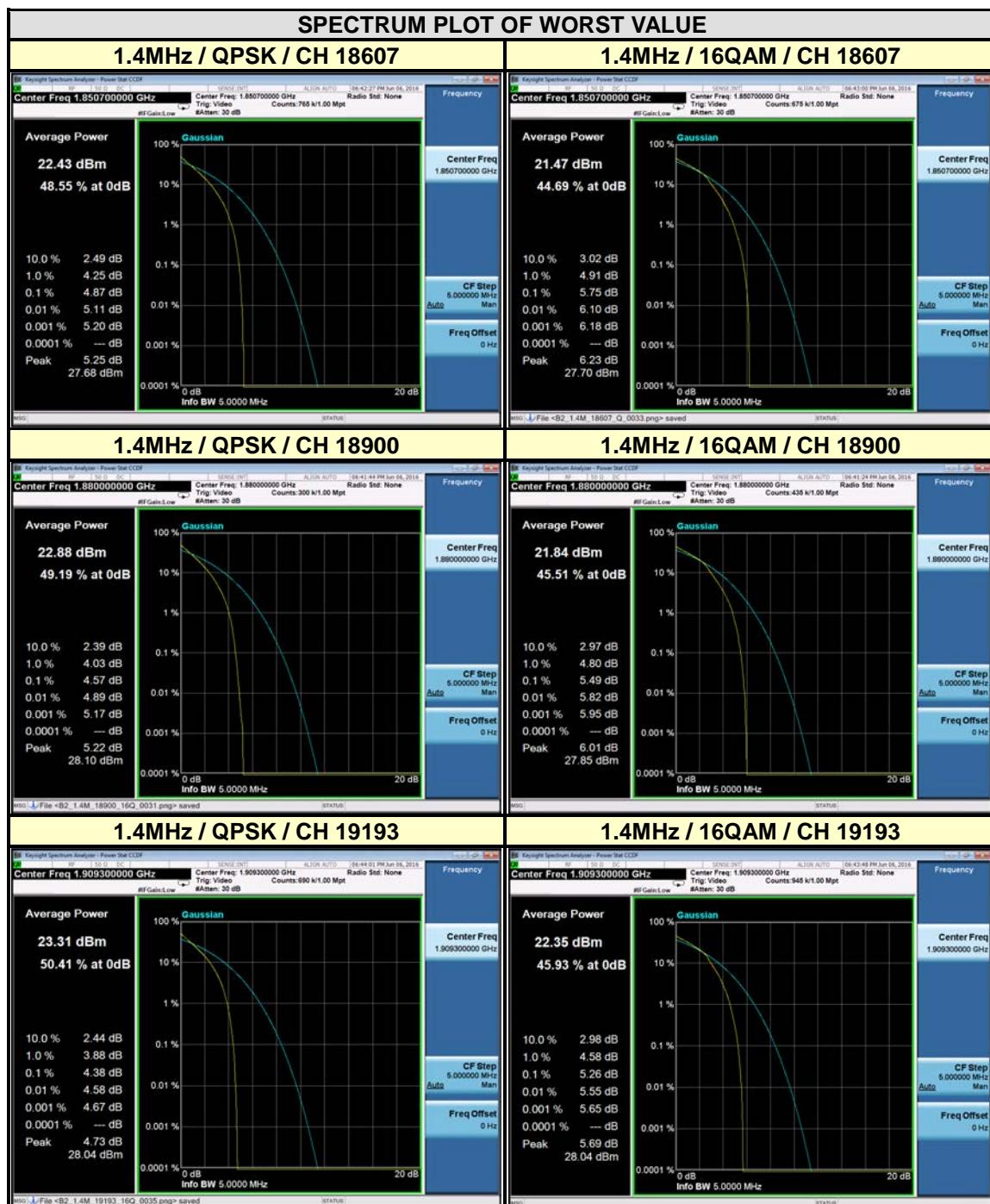


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## LTE BAND 2

CHANNEL BANDWIDTH: 1.4MHz			CHANNEL BANDWIDTH: 3MHz		
CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)	CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
		QPSK			QPSK
18607	1850.7	4.87	18615	1851.5	5.08
18900	1880	4.57	18900	1880	4.77
