

FCC Radio Test Report

FCC ID: QISDIG-LX3

This report concerns (check one): Original Grant Class II Change

Project No. : 1612C149
Equipment : Smart Phone
Model Name : DIG-L23, DIG-L03
Applicant : Huawei Technologies Co., Ltd
Address : Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District Shenzhen China

Date of Receipt : Dec. 14, 2016
Date of Test : Dec. 14, 2016 ~ Jan. 04, 2017
Issued Date : Jan. 05, 2017
Tested by : BTL Inc.

Technical Engineer : Shawn Xiao
(Shawn Xiao)

Authorized Signatory : Steven Lu
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REPORT ISSUED HISTORY

Issued No.	Description	Issued Date
BTL-FCCP-5-1612C149	Original Issue.	Jan. 05, 2017

1. CERTIFICATION

Equipment : Smart Phone
Brand Name : HUAWEI
Model Name : DIG-L23, DIG-L03
Applicant : Huawei Technologies Co., Ltd
Manufacturer : Huawei Technologies Co., Ltd
Address : Administration Building, Headquarters of Huawei Technologies Co., Ltd.,
Bantian, Longgang District Shenzhen China
Factory : Huawei Technologies Co., Ltd
Address : Administration Building, Headquarters of Huawei Technologies Co., Ltd.,
Bantian, Longgang District Shenzhen China
Date of Test : Dec. 14, 2016 ~ Jan. 04, 2017
Test Sample : Engineering Sample
Standard(s) : 47 CFR FCC Part 24 Subpart E
47 CFR FCC Part 2
ANSI/TIA-603-D-2010
KDB 971168 D01 Power Meas License Digital Systems v02r02

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.

The test data, data evaluation, and equipment configuration contained in our test report (Ref No. BTL-FCCP-5-1612C149) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of TAF according to the ISO-17025 quality assessment standard and technical standard(s).

Test results included in this report is only for the DCS1900, WCDMA Band II and LTE Band 2 part.

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC Part 22 Subpart H& Part 2			
Standard(s) Section	Test Item	Judgment	Tested By
2.1046 24.232(c)	Radiated power	PASS	Paul Li
2.1046 24.232(c)	Conducted Output Power	PASS	Paul Li
2.1049 24.238(a)	Occupied Bandwidth	PASS	Paul Li
2.1051 24.238(a)	Conducted Spurious Emissions	PASS	Paul Li
2.1053 24.238(a)	Radiated Spurious Emissions	PASS	Biao Chen
24.238(a)	Band Edge Measurements	PASS	Paul Li
24.232(d)	Peak To Average Ratio	PASS	Paul Li
2.1055 24.235	Frequency Stability	PASS	Paul Li

NOTE:

(1) "N/A" denotes test is not applicable to this device.

2.1 TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No.3, Jinshagang 1st Road, Shixia, Dalang Town, Dongguan, Guangdong, China.
BTL's test firm number for FCC: 319330

2.2 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. The BTL measurement uncertainty is less than the CISPR 16-4-2 U_{CISPR} requirement.

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately **95%**.

A. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	Ant. H / V	U,(dB)
DG-CB03 (3m)	CISPR	9KHz ~ 30MHz	V	3.79
		9KHz ~ 30MHz	H	3.57
		30MHz ~ 200MHz	V	3.82
		30MHz ~ 200MHz	H	3.78
		200MHz ~ 1,000MHz	V	4.10
		200MHz ~ 1,000MHz	H	4.06

Test Site	Method	Measurement Frequency Range	Ant. H / V	U,(dB)
DG-CB03 (3m)	CISPR	1GHz ~ 18GHz	V	3.12
		1GHz ~ 18GHz	H	3.68

Test Site	Method	Measurement Frequency Range	Ant. H / V	U,(dB)
DG-CB03 (1m)	CISPR	18GHz ~ 40GHz	V	4.15
		18GHz ~ 40GHz	H	4.14

Note: Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	Smart Phone		
Brand Name	HUAWEI		
Model Name	DIG-L23, DIG-L03		
Model Difference	All hardwares of the model DIG-L23 and DIG-L03 are the same. These two models are only differ in SIM card that DIG-L23 has double cards of SIM 1 and SIM 2, while DIG-L03 has single card SIM 1 by software conductively-closed. Model DIG-L23 has been evaluated completed, and the test datas of SIM 1 are re-used to model DIG-L03.		
Modulation Type	GSM/GPRS	GMSK	
	EDGE	GMSK, 8PSK	
	WCDMA	Uplink: BPSK Downlink: QPSK	
	WCDMA(HSDPA/HSUPA/DC-HADPA)	16QAM	
	LTE	QPSK, 16QAM	
Operation Frequency	GSM /EDGE/GPRS	1850.2 ~ 1909.8 MHz	
	WCDMA Band 2	1852.4 ~ 1907.6 MHz	
	LTE 2 (Channel Bandwidth: 1.4MHz)	1850.7 ~ 1909.3 MHz	
	LTE 2 (Channel Bandwidth: 3MHz)	1851.5 ~ 1908.5 MHz	
	LTE 2 (Channel Bandwidth: 5MHz)	1852.5 ~ 1907.5 MHz	
	LTE 2 (Channel Bandwidth: 10MHz)	1855.0 ~ 1905.0 MHz	
	LTE 2 (Channel Bandwidth: 15MHz)	1857.5 ~ 1902.5 MHz	
	LTE 2 (Channel Bandwidth: 20MHz)	1860.0 ~ 1900.0 MHz	
Max. EIRP Power	GSM/GPRS	GMSK	22.92 dBm
	EDGE	8PSK	26.35 dBm
	WCDMA	BPSK	21.69 dBm
	WCDMA_HSDPA	16QAM	20.71 dBm
	WCDMA_HSUPA	16QAM	20.60 dBm
	WCDMA_DC-HSDPA	16QAM	20.71 dBm
	LTE 2 (Channel Bandwidth: 1.4MHz)	QPSK	22.19 dBm
		16QAM	22.22 dBm
	LTE 2 (Channel Bandwidth: 3MHz)	QPSK	22.22 dBm
		16QAM	21.28 dBm
	LTE 2 (Channel Bandwidth: 5MHz)	QPSK	22.12 dBm
		16QAM	21.01 dBm
	LTE 2 (Channel Bandwidth: 10MHz)	QPSK	22.20 dBm
		16QAM	21.02 dBm
	LTE 2 (Channel Bandwidth: 15MHz)	QPSK	22.28 dBm
		16QAM	21.47 dBm
	LTE 2 (Channel Bandwidth: 20MHz)	QPSK	22.35 dBm
		16QAM	21.26 dBm

Antenna Type	Fixed Internal Antenna	
Antenna Gain	-0.5 dBi for GSM, -0.8 dBi for WCDMA, -0.6 dBi for LTE	
Hardware Version	HL1DIGM	
Software Version	Diego-L23C469B005	
IMEI No.1	Radiated	863025030008604
	Conducted	863025030008463
IMEI No.2	Radiated	863025030008612
	Conducted	863025030008471
Power Source	#1 DC voltage supplied from AC/DC adapter. #2 Battery supplied.	
Power Rating	#1 Input: 100-240V, Output: 5V --- 1.0A #2 DC 3.82V, 2920mAh	

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. The EUT contains following accessory devices.

Item	Mfr/Brand	Model.
Battery	Sunwoda Electronic Co., LTD	HB405979ECW
	Desay Battery Co., Ltd.	HB405979ECW
USB Cable	LUXSHARE-ICT Co., Ltd.	L99U2013-CS-H
	Chang Shu Honglin Technology Co.,Ltd.	130-26654
	FOXCONN INTERCONNECT TECHNOLOGY	CUBB01M-HC208-DH
Earphone	JIANGXI LIANCHUANG HONGSHENG ELECTRONIC CO., LTD	MEMD1632B580C00
	BOLUO COUNTY QUANCHENG ELECTRONIC CO., LTD	1311-3291-3.5mm-229
	Goer Tek Inc	NA12
	MERRY ELECTRONICS (SHENZHEN) CO., LTD.	EMC309-001
Adapter	DONGGUAN PHITEK ELECTRONICS CO.,LTD.	HW-050100U01
	SHENZHEN HUNTKEY ELECTRONIC CO.,LTD.	
	HUIZHOU BYD ELECTRONIC CO., LTD.	

3.2 DESCRIPTION OF TEST MODES AND TEST CONDITION

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 was found when positioned on X-plane for EIRP and X-axis for radiated emission.
 Following channel(s) was (were) selected for the final test as listed below:

GSM MODE			
Test Item	Available Channel	Tested Channel	Mode
EIRP	512 to 810	512, 661, 810	GSM, EDGE
Conducted Output Power	512 to 810	512, 661, 810	GSM, EDGE
Occupied Bandwidth	512 to 810	512, 661, 810	GSM, EDGE
Condcudeted Emission	512 to 810	661	GSM, EDGE
Radiated Emission	512 to 810	661	GSM, EDGE
Band Edge	512 to 810	512, 810	GSM, EDGE
Peak to Average Ratio	512 to 810	512, 661, 810	GSM, EDGE
Frequency Stability	512 to 810	661	GSM, EDGE

WCDMA MODE			
Test Item	Available Channel	Tested Channel	Mode
EIRP	9262 to 9538	9262, 9400, 9538	WCDMA, HSDPA, HSUPA, DC-HSDPA
Conducted Output Power	9262 to 9538	9262, 9400, 9538	WCDMA, HSDPA, HSUPA, DC-HSDPA
Condcudeted Emission	9262 to 9538	9400	WCDMA, HSDPA, HSUPA
Radiated Emission	9262 to 9538	9400	WCDMA, HSDPA, HSUPA
Band Edge	9262 to 9538	9262, 9538	WCDMA, HSDPA, HSUPA
Peak to Average Ratio	9262 to 9538	9262, 9400, 9538	WCDMA, HSDPA, HSUPA
Frequency Stability	9262 to 9538	9262	WCDMA, HSDPA, HSUPA

Note: This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in **QPSK** modulation.

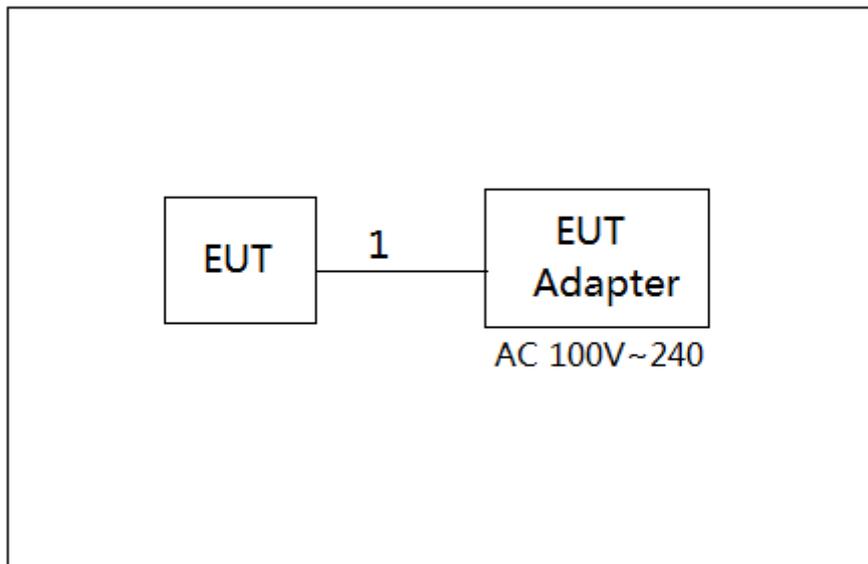
LTE BAND 2 MODE					
Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
EIRP	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	18615 to 19185	18615, 18900, 19185	3MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	18625 to 19175	18625, 18900, 19175	5MHz	QPSK, 16QAM	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
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
Conducted Emission	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
Radiated Emission	18607 to 19193	18900	1.4MHz	QPSK	1 RB / 0 RB Offset
	18700 to 19100	18900	20MHz	QPSK	1 RB / 0 RB Offset

LTE BAND 2 MODE						
Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode	
Band Edge	18607 to 19193	18607	1.4MHz	QPSK	1 RB / 0 RB Offset 6 RB / 0 RB Offset	
		19193	1.4MHz	QPSK	1 RB / 5 RB Offset 6 RB / 0 RB Offset	
	18615 to 19185	18615	3MHz	QPSK	1 RB / 0 RB Offset 15 RB / 0 RB Offset	
		19185	3MHz	QPSK	1 RB / 14 RB Offset 15 RB / 0 RB Offset	
	18625 to 19175	18625	5MHz	QPSK	1 RB / 0 RB Offset 25 RB / 0 RB Offset	
		19175	5MHz	QPSK	1 RB / 24 RB Offset 25 RB / 0 RB Offset	
	18650 to 19150	18650	10MHz	QPSK	1 RB / 0 RB Offset 50 RB / 0 RB Offset	
		19150	10MHz	QPSK	1 RB / 49 RB Offset 50 RB / 0 RB Offset	
	18675 to 19125	18675	15MHz	QPSK	1 RB / 0 RB Offset 75 RB / 0 RB Offset	
		19125	15MHz	QPSK	1 RB / 74 RB Offset 75 RB / 0 RB Offset	
	18700 to 19100	18700	20MHz	QPSK	1 RB / 0 RB Offset 100 RB / 0 RB Offset	
		19100	20MHz	QPSK	1 RB / 99 RB Offset 100 RB / 0 RB Offset	
	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	
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	

EUT TEST CONDITIONS:

Test Item	Environmental Conditions	Test Voltage
EIRP	25°C, 60%RH	AC 120V/60Hz
Conducted Output Power	25°C, 65%RH	AC 120V/60Hz
Occupied Bandwidth	25°C, 65%RH	AC 120V/60Hz
Conducted Emission	25°C, 65%RH	AC 120V/60Hz
Radiated Emission	25°C, 60%RH	AC 120V/60Hz
Band Edge	25°C, 65%RH	AC 120V/60Hz
Peak to Average Ratio	25°C, 65%RH	AC 120V/60Hz
Frequency Stability	25°C, 65%RH	AC 120V/60Hz

3.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



3.4 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.

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.
-	-	-	-	-	-

Item	Shielded Type	Ferrite Core	Length	Note
1	YES	NO	1m	USB cable

4. TEST RESULT

4.1 OUTPUT POWER MEASUREMENT

4.1.1 LIMIT

Mobile / Portable station are limited to 2 watts e.i.r.p.

4.1.2 TEST PROCEDURE

EIRP/ERP:

EIRP= Conducted Power +Antenan gain

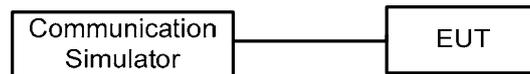
ERP power=EIPR power-2.15dBi.

Conducted Power:

The EUT was set up for the maximum power with GSM, GPRS, EDGE, WCDMA, CDMA, and LTE 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.

4.1.3 TESTSETUP LAYOUT

Conducted Power Measurement



4.1.4 TEST DEVIATION

No deviation

4.1.5 TEST RESULTS

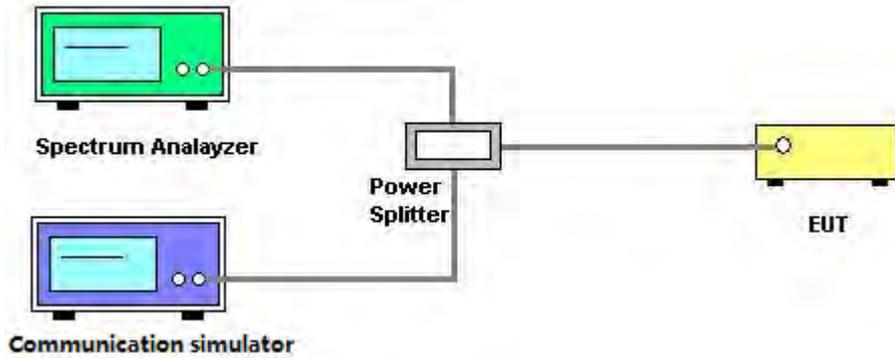
Please refer to the Attachment A.

4.2 OCCUPIED BANDWIDTH MEASUREMENT

4.2.1 TEST PROCEDURE

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 and 26dB bandwidth.

4.2.2 TEST SETUP LAYOUT



4.2.3 TEST DEVIATION

No deviation

4.2.4 TEST RESULTS

Please refer to the Attachment B.

4.3 CONDUCTED EMISSIONS MEASUREMENT

4.3.1 LIMIT

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 -13dBm .

4.3.2 TEST PROCEDURES

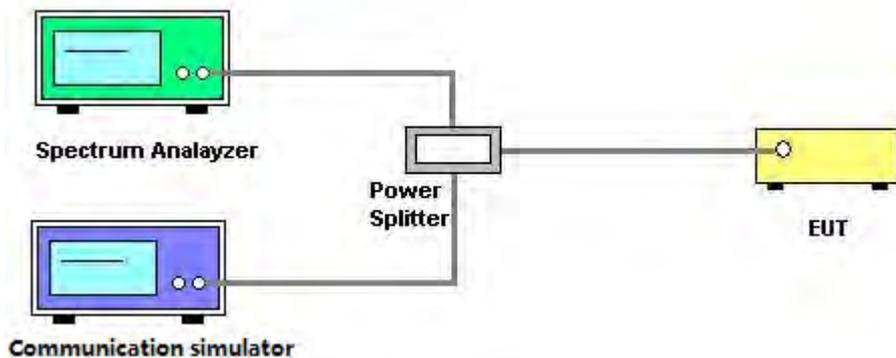
1. The testing follows FCC KDB 971168 v02r02 Section 6.0.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The band edges of low and high channels for the highest RF powers were measured. Set $\text{RBW} \geq 1\%$ EBW in the 1MHz band immediately outside and adjacent to the band edge.
4. Set spectrum analyzer with RMS detector.
5. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
6. The limit line is derived from $43+10\log(P)\text{dB}$ below the transmitter power P(Watts)

$$= P(W) - [43 + 10\log(P)](\text{dB})$$

$$= [30 + 10\log(P)](\text{dBm}) - [43 + 10\log(P)](\text{dB})$$

$$= -13\text{dBm}$$

4.3.3 TESTSETUP LAYOUT



4.3.4 TESTDEVIATION

No deviation

4.3.5 TEST RESULTS

Please refer to the Attachment C.

4.4 RADIATED EMISSIONS MEASUREMENT

4.4.1 LIMIT

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 -13dBm.

4.4.2 TEST PROCEDURES

1. 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.
2. 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
3. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.
4. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.P.R power - 2.15dBi.
5. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

4.4.3 TESTSETUP LAYOUT

This test setup layout is the same as that shown in **section 4.1.3**.

4.4.4 TESTDEVIATION

No deviation

4.4.5 TEST RESULTS

Please refer to the Attachment D.

4.5 BAND EDGE MEASUREMENT

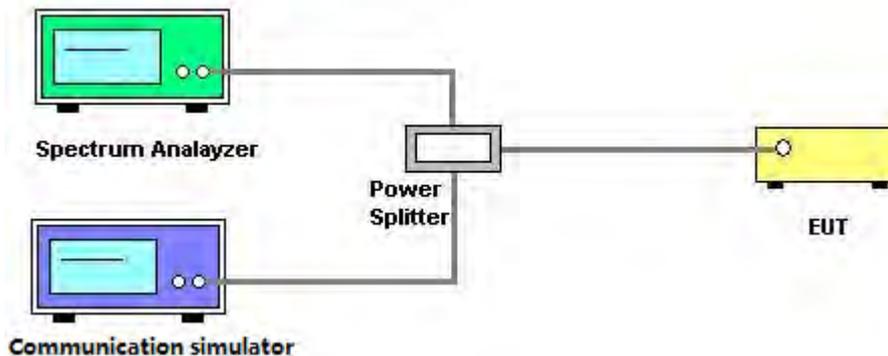
4.5.1 LIMIT

A 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.

4.5.2 TEST PROCEDURES

1. All measurements were done at low and high operational frequency range.
2. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 3kHz and VB of the spectrum is 10kHz (GSM/GPRS/EDGE).
3. The center frequency of spectrum is the band edge frequency and span is 5MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz (WCDMA).
4. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 13kHz and VB of the spectrum is 51kHz (LTE Bandwidth 1.4MHz).
5. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 30kHz and VB of the spectrum is 100kHz (LTE Bandwidth 3MHz).
6. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz (LTE Bandwidth 5MHz/10MHz).
7. Record the max trace plot into the test report.

4.5.3 TESTSETUP LAYOUT



4.5.4 TESTDEVIATION

No deviation

4.5.5 TEST RESULTS

Please refer to the Attachment E.

4.6 PEAK TO AVERAGE RATIO MEASUREMENT

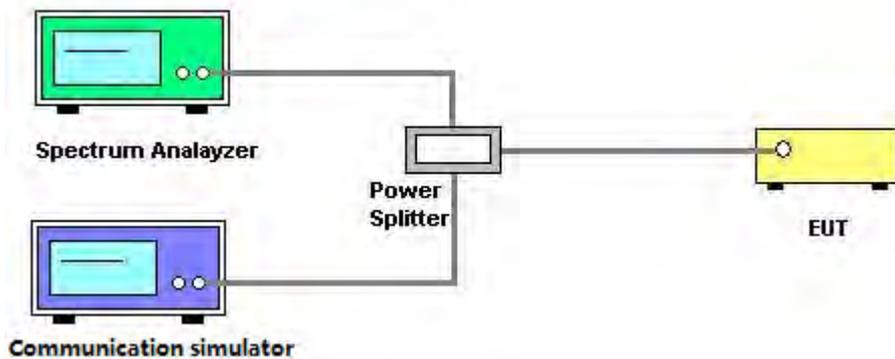
4.6.1 LIMIT

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.

4.6.2 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%.

4.6.3 TESTSETUP LAYOUT



4.6.4 TESTDEVIATION

No deviation

4.6.5 TEST RESULTS

Please refer to the Attachment F.

4.7 FREQUENCY STABILITY MEASUREMENT

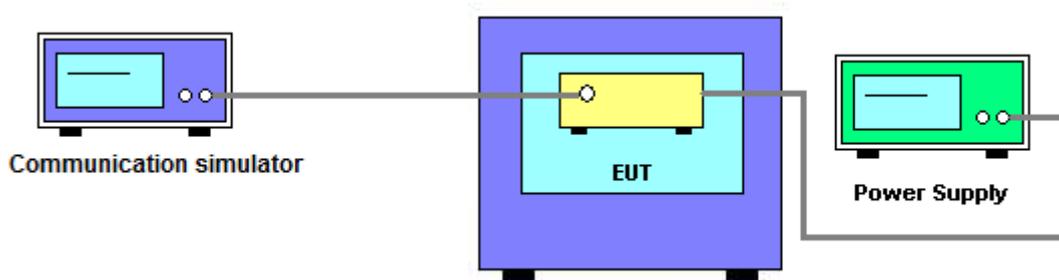
4.7.1 LIMIT

1.5 ppm is for base and fixed station. 2.5 ppm is for mobile station.

4.7.2 TEST PROCEDURES

1. 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.
2. 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.
3. 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.
4. The frequency error was recorded frequency error from the communication simulator.

4.7.3 TESTSETUP LAYOUT



4.7.4 TESTDEVIATION

No deviation

4.7.5 TEST RESULTS

Please refer to the Attachment G.

5. LIST OF MEASUREMENT EQUIPMENTS

Radiated Emission & ERP or EIRP Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Antenna	Schwarbeck	VULB9160	9160-3232	Mar. 27, 2017
2	Double Ridged Guide Antenna	ETS	3115	75789	Mar. 27, 2017
3	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Apr. 23, 2017
4	Amplifier	Agilent	8449B	3008A02274	Mar. 10, 2017
5	Amplifier	HP	8447D	2944A09673	Oct. 20, 2017
6	HighPass Filter	Wairwright Instruments Gmbh	WHK 1.5/15G-10ST	11	Mar. 10, 2017
7	Band Reject Filter	Wairwright Instruments Gmbh	WRCG 1710/1785-1690/180 5-60/12SS	38	Feb. 23, 2017
8	Band Reject Filter	Wairwright Instruments Gmbh	WRCG 824/849-810/863-60/ 9SS	7	Feb. 23, 2017
9	Band Reject Filter	Wairwright Instruments Gmbh	WRCG 880/915-860/935-60/ 9SS	14	Feb. 23, 2017
10	Band Reject Filter	Wairwright Instruments Gmbh	WRCG 1850/1910-1830/193 0-60/10SS	17	Feb. 23, 2017
11	HighPass Filter	Wairwright Instruments Gmbh	WHK3.1/18G-10SS	24	Mar. 10, 2017
12	Wireless Communication Test SET	Agilent	E5515C	MY48364183	Mar. 27, 2017
13	Microwave Preamplifier With Adaptor	EMC INSTRUMENT	EMC2654045	980039 & HA01	Mar. 27, 2017
14	Receiver	Agilent	N9038A	MY52130039	Sep. 04, 2017
15	wideband radio communication tester	R&S	CMW500	152372	Mar. 27, 2017
16	High pass filter	ZHPF-M1000-4000-1	ZHPF-M3-12.75G-3869	B2015073763	Aug. 04, 2017
17	High pass filter	ZHPF-M3-12.75G-3869	ZHPF-M1000-4000-1	B2015073762	Aug. 04, 2017
18	High pass filter	ZHPF-M6-18G-1727	ZHPF-M6-186-1727	B2015073764	Aug. 04, 2017
19	Cable	emci	LMR-400(30MHz-1GHz)(8m+5m)	N/A	Jun. 27, 2017
20	Cable	emci	EMC104-SM-SM-12000(12m)	N/A	Jul. 06, 2017
21	Controller	ETS-Lindgren	2090	N/A	N/A
22	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A

Conducted Emission & Band Edge & Occupied Bandwidth Measurement

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Wireless Communication Test SET	Agilent	E5515C	MY48364183	Mar. 27, 2017
2	EXA Spectrum Analyzer	Agilent	N9010A	MY50520044	Mar. 27, 2017
3	POWER SPLITTER	Mini-Circuits	ZFRSC-123-S+	331000910-1	Feb. 26, 2017
4	wideband radio communication tester	R&S	CMW500	152372	Mar. 27, 2017
5	Cable	N/A	RG316(0.3m)	N/A	Jul. 06, 2017
6	Cable	N/A	RG316(0.3m)	N/A	Jul. 06, 2017

Frequency Stability Measurement

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Wireless Communication Test SET	Agilent	E5515C	MY48364183	Mar. 27, 2017
2	DC power supply	GW Instek	GPC-3030DN	EK880675	Oct. 13, 2017
3	POWER SPLITTER	Mini-Circuits	ZFRSC-123-S+	331000910-1	Feb. 26, 2017
4	wideband radio communication tester	R&S	CMW500	152372	Mar. 27, 2017
5	Const Temp, & Humidity Chamber	Giant?Force	ITH-225-20-S	IAB0309-001	Sep. 04, 2017
6	Cable	N/A	RG316(0.3m)	N/A	Jul. 06, 2017

Remark: "N/A" denotes no model name, serial no. or calibration specified.
 All calibration period of equipment list is one year.

ATTACHMENT A - OUTPUT POWER

Conducted Power:

DCS1900 (Capsensor Off)	Burst Conducted Power (dBm)		
	512CH	661CH	810CH
	1850.2MHz	1880MHz	1909.8MHz
GSM (CS)	30.42	30.34	30.32
GPRS/EDGE (GMSK)	30.42	30.34	30.32
	29.87	30.08	30.06
	27.73	27.84	27.86
EDGE (8PSK)	26.37	26.43	26.41
	26.85	26.11	26.03
	24.73	24.76	24.97
	22.37	22.44	22.72
	21.11	21.24	21.35

Modulation	Band	WCDMA Band II(Capsensor Off)		
	Tx Channel	9262CH	9400CH	9538CH
	Rx Channel	9662CH	9800CH	9938CH
	Frequency	1852.4MHz	1880MHz	1907.6MHz
BPSK	RMC 12.2K	22.48	22.41	22.32
	RMC 64K	22.49	22.39	22.33
	RMC 144K	22.46	22.43	22.31
	RMC 384K	22.47	22.38	22.32
16QAM	HSDPA Subtest-1	21.51	21.45	21.29
	HSDPA Subtest-2	21.43	21.34	21.28
	HSDPA Subtest-3	20.97	20.99	20.79
	HSDPA Subtest-4	20.98	20.91	20.76
16QAM	HSUPA Subtest-1	21.28	21.26	21.07
	HSUPA Subtest-2	20.51	20.44	20.29
	HSUPA Subtest-3	20.54	20.54	20.33
	HSUPA Subtest-4	19.88	19.92	19.72
	HSUPA Subtest-5	21.35	21.40	21.32
16QAM	DC-HSDPA Subtest-1	21.51	21.45	21.29
	DC-HSDPA Subtest-2	21.43	21.34	21.28
	DC-HSDPA Subtest-3	20.97	20.99	20.79
	DC-HSDPA Subtest-4	20.98	20.91	20.76

LTE Band / BW	Modulation	RB Sizing	RB Offset	Low CH	Mid CH	High CH
				18607 CH	18900 CH	19193 CH
				1850.7 MHz	1880 MHz	1909.3 MHz
2 / 1.4M	QPSK	1	0	22.64	22.56	22.22
		1	2	22.72	22.79	22.09
		1	5	22.64	22.54	22.07
		3	0	22.72	22.66	22.19
		3	1	22.77	22.74	22.34
		3	3	22.66	22.67	22.52
	16QAM	1	0	21.35	20.87	21.16
		1	2	21.82	20.99	21.40
		1	5	21.64	20.90	21.22
		3	0	21.55	21.38	21.45
		3	1	21.58	21.54	21.41
		3	3	21.57	21.50	21.39
		6	0	20.73	20.37	20.36

LTE Band / BW	Modulation	RB Sizing	RB Offset	Low CH	Mid CH	High CH
				18615 CH	18900 CH	19185 CH
				1851.5 MHz	1880 MHz	1908.5 MHz
2 / 3M	QPSK	1	0	22.35	22.48	22.07
		1	7	22.72	22.54	22.25
		1	14	22.82	22.53	22.25
		8	0	21.69	21.62	21.24
		8	3	21.71	21.54	21.29
		8	7	21.67	21.56	21.22
		15	0	21.66	21.63	21.23
	16QAM	1	0	21.68	20.82	21.18
		1	7	21.71	20.87	21.28
		1	14	21.88	21.03	21.08
		8	0	20.78	20.71	20.05
		8	3	20.84	20.91	20.03
		8	7	20.80	20.86	20.13
		15	0	20.71	20.68	20.34

LTE Band / BW	Modulation	RB Sizing	RB Offset	Low CH	Mid CH	High CH
				18625 CH	18900 CH	19175 CH
				1852.5 MHz	1880 MHz	1907.5 MHz
2 / 5M	QPSK	1	0	22.64	22.47	22.21
		1	12	22.72	22.28	22.15
		1	24	22.63	22.39	22.24
		12	0	21.67	21.50	21.26
		12	6	21.68	21.63	21.30
		12	13	21.71	21.61	21.29
		25	0	21.68	21.56	21.27
	16QAM	1	0	21.22	21.61	21.05
		1	12	20.92	21.60	21.07
		1	24	20.83	21.52	20.99
		12	0	20.78	20.51	20.17
		12	6	20.74	20.51	20.37
		12	13	20.67	20.66	20.43
		25	0	20.86	20.69	20.34

LTE Band / BW	Modulation	RB Siset	RB Offset	Low CH	Mid CH	High CH
				18650 CH	18900 CH	19150 CH
				1855 MHz	1880 MHz	1905 MHz
2 / 10M	QPSK	1	0	22.71	22.42	22.26
		1	24	22.75	22.80	22.36
		1	49	22.67	22.46	22.16
		25	0	21.78	21.58	21.49
		25	12	21.78	21.63	21.31
		25	25	21.57	21.61	21.24
	16QAM	50	0	21.71	21.55	21.33
		1	0	21.56	21.36	21.41
		1	24	21.62	21.32	21.15
		1	49	21.39	21.10	21.20
		25	0	20.80	20.55	20.53
		25	12	20.88	20.61	20.46
		25	25	20.82	20.61	20.46
		50	0	20.70	20.69	20.38

LTE Band / BW	Modulation	RB Siset	RB Offset	Low CH	Mid CH	High CH
				18675 CH	18900 CH	19125 CH
				1857.5 MHz	1880 MHz	1902.5 MHz
2 / 15M	QPSK	1	0	22.63	22.51	22.41
		1	37	22.48	22.88	22.26
		1	74	22.48	22.81	22.23
		36	0	21.70	22.37	21.40
		36	19	21.60	21.57	21.35
		36	39	21.53	21.57	21.22
		75	0	21.60	21.53	21.36
	16QAM	1	0	21.67	21.36	22.02
		1	37	21.53	21.44	22.07
		1	74	21.43	21.25	21.75
		36	0	20.74	21.25	20.43
		36	19	20.56	20.73	20.45
		36	39	20.58	20.66	20.28
		75	0	20.65	20.70	20.41

LTE Band / BW	Modulation	RB Siset	RB Offset	Low CH	Mid CH	High CH
				18700 CH	18900 CH	19100 CH
				1860 MHz	1880 MHz	1900 MHz
2 / 20M	QPSK	1	0	22.63	22.95	22.73
		1	50	22.63	21.92	22.43
		1	99	22.31	22.84	22.24
		50	0	21.58	21.52	21.43
		50	25	21.56	21.49	21.37
		50	50	21.53	21.51	21.22
		100	0	21.57	21.52	21.38
	16QAM	1	0	21.86	21.20	21.02
		1	50	21.84	20.74	21.10
		1	99	21.16	21.24	20.97
		50	0	20.84	20.64	20.49
		50	25	20.81	20.75	20.45
		50	50	20.74	20.68	20.35
		100	0	20.73	20.74	20.49

