

# FCC Radio Test Report

## FCC ID: YJYCLUE

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

**Project No.** : 1602C039  
**Equipment** : 4G LTE Digital Mobile Telephone  
**Model Name** : C630  
**Applicant** : Shanghai Feixun Communication Co.,Ltd.  
**Address** : No.3666, Sixian Rd., Songjiang District, Shanghai,  
P.R.China

**Date of Receipt** : Feb. 19, 2016  
**Date of Test** : Feb. 19, 2016 ~ Apr. 14, 2016  
**Issued Date** : Apr. 14, 2016  
**Tested by** : BTL Inc.

**Technical Engineer** :

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**Authorized Signatory** :

Steven Lu  
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# **B T L I N C .**

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For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

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### REPORT ISSUED HISTORY

Issued No.	Description	Issued Date
BTL-FCCP-6-1602C039	Original Issue.	Apr. 14, 2016

## 1. CERTIFICATION

Equipment : 4G LTE Digital Mobile Telephone  
Brand Name : PHICOMM, FEIXUN  
Model Name : C630  
Applicant : Shanghai Feixun Communication Co.,Ltd.  
Manufacturer : Shanghai Feixun Communication Co.,Ltd.  
Address : No.3666,Sixian Rd.,Songjiang District,Shanghai,P.R.China  
Date of Test : Feb. 19, 2016 ~ Apr. 14, 2016  
Test Sample : Engineering Sample  
Standard(s) : 47 CFR FCC Part 27  
47 CFR FCC Part 2 & ANSI/TIA-603-D-2010

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-6-1602C039) 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 LTE Band IV and LTE Band VII part.**

## 2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC Part 27 & Part 2			
Standard(s) Section	Test Item	Judgment	Tested By
2.1046 27.50(d)(4)	Radiated power	PASS	Robert Luo
2.1046 27.50(d)(4)	Conducted Output Power	PASS	Allen Li
2.1049 27.53(h)	Occupied Bandwidth	PASS	Allen Li
2.1051 27.53(h)	Conducted Spurious Emissions	PASS	Allen Li
2.1053 27.53(h)	Radiated Spurious Emissions	PASS	Robert Luo
27.53(h)	Band Edge Measurements	PASS	Allen Li
27.50	Peak To Average Ratio	PASS	Allen Li
2.1055 27.54	Frequency Stability	PASS	Allen 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  $U_{\text{CISPR}}$  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	$U_1$ (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
		1GHz~18GHz	V	3.12
		1GHz~18GHz	H	3.68
		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	4G LTE Digital Mobile Telephone	
Brand Name	PHICOMM, FEIXUN	
Model Name	C630	
Model Difference	N/A	
Modulation Type	LTE	QPSK, 16QAM
Operation Frequency	LTE 4 (Channel Bandwidth: 1.4MHz)	1710.7 ~ 1754.3 MHz
	LTE 4 (Channel Bandwidth: 3MHz)	1711.5 ~ 1753.5 MHz
	LTE 4 (Channel Bandwidth: 5MHz)	1712.5 ~ 1752.5 MHz
	LTE 4 (Channel Bandwidth: 10MHz)	1715.0 ~ 1750.0 MHz
	LTE 4 (Channel Bandwidth: 15MHz)	1717.5 ~ 1747.5 MHz
	LTE 4 (Channel Bandwidth: 20MHz)	1720.0 ~ 1745.0 MHz
	LTE 7 (Channel Bandwidth: 5MHz)	2502.5 ~ 2567.5 MHz
	LTE 7 (Channel Bandwidth: 10MHz)	2505.0 ~ 2565.0 MHz
	LTE 7 (Channel Bandwidth: 15MHz)	2507.5 ~ 2562.5 MHz
	LTE 7 (Channel Bandwidth: 20MHz)	2510.0 ~ 2560.0 MHz
Max. EIRP Power	LTE 4 (Channel Bandwidth: 1.4MHz)	22.84 dBm
	LTE 4 (Channel Bandwidth: 3MHz)	25.94 dBm
	LTE 4 (Channel Bandwidth: 5MHz)	26.13 dBm
	LTE 4 (Channel Bandwidth: 10MHz)	27.78 dBm
	LTE 4 (Channel Bandwidth: 15MHz)	27.64 dBm
	LTE 4 (Channel Bandwidth: 20MHz)	27.99 dBm
	LTE 7 (Channel Bandwidth: 5MHz)	21.37 dBm
	LTE 7 (Channel Bandwidth: 10MHz)	22.57 dBm
	LTE 7 (Channel Bandwidth: 15MHz)	23.01 dBm
	LTE 7 (Channel Bandwidth: 20MHz)	22.89 dBm
Antenna Type	Fixed Internal Antenna	
Antenna Gain	3.75dBi - LTE 4 3.25dBi - LTE 7	
Hardware Version	C630LwLA_0000_5.0_1.0T06_0229_SH	
Software Version	C630LwLA_MB_V1.0	
IMEI No.	867985021362672	
Power Source	#1 DC voltage supplied from AC/DC adapter. #2 Supplied from USB port. #3 Supplied from rechargeable Li-Polymer battery.	
Power Rating	Please refer to note 2	

**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.

Product	Brand	Model	Description
Adapter	N/A	RD0501000-USBA-18MG	I/P: 100-240V~50/60Hz, 0.25A MAX O/P: 5V---1000mA
Battery	N/A	BL-F33	3.8V, 2300mAh, 8.74Wh
USB Cable	N/A	N/A	100cm shielded cable with core