19193	1909.3	4.38	19185	1908.5	4.66



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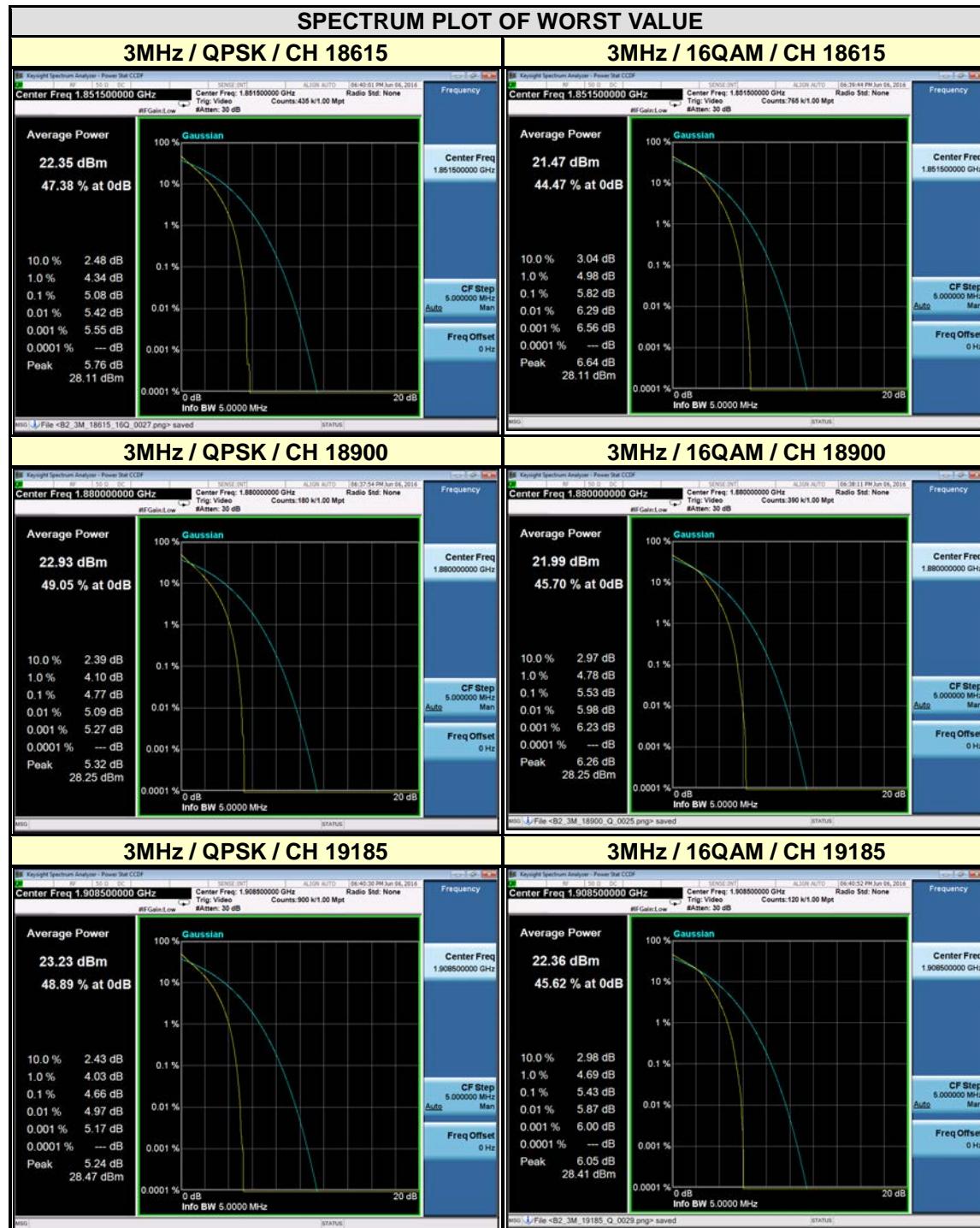
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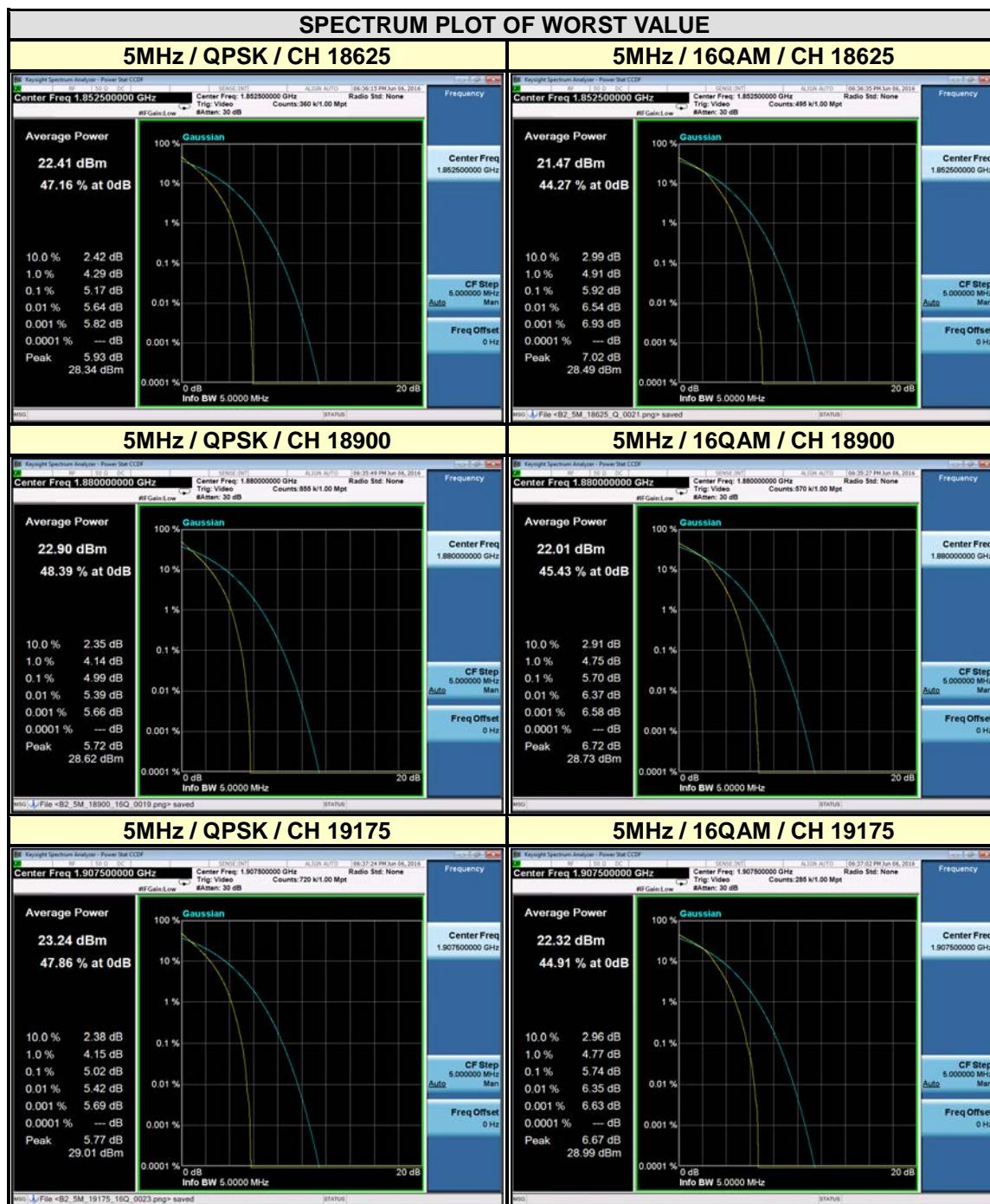
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CHANNEL BANDWIDTH: 5MHz				CHANNEL BANDWIDTH: 10MHz			
CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)		CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)	
		QPSK	16QAM			QPSK	16QAM
18625	1852.5	5.17	5.92	18650	1855	4.87	5.81
18900	1880	4.99	5.70	18900	1880	4.58	5.42
19175	1907.5	5.02	5.74	19150	1905	4.84	5.60



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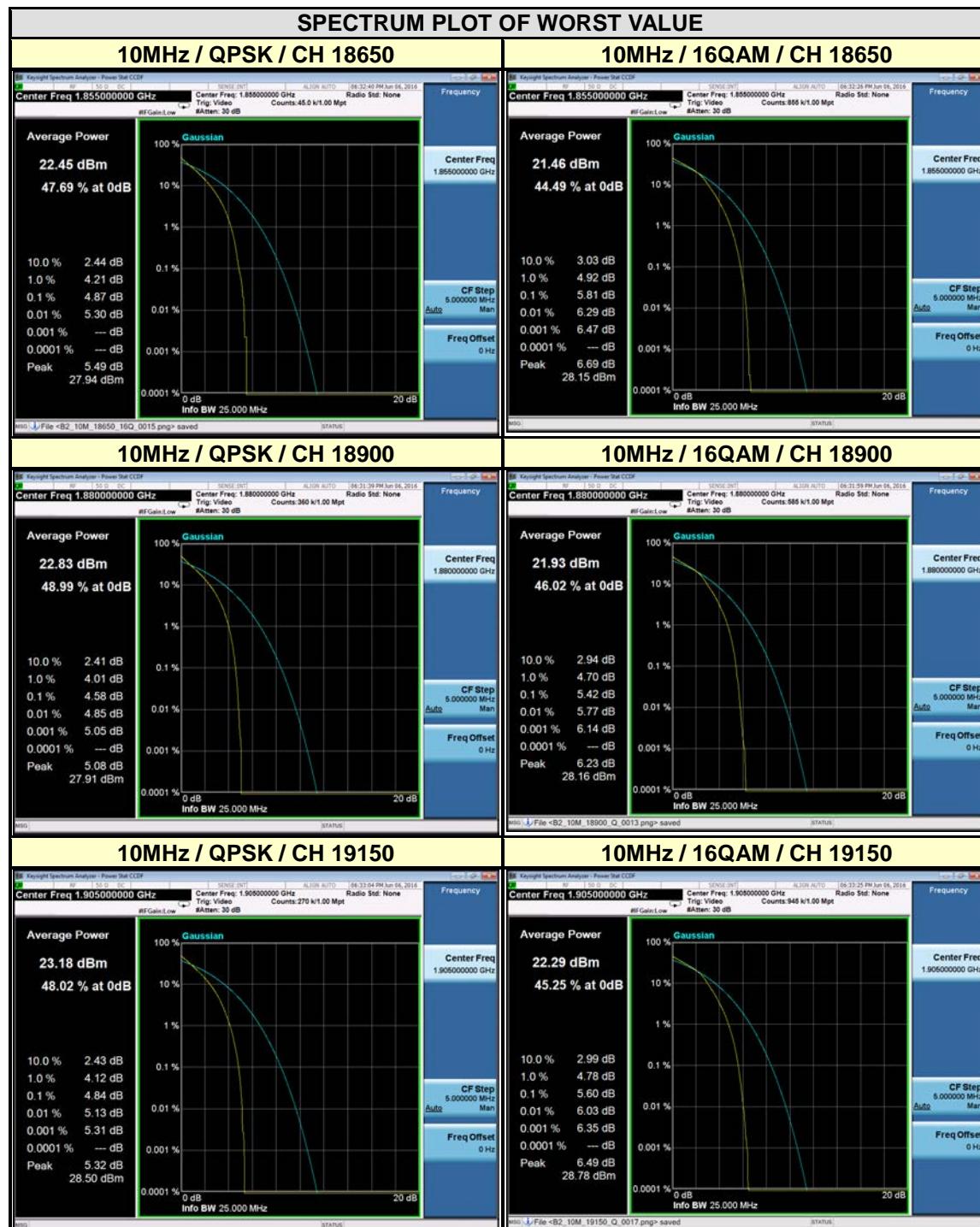