EIRP Power

DCS1900 (Capsensor Off)	EIRP Power (dBm)		
	512CH	661CH	810CH
	1850.2MHz	1880MHz	1909.8MHz
GSM (CS)	29.92	29.84	29.82
GPRS/EDGE (GMSK)	29.92	29.84	29.82
	29.37	29.58	29.56
	27.23	27.34	27.36
	25.87	25.93	25.91
EDGE (8PSK)	26.35	25.61	25.53
	24.23	24.26	24.47
	21.87	21.94	22.22
	20.61	20.74	20.85

Modulation	Band	WCDMA Band II(Capsensor Off)		
	Tx Channel	9262CH	9400CH	9538CH
	Rx Channel	9662CH	9800CH	9938CH
	Frequency	1852.4MHz	1880MHz	1907.6MHz
BPSK	RMC 12.2K	21.68	21.61	21.52
	RMC 64K	21.69	21.59	21.53
	RMC 144K	21.66	21.63	21.51
	RMC 384K	21.67	21.58	21.52
16QAM	HSDPA Subtest-1	20.71	20.65	20.49
	HSDPA Subtest-2	20.63	20.54	20.48
	HSDPA Subtest-3	20.17	20.19	19.99
	HSDPA Subtest-4	20.18	20.11	19.96
16QAM	HSUPA Subtest-1	20.48	20.46	20.27
	HSUPA Subtest-2	19.71	19.64	19.49
	HSUPA Subtest-3	19.74	19.74	19.53
	HSUPA Subtest-4	19.08	19.12	18.92
	HSUPA Subtest-5	20.55	20.60	20.52
16QAM	DC-HSDPA Subtest-1	20.71	20.65	20.49
	DC-HSDPA Subtest-2	20.63	20.54	20.48
	DC-HSDPA Subtest-3	20.17	20.19	19.99
	DC-HSDPA Subtest-4	20.18	20.11	19.96

LTE Band / BW	Modulation	RB Sizing	RB Offset	Low CH	Mid CH	High CH
				18607 CH	18900 CH	19193 CH
				1850.7 MHz	1880 MHz	1909.3 MHz
2 / 1.4M	QPSK	1	0	22.04	21.96	21.62
		1	2	22.12	22.19	21.49
		1	5	22.04	21.94	21.47
		3	0	22.12	22.06	21.59
		3	1	22.17	22.14	21.74
		3	3	22.06	22.07	21.92
	16QAM	6	0	21.09	20.89	20.72
		1	0	20.75	20.27	20.56
		1	2	21.22	20.39	20.80
		1	5	21.04	20.30	20.62
		3	0	20.95	20.78	20.85
		3	1	20.98	20.94	20.81
		3	3	20.97	20.90	20.79
		6	0	20.13	19.77	19.76

LTE Band / BW	Modulation	RB Sizing	RB Offset	Low CH	Mid CH	High CH
				18615 CH	18900 CH	19185 CH
				1851.5 MHz	1880 MHz	1908.5 MHz
2 / 3M	QPSK	1	0	21.75	21.88	21.47
		1	7	22.12	21.94	21.65
		1	14	22.22	21.93	21.65
		8	0	21.09	21.02	20.64
		8	3	21.11	20.94	20.69
		8	7	21.07	20.96	20.62
		15	0	21.06	21.03	20.63
	16QAM	1	0	21.08	20.22	20.58
		1	7	21.11	20.27	20.68
		1	14	21.28	20.43	20.48
		8	0	20.18	20.11	19.45
		8	3	20.24	20.31	19.43
		8	7	20.20	20.26	19.53
		15	0	20.11	20.08	19.74

LTE Band / BW	Modulation	RB Sizing	RB Offset	Low CH	Mid CH	High CH
				18625 CH	18900 CH	19175 CH
				1852.5 MHz	1880 MHz	1907.5 MHz
2 / 5M	QPSK	1	0	22.04	21.87	21.61
		1	12	22.12	21.68	21.55
		1	24	22.03	21.79	21.64
		12	0	21.07	20.90	20.66
		12	6	21.08	21.03	20.70
		12	13	21.11	21.01	20.69
		25	0	21.08	20.96	20.67
	16QAM	1	0	20.62	21.01	20.45
		1	12	20.32	21.00	20.47
		1	24	20.23	20.92	20.39
		12	0	20.18	19.91	19.57
		12	6	20.14	19.91	19.77
		12	13	20.07	20.06	19.83
		25	0	20.26	20.09	19.74

LTE Band / BW	Modulation	RB Siset	RB Offset	Low CH	Mid CH	High CH
				18650 CH	18900 CH	19150 CH
				1855 MHz	1880 MHz	1905 MHz
2 / 10M	QPSK	1	0	22.11	21.82	21.66
		1	24	22.15	22.20	21.76
		1	49	22.07	21.86	21.56
		25	0	21.18	20.98	20.89
		25	12	21.18	21.03	20.71
		25	25	20.97	21.01	20.64
	16QAM	50	0	21.11	20.95	20.73
		1	0	20.96	20.76	20.81
		1	24	21.02	20.72	20.55
		1	49	20.79	20.50	20.60
		25	0	20.20	19.95	19.93
		25	12	20.28	20.01	19.86
		25	25	20.22	20.01	19.86
		50	0	20.10	20.09	19.78

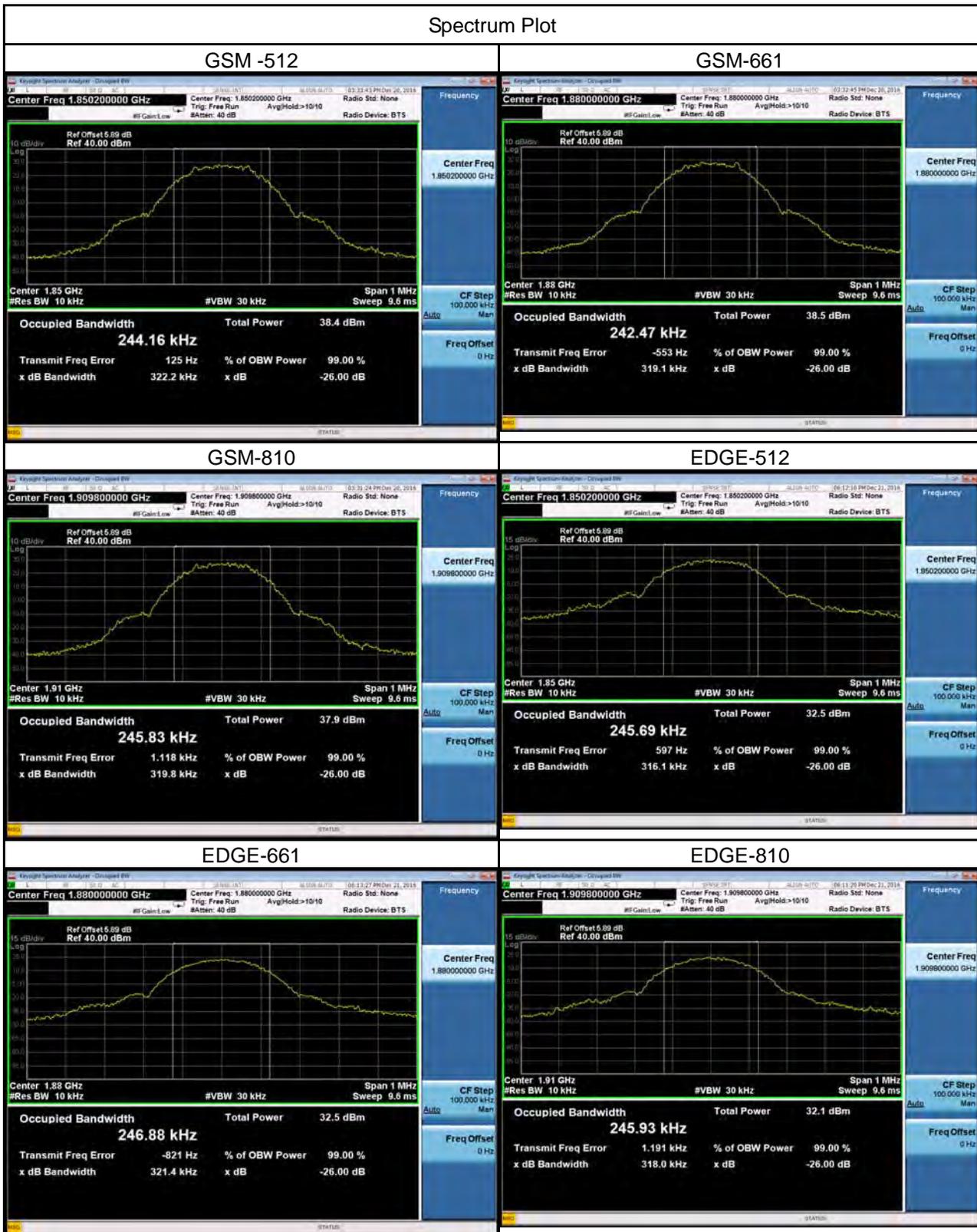
LTE Band / BW	Modulation	RB Siset	RB Offset	Low CH	Mid CH	High CH
				18675 CH	18900 CH	19125 CH
				1857.5 MHz	1880 MHz	1902.5 MHz
2 / 15M	QPSK	1	0	22.03	21.91	21.81
		1	37	21.88	22.28	21.66
		1	74	21.88	22.21	21.63
		36	0	21.10	21.77	20.80
		36	19	21.00	20.97	20.75
		36	39	20.93	20.97	20.62
		75	0	21.00	20.93	20.76
	16QAM	1	0	21.07	20.76	21.42
		1	37	20.93	20.84	21.47
		1	74	20.83	20.65	21.15
		36	0	20.14	20.65	19.83
		36	19	19.96	20.13	19.85
		36	39	19.98	20.06	19.68
		75	0	20.05	20.10	19.81

LTE Band / BW	Modulation	RB Siset	RB Offset	Low CH	Mid CH	High CH
				18700 CH	18900 CH	19100 CH
				1860 MHz	1880 MHz	1900 MHz
2 / 20M	QPSK	1	0	22.03	22.35	22.13
		1	50	22.03	21.32	21.83
		1	99	21.71	22.24	21.64
		50	0	20.98	20.92	20.83
		50	25	20.96	20.89	20.77
		50	50	20.93	20.91	20.62
		100	0	20.97	20.92	20.78
	16QAM	1	0	21.26	20.60	20.42
		1	50	21.24	20.14	20.50
		1	99	20.56	20.64	20.37
		50	0	20.24	20.04	19.89
		50	25	20.21	20.15	19.85
		50	50	20.14	20.08	19.75
		100	0	20.13	20.14	19.89

ATTACHMENT B - OCCUPIED BANDWIDTH

DCS1900					
GSM			EDGE		
CS			8PSK		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
512	1850.2	0.244	512	1850.2	0.246
661	1880	0.242	661	1880	0.247
810	1909.8	0.246	810	1909.8	0.246
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
512	1850.2	0.322	512	1850.2	0.316
661	1880	0.319	661	1880	0.321
810	1909.8	0.320	810	1909.8	0.318

Spectrum Plot



WCDMA Band II					
BPSK					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
9262	1852.4	4.122	9262	1852.4	4.706
9400	1880	4.117	9400	1880	4.717
9538	1907.6	4.116	9538	1907.6	4.714



WCDMA_HSDPA Band II					
BPSK					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
9262	1852.4	4.120	9262	1852.4	4.723
9400	1880	4.118	9400	1880	4.717
9538	1907.6	4.118	9538	1907.6	4.712



WCDMA_HSUPA Band II					
BPSK					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
9262	1852.4	4.119	9262	1852.4	4.738
9400	1880	4.134	9400	1880	4.737
9538	1907.6	4.113	9538	1907.6	4.730



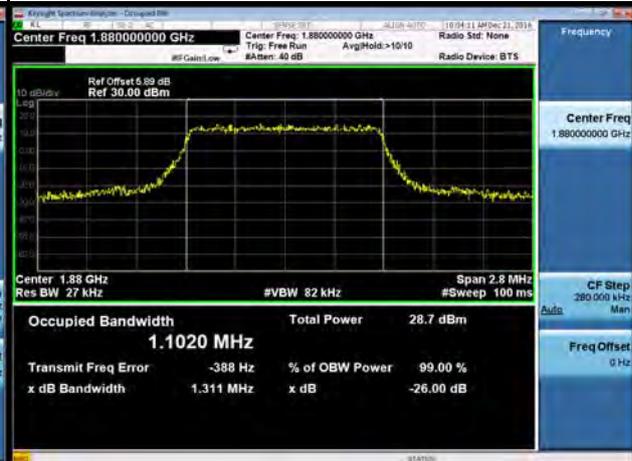
LTE Band 2_1.4M					
QPSK			16QAM		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
18607	1850.7	1.091	18607	1850.7	1.098
18900	1880	1.102	18900	1880	1.089
19193	1909.3	1.088	19193	1909.3	1.094
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
18607	1850.7	1.323	18607	1850.7	1.302
18900	1880	1.311	18900	1880	1.272
19193	1909.3	1.293	19193	1909.3	1.296

Spectrum Plot

QPSK-18607



QPSK-18900



QPSK-19193



16QAM-18607



16QAM-18900



16QAM-19193



LTE Band 2_3M					
QPSK			16QAM		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
18615	1851.5	2.700	18615	1851.5	2.703
18900	1880	2.693	18900	1880	2.695
19185	1908.5	2.700	19185	1908.5	2.692
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
18615	1851.5	2.986	18615	1851.5	2.985
18900	1880	2.998	18900	1880	2.975
19185	1908.5	2.994	19185	1908.5	2.992

Spectrum Plot



LTE Band 2_5M					
QPSK			16QAM		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
18625	1852.5	4.507	18625	1852.5	4.500
18900	1880	4.500	18900	1880	4.492
19175	1907.5	4.498	19175	1907.5	4.496
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
18625	1852.5	5.025	18625	1852.5	5.006
18900	1880	5.014	18900	1880	4.974
19175	1907.5	4.966	19175	1907.5	5.006

Spectrum Plot

QPSK-18625



QPSK-18900



QPSK-19175



16QAM-18625



16QAM-18900



16QAM-19175



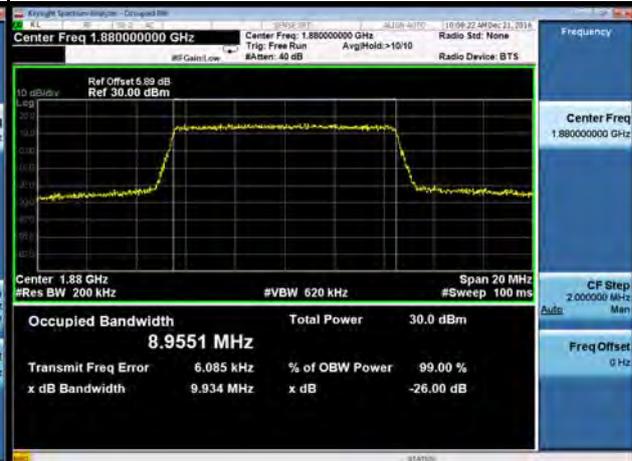
LTE Band 2_10M					
QPSK			16QAM		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
18650	1855	8.963	18650	1855	8.961
18900	1880	8.955	18900	1880	8.962
19150	1905	8.982	19150	1905	8.980
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
18650	1855	9.935	18650	1855	9.952
18900	1880	9.934	18900	1880	9.812
19150	1905	9.894	19150	1905	9.862

Spectrum Plot

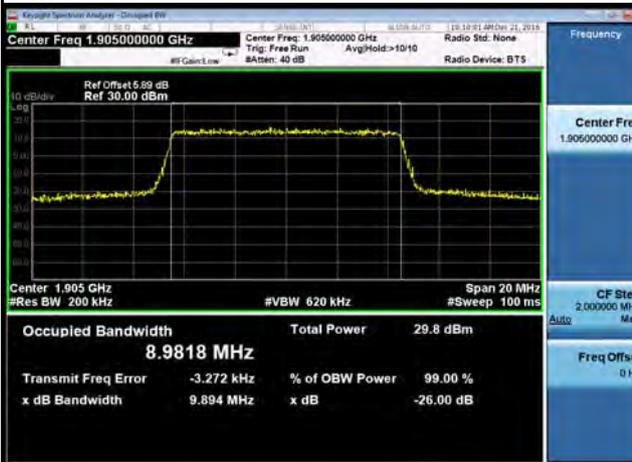
QPSK-18650



QPSK-18900



QPSK-19150



16QAM-18650



16QAM-18900



16QAM-19150



LTE Band 2_15M					
QPSK			16QAM		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
18675	1857.5	13.389	18675	1857.5	13.420
18900	1880	13.436	18900	1880	13.438
19125	1902.5	13.448	19125	1902.5	13.417
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
18675	1857.5	14.640	18675	1857.5	14.610
18900	1880	14.690	18900	1880	14.800
19125	1902.5	14.740	19125	1902.5	14.690

Spectrum Plot

QPSK-18675



QPSK-18900



QPSK-19125



16QAM-18675



16QAM-18900



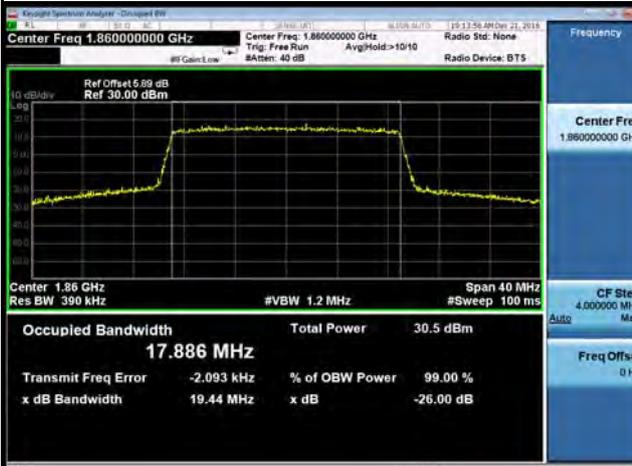
16QAM-19125



LTE Band 2_20M					
QPSK			16QAM		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
18700	1860	17.886	18700	1860	17.881
18900	1880	17.940	18900	1880	17.901
19100	1900	17.890	19100	1900	17.910
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
18700	1860	19.440	18700	1860	19.450
18900	1880	19.280	18900	1880	19.400
19100	1900	19.500	19100	1900	19.590

Spectrum Plot

QPSK-18700



QPSK-18900



QPSK-19100



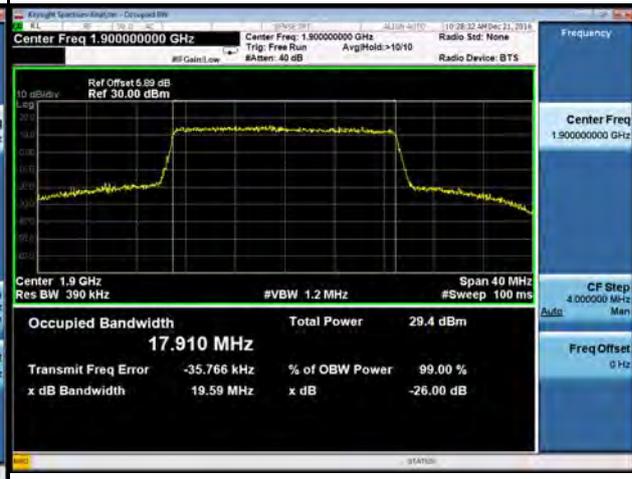
16QAM-18700



16QAM-18900



16QAM-19100



ATTACHMENT C - CONDUCTED EMISSIONS

DCS1900			
GSM		GSM	
Channel	Frequency(MHz)	Channel	Frequency(MHz)
661	1880	661	1880
Date: 23.DEC.2016 16:13:12		Date: 23.DEC.2016 16:12:10	
GSM		EDGE	
Channel	Frequency(MHz)	Channel	Frequency(MHz)
661	1880	661	1880
Date: 23.DEC.2016 16:13:35		Date: 23.DEC.2016 16:13:35	
EDGE		EDGE	
Channel	Frequency(MHz)	Channel	Frequency(MHz)
661	1880	661	1880
Date: 23.DEC.2016 16:12:36		Date: 23.DEC.2016 16:12:36	

WCDMA Band II

Channel	Frequency(MHz)	Channel	Frequency(MHz)
9400	1880	9400	1880
Date: 23.DEC.2016 16:16:54		Date: 23.DEC.2016 16:18:45	
Channel	Frequency(MHz)	-	-
9400	1880	-	-

WCDMA_HSDPA Band II

Channel	Frequency(MHz)	Channel	Frequency(MHz)
9400	1880	9400	1880
Date: 23.DEC.2016 16:17:49		Date: 23.DEC.2016 16:19:34	
Channel	Frequency(MHz)	-	-
9400	1880	-	-

WCDMA_HSUPA Band II

Channel	Frequency(MHz)	Channel	Frequency(MHz)
9400	1880	9400	1880
Channel	Frequency(MHz)	-	-
9400	1880	-	-

LTE Band 2_1.4M

Channel	Frequency(MHz)	Channel	Frequency(MHz)
18900	1880	18900	1880
Date: 23.DEC.2016 15:27:12		Date: 23.DEC.2016 15:34:17	
Channel	Frequency(MHz)	-	-
18900	1880	-	-

LTE Band 2_3M

Channel	Frequency(MHz)	Channel	Frequency(MHz)
18900	1880	18900	1880
Date: 23.DEC.2016 15:29:20		Date: 23.DEC.2016 15:34:43	
Channel	Frequency(MHz)	-	-
18900	1880	-	-

LTE Band 2_5M

Channel	Frequency(MHz)	Channel	Frequency(MHz)
18900	1880	18900	1880
Date: 23.DEC.2016 15:30:11		Date: 23.DEC.2016 15:35:04	
Channel	Frequency(MHz)	-	-
18900	1880	-	-

LTE Band 2_10M

Channel	Frequency(MHz)	Channel	Frequency(MHz)
18900	1880	18900	1880
Date: 23.DEC.2016 15:30:44		Date: 23.DEC.2016 15:35:24	
Channel	Frequency(MHz)	-	-
18900	1880	-	-

LTE Band 2_15M

Channel	Frequency(MHz)	Channel	Frequency(MHz)
18900	1880	18900	1880

Date: 23.DEC.2016 15:32:28

Date: 23.DEC.2016 15:35:40

Channel	Frequency(MHz)		
18900	1880	-	-

Frequency

Auto Tune

Center Freq 9.415000000 GHz

Start Freq 30.000000 MHz

Stop Freq 18.800000000 GHz

CF Step 1.977000000 GHz

Freq Offset 0 Hz

Scale Type

Log

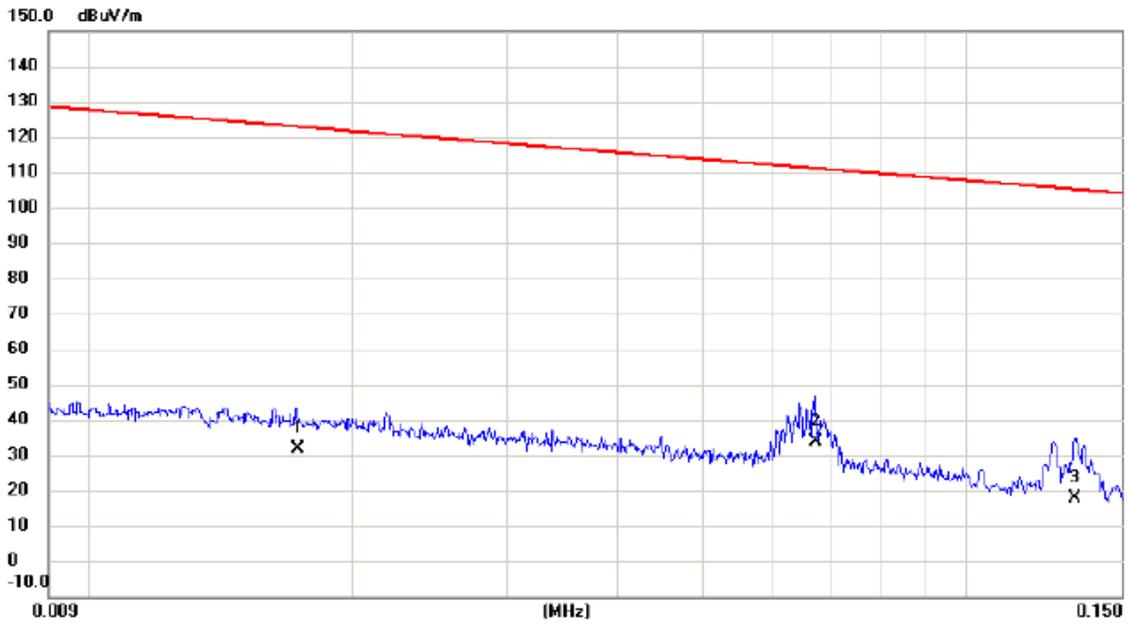
LTE Band 2_20M

Channel	Frequency(MHz)	Channel	Frequency(MHz)
18900	1880	18900	1880
Date: 23.DEC.2016 15:31:38		Date: 23.DEC.2016 15:35:55	
Channel	Frequency(MHz)	-	-
18900	1880	-	-

ATTACHMENT D - RADIATED EMISSION

Test Mode: TX Mode (Adapter: PHITEK)

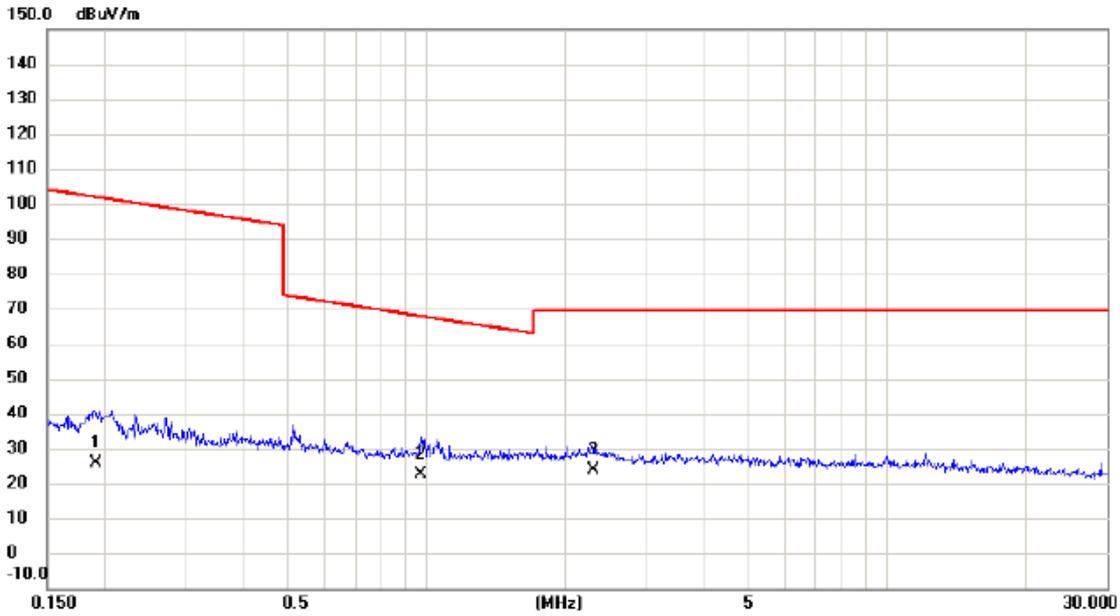
Ant 0°



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1		0.0173	7.94	23.68	31.62	122.84	-91.22	AVG	
2	*	0.0673	14.21	19.62	33.83	111.04	-77.21	AVG	
3		0.1330	-0.80	18.64	17.84	105.13	-87.29	AVG	

Test Mode: TX Mode (Adapter: PHITEK)

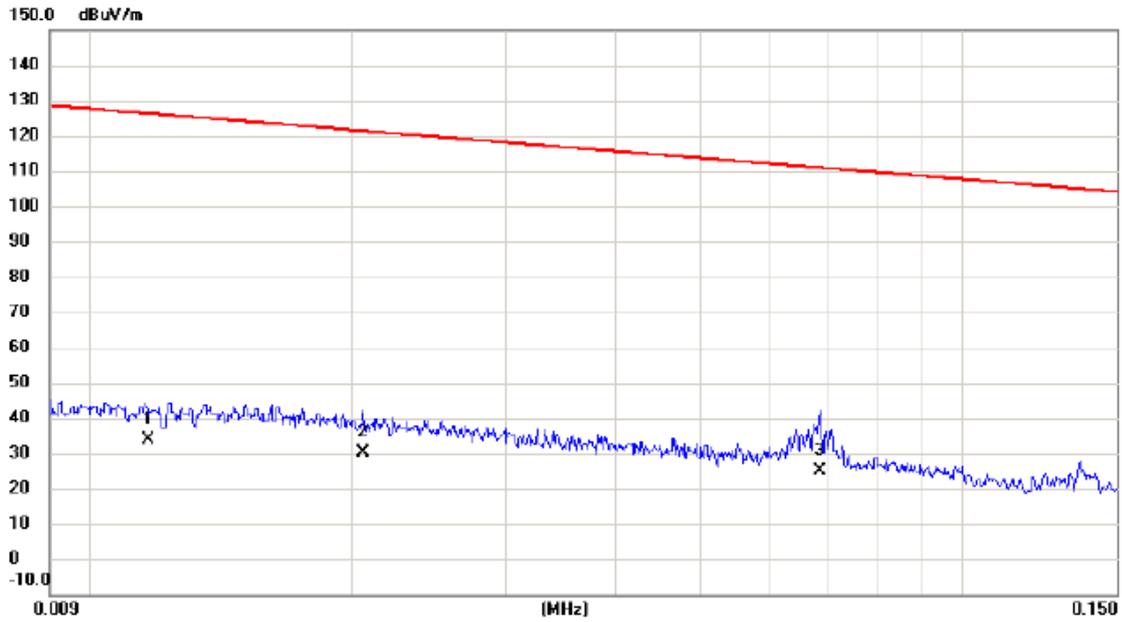
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No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		0.1914	7.14	18.70	25.84	101.97	-76.13	AVG	
2	*	0.9735	4.82	17.76	22.58	67.84	-45.26	QP	
3		2.2968	6.19	17.52	23.71	69.54	-45.83	QP	

Test Mode: TX Mode (Adapter: PHITEK)

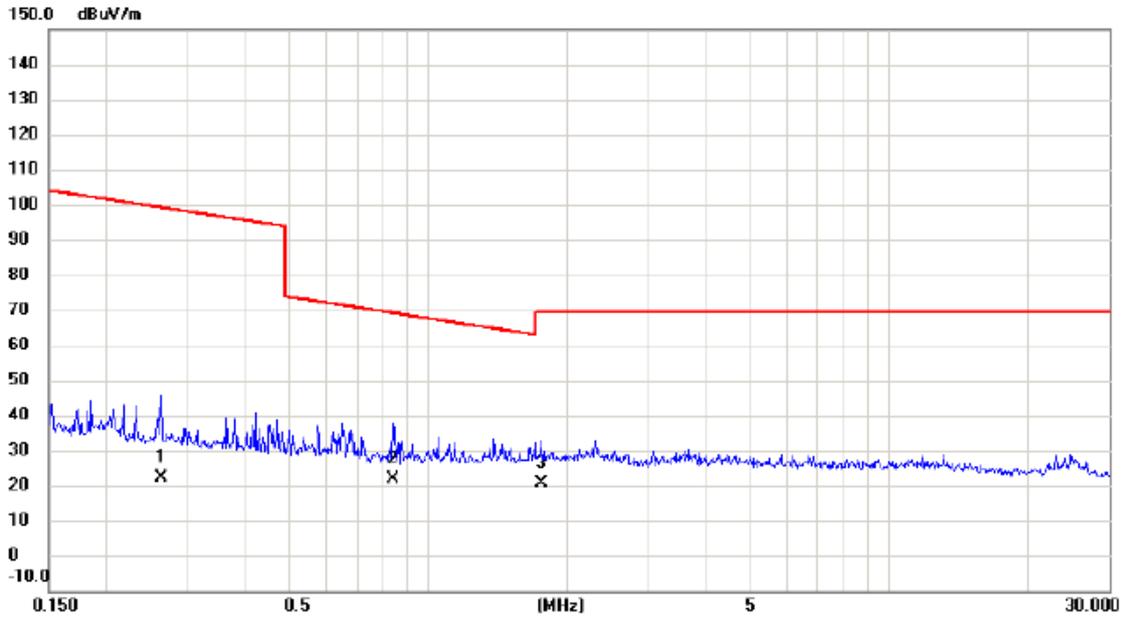
Ant 90°



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		0.0117	9.70	24.02	33.72	126.24	-92.52	AVG	
2		0.0206	6.77	23.45	30.22	121.33	-91.11	AVG	
3	*	0.0686	5.52	19.61	25.13	110.88	-85.75	AVG	

Test Mode: TX Mode (Adapter: PHITEK)

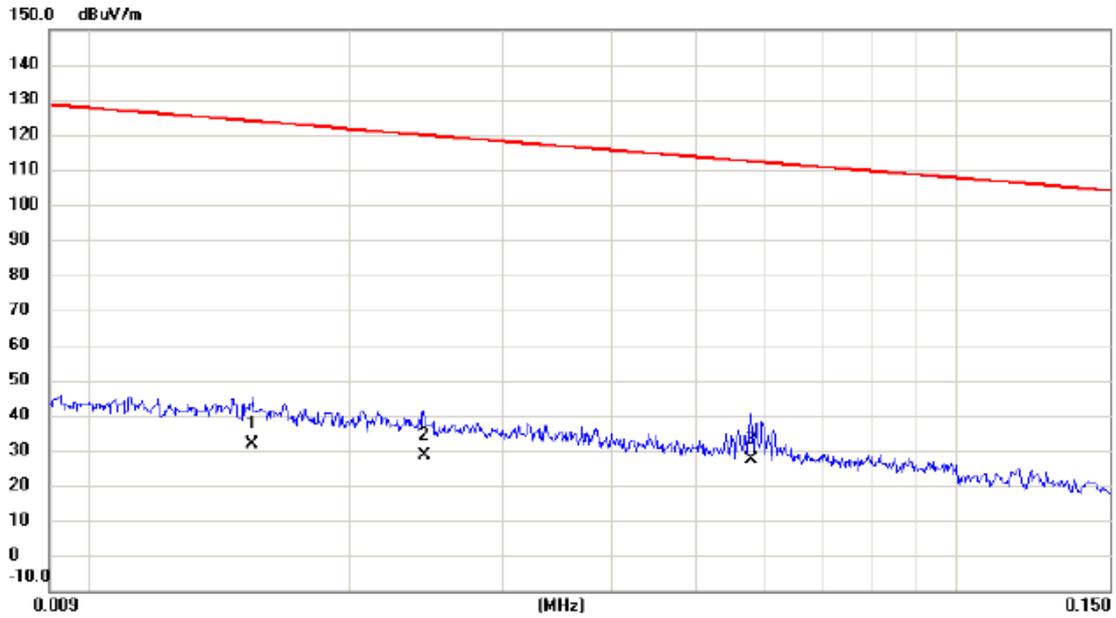
Ant 90°



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		0.2630	3.62	18.63	22.25	99.21	-76.96	AVG	
2	*	0.8393	3.69	18.19	21.88	69.13	-47.25	QP	
3		1.7530	2.85	17.85	20.70	69.54	-48.84	QP	

Test Mode: TX Mode (Adapter: HUNTKEY)

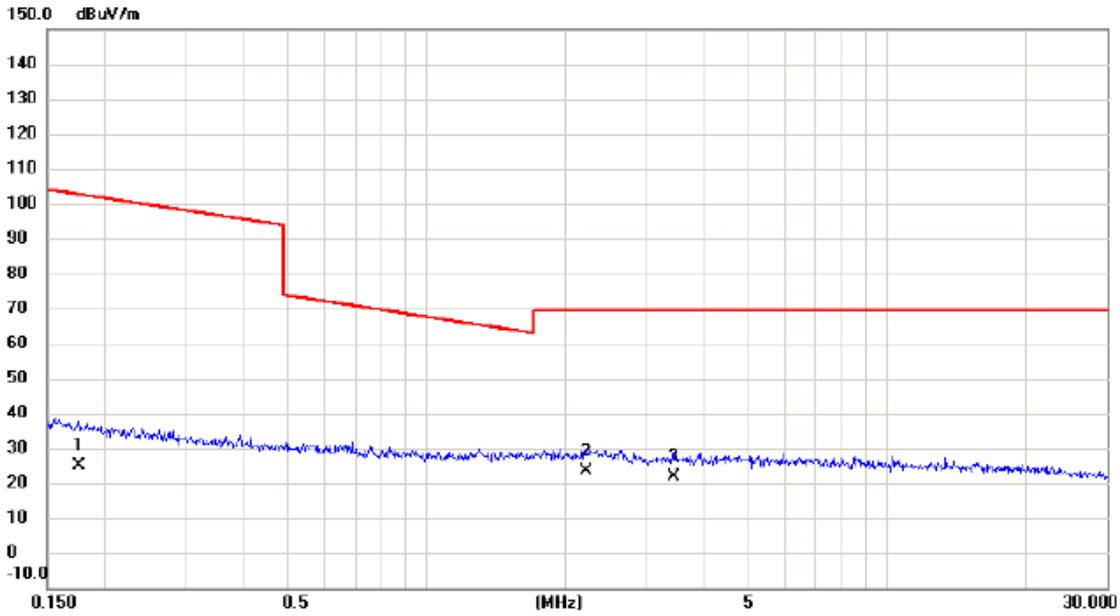
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No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		0.0154	8.02	23.80	31.82	123.85	-92.03	AVG	
2		0.0244	5.54	22.98	28.52	119.86	-91.34	AVG	
3	*	0.0580	7.60	19.73	27.33	112.34	-85.01	AVG	

Test Mode: TX Mode (Adapter: HUNTKEY)

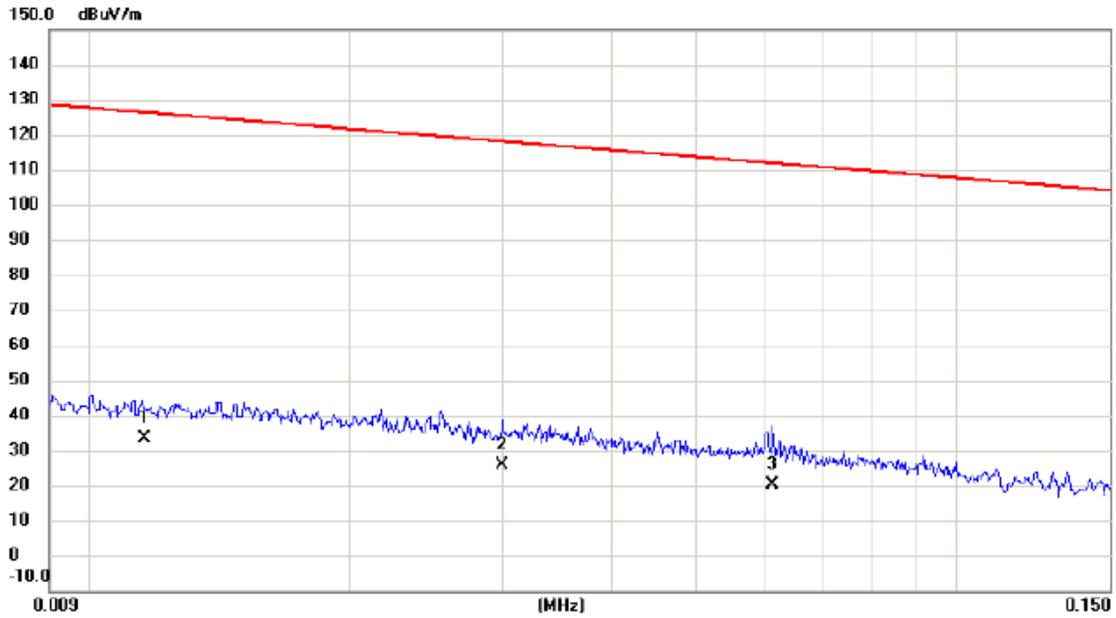
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No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		0.1758	6.43	18.71	25.14	102.71	-77.57	AVG	
2	*	2.2250	5.89	17.62	23.51	69.54	-46.03	QP	
3		3.4356	4.39	17.55	21.94	69.54	-47.60	QP	

Test Mode: TX Mode (Adapter: HUNTKEY)

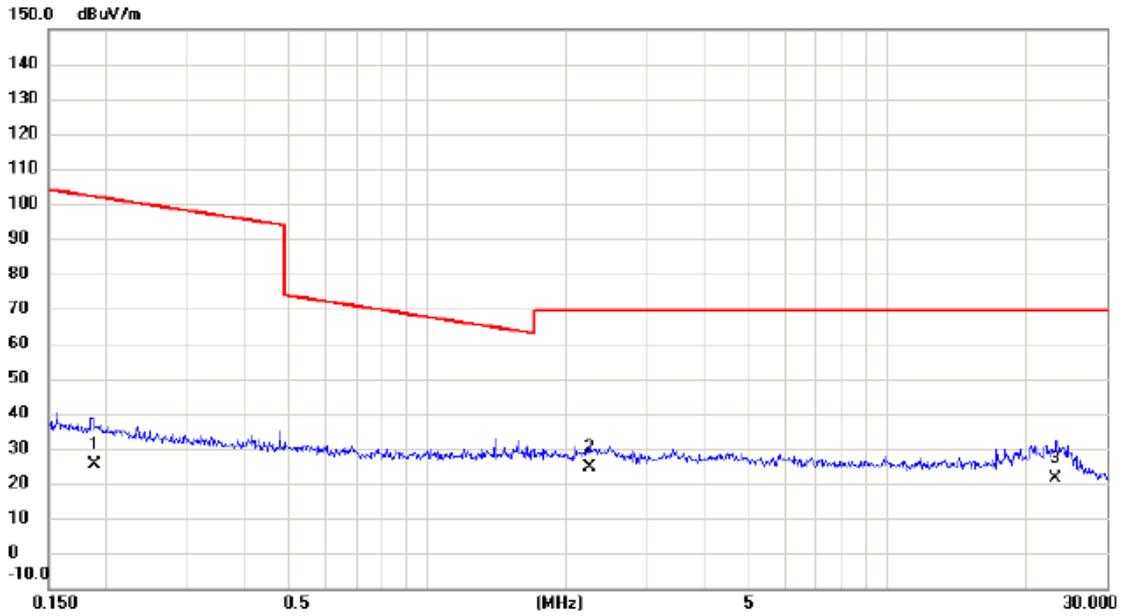
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No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		0.0116	9.50	24.02	33.52	126.32	-92.80	AVG	
2		0.0300	3.53	22.29	25.82	118.06	-92.24	AVG	
3	*	0.0613	0.44	19.69	20.13	111.86	-91.73	AVG	

Test Mode: TX Mode (Adapter: HUNTKEY)

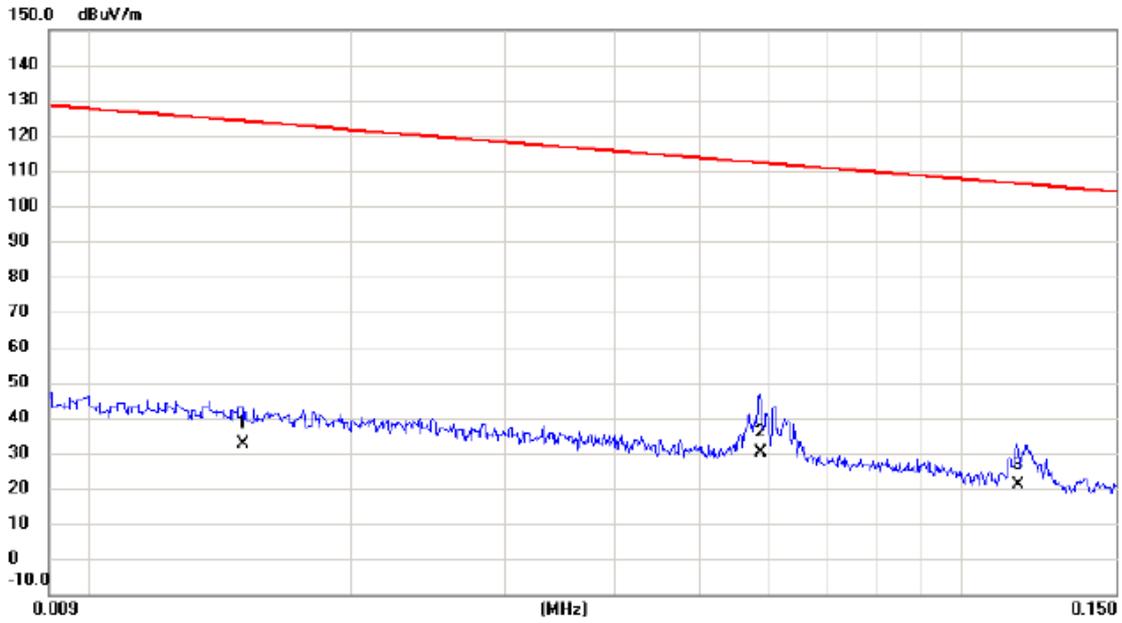
Ant 90°



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		0.1884	6.64	18.70	25.34	102.10	-76.76	AVG	
2	*	2.2486	7.02	17.59	24.61	69.54	-44.93	QP	
3		23.2633	6.73	14.74	21.47	69.54	-48.07	QP	

Test Mode: TX Mode (Adapter: BYD)

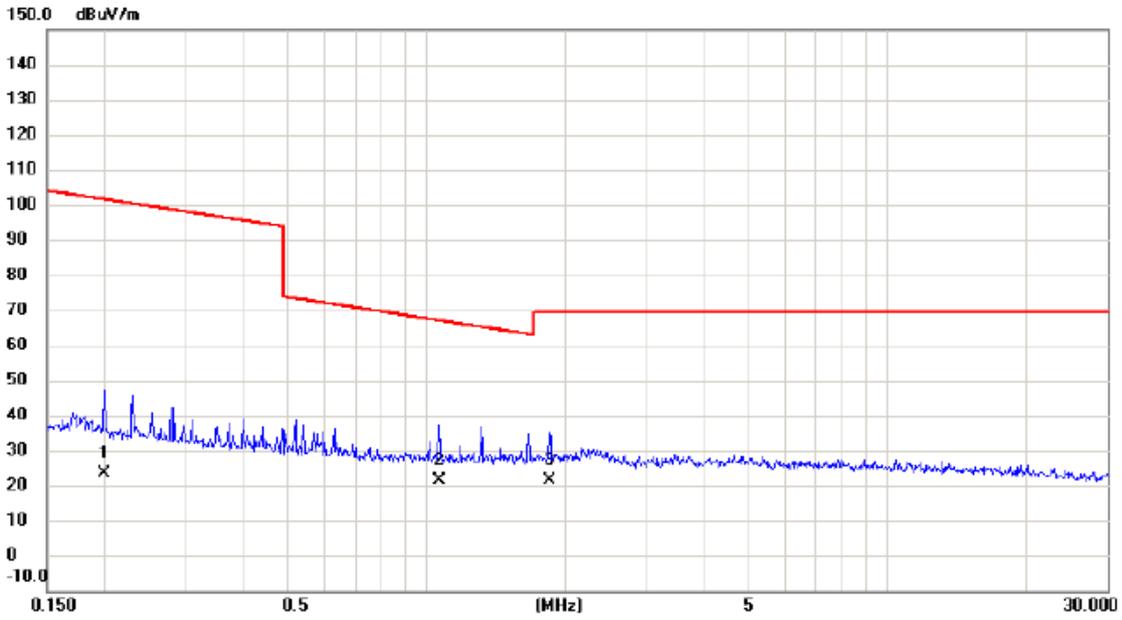
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No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1		0.0150	8.80	23.82	32.62	124.08	-91.46	AVG	
2	*	0.0588	10.41	19.72	30.13	112.22	-82.09	AVG	
3		0.1158	2.31	18.52	20.83	106.33	-85.50	AVG	

Test Mode: TX Mode (Adapter: BYD)

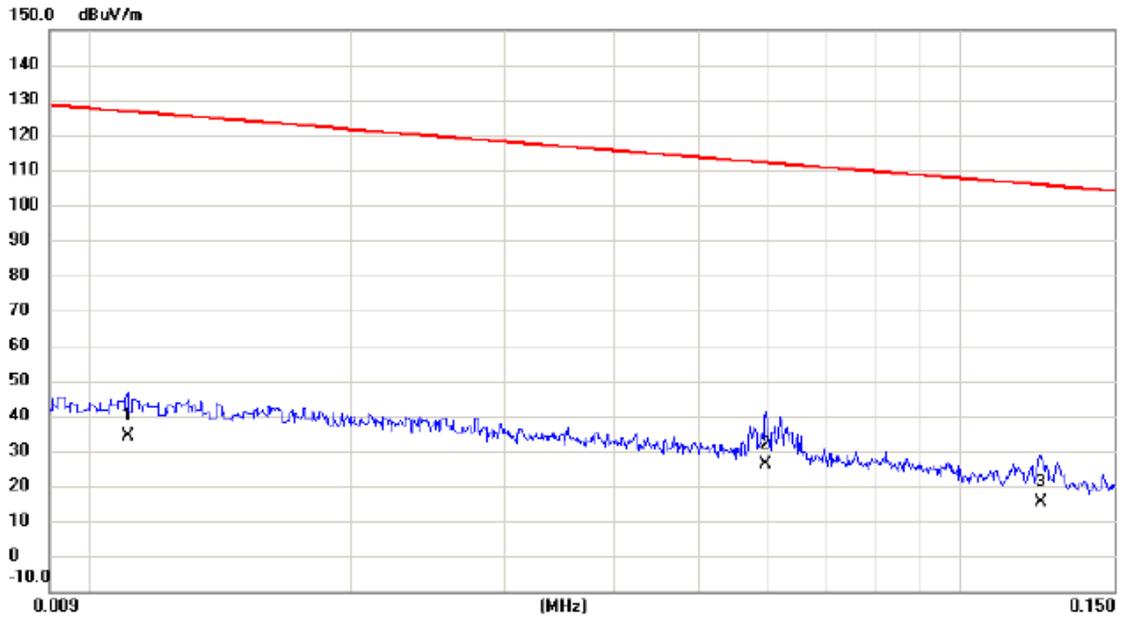
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No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		0.1997	4.75	18.69	23.44	101.60	-78.16	AVG	
2	*	1.0653	3.89	17.69	21.58	67.05	-45.47	QP	
3		1.8483	3.53	17.87	21.40	69.54	-48.14	QP	

Test Mode: TX Mode (Adapter: BYD)

Ant 90°



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		0.0111	10.07	24.05	34.12	126.70	-92.58	AVG	
2	*	0.0598	6.42	19.71	26.13	112.07	-85.94	AVG	
3		0.1235	-3.24	18.57	15.33	105.77	-90.44	AVG	

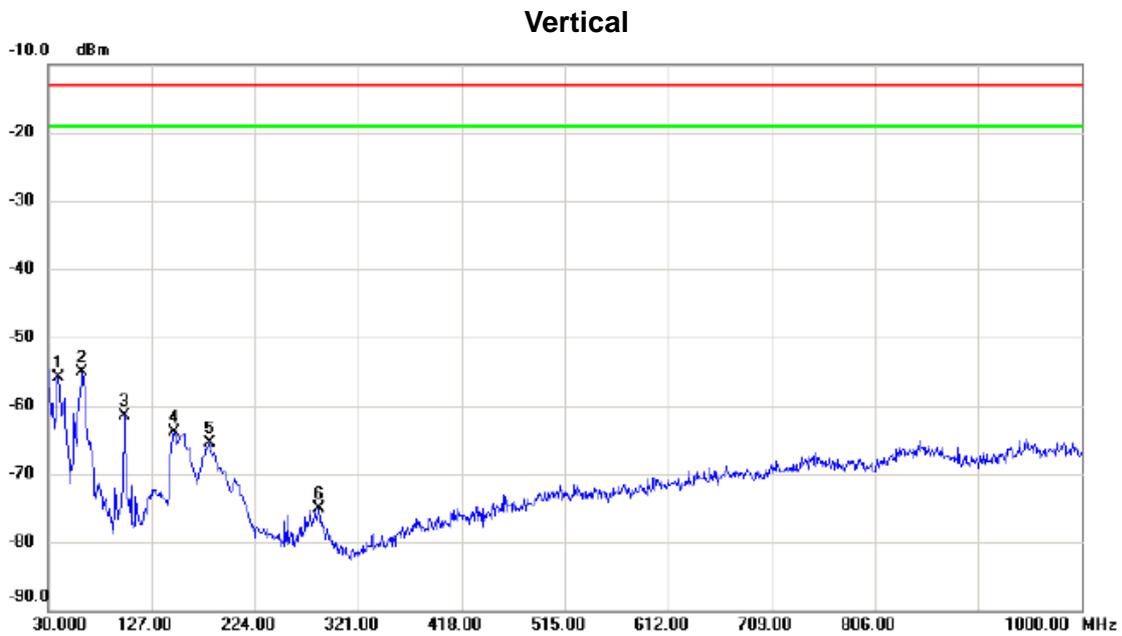
Test Mode: TX Mode (Adapter: BYD)

Ant 90°



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		0.1884	5.84	18.70	24.54	102.10	-77.56	AVG	
2	*	0.9735	4.92	17.76	22.68	67.84	-45.16	QP	
3		2.3710	6.18	17.43	23.61	69.54	-45.93	QP	

Test Mode: DCS1900_TX CH661_GSM



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		39.700	-57.70	1.90	-55.80	-13.00	-42.80	peak	
2	*	62.010	-55.77	0.73	-55.04	-13.00	-42.04	peak	
3		101.780	-60.09	-1.31	-61.40	-13.00	-48.40	peak	
4		148.340	-66.86	2.98	-63.88	-13.00	-50.88	peak	
5		181.320	-65.97	0.43	-65.54	-13.00	-52.54	peak	
6		284.140	-77.63	2.47	-75.16	-13.00	-62.16	peak	

Test Mode: DCS1900_TX CH661_GSM

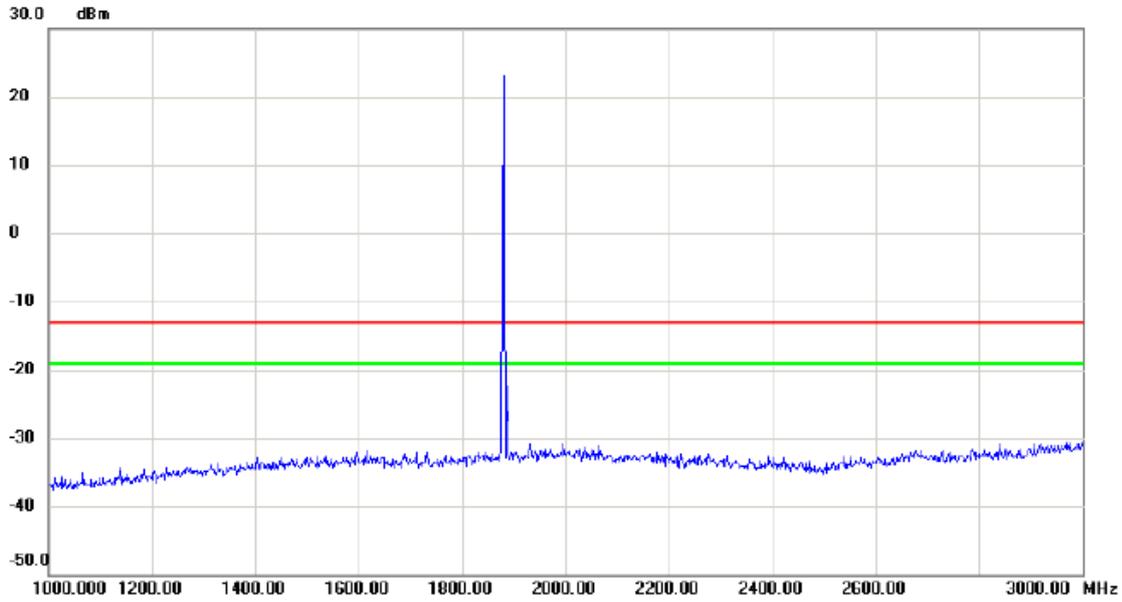
Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	45.520	-63.85	2.87	-60.98	-13.00	-47.98	peak	
2		81.410	-69.26	-7.53	-76.79	-13.00	-63.79	peak	
3		101.780	-69.97	-3.56	-73.53	-13.00	-60.53	peak	
4		157.070	-69.05	3.19	-65.86	-13.00	-52.86	peak	
5		211.390	-65.66	-1.60	-67.26	-13.00	-54.26	peak	
6		275.410	-75.68	2.74	-72.94	-13.00	-59.94	peak	

Test Mode: DCS1900_TX CH661_GSM

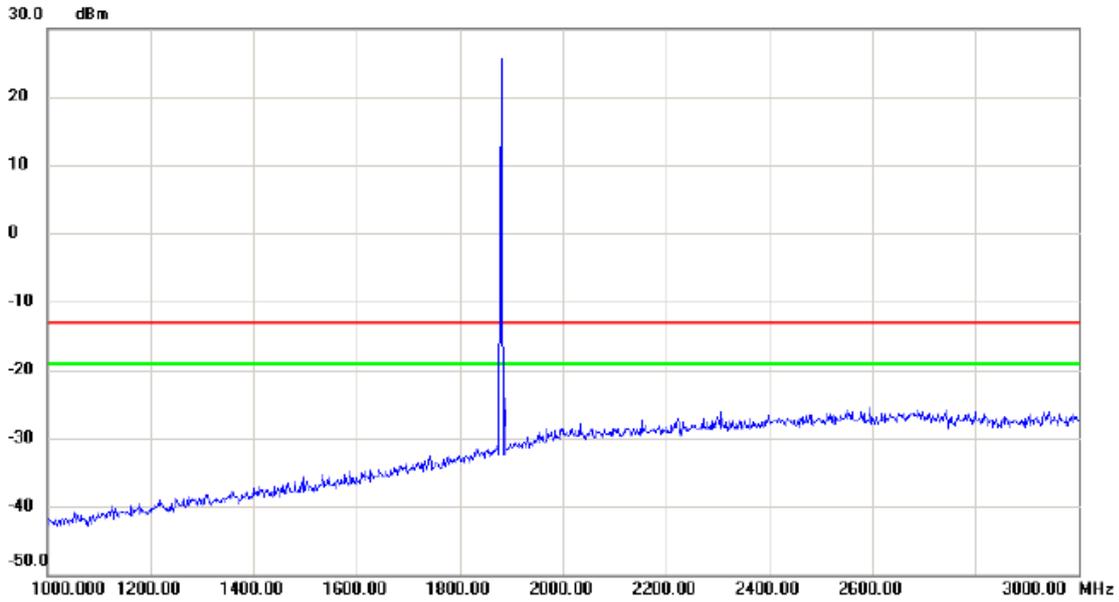
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		
		1900.000	25.0	0.0	25.0	-15.0	40.0		

Test Mode: DCS1900_TX CH661_GSM

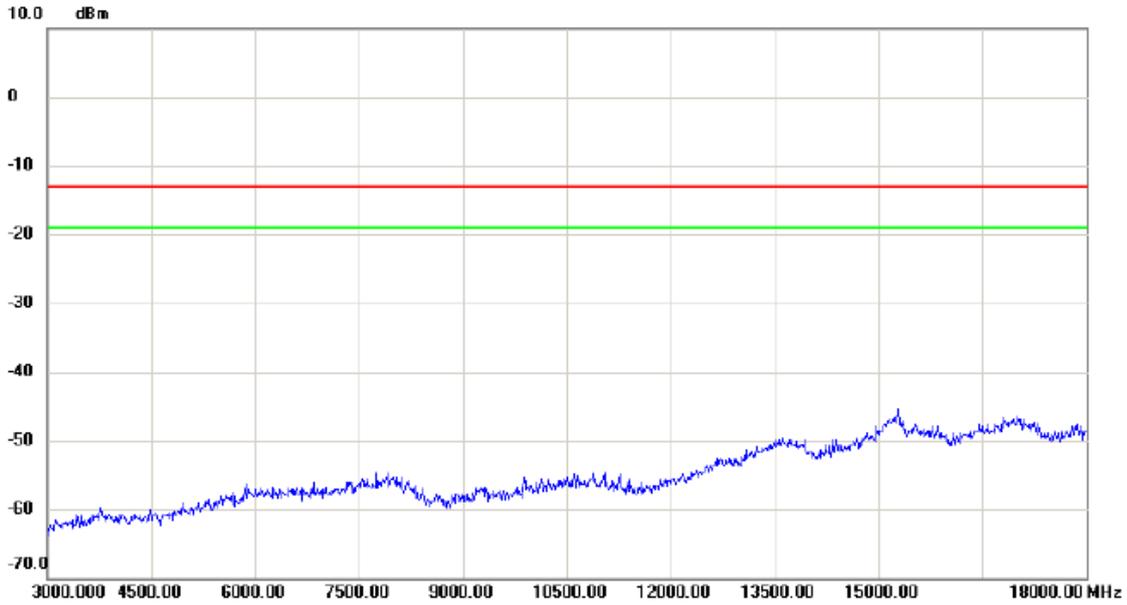
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		
		1900.000	25.0	0.0	25.0	-13.0	38.0		

Test Mode: DCS1900_TX CH661_GSM

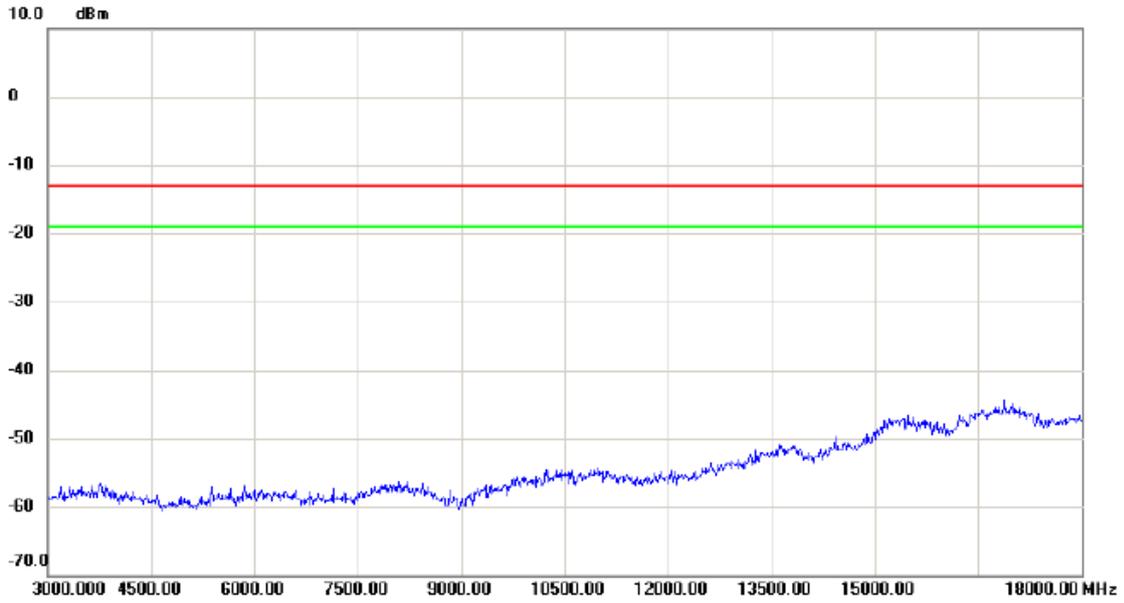
Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
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Test Mode: DCS1900_TX CH661_GSM

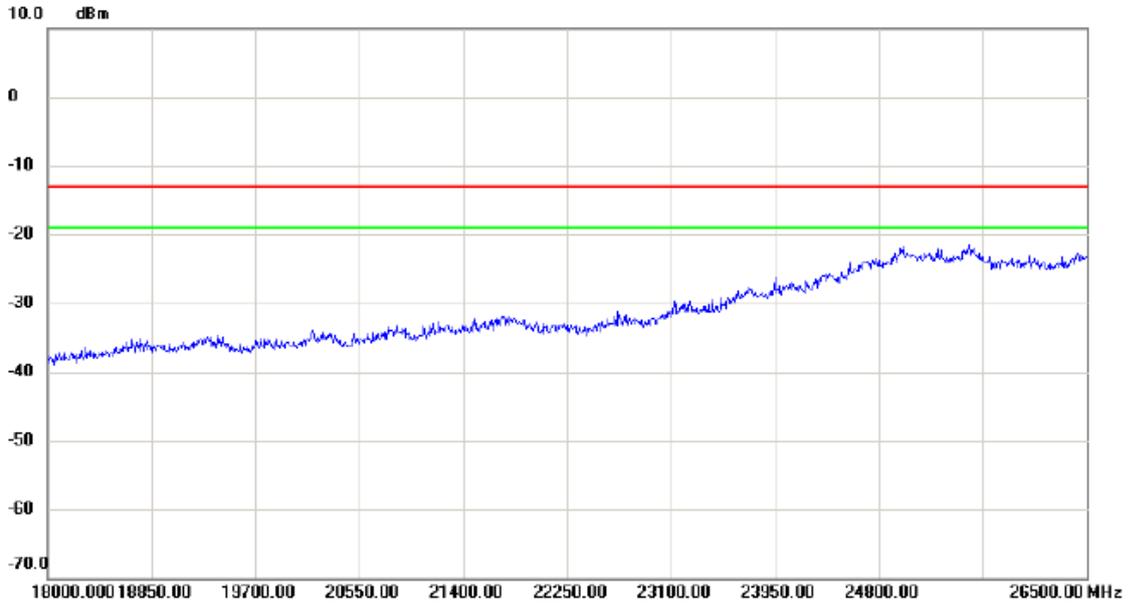
Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
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Test Mode: DCS1900_TX CH661_GSM