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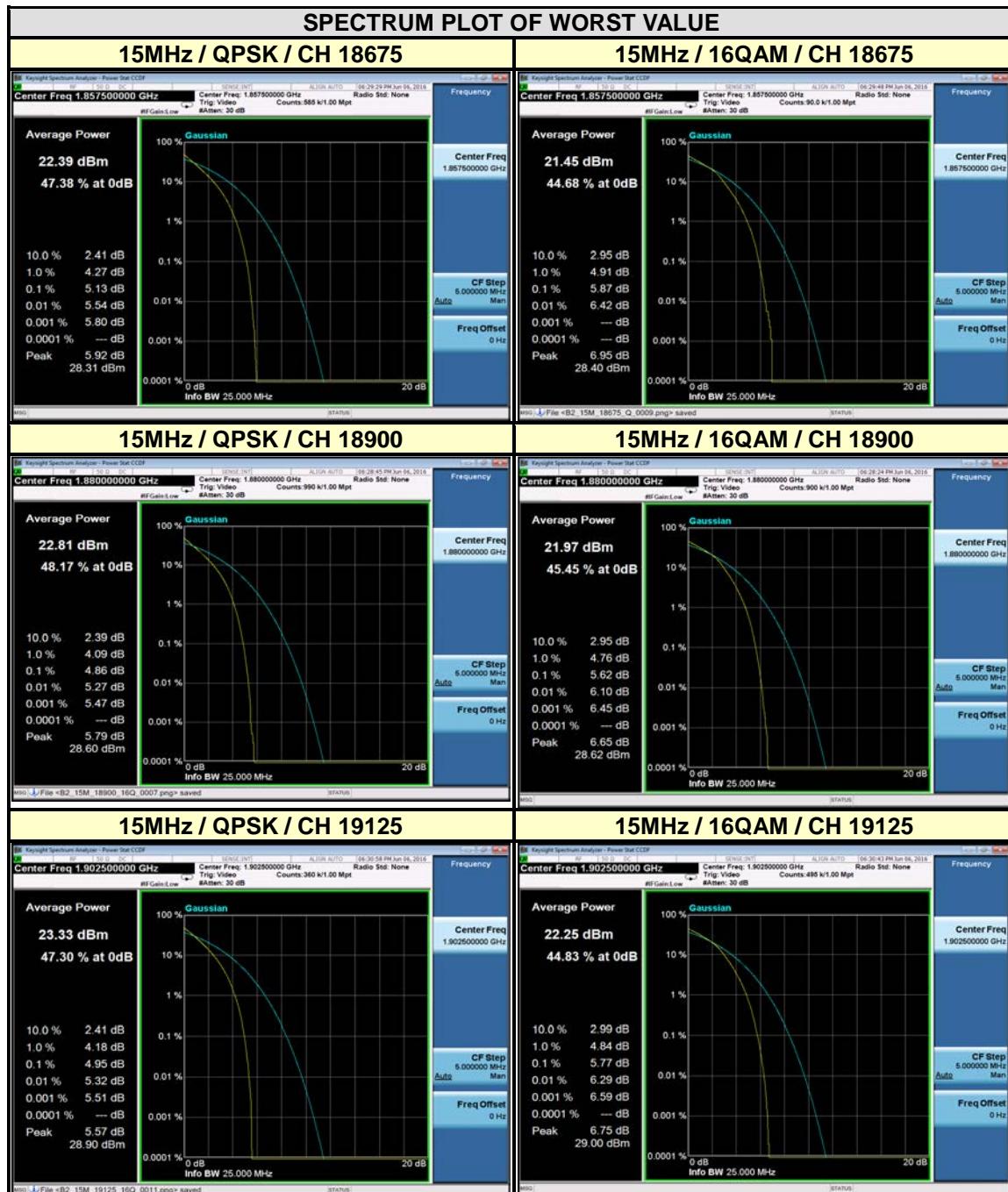
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CHANNEL BANDWIDTH: 15MHz			CHANNEL BANDWIDTH: 20MHz		
CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)	CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