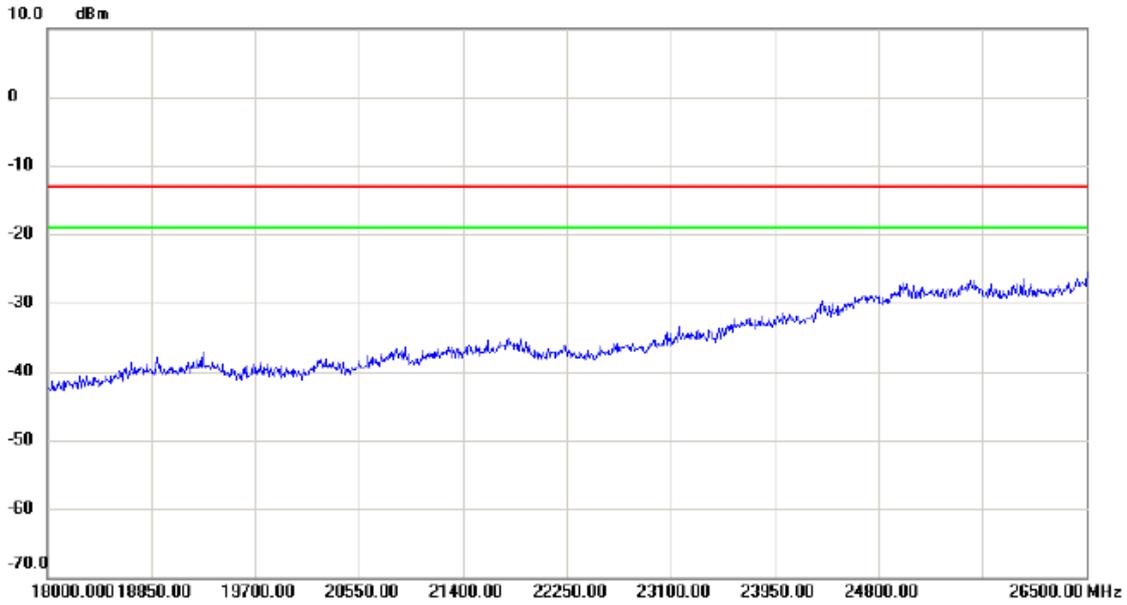
Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
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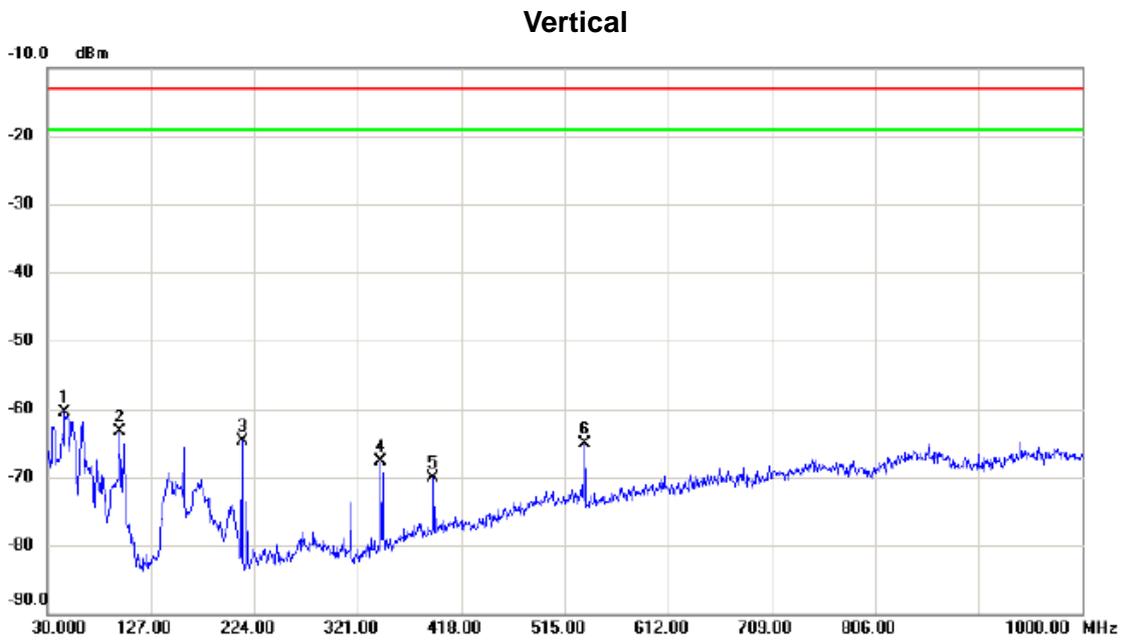
Test Mode: DCS1900_TX CH661_GSM

Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		

Test Mode: DCS1900_TX CH661_EDGE



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	46.490	-62.07	1.54	-60.53	-13.00	-47.53	peak	
2		97.900	-60.91	-2.30	-63.21	-13.00	-50.21	peak	
3		212.360	-62.53	-2.23	-64.76	-13.00	-51.76	peak	
4		342.340	-69.61	1.81	-67.80	-13.00	-54.80	peak	
5		391.810	-74.17	4.00	-70.17	-13.00	-57.17	peak	
6		533.430	-72.60	7.48	-65.12	-13.00	-52.12	peak	

Test Mode: DCS1900_TX CH661_EDGE

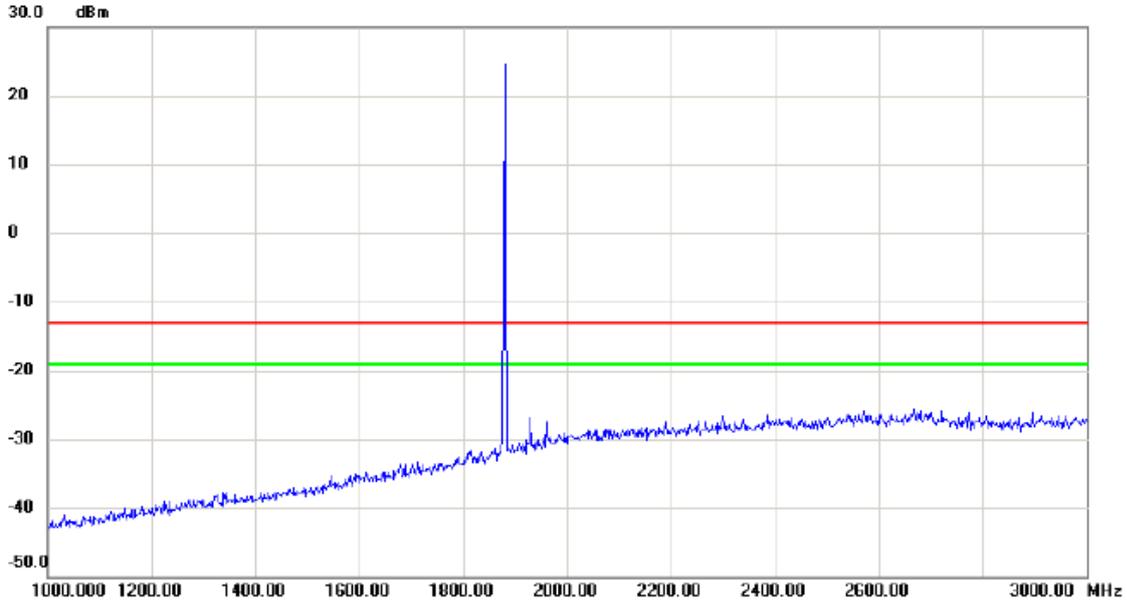
Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	35.820	-66.63	0.59	-66.04	-13.00	-53.04	peak	
2		60.070	-68.69	-0.77	-69.46	-13.00	-56.46	peak	
3		101.780	-68.40	-3.56	-71.96	-13.00	-58.96	peak	
4		166.770	-72.38	-0.07	-72.45	-13.00	-59.45	peak	
5		217.210	-73.64	-0.15	-73.79	-13.00	-60.79	peak	
6		418.000	-79.93	6.78	-73.15	-13.00	-60.15	peak	

Test Mode: DCS1900_TX CH661_EDGE

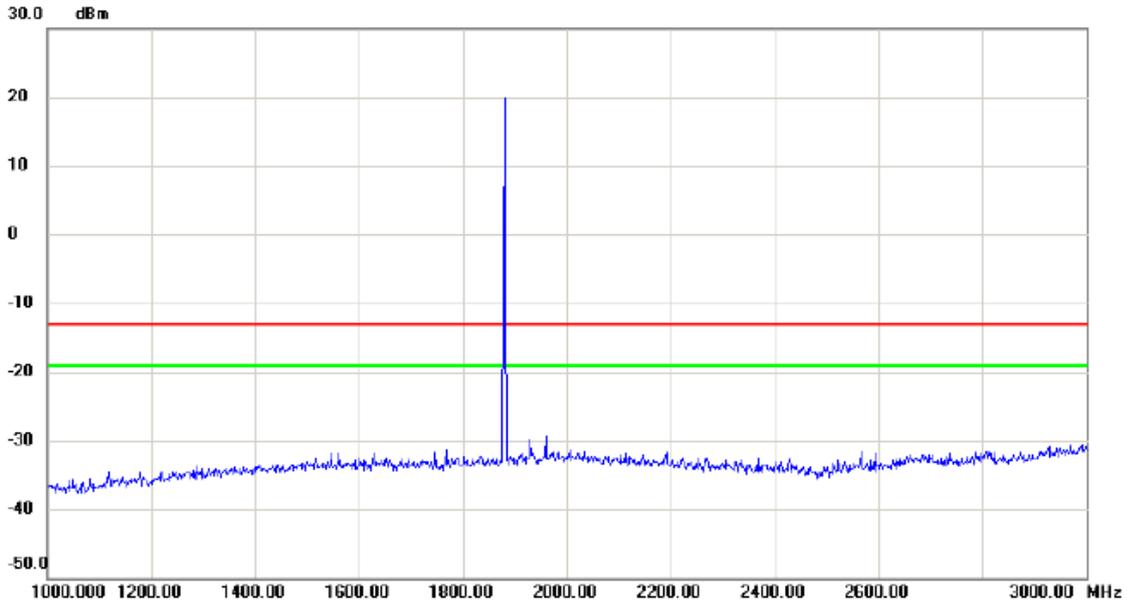
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		
		1900.000	25.0	0.0	25.0	-13.0	38.0		

Test Mode: DCS1900_TX CH661_EDGE

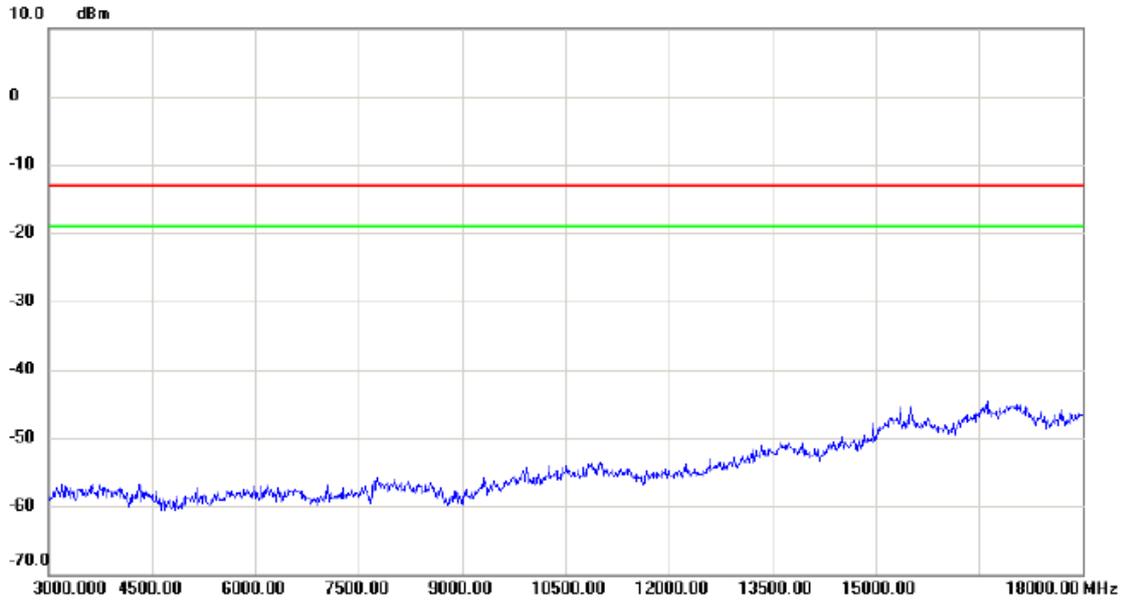
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		
		1900.00	20.00		20.00	-13.00	33.00		

Test Mode: DCS1900_TX CH661_EDGE

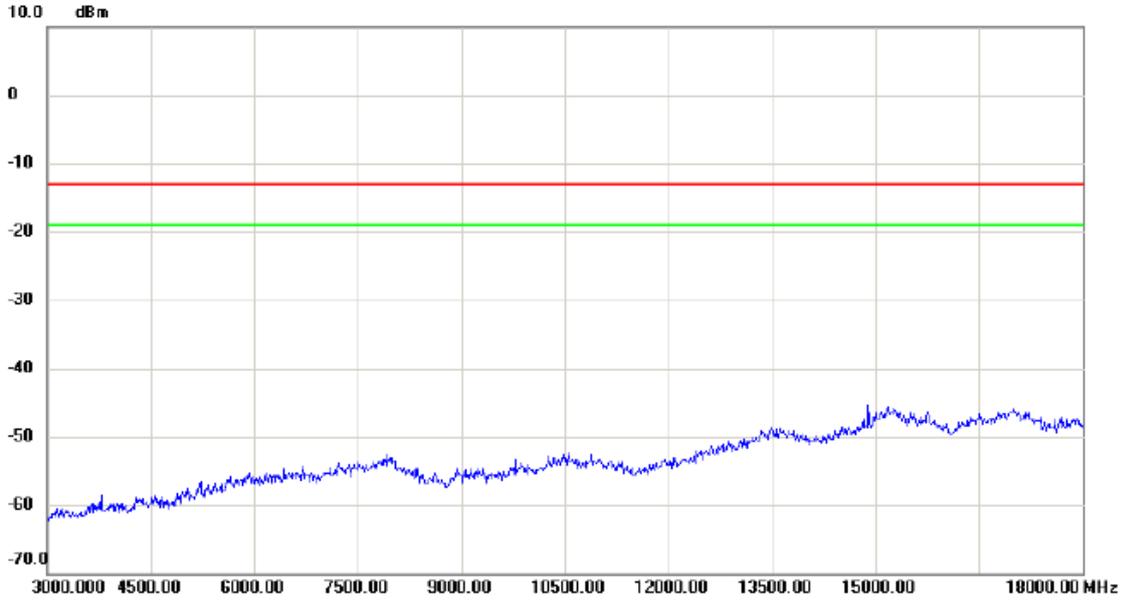
Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment

Test Mode: DCS1900_TX CH661_EDGE

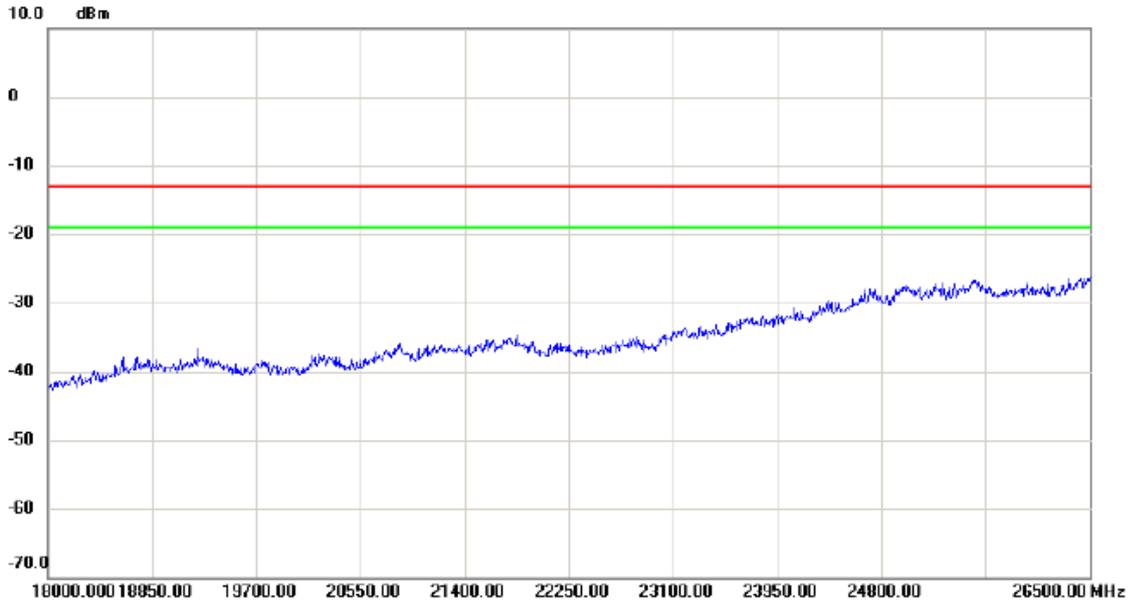
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		

Test Mode: DCS1900_TX CH661_EDGE

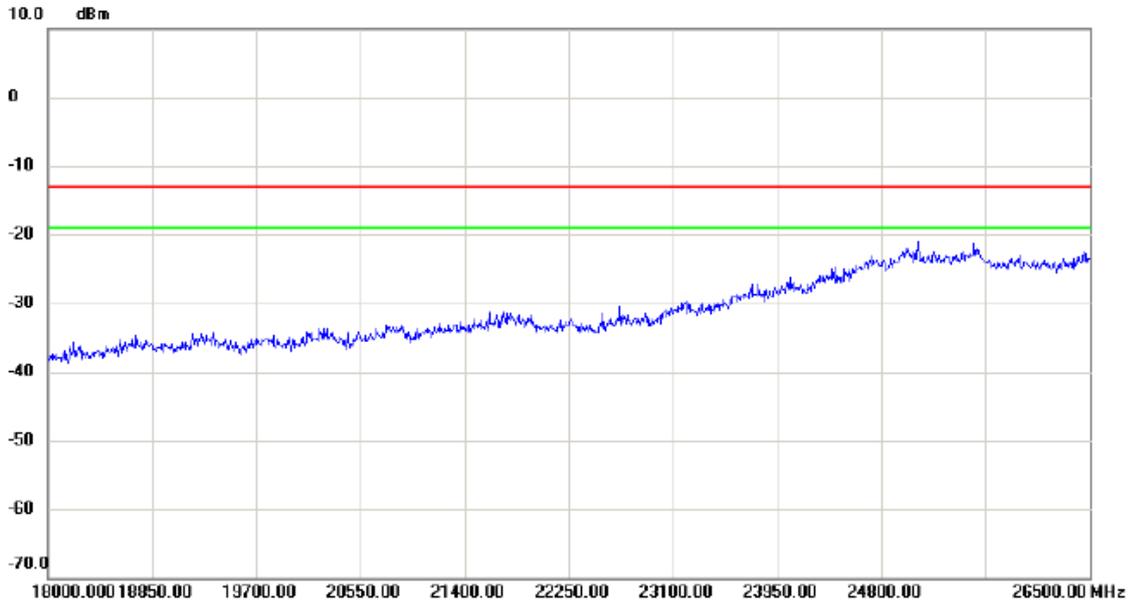
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		

Test Mode: DCS1900_TX CH661_EDGE

Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment

Test Mode: WCDMA Band II_TX CH9400

Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		46.490	-58.88	1.54	-57.34	-13.00	-44.34	peak	
2	*	101.780	-51.90	-1.31	-53.21	-13.00	-40.21	peak	
3		141.550	-66.07	2.31	-63.76	-13.00	-50.76	peak	
4		205.570	-66.53	-2.41	-68.94	-13.00	-55.94	peak	
5		252.130	-76.03	0.28	-75.75	-13.00	-62.75	peak	
6		552.830	-78.84	7.52	-71.32	-13.00	-58.32	peak	

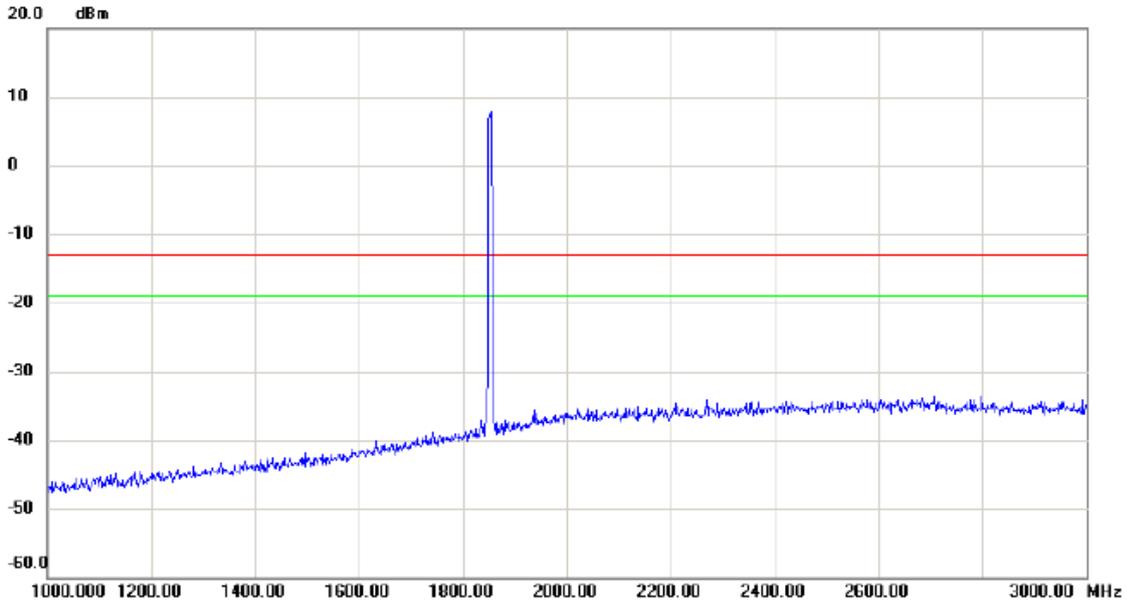
Test Mode: WCDMA Band II_TX CH9400



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		46.490	-68.52	2.52	-66.00	-13.00	-53.00	peak	
2	*	101.780	-61.16	-3.56	-64.72	-13.00	-51.72	peak	
3		183.260	-68.66	-2.02	-70.68	-13.00	-57.68	peak	
4		219.150	-69.35	0.33	-69.02	-13.00	-56.02	peak	
5		269.590	-77.94	2.98	-74.96	-13.00	-61.96	peak	
6		414.120	-79.04	6.59	-72.45	-13.00	-59.45	peak	

Test Mode: WCDMA Band II_TX CH9400

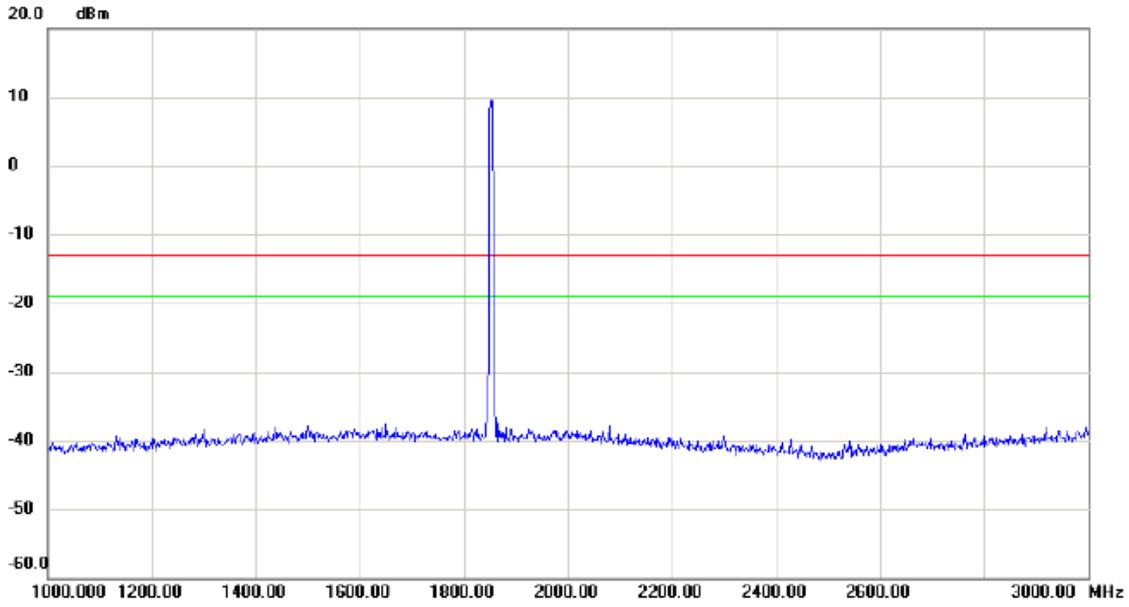
Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
		1880.00	8.00	0.00	8.00	-13.00	-21.00		

Test Mode: WCDMA Band II_TX CH9400

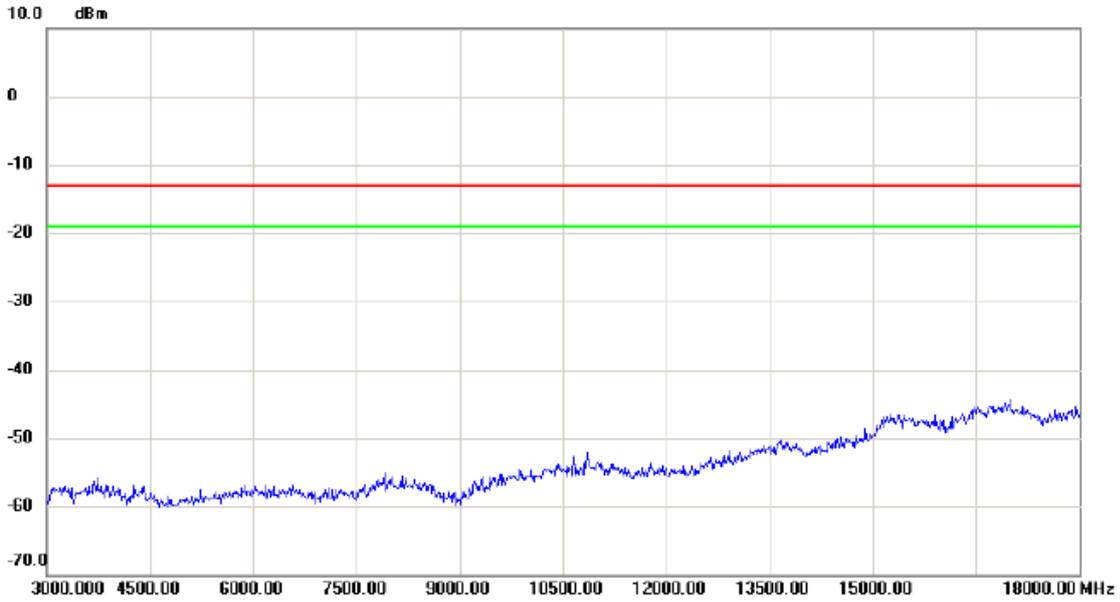
Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
		1880.00	10.00	0.00	10.00	-13.00	23.00		

Test Mode: WCDMA Band II_TX CH9400

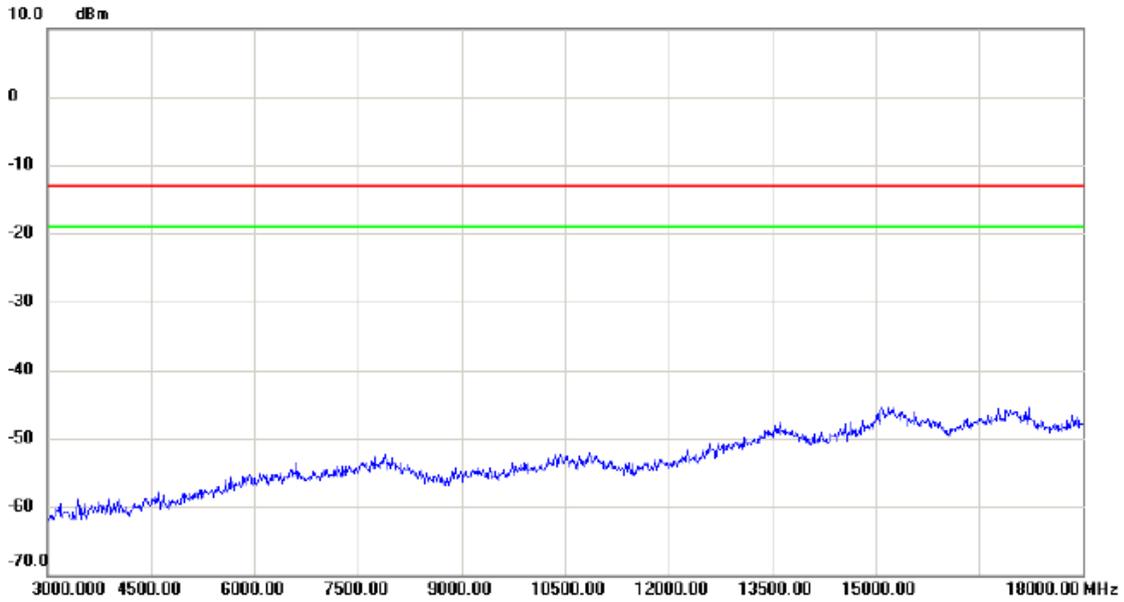
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		

Test Mode: WCDMA Band II_TX CH9400

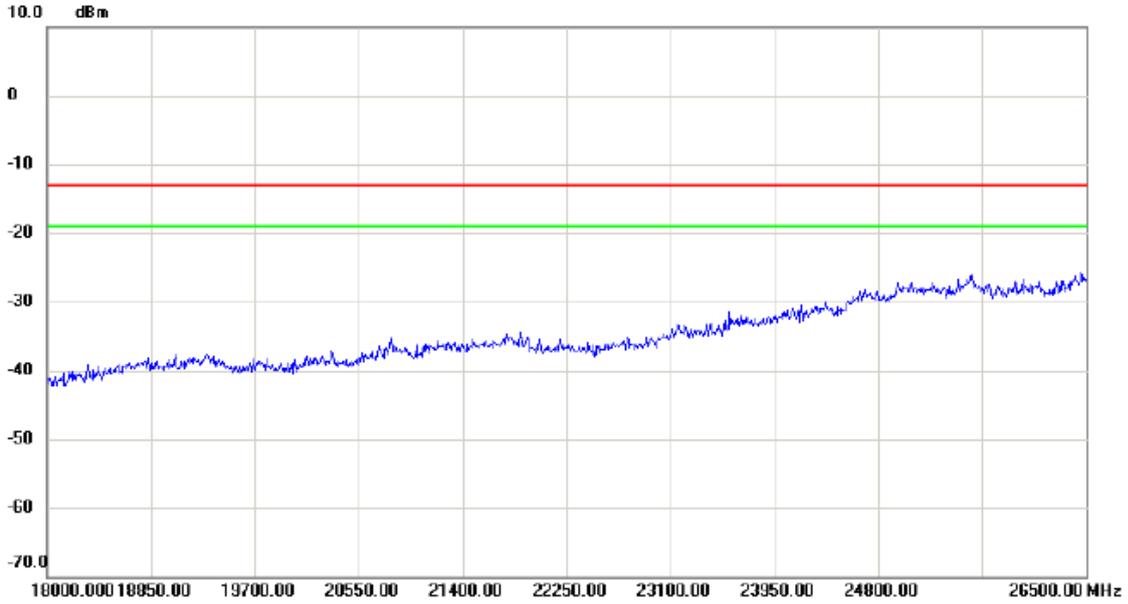
Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
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Test Mode: WCDMA Band II_TX CH9400

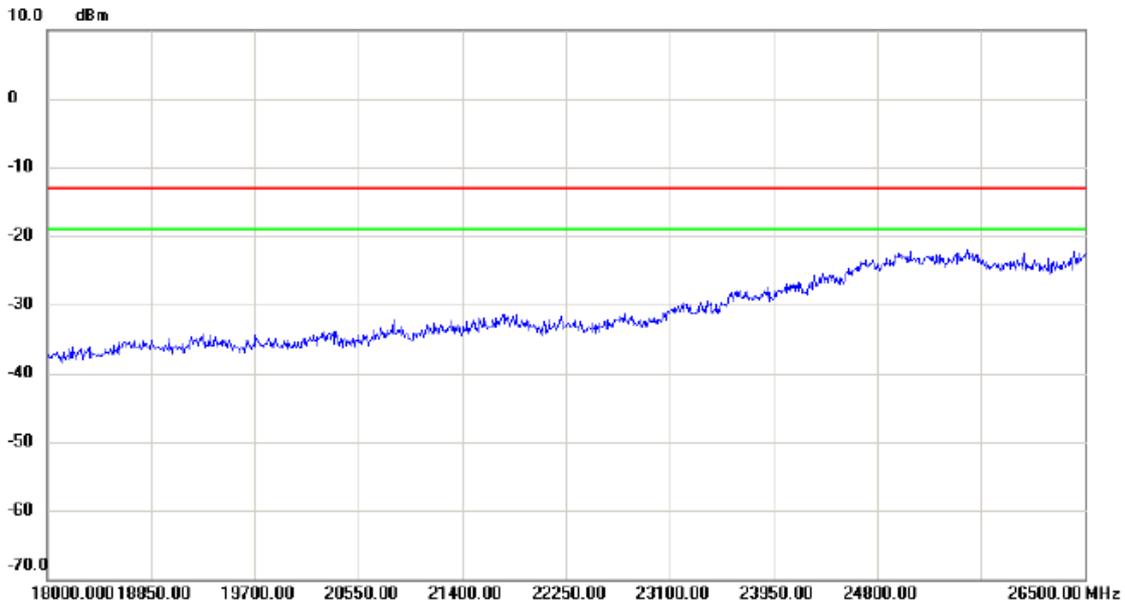
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		

Test Mode: WCDMA Band II_TX CH9400

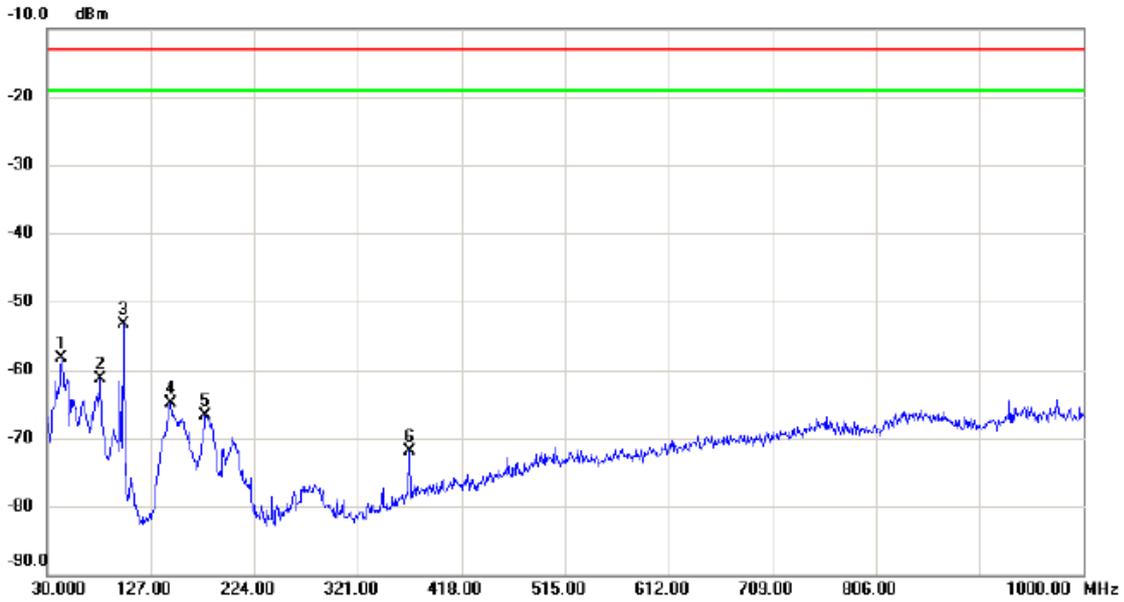
Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
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Test Mode: WCDMA Band II_HSDPA_TX CH9400

Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		43.580	-60.34	1.99	-58.35	-13.00	-45.35	peak	
2		79.470	-55.54	-5.74	-61.28	-13.00	-48.28	peak	
3	*	101.780	-51.94	-1.31	-53.25	-13.00	-40.25	peak	
4		145.430	-67.64	2.69	-64.95	-13.00	-51.95	peak	
5		178.410	-67.26	0.63	-66.63	-13.00	-53.63	peak	
6		369.500	-75.18	3.30	-71.88	-13.00	-58.88	peak	

Test Mode: WCDMA Band II_HSDPA_TX CH9400

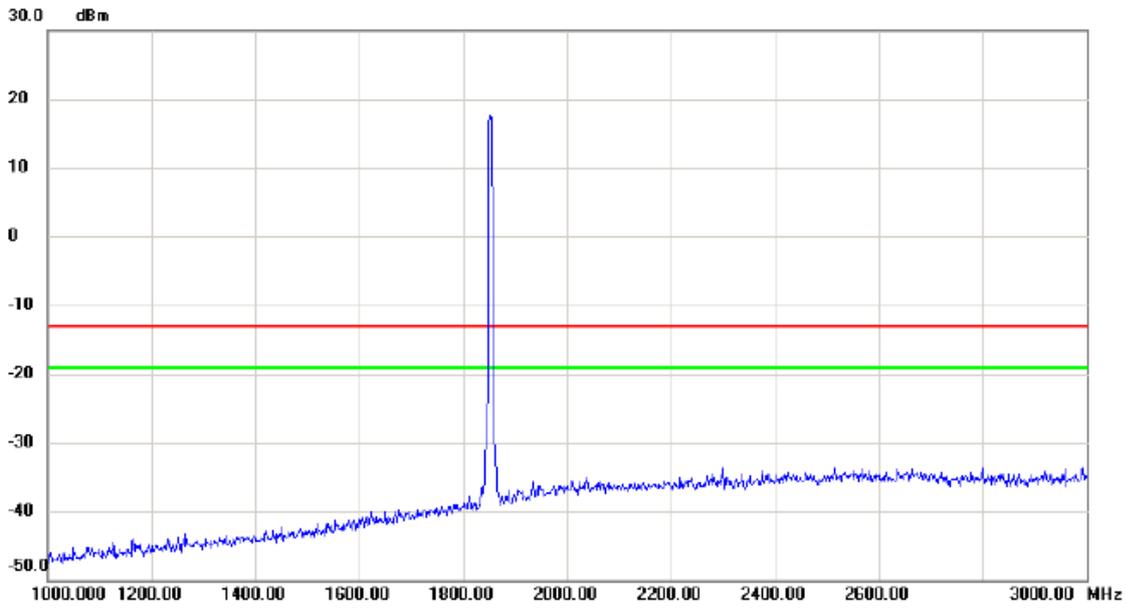
Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	47.460	-65.77	2.17	-63.60	-13.00	-50.60	peak	
2		101.780	-62.21	-3.56	-65.77	-13.00	-52.77	peak	
3		142.520	-70.69	3.41	-67.28	-13.00	-54.28	peak	
4		215.270	-65.42	-0.63	-66.05	-13.00	-53.05	peak	
5		278.320	-75.50	2.59	-72.91	-13.00	-59.91	peak	
6		418.000	-79.19	6.78	-72.41	-13.00	-59.41	peak	

Test Mode: WCDMA Band II_HSDPA_TX CH9400

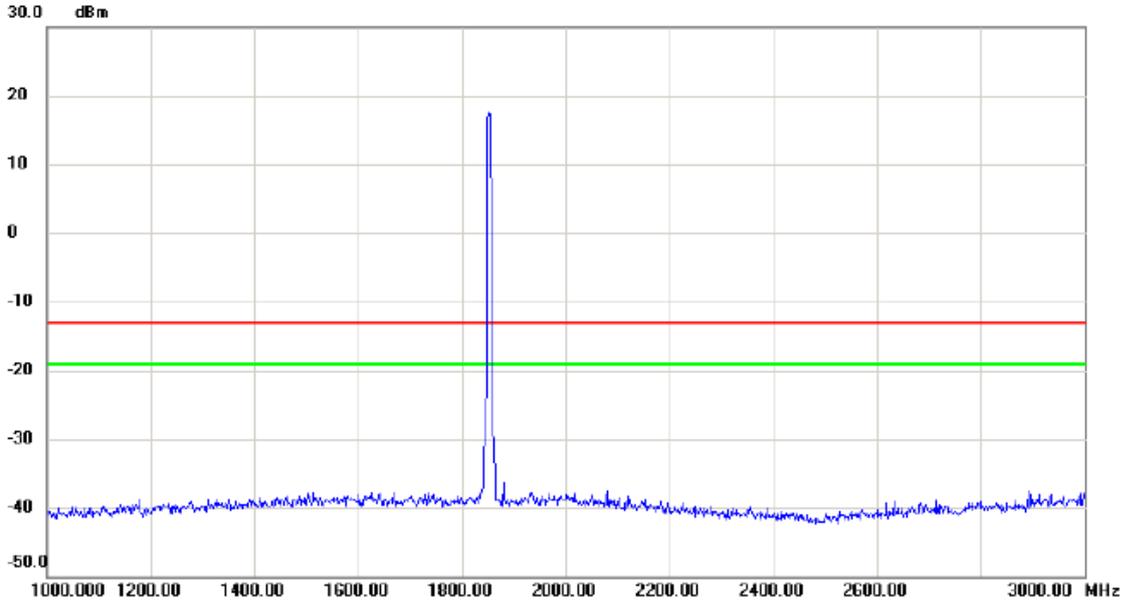
Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
		1880.00	18.00	0.00	18.00	-13.00	31.00		

Test Mode: WCDMA Band II_HSDPA_TX CH9400

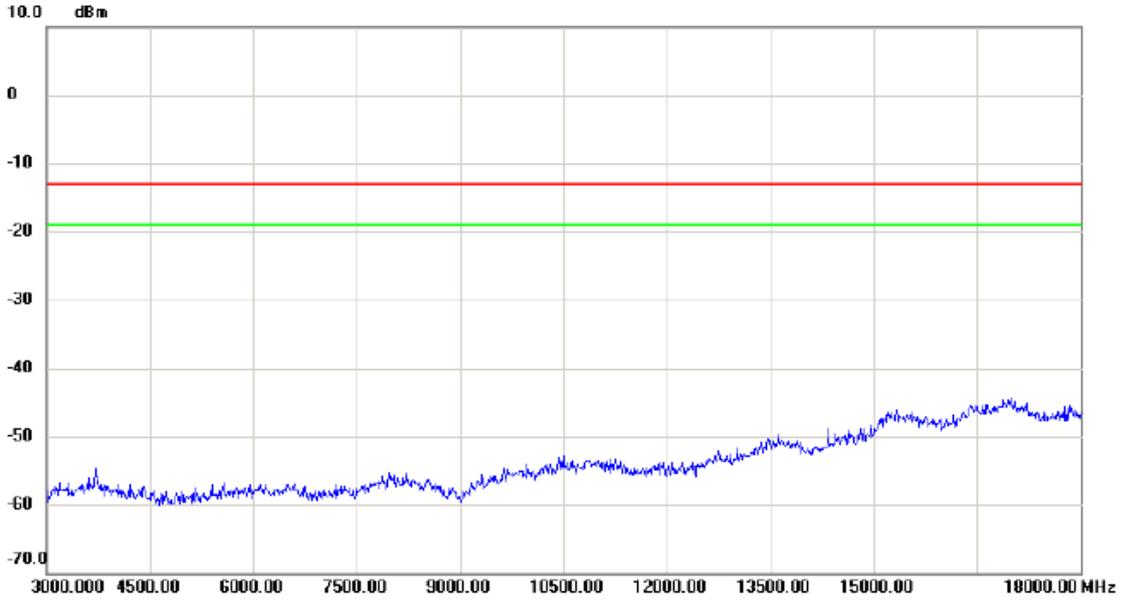
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		
		1900.00	18.0		18.0	-13.0	31.0		

Test Mode: WCDMA Band II_HSDPA_TX CH9400

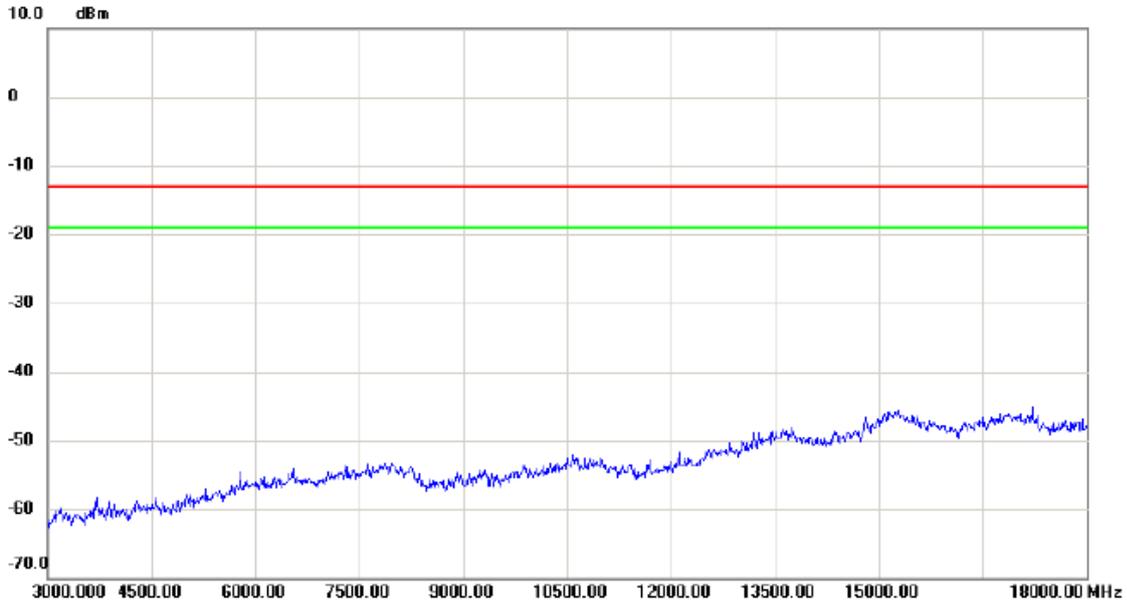
Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
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Test Mode: WCDMA Band II_HSDPA_TX CH9400

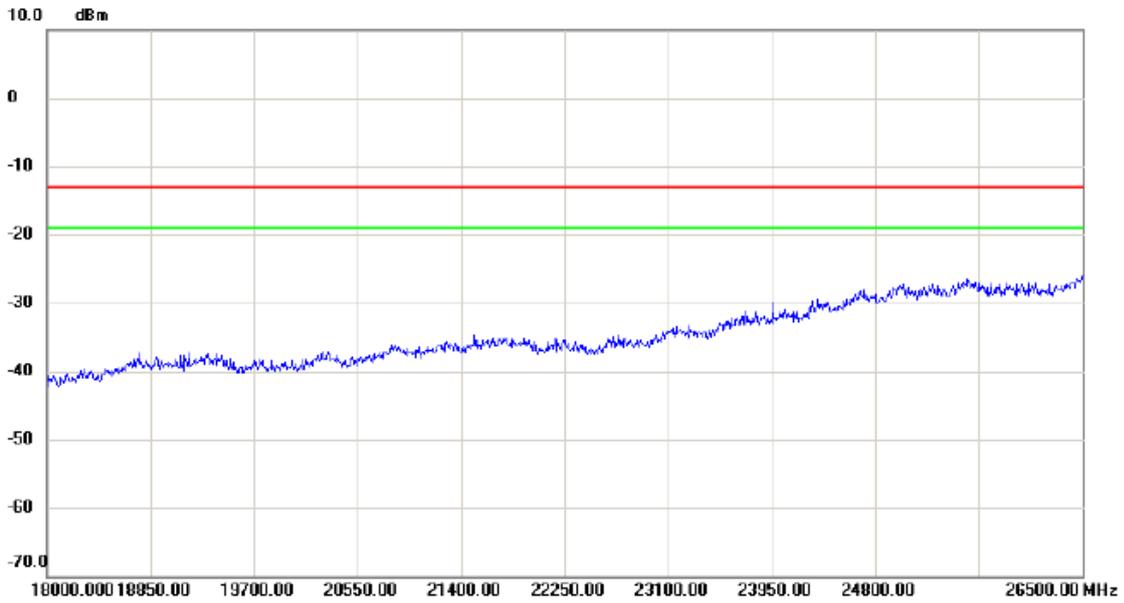
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		

Test Mode: WCDMA Band II_HSDPA_TX CH9400

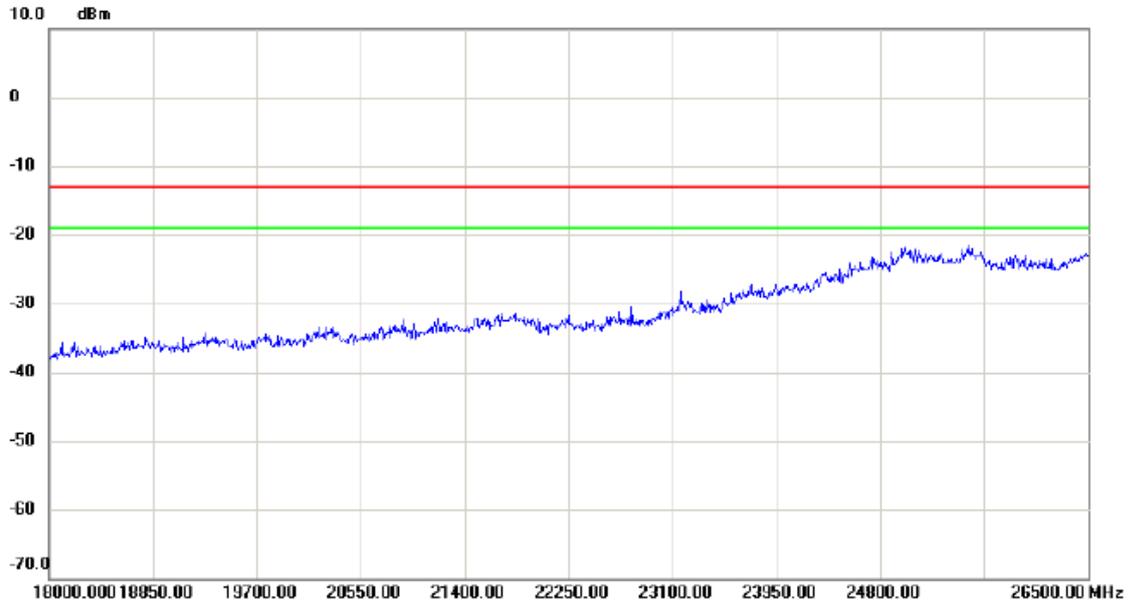
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		

Test Mode: WCDMA Band II_HSDPA_TX CH9400

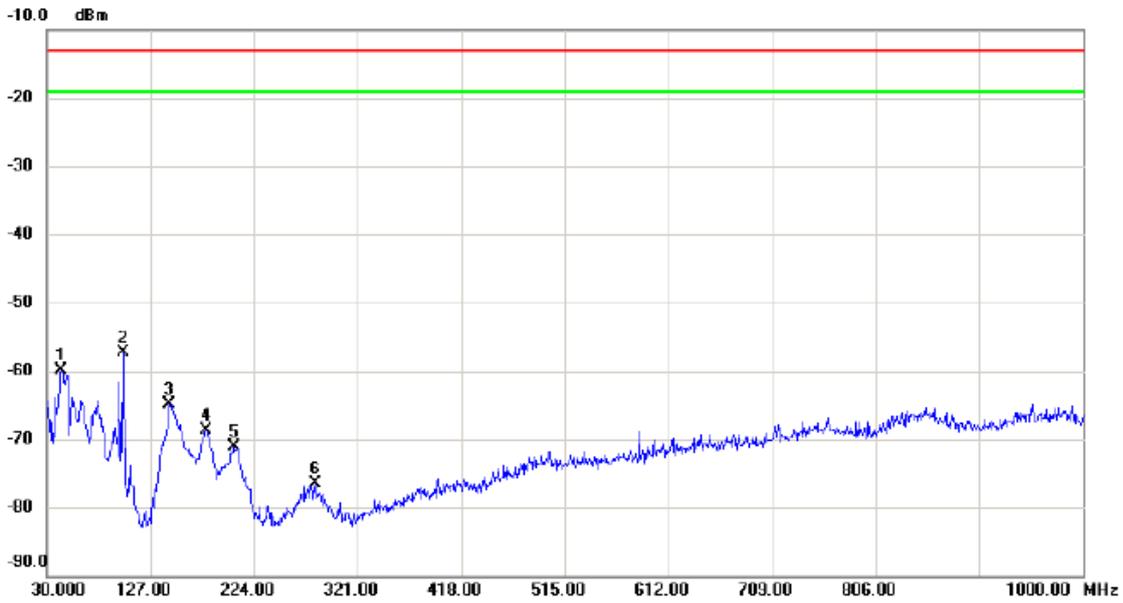
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		

Test Mode: WCDMA Band II_HSUPA_TX CH9400

Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		43.580	-61.83	1.99	-59.84	-13.00	-46.84	peak	
2	*	101.780	-55.96	-1.31	-57.27	-13.00	-44.27	peak	
3		144.460	-67.54	2.60	-64.94	-13.00	-51.94	peak	
4		179.380	-69.46	0.71	-68.75	-13.00	-55.75	peak	
5		205.570	-68.77	-2.41	-71.18	-13.00	-58.18	peak	
6		281.230	-79.01	2.60	-76.41	-13.00	-63.41	peak	

Test Mode: WCDMA Band II_HSUPA_TX CH9400

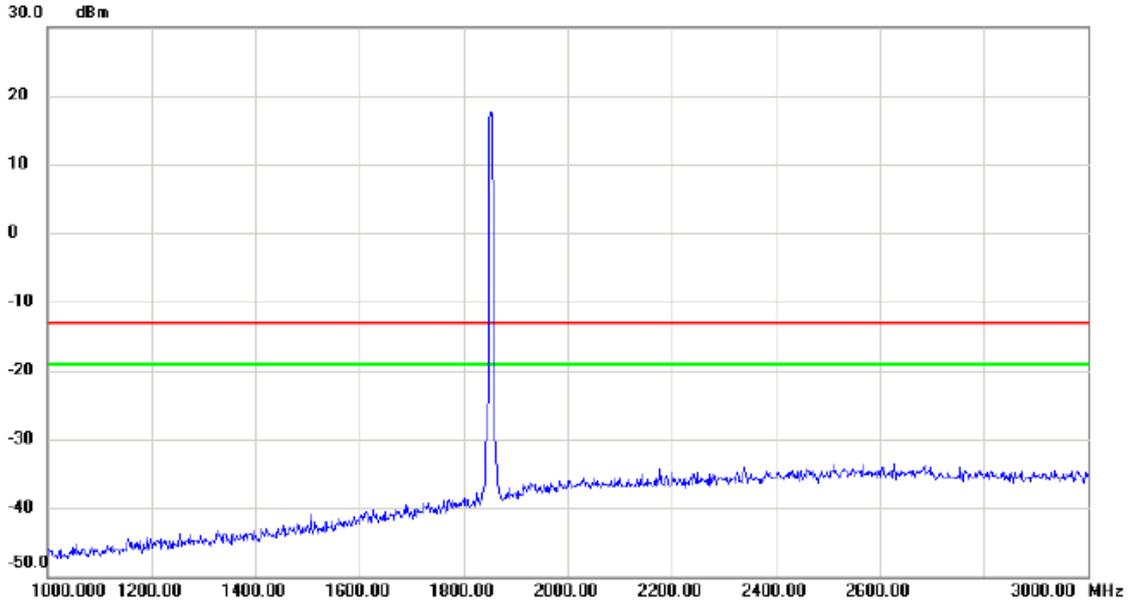
Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		37.760	-67.37	1.28	-66.09	-13.00	-53.09	peak	
2	*	101.780	-59.53	-3.56	-63.09	-13.00	-50.09	peak	
3		144.460	-74.10	3.63	-70.47	-13.00	-57.47	peak	
4		214.300	-65.94	-0.87	-66.81	-13.00	-53.81	peak	
5		271.530	-77.87	2.94	-74.93	-13.00	-61.93	peak	
6		410.240	-79.79	6.39	-73.40	-13.00	-60.40	peak	

Test Mode: WCDMA Band II_HSUPA_TX CH9400

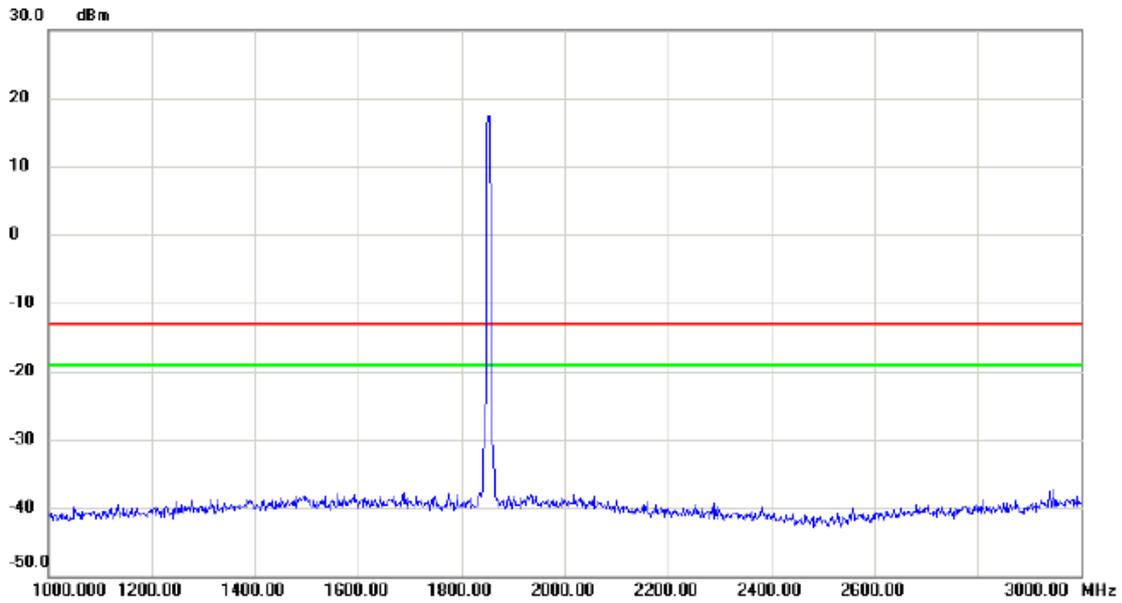
Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
		1900.00	18.0	0.0	18.0	-13.0	31.0		

Test Mode: WCDMA Band II_HSUPA_TX CH9400

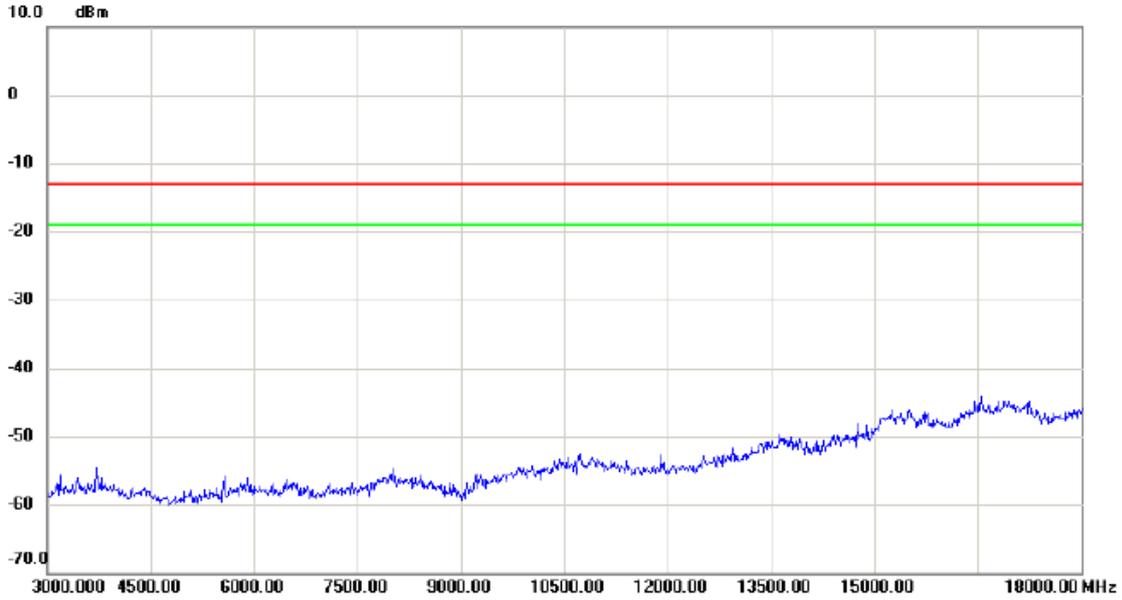
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		
		1880.00	18.00	0.00	18.00	-13.00	31.00		

Test Mode: WCDMA Band II_HSUPA_TX CH9400

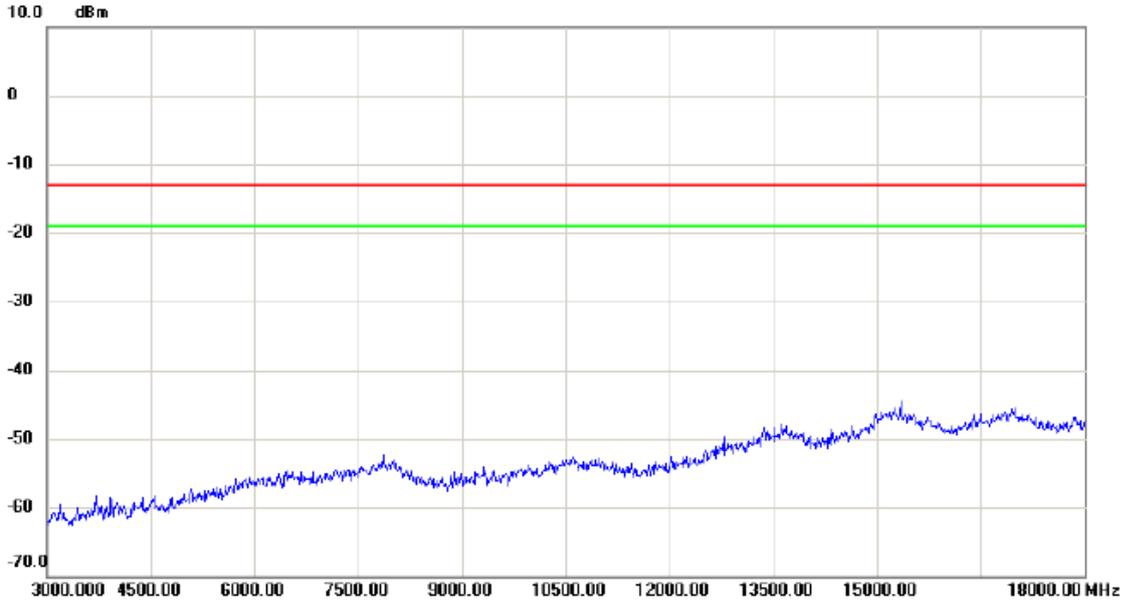
Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
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Test Mode: WCDMA Band II_HSUPA_TX CH9400

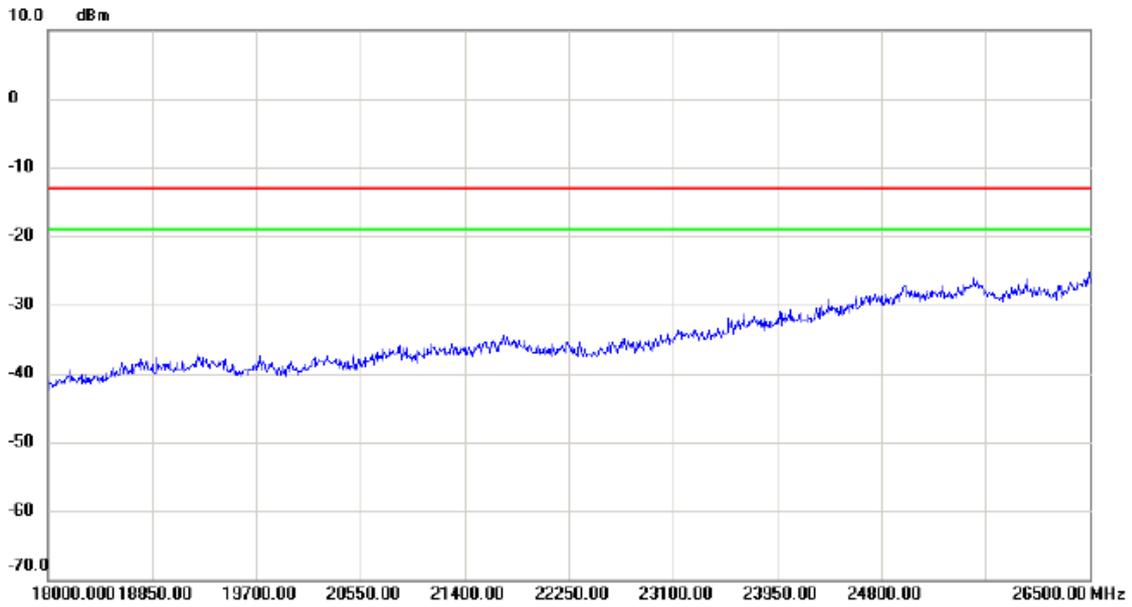
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		

Test Mode: WCDMA Band II_HSUPA_TX CH9400

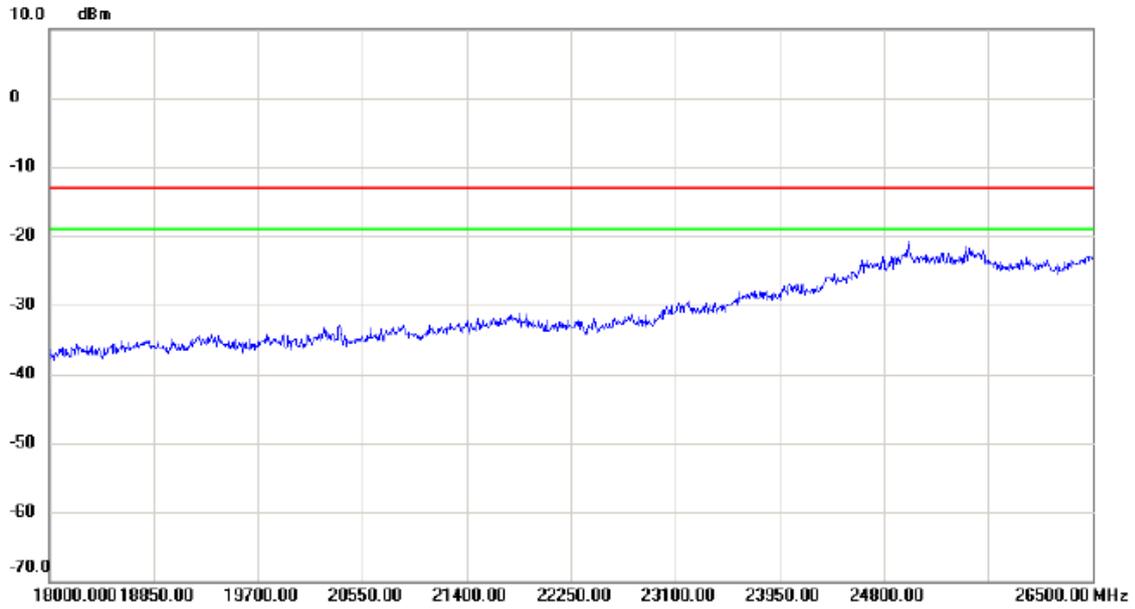
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		