		QPSK			QPSK
18675	1857.5	5.13	18675	1860	5.17
18900	1880	4.86	18900	1880	5.07
19125	1902.5	4.95	19100	1900	5.19



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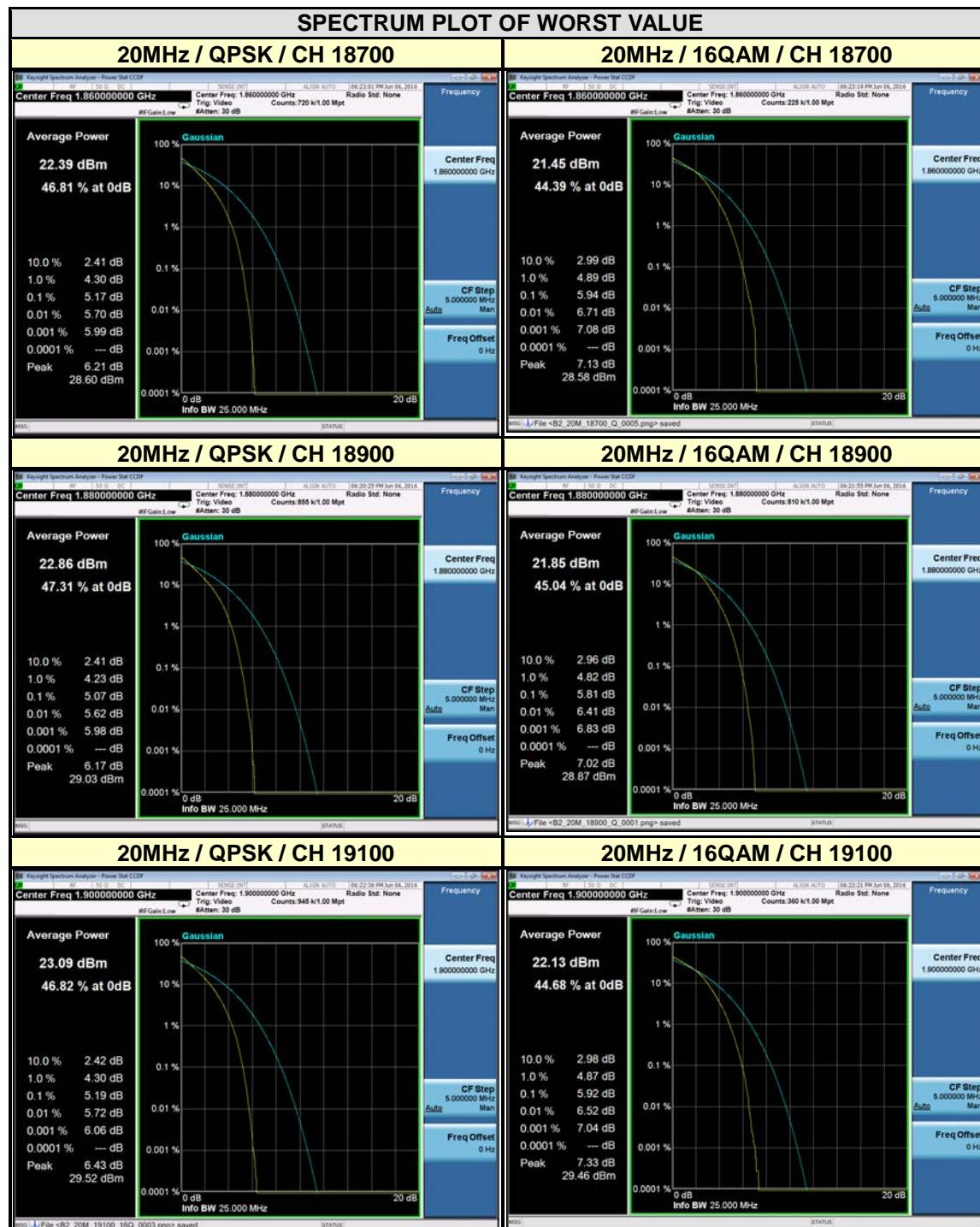
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## 5 INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Shenzhen Co., Ltd. Dongguan Branch, were founded in 2002 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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The address and road map of all our labs can be found in our web site also.



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## 6 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

---END---