Test Mode: WCDMA Band II_HSUPA_TX CH9400

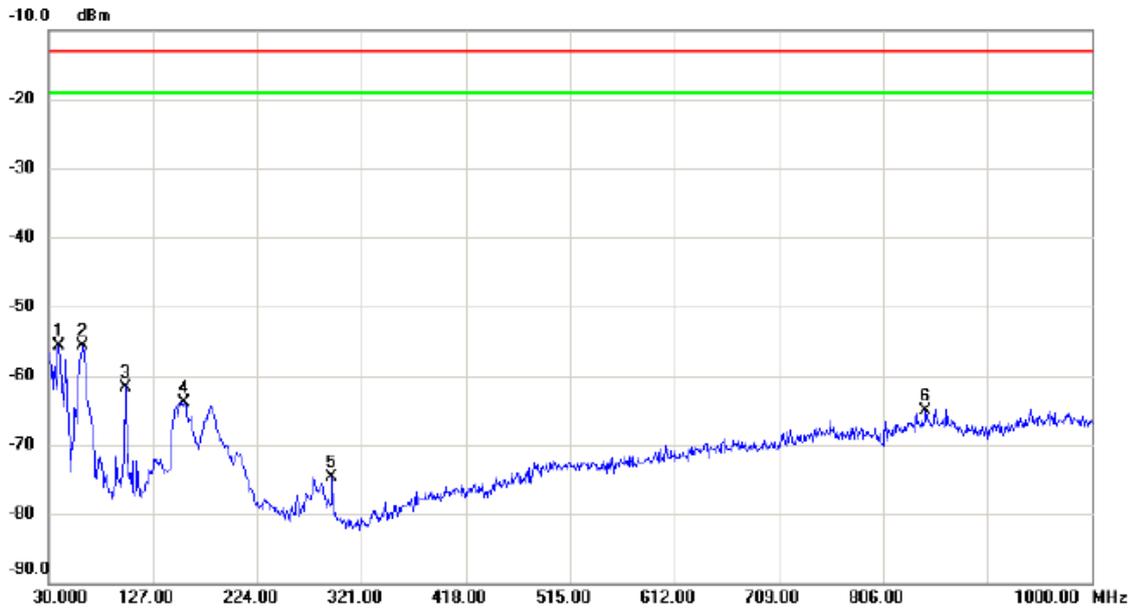
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		

Test Mode: LTE Band 2_TX CH18900_1.4M

Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		39.700	-57.60	1.90	-55.70	-13.00	-42.70	peak	
2	*	61.040	-56.29	0.60	-55.69	-13.00	-42.69	peak	
3		101.780	-60.29	-1.31	-61.60	-13.00	-48.60	peak	
4		156.100	-67.05	3.17	-63.88	-13.00	-50.88	peak	
5		293.840	-76.40	1.74	-74.66	-13.00	-61.66	peak	
6		845.770	-79.36	14.26	-65.10	-13.00	-52.10	peak	

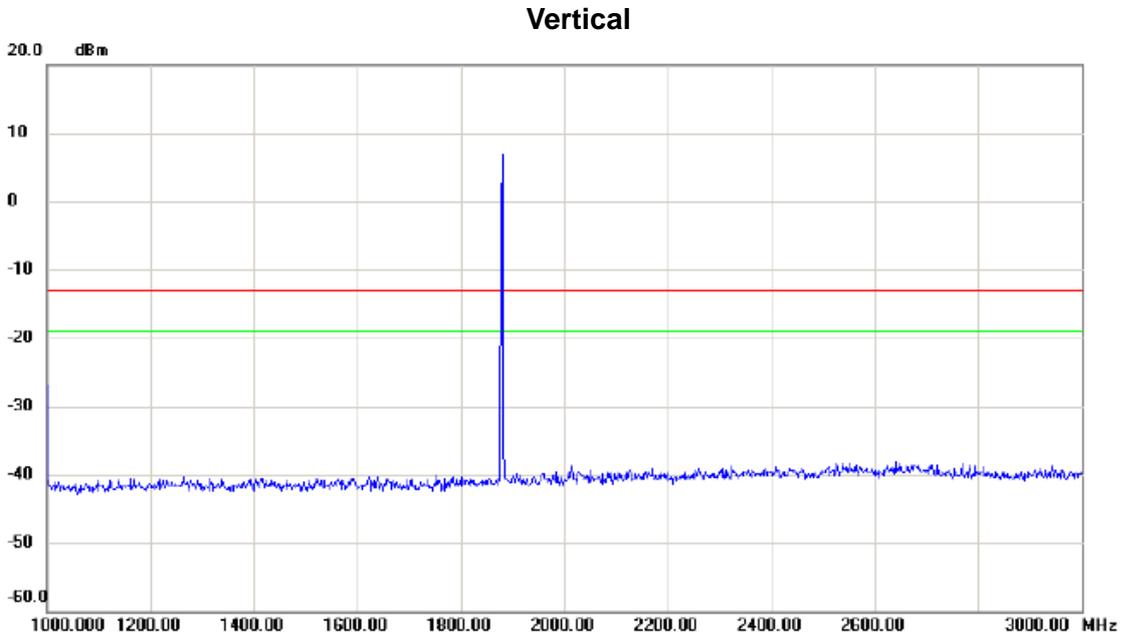
Test Mode: LTE Band 2_TX CH18900_1.4M

Horizontal



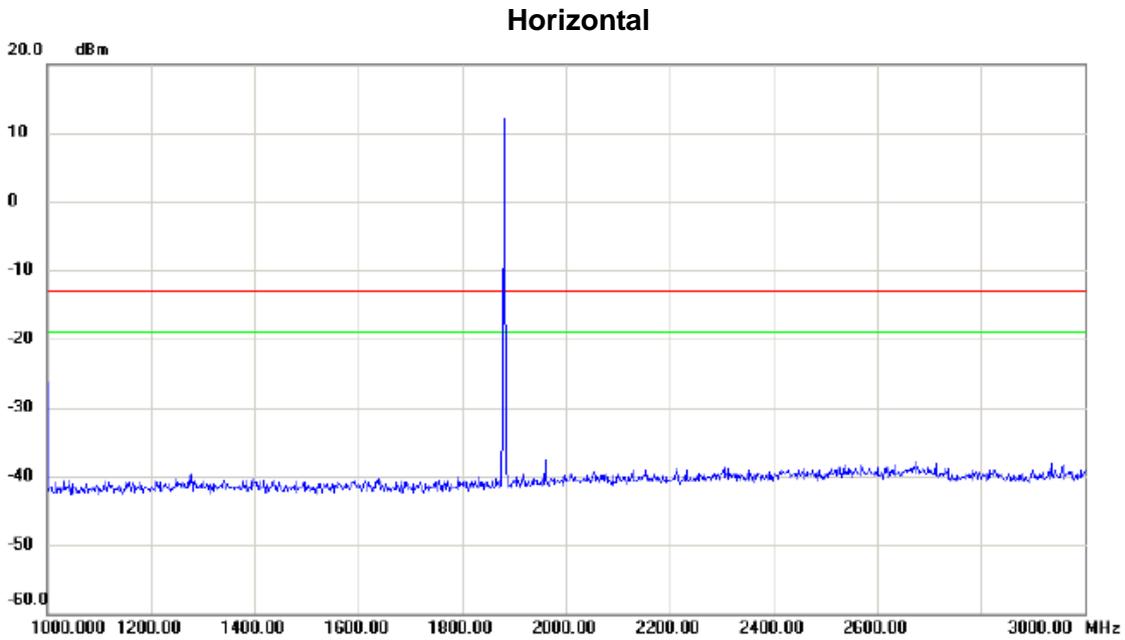
No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	46.490	-64.15	2.52	-61.63	-13.00	-48.63	peak	
2		62.010	-69.33	-0.97	-70.30	-13.00	-57.30	peak	
3		113.420	-70.94	-2.83	-73.77	-13.00	-60.77	peak	
4		157.070	-68.75	3.19	-65.56	-13.00	-52.56	peak	
5		209.450	-65.66	-1.94	-67.60	-13.00	-54.60	peak	
6		275.410	-75.95	2.74	-73.21	-13.00	-60.21	peak	

Test Mode: LTE Band 2_TX CH18900_1.4M



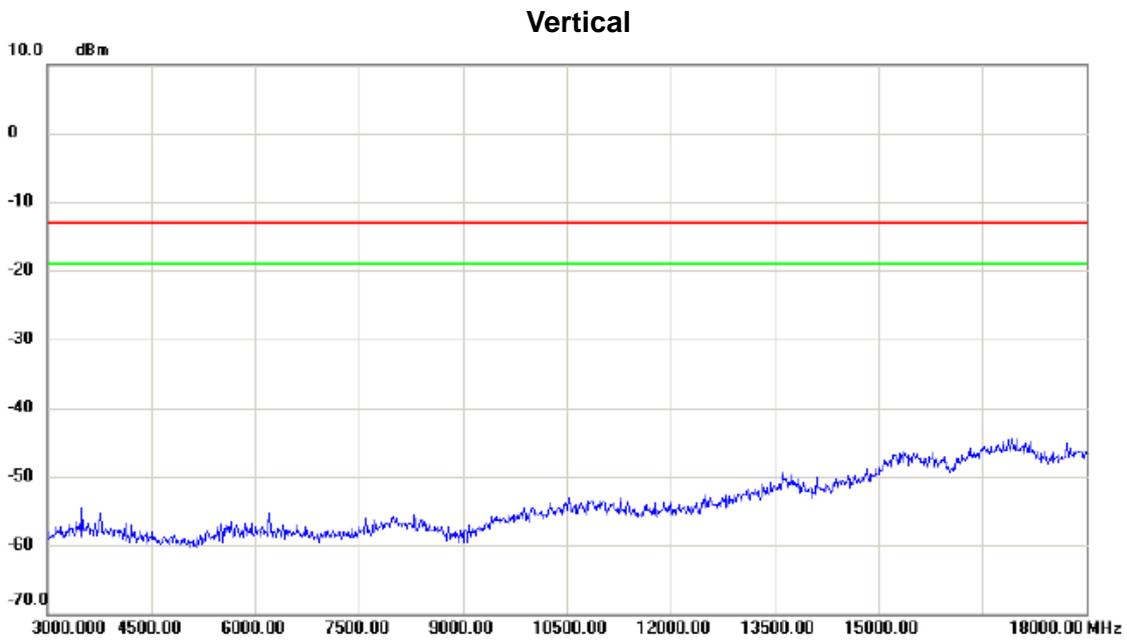
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		
		1890.00	5.00		5.00	-13.00	18.00		

Test Mode: LTE Band 2_TX CH18900_1.4M



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
		1890.00	12.00	0.00	12.00	-12.00	24.00		

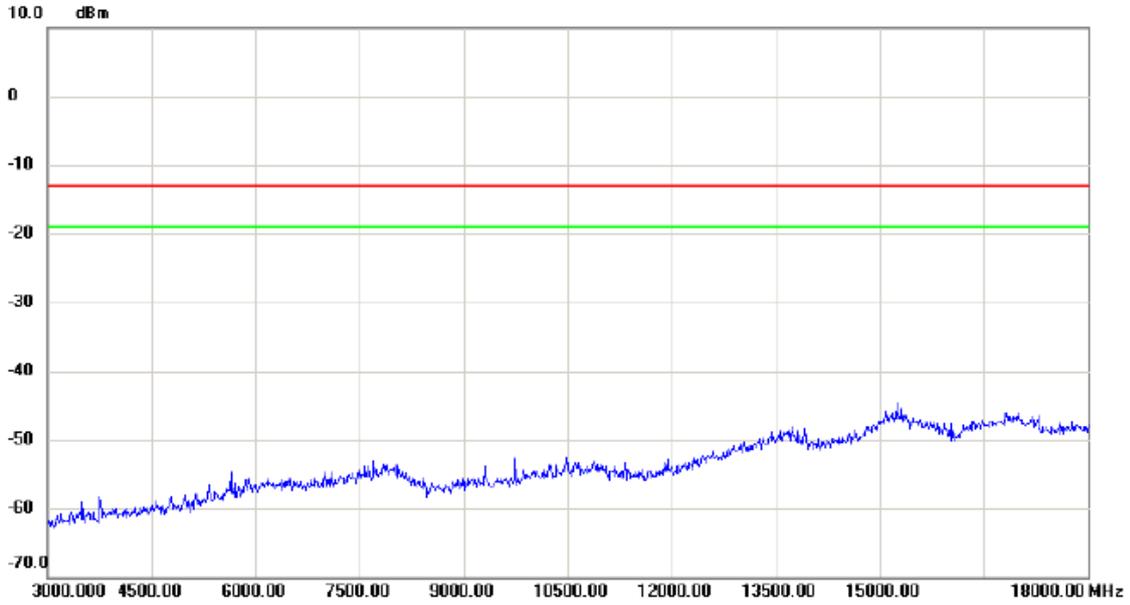
Test Mode: LTE Band 2_TX CH18900_1.4M



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		

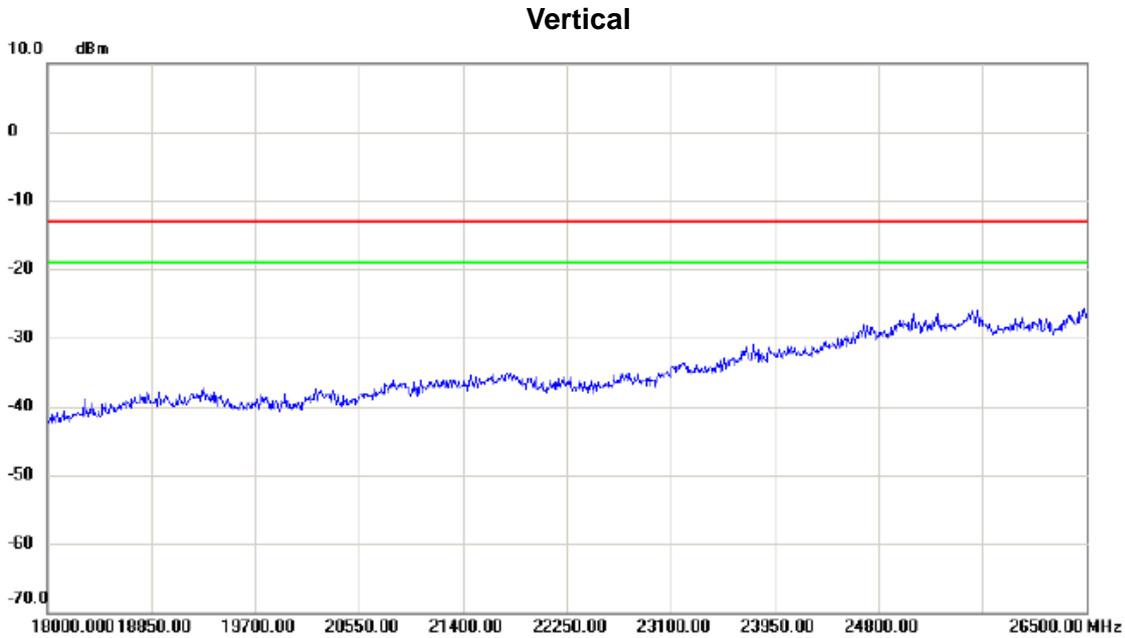
Test Mode: LTE Band 2_TX CH18900_1.4M

Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		

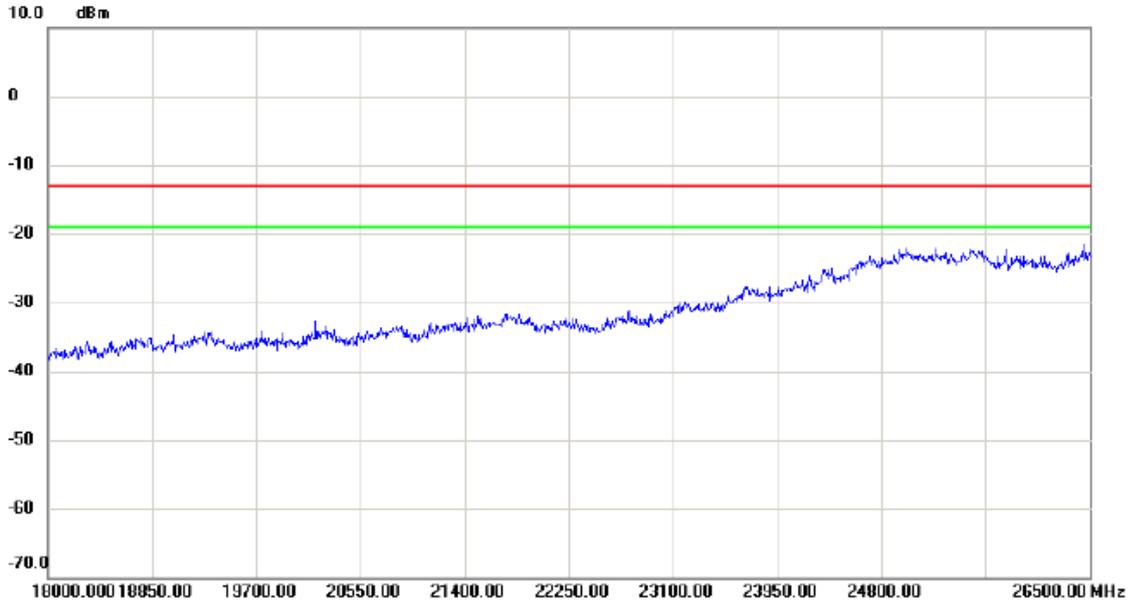
Test Mode: LTE Band 2_TX CH18900_1.4M



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		
		18000.00	-42						
		18050.00	-40						
		19700.00	-40						
		20550.00	-38						
		21400.00	-37						
		22250.00	-36						
		23100.00	-35						
		23950.00	-33						
		24800.00	-31						
		25650.00	-27						

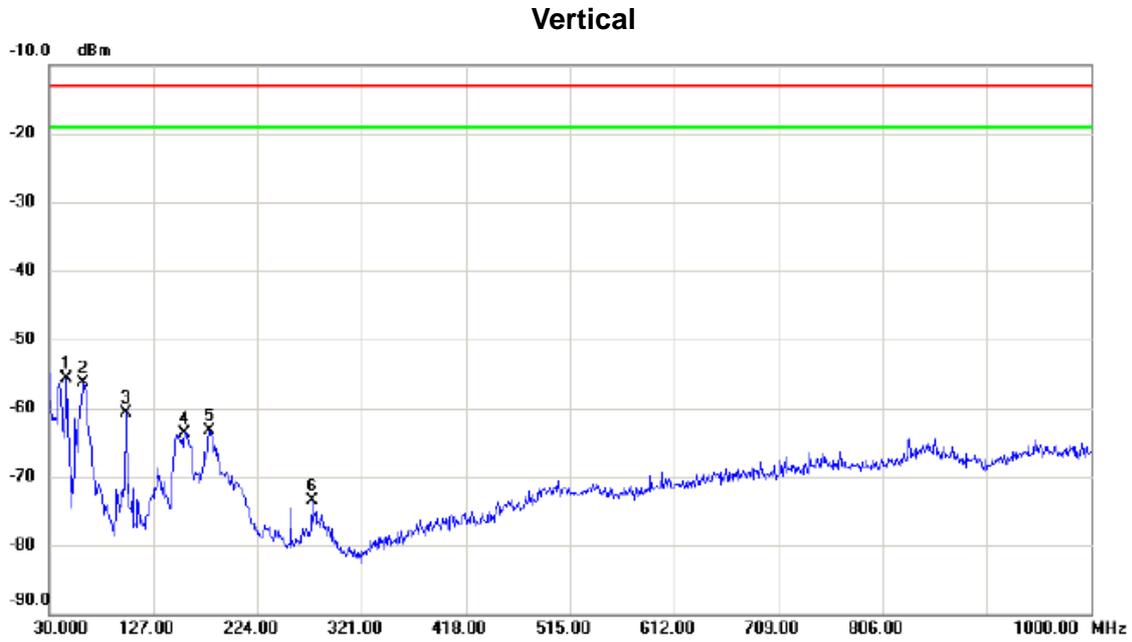
Test Mode: LTE Band 2_TX CH18900_1.4M

Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
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Test Mode: LTE Band 2_TX CH18900_20M



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	46.490	-57.29	1.54	-55.75	-13.00	-42.75	peak	
2		62.010	-57.00	0.73	-56.27	-13.00	-43.27	peak	
3		101.780	-59.31	-1.31	-60.62	-13.00	-47.62	peak	
4		156.100	-66.94	3.17	-63.77	-13.00	-50.77	peak	
5		179.380	-64.03	0.71	-63.32	-13.00	-50.32	peak	
6		274.440	-75.94	2.39	-73.55	-13.00	-60.55	peak	

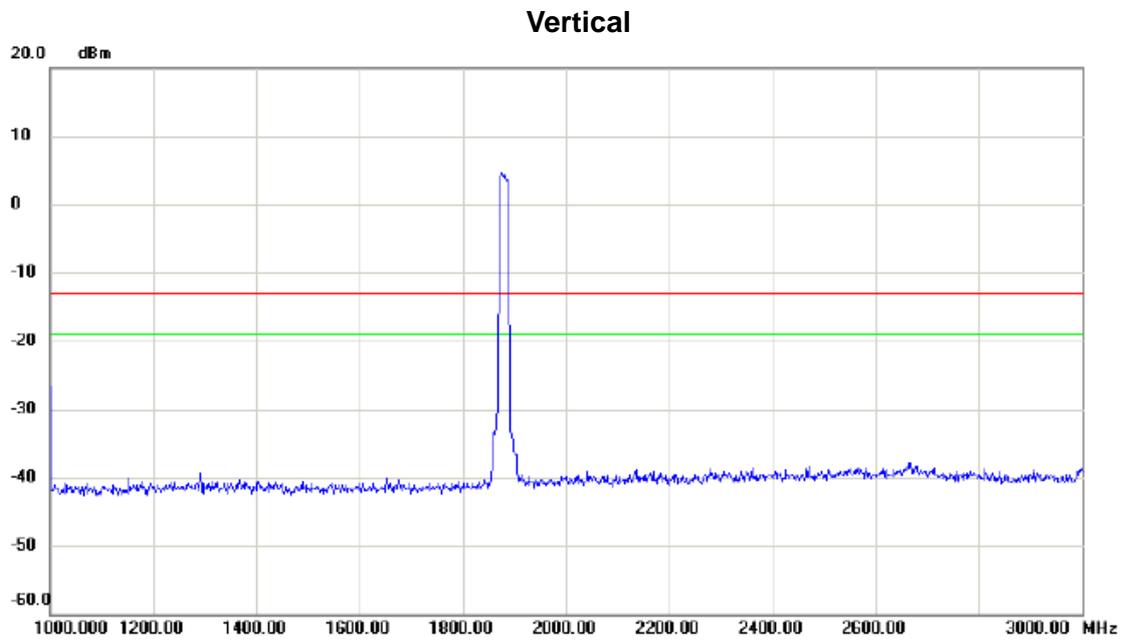
Test Mode: LTE Band 2_TX CH18900_20M

Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	36.790	-65.44	0.94	-64.50	-13.00	-51.50	peak	
2		62.010	-68.80	-0.97	-69.77	-13.00	-56.77	peak	
3		107.600	-71.27	-2.85	-74.12	-13.00	-61.12	peak	
4		158.040	-68.49	3.04	-65.45	-13.00	-52.45	peak	
5		210.420	-65.75	-1.84	-67.59	-13.00	-54.59	peak	
6		279.290	-74.97	2.54	-72.43	-13.00	-59.43	peak	

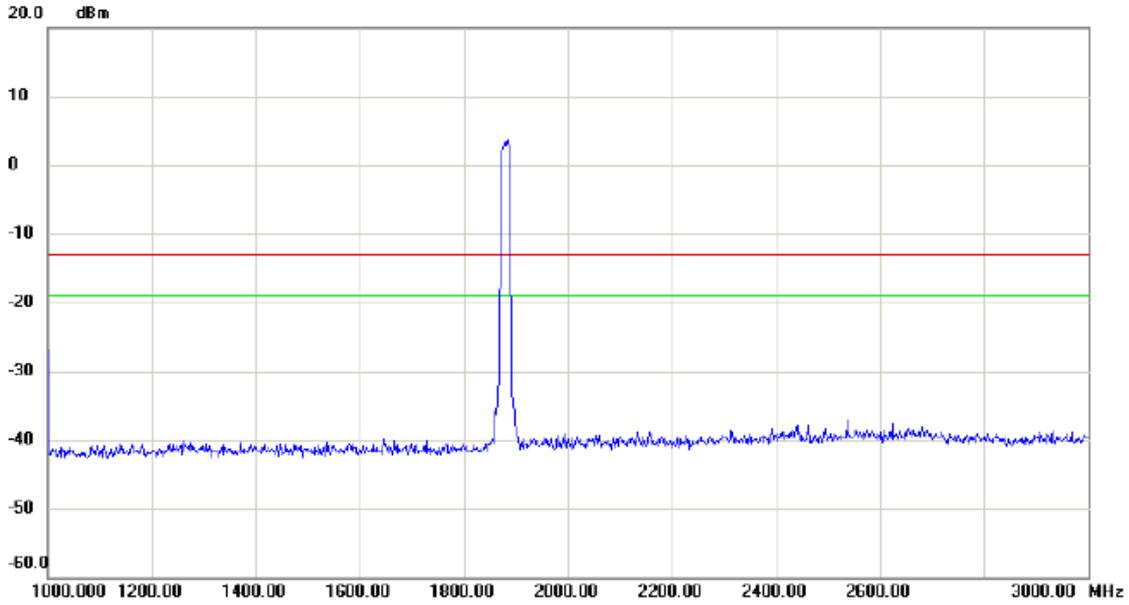
Test Mode: LTE Band 2_TX CH18900_20M



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		
		1900.00	5.00	0.00	5.00	-13.00	18.00		

Test Mode: LTE Band 2_TX CH18900_20M

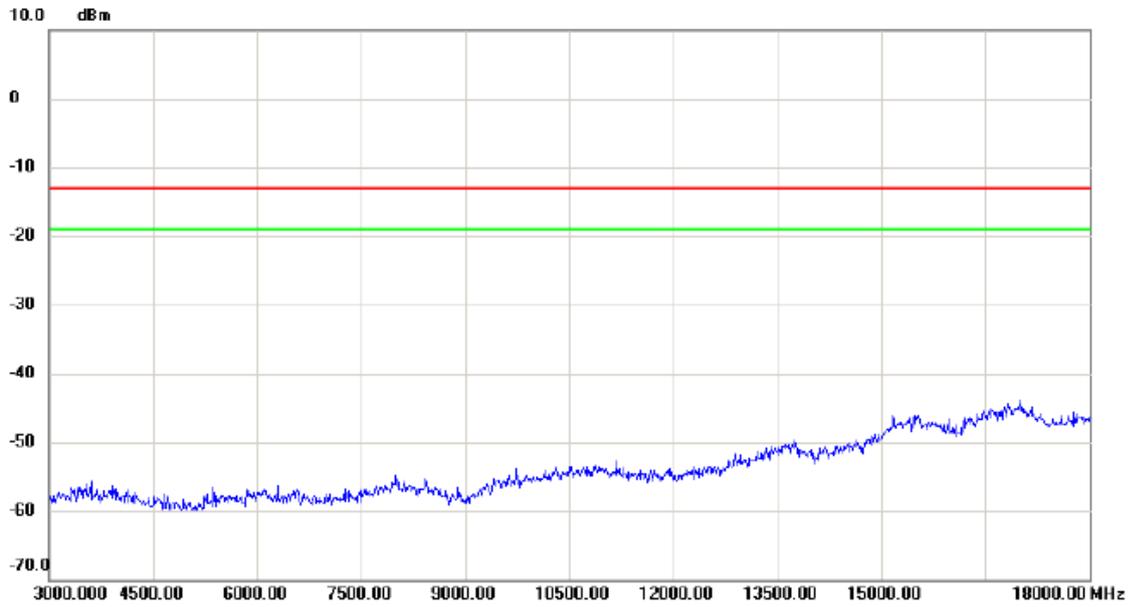
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		
		1900.00	5.00	0.00	5.00	-13.00	18.00		

Test Mode: LTE Band 2_TX CH18900_20M

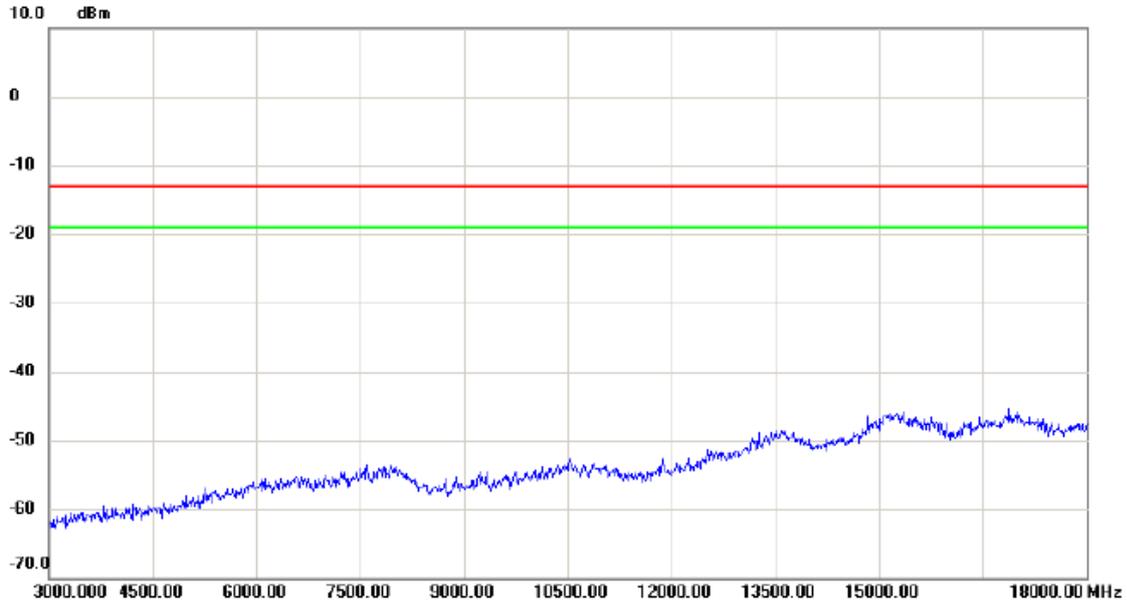
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		

Test Mode: LTE Band 2_TX CH18900_20M

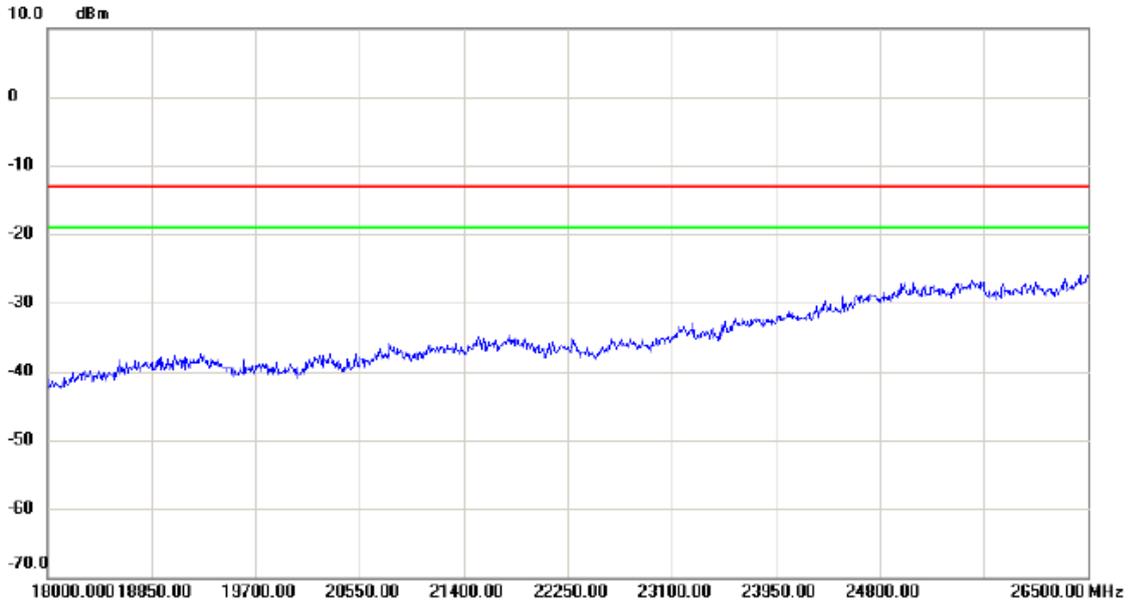
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		

Test Mode: LTE Band 2_TX CH18900_20M

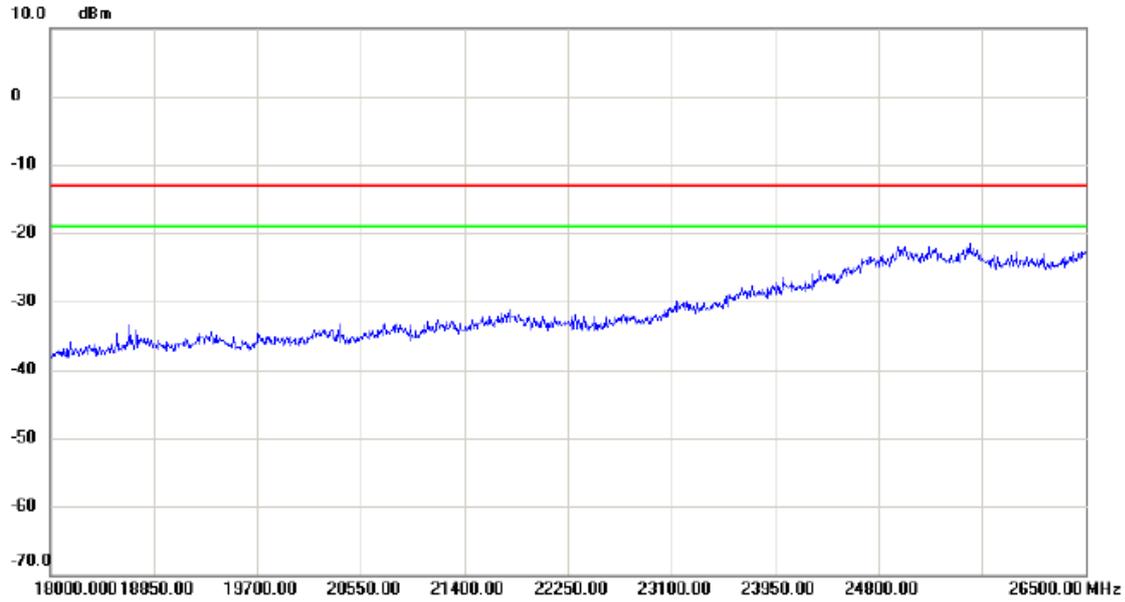
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		
		18000.000	-42		-42	-13	-29		
		18950.00	-40		-40	-13	-27		
		19700.00	-40		-40	-13	-27		
		20550.00	-38		-38	-13	-25		
		21400.00	-37		-37	-13	-24		
		22250.00	-36		-36	-13	-23		
		23100.00	-35		-35	-13	-22		
		23950.00	-33		-33	-13	-20		
		24800.00	-31		-31	-13	-18		
		25650.00	-28		-28	-13	-15		

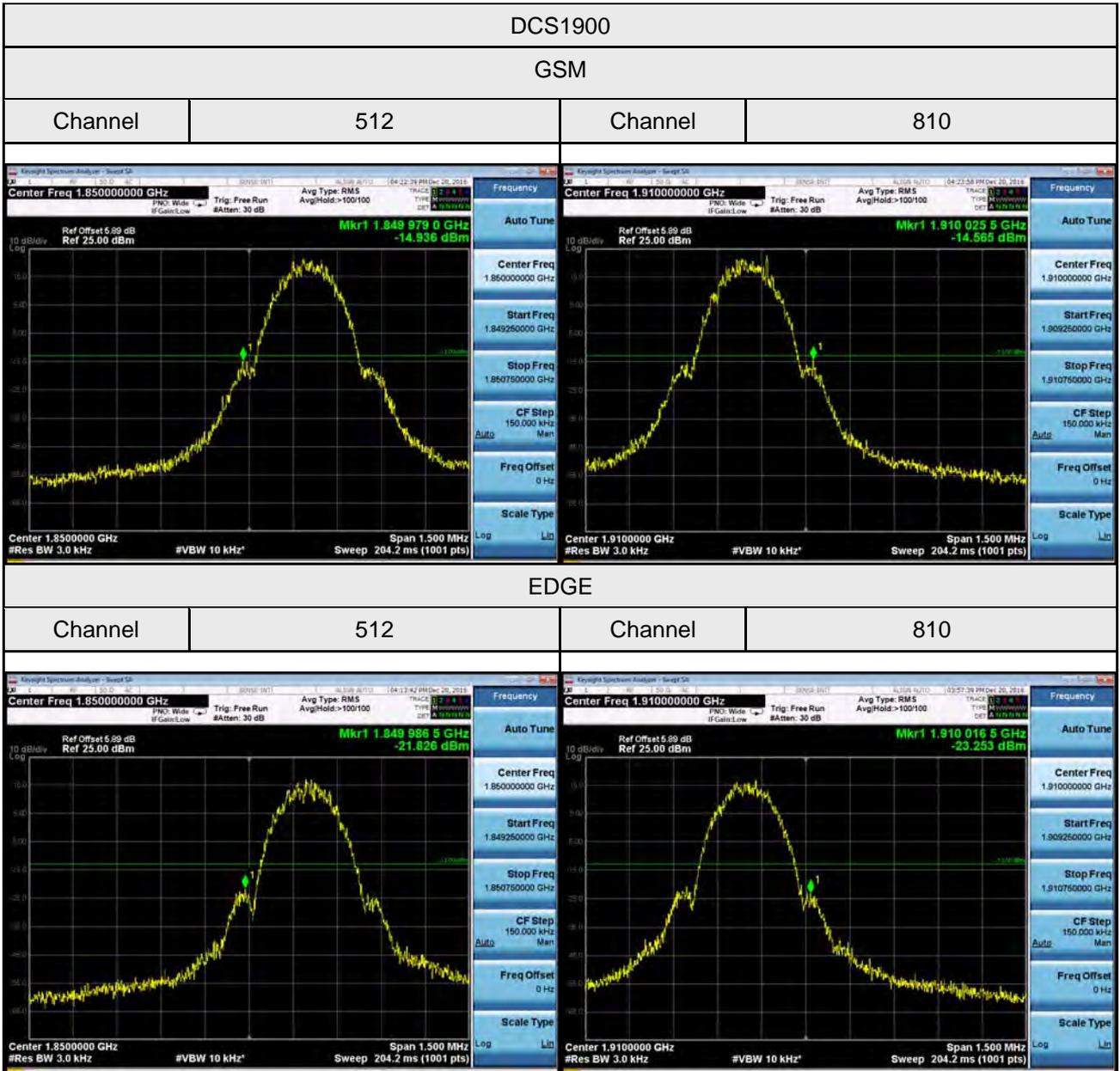
Test Mode: LTE Band 2_TX CH18900_20M

Horizontal

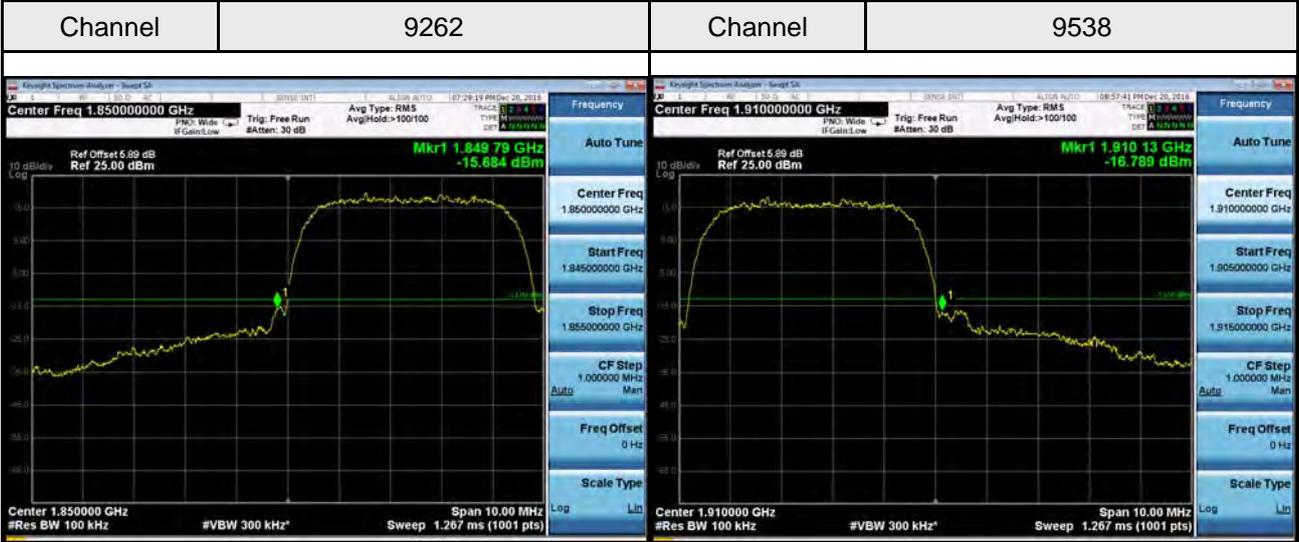


No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
-----	-----	--------------	-------------------------	-------------------------	-------------------------	--------------	--------------	----------	---------

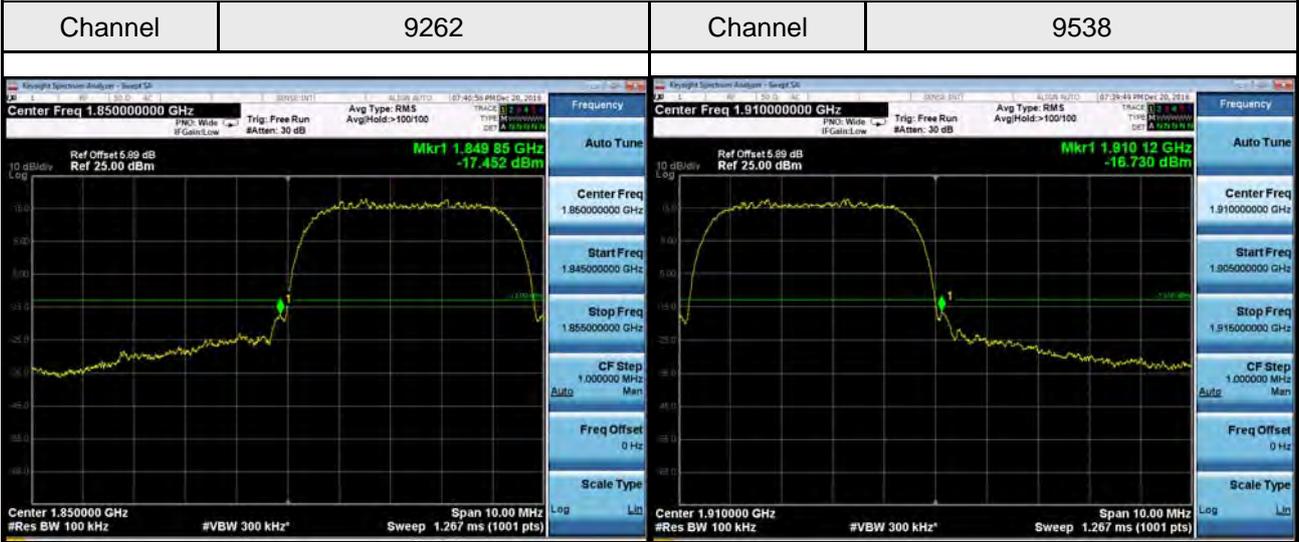
ATTACHMENT E - BAND EDGE



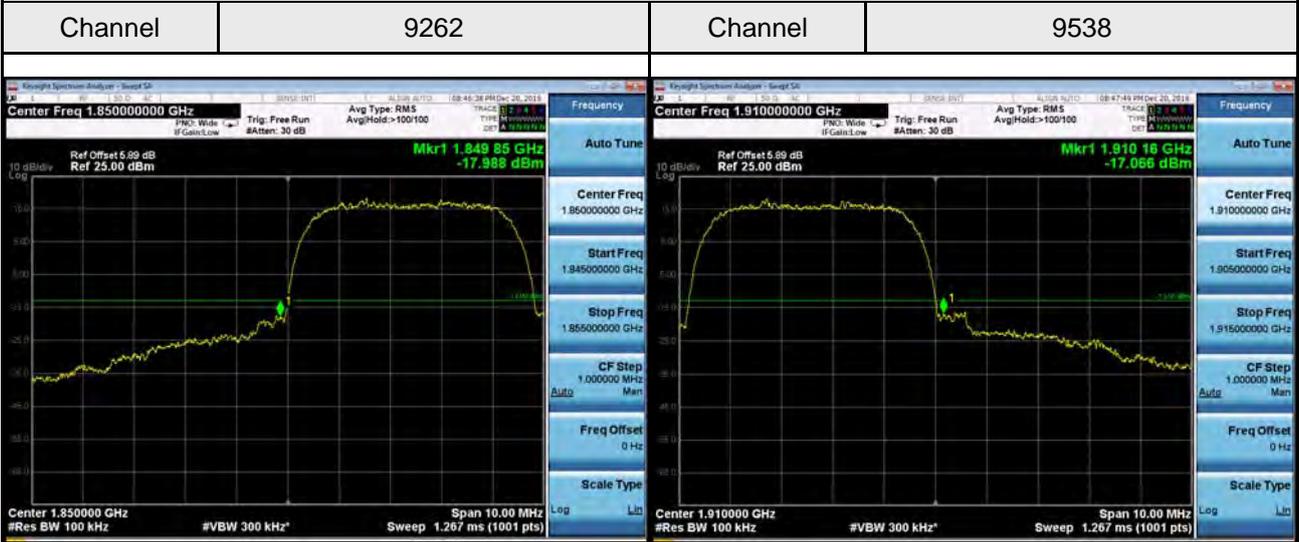
WCDMA Band II



WCDMA_HSDPA Band II



WCDMA_HSUPA Band II



LTE Band 2_1.4M

1RB0

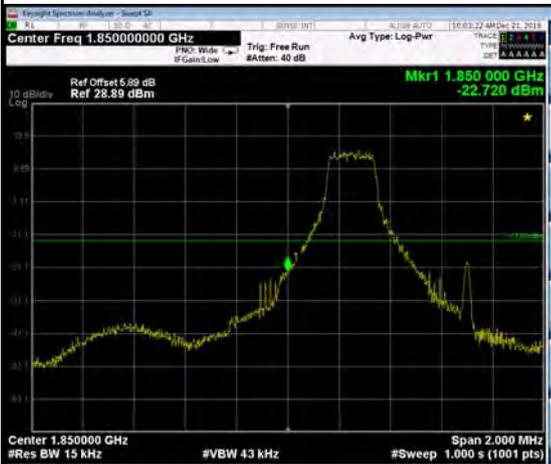
1RB5

Channel

18607

Channel

19193



6RB0

Channel

18607

Channel

19193



LTE Band 2_3M

1RB0

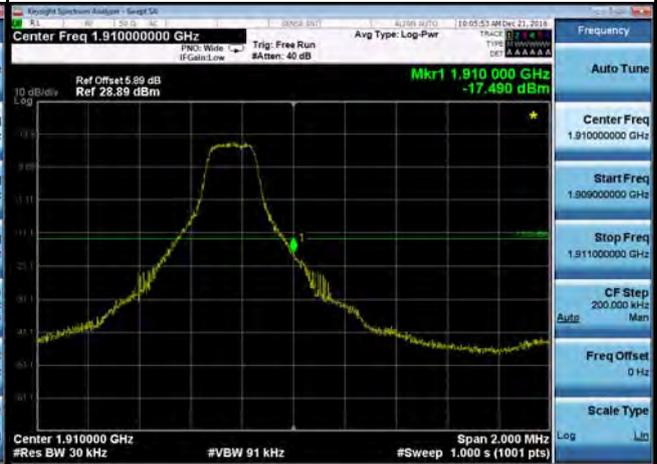
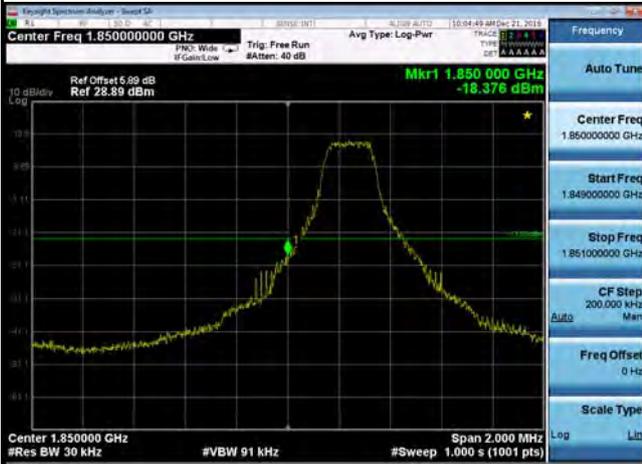
1RB14

Channel

18615

Channel

19185



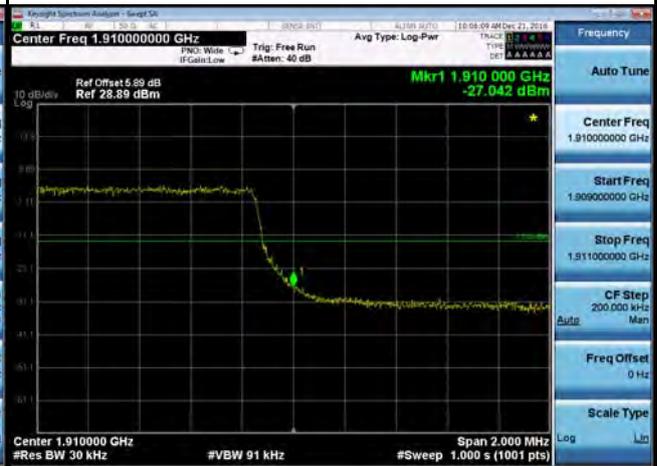
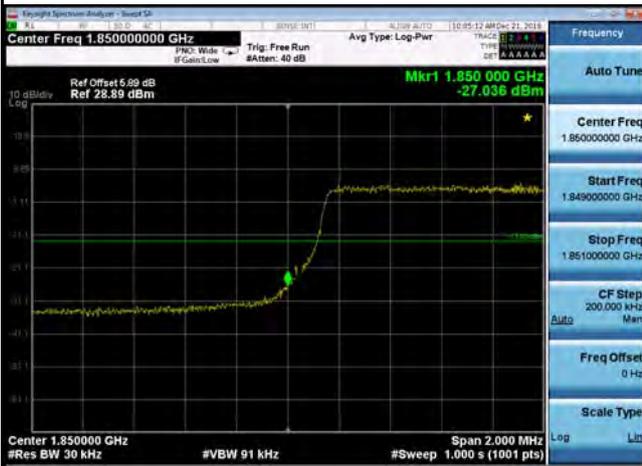
15RB0

Channel

18615

Channel

19185



LTE Band 2_5M

1RB0

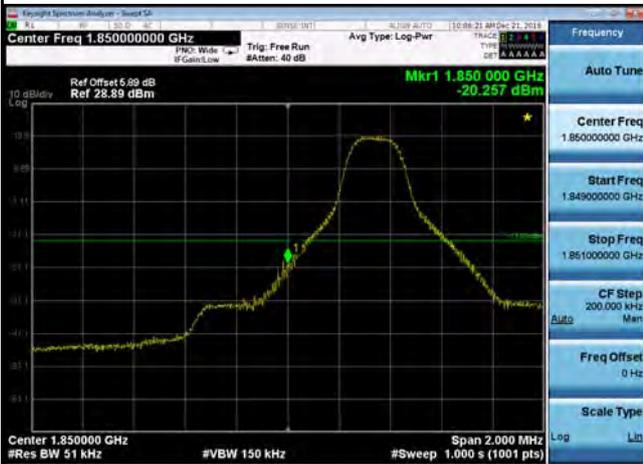
1RB24

Channel

18625

Channel

19175



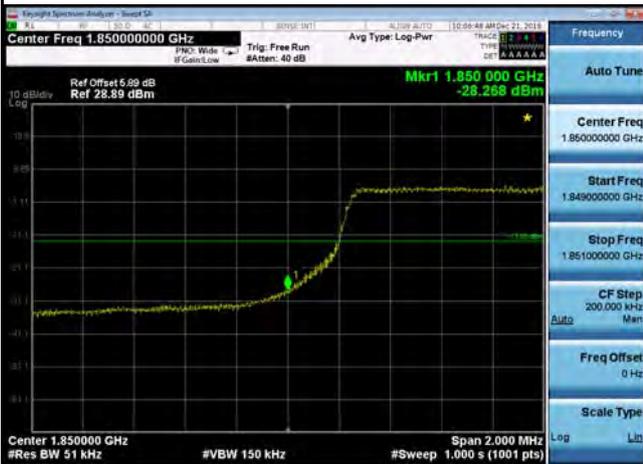
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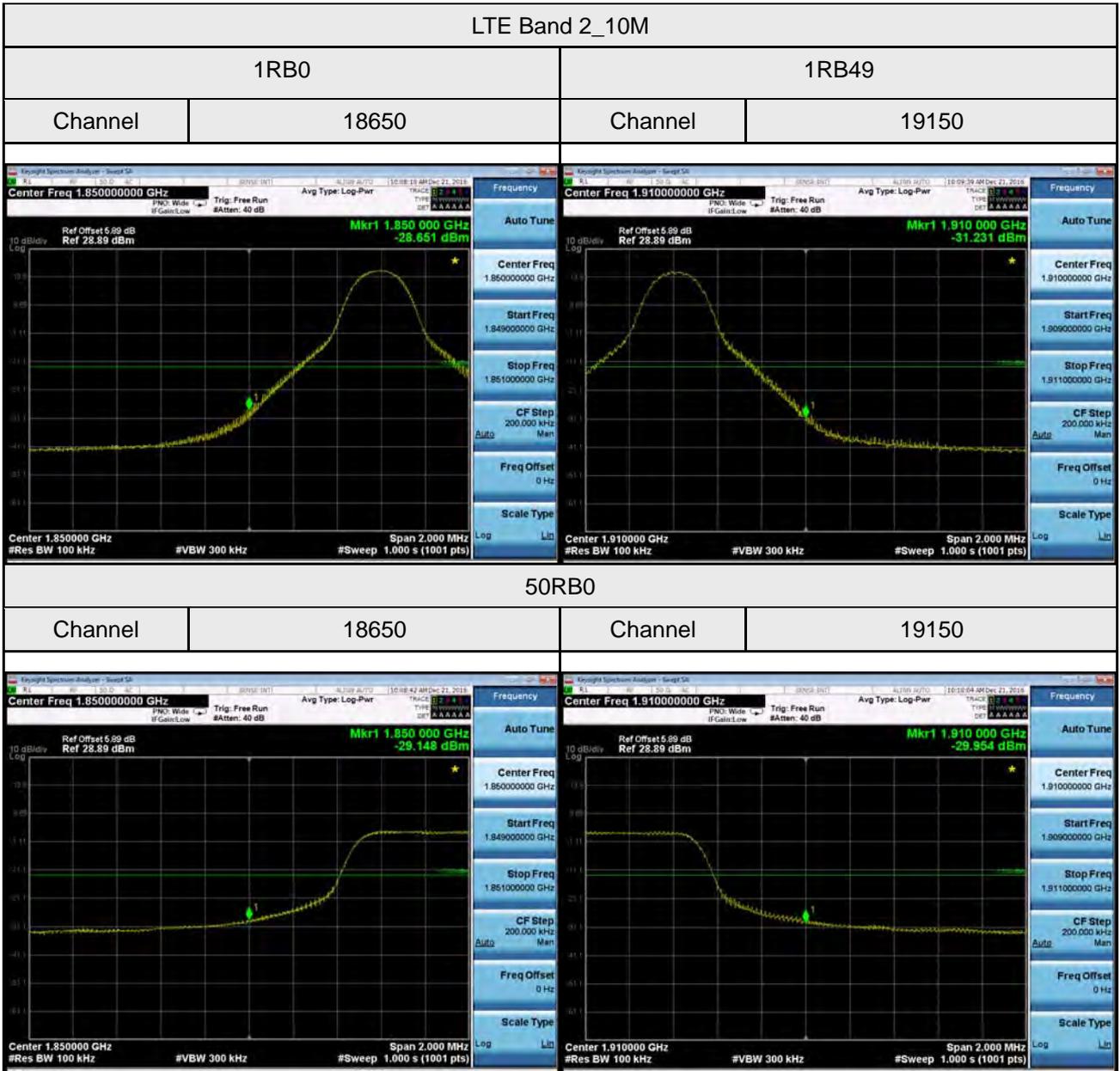
Channel

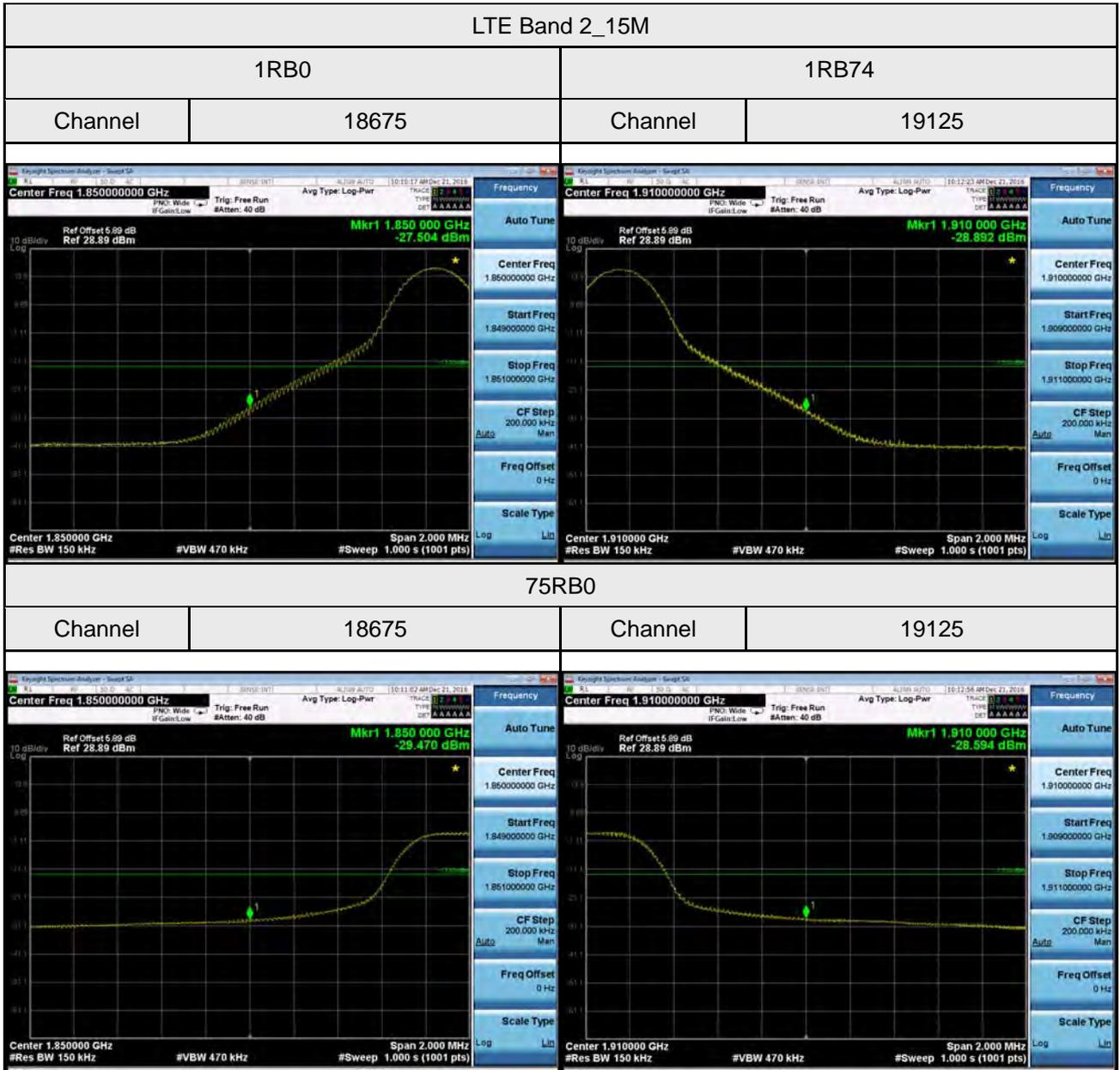
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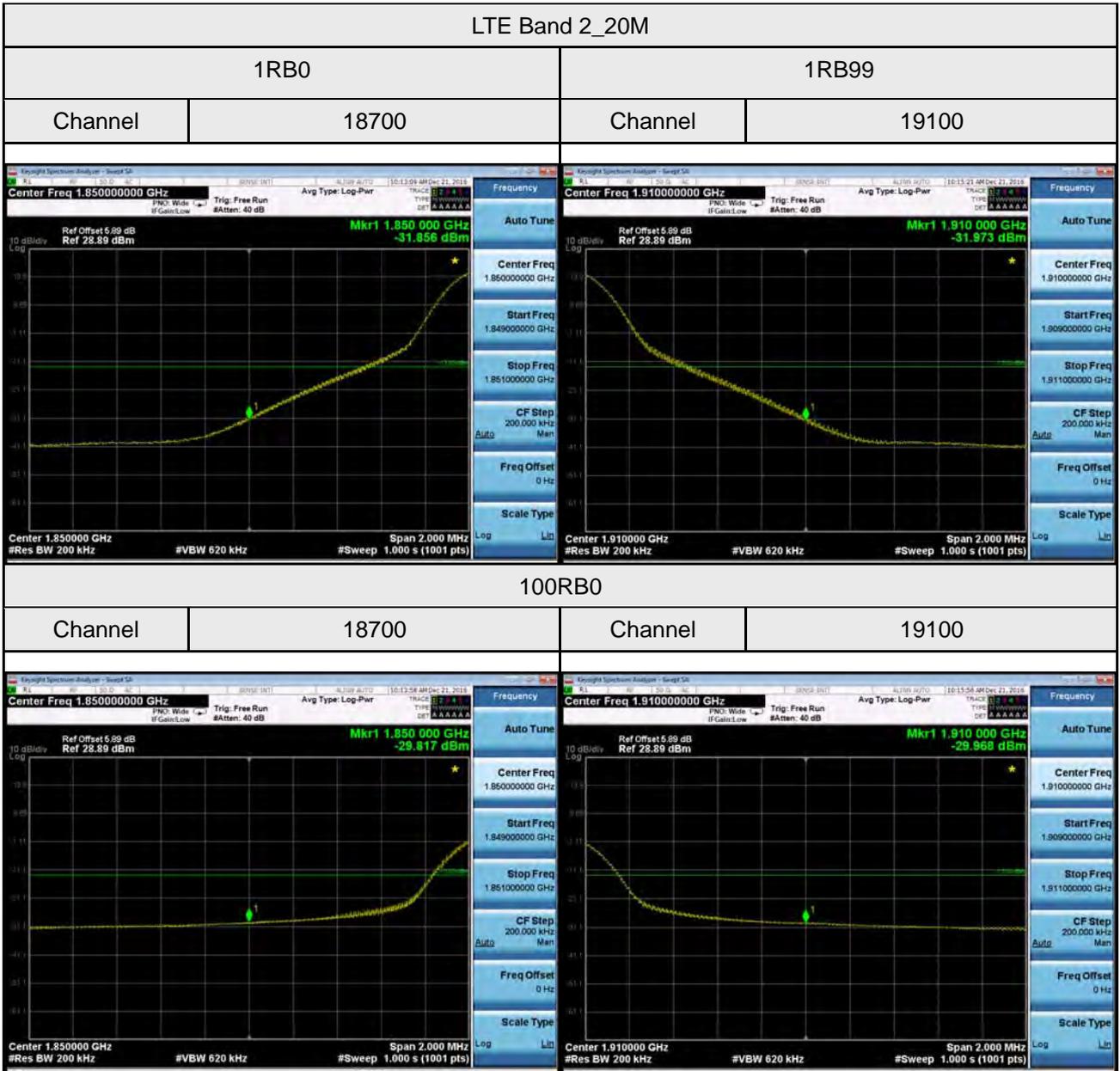
Channel

19175



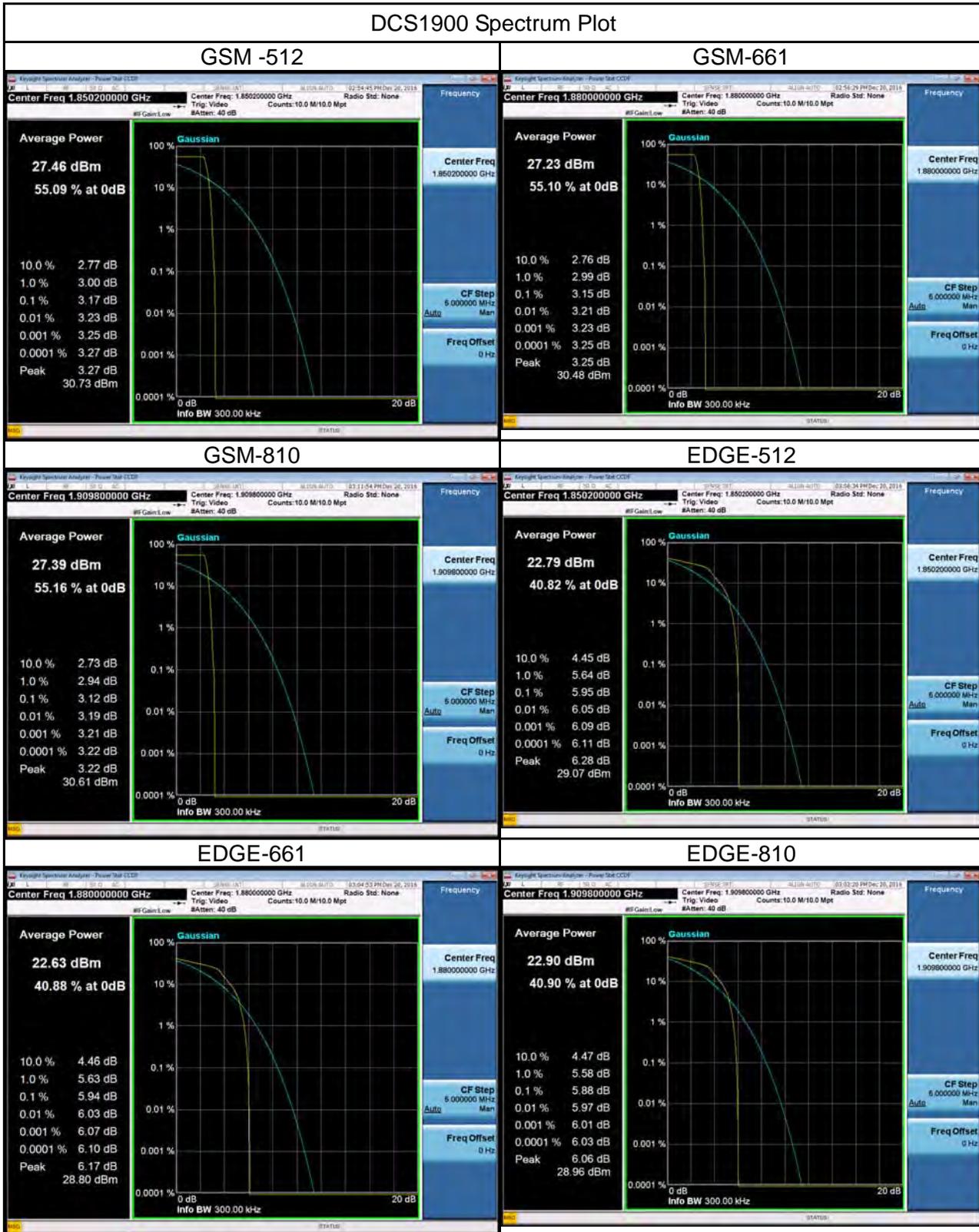




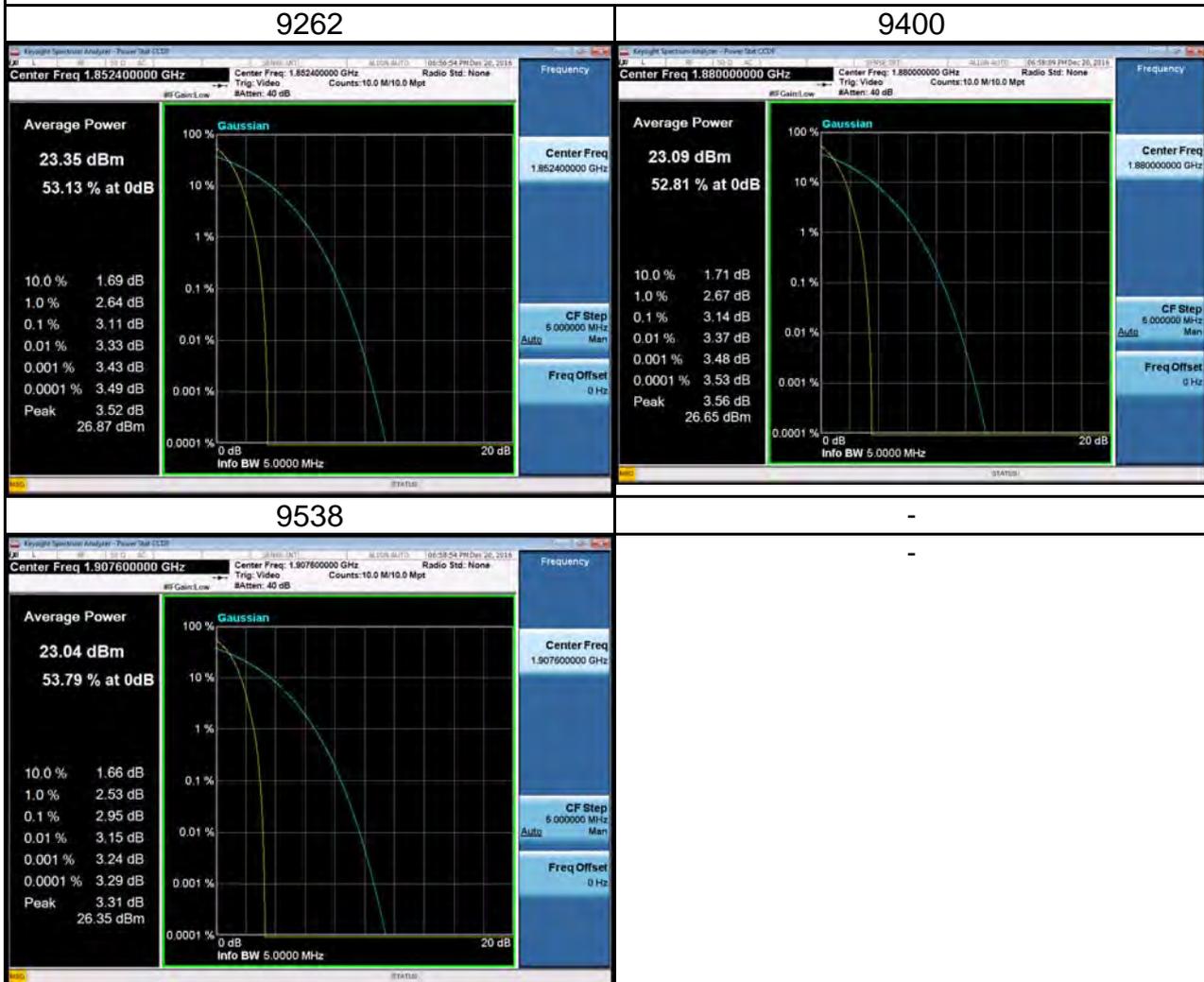


ATTACHMENT F - PEAK TO AVERAGE RATIO

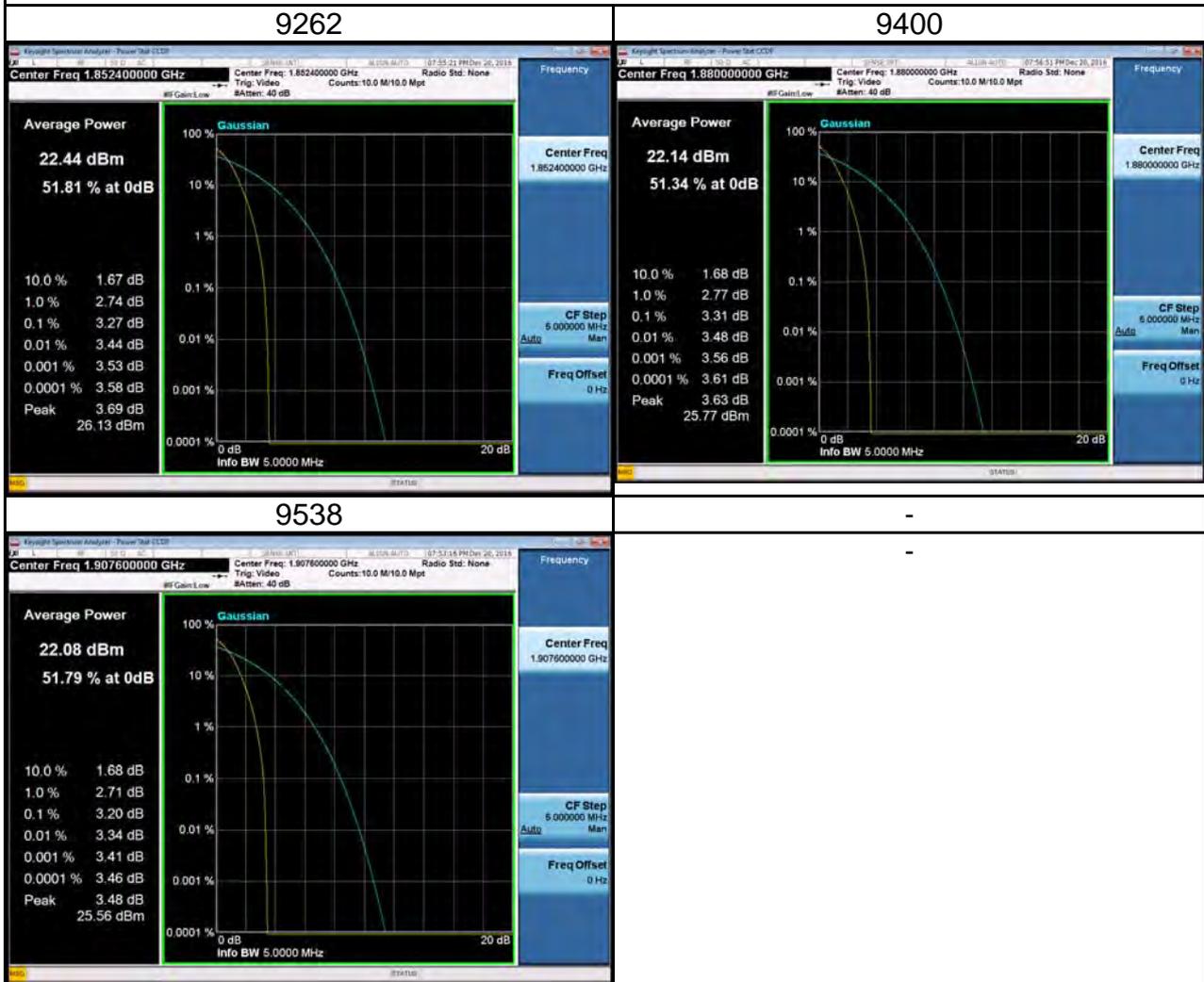
DCS1900 Spectrum Plot



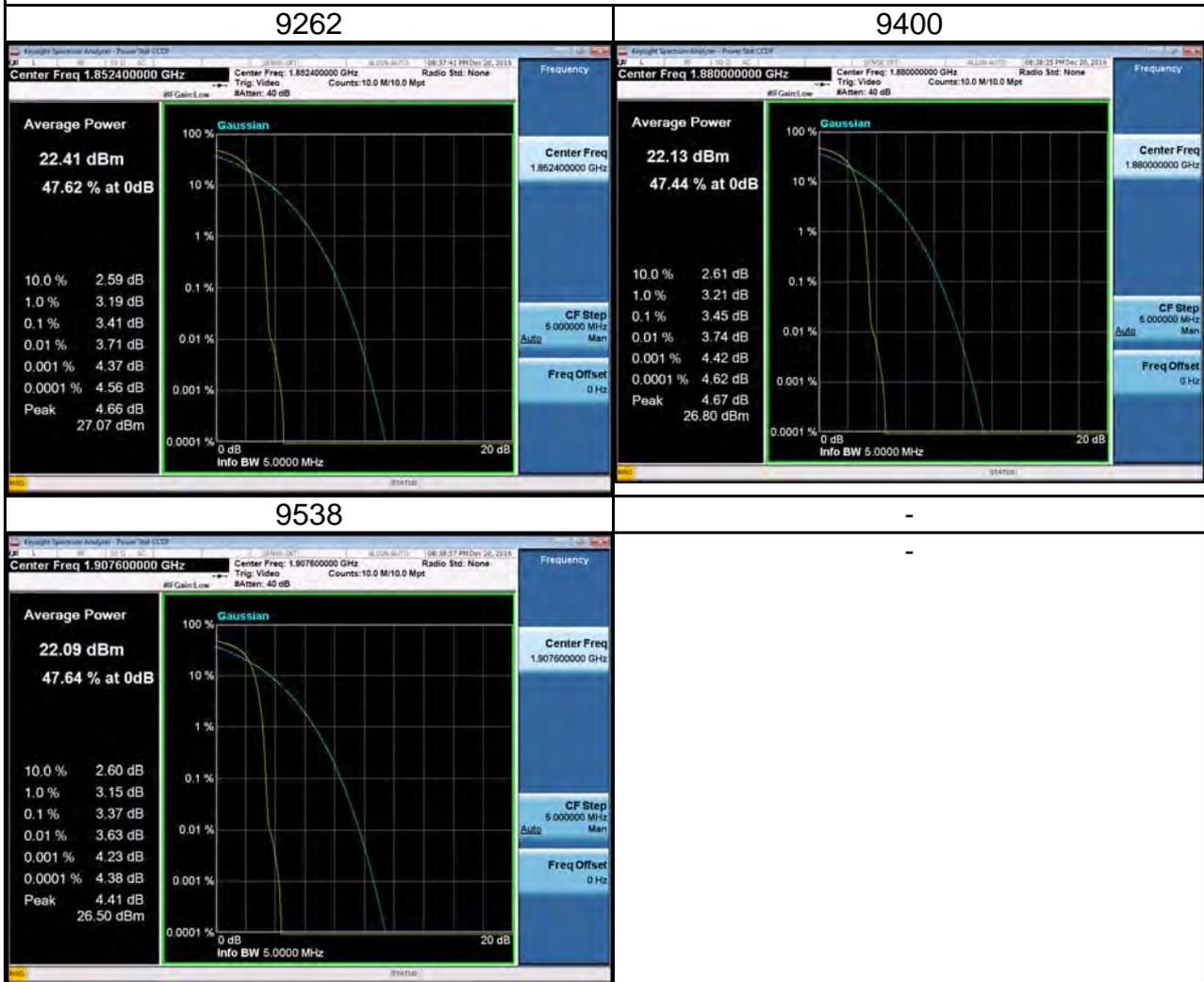
WCDMA Band II Spectrum Plot



WCDMA_HSDPA Band II Spectrum Plot



WCDMA_HSUPA Band II Spectrum Plot



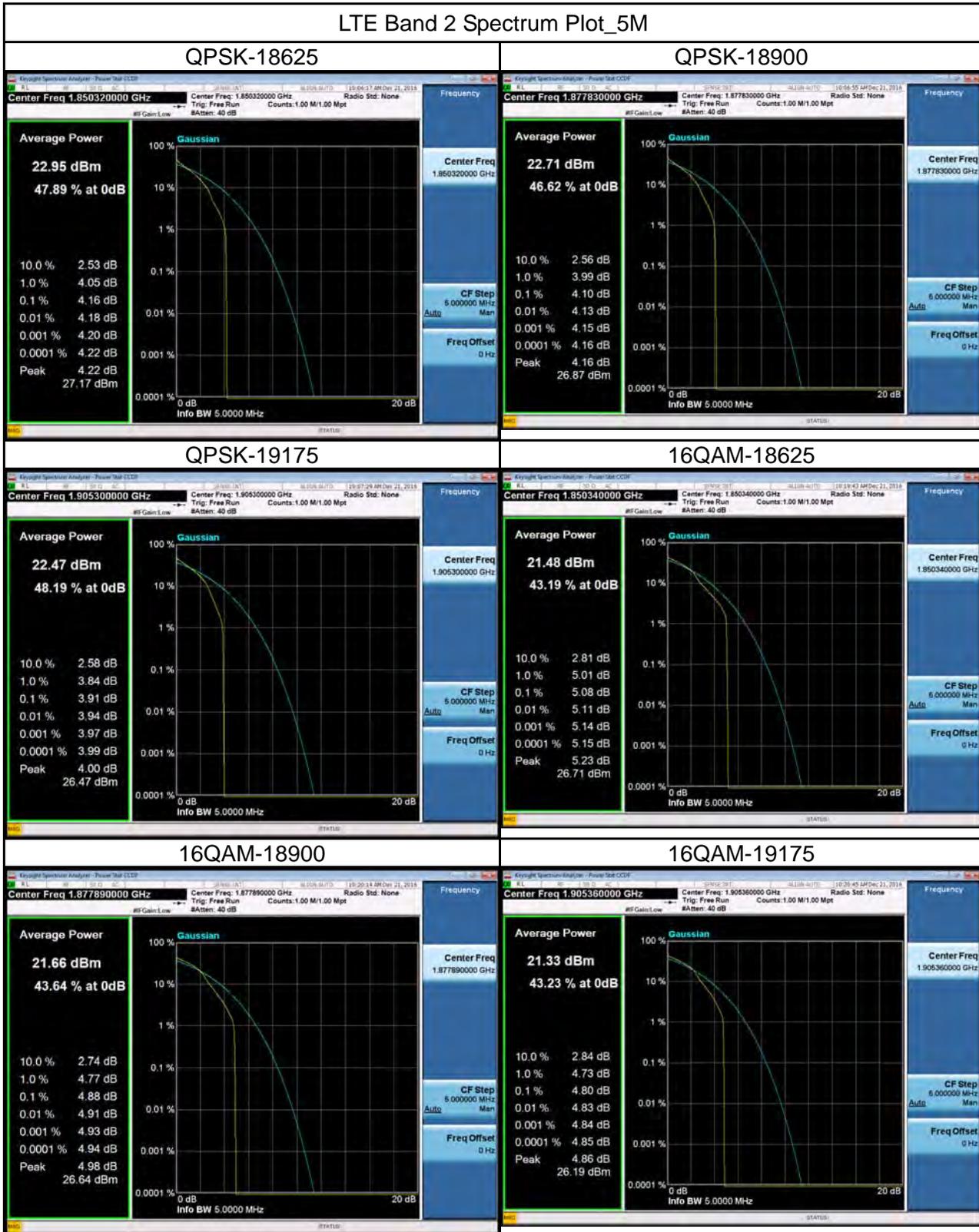
LTE Band 2 Spectrum Plot_1.4M



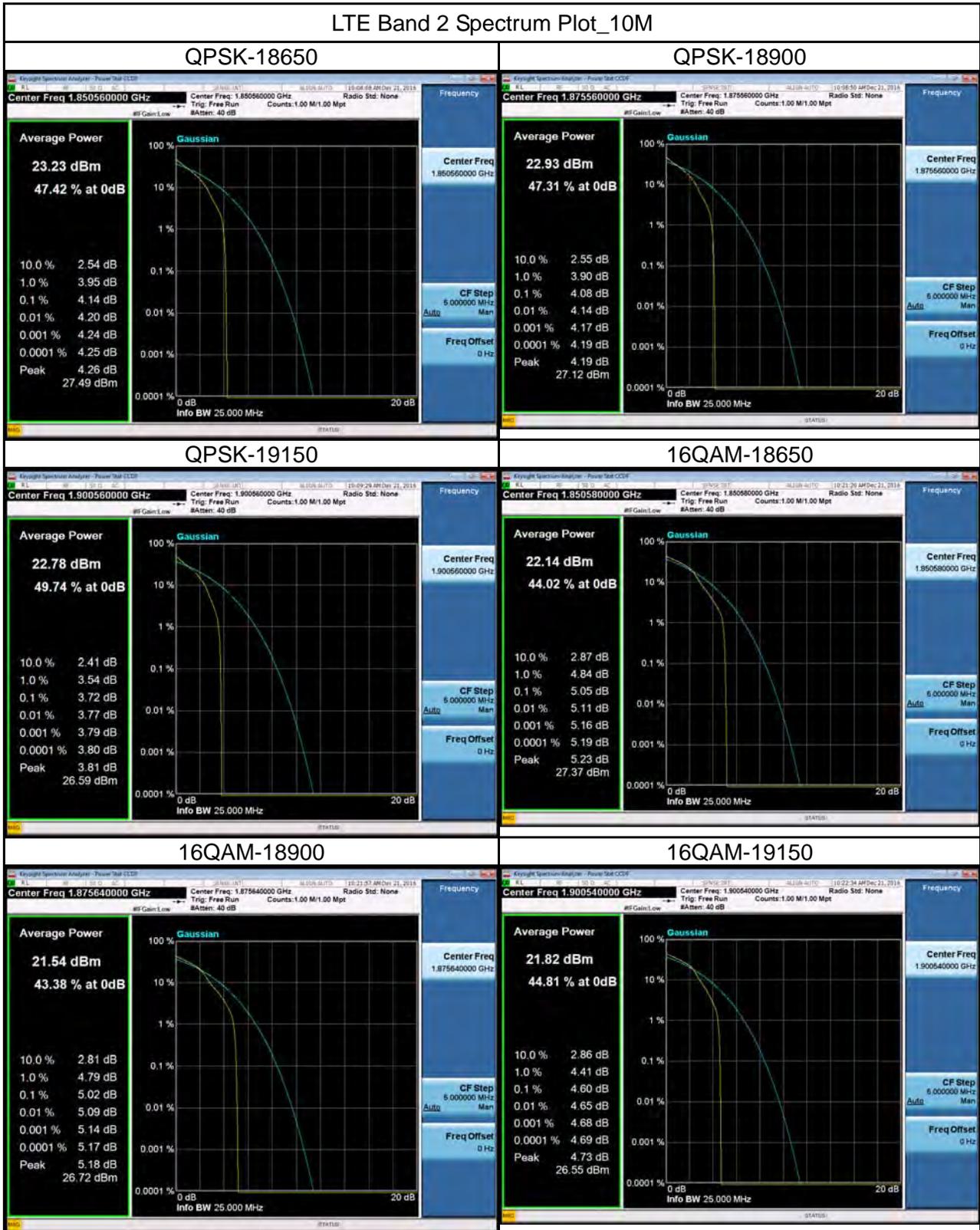
LTE Band 2 Spectrum Plot_3M



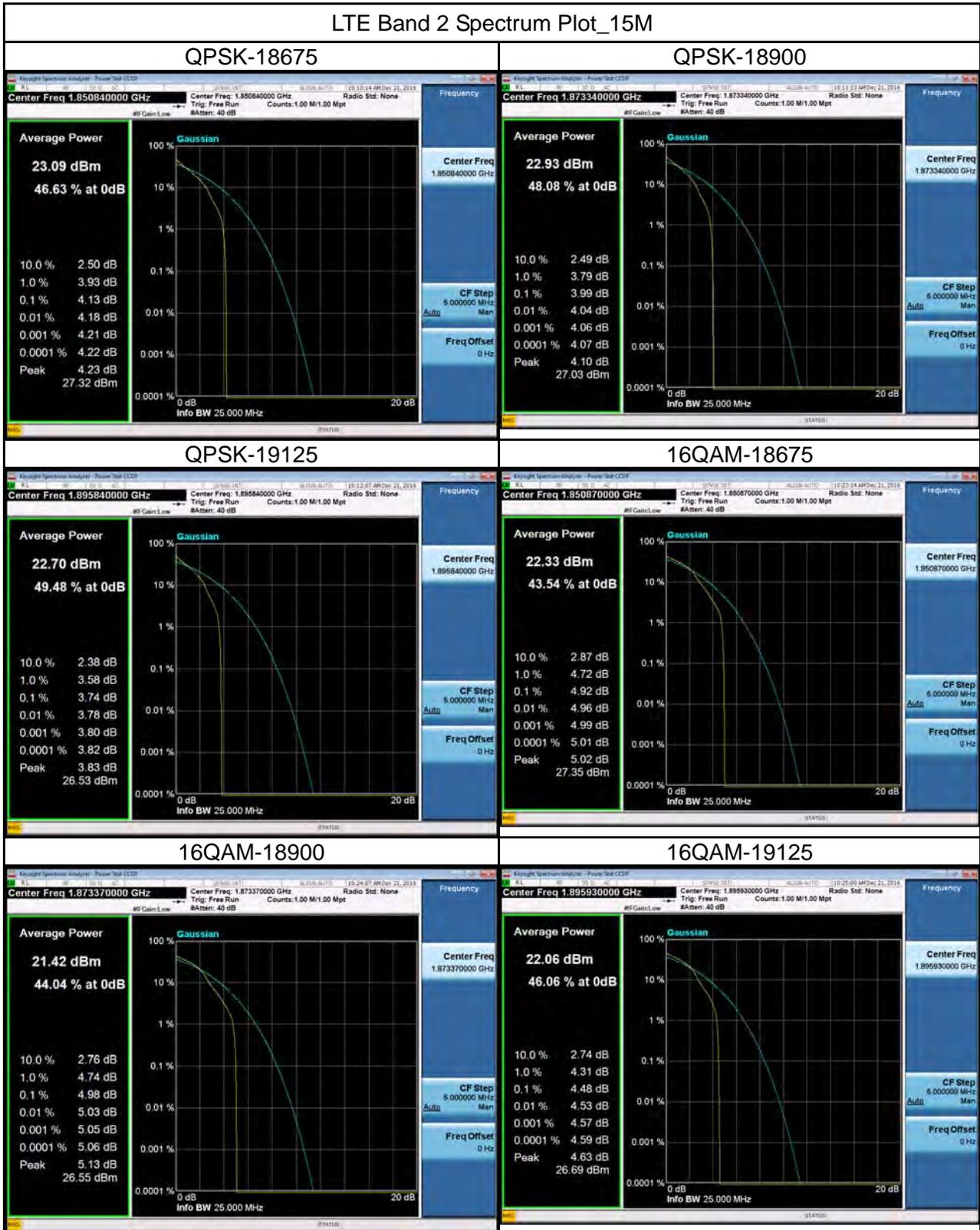
LTE Band 2 Spectrum Plot_5M



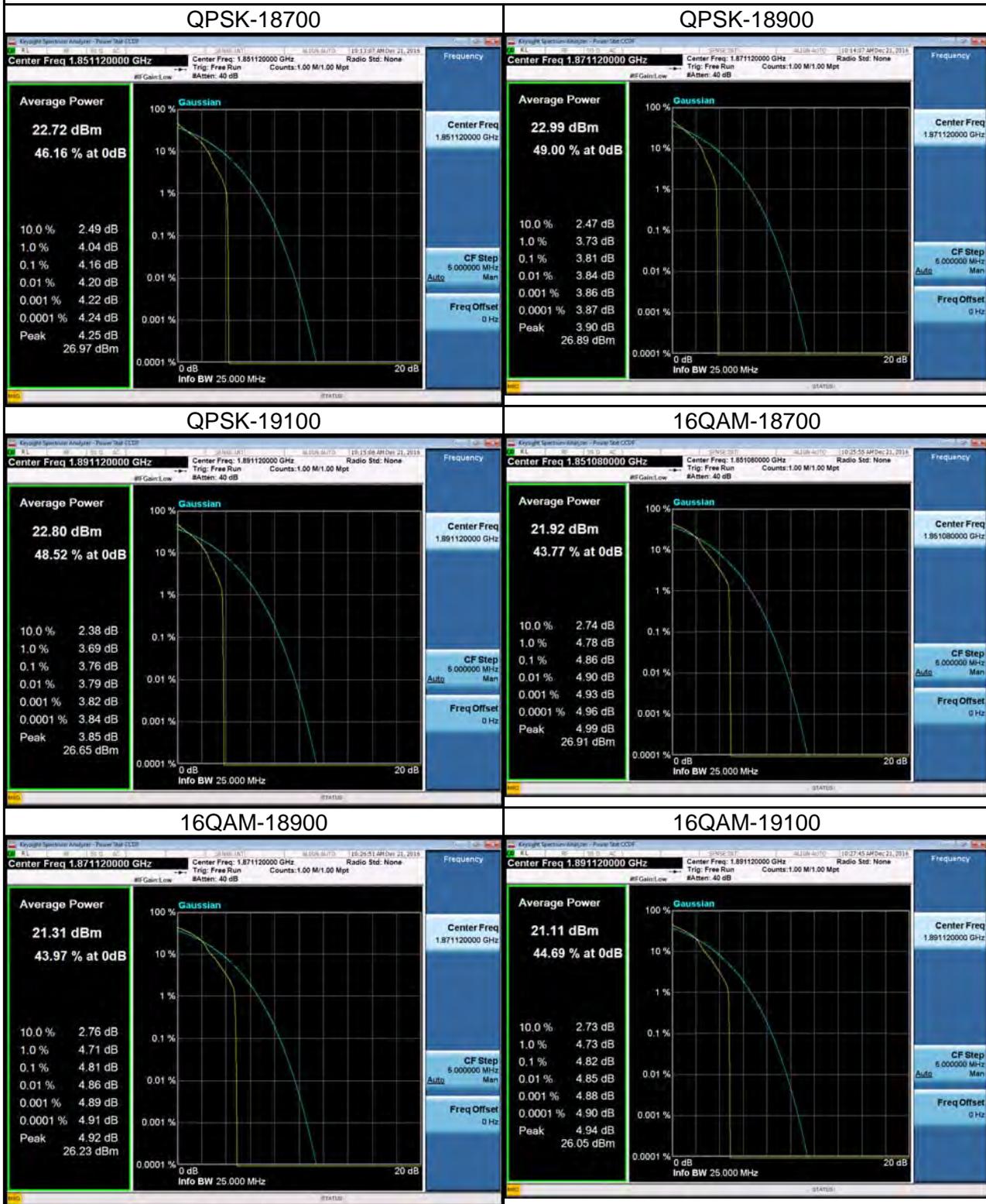
LTE Band 2 Spectrum Plot_10M



LTE Band 2 Spectrum Plot_15M



LTE Band 2 Spectrum Plot_20M



ATTACHMENT G - FREQUENCY STABILITY

Test Mode:	DCS1900_CH661
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Temperature vs. Frequency Stability

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	5.77	0.003118582	2.5
5	6.52	0.003523943	2.5
10	5.41	0.002924008	2.5
15	5.24	0.002832126	2.5
20	4.13	0.002232191	2.5
25	2.77	0.001497135	2.5
30	3.27	0.001767376	2.5
35	6.98	0.003772565	2.5
Max. Deviation (ppm)	6.98	0.003772565	2.5

Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
3.8	5.38	0.002907794	2.5
3.5	2.64	0.001426873	2.5
4.35	3.77	0.002037618	2.5
Max. Deviation (ppm)	5.38	0.002907794	2.5

Test Mode:	WCDMA Band II_CH9400
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Temperature vs. Frequency Stability

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	5.33	0.002835106	2.5
5	4.36	0.002319149	2.5
10	3.99	0.00212234	2.5
15	4.25	0.002260638	2.5
20	1.98	0.001053191	2.5
25	2.37	0.001260638	2.5
30	4.16	0.002212766	2.5
35	5.41	0.00287766	2.5
Max. Deviation (ppm)	5.41	0.00287766	2.5

Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
3.8	3.59	0.001909574	2.5
3.5	2.17	0.001154255	2.5
4.35	3.38	0.001797872	2.5
Max. Deviation (ppm)	3.59	0.001909574	2.5

Test Mode:	WCDMA_HSDPA Band II_CH9400
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Temperature vs. Frequency Stability

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	5.89	0.003132979	2.5
5	5.33	0.002835106	2.5
10	2.79	0.001484043	2.5
15	3.61	0.001920213	2.5
20	3.72	0.001978723	2.5
25	2.51	0.001335106	2.5
30	1.56	0.000829787	2.5
35	3.22	0.001712766	2.5
Max. Deviation (ppm)	5.89	0.003132979	2.5

Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
3.8	3.31	0.001760638	2.5
3.5	3.79	0.002015957	2.5
4.35	2.48	0.001319149	2.5
Max. Deviation (ppm)	4.16	0.002015957	2.5

Test Mode:	WCDMA_HSUPA Band II_CH9400
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Temperature vs. Frequency Stability

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	6.20	0.003297872	2.5
5	5.32	0.002829787	2.5
10	4.43	0.002356383	2.5
15	3.11	0.001654255	2.5
20	2.87	0.001526596	2.5
25	1.35	0.000718085	2.5
30	2.22	0.001180851	2.5
35	6.03	0.003207447	2.5
Max. Deviation (ppm)	6.20	0.003297872	2.5

Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
3.8	4.08	0.002170213	2.5
3.5	3.11	0.001654255	2.5
4.35	3.84	0.002042553	2.5
Max. Deviation (ppm)	4.08	0.002170213	2.5

Test Mode:	LTE Band 2_CH18900_1.4M
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Temperature vs. Frequency Stability

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	-3.96	0.002106383	2.5
5	-4.99	0.002654255	2.5
10	3.67	0.001952128	2.5
15	2.92	0.001553191	2.5
20	3.84	0.002042553	2.5
25	2.77	0.001473404	2.5
30	-3.95	0.002101064	2.5
35	2.16	0.001148936	2.5
Max. Deviation (ppm)	4.99	0.002654255	2.5

Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
3.8	3.71	0.001973404	2.5
3.5	3.43	0.001824468	2.5
4.35	1.47	0.000781915	2.5
Max. Deviation (ppm)	3.71	0.001973404	2.5

Test Mode:	LTE Band 2_CH18900_3M
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Temperature vs. Frequency Stability

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	4.39	0.002335106	2.5
5	-4.13	0.002196809	2.5
10	2.20	0.001170213	2.5
15	-2.94	0.00156383	2.5
20	1.38	0.000734043	2.5
25	1.76	0.00093617	2.5
30	2.11	0.00112234	2.5
35	3.74	0.001989362	2.5
Max. Deviation (ppm)	4.39	0.002335106	2.5

Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
3.8	3.11	0.001654255	2.5
3.5	-1.60	0.000851064	2.5
4.35	5.19	0.002760638	2.5
Max. Deviation (ppm)	5.19	0.002760638	2.5

Test Mode:	LTE Band 2_CH18900_5M
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Temperature vs. Frequency Stability

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	3.54	0.001882979	2.5
5	2.97	0.001579787	2.5
10	2.58	0.00137234	2.5
15	-6.37	0.003388298	2.5
20	2.87	0.001526596	2.5
25	3.38	0.001797872	2.5
30	4.43	0.002356383	2.5
35	3.65	0.001941489	2.5
Max. Deviation (ppm)	6.37	0.003388298	2.5

Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
3.8	1.06	0.00056383	2.5
3.5	-3.25	0.001728723	2.5
4.35	-5.43	0.002888298	2.5
Max. Deviation (ppm)	5.43	0.002888298	2.5

Test Mode:	LTE Band 2_CH18900_10M
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Temperature vs. Frequency Stability

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	5.29	0.00281383	2.5
5	4.36	0.002319149	2.5
10	-4.63	0.002462766	2.5
15	5.21	0.002771277	2.5
20	-2.35	0.00125	2.5
25	3.58	0.001904255	2.5
30	-3.64	0.00193617	2.5
35	-4.88	0.002595745	2.5
Max. Deviation (ppm)	5.29	0.00281383	2.5

Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
3.8	2.57	0.001367021	2.5
3.5	3.77	0.002005319	2.5
4.35	3.48	0.001851064	2.5
Max. Deviation (ppm)	3.77	0.002005319	2.5

Test Mode:	LTE Band 2_CH18900_15M
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Temperature vs. Frequency Stability

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	-2.58	0.00137234	2.5
5	-4.33	0.002303191	2.5
10	1.69	0.000898936	2.5
15	2.74	0.001457447	2.5
20	3.25	0.001728723	2.5
25	1.22	0.000648936	2.5
30	-3.10	0.001648936	2.5
35	-2.54	0.001351064	2.5
Max. Deviation (ppm)	4.33	0.002303191	2.5

Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
3.8	5.79	0.003079787	2.5
3.5	2.19	0.001164894	2.5
4.35	4.33	0.002303191	2.5
Max. Deviation (ppm)	5.79	0.003079787	2.5

Test Mode:	LTE Band 2_CH18900_20M
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Temperature vs. Frequency Stability

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	-2.33	0.001239362	2.5
5	4.88	0.002595745	2.5
10	3.25	0.001728723	2.5
15	8.22	0.00437234	2.5
20	-2.24	0.001191489	2.5
25	5.63	0.002994681	2.5
30	-4.19	0.002228723	2.5
35	2.23	0.00118617	2.5
Max. Deviation (ppm)	8.22	0.00437234	2.5

Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
3.8	-2.37	0.001260638	2.5
3.5	3.55	0.001888298	2.5
4.35	6.13	0.003260638	2.5
Max. Deviation (ppm)	6.13	0.003260638	2.5