### 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:

LTE BAND 4 MODE					
Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
EIRP	19957 to 20393	19957, 20175, 20393	1.4MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	19965 to 20385	19965, 20175, 20385	3MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	19975 to 20375	19975, 20175, 20375	5MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	20000 to 20350	20000, 20175, 20350	10MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	20025 to 20325	20025, 20175, 20325	15MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	20050 to 20300	20050, 20175, 20300	20MHz	QPSK, 16QAM	1 RB / 0 RB Offset
Occupied Bandwidth	19957 to 20393	19957, 20175, 20393	1.4MHz	QPSK, 16QAM	6 RB / 0 RB Offset
	19965 to 20385	19965, 20175, 20385	3MHz	QPSK, 16QAM	15 RB / 0 RB Offset
	19975 to 20375	19975, 20175, 20375	5MHz	QPSK, 16QAM	25 RB / 0 RB Offset
	20000 to 20350	20000, 20175, 20350	10MHz	QPSK, 16QAM	50 RB / 0 RB Offset
	20025 to 20325	20025, 20175, 20325	15MHz	QPSK, 16QAM	75 RB / 0 RB Offset
	20050 to 20300	20050, 20175, 20300	20MHz	QPSK, 16QAM	100 RB / 0 RB Offset
Conducted Emission	19957 to 20393	20175	1.4MHz	QPSK	1 RB / 0 RB Offset
	19965 to 20385	20175	3MHz	QPSK	1 RB / 0 RB Offset
	19975 to 20375	20175	5MHz	QPSK	1 RB / 0 RB Offset
	20000 to 20350	20175	10MHz	QPSK	1 RB / 0 RB Offset
	20025 to 20325	20175	15MHz	QPSK	1 RB / 0 RB Offset
	20050 to 20300	20175	20MHz	QPSK	1 RB / 0 RB Offset
Radiated Emission	19957 to 20393	20175	1.4MHz	QPSK	1 RB / 0 RB Offset
	19965 to 20385	20175	3MHz	QPSK	1 RB / 0 RB Offset
	19975 to 20375	20175	5MHz	QPSK	1 RB / 0 RB Offset
	20000 to 20350	20175	10MHz	QPSK	1 RB / 0 RB Offset
	20025 to 20325	20175	15MHz	QPSK	1 RB / 0 RB Offset
	20050 to 20300	20175	20MHz	QPSK	1 RB / 0 RB Offset

Band Edge	19957 to 20393	19957	1.4MHz	QPSK	1 RB / 0 RB Offset
		20393	1.4MHz	QPSK	6 RB / 0 RB Offset
	19965 to 20385	19965	3MHz	QPSK	1 RB / 5 RB Offset
		20385	3MHz	QPSK	6 RB / 0 RB Offset
	19975 to 20375	19975	5MHz	QPSK	1 RB / 0 RB Offset
					15 RB / 0 RB Offset
		20375	5MHz	QPSK	1 RB / 14 RB Offset
	20000 to 20350	20000	10MHz	QPSK	15 RB / 0 RB Offset
					1 RB / 0 RB Offset
		20350	10MHz	QPSK	25 RB / 0 RB Offset
	20025 to 20325	20025	15MHz	QPSK	1 RB / 24 RB Offset
					25 RB / 0 RB Offset
		20325	15MHz	QPSK	1 RB / 0 RB Offset
	20050 to 20300	20050	20MHz	QPSK	75 RB / 0 RB Offset
1 RB / 74 RB Offset					
20300		20MHz	QPSK	75 RB / 0 RB Offset	
Peak To Average Ratio	19957 to 20393	19957, 20175, 20393	1.4MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	19965 to 20385	19965, 20175, 20385	3MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	19975 to 20375	19975, 20175, 20375	5MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	20000 to 20350	20000, 20175, 20350	10MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	20025 to 20325	20025, 20175, 20325	15MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	20050 to 20300	20050, 20175, 20300	20MHz	QPSK, 16QAM	1 RB / 0 RB Offset
Frequency Stability	19957 to 20393	20175	1.4MHz	QPSK	1 RB / 0 RB Offset
	19965 to 20385	20175	3MHz	QPSK	1 RB / 0 RB Offset
	19975 to 20375	20175	5MHz	QPSK	1 RB / 0 RB Offset
	20000 to 20350	20175	10MHz	QPSK	1 RB / 0 RB Offset
	20025 to 20325	20175	15MHz	QPSK	1 RB / 0 RB Offset
	20050 to 20300	20175	20MHz	QPSK	1 RB / 0 RB Offset



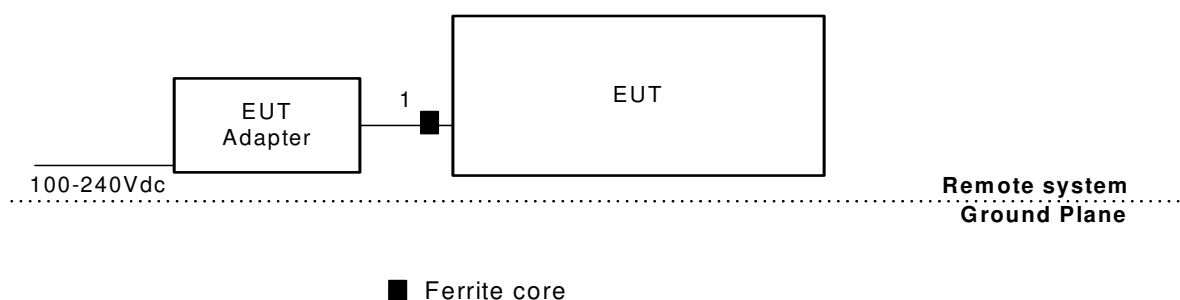
LTE BAND 7 MODE					
Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
EIRP	20775 to 21425	20775, 21100, 21425	5MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	20800 to 21400	20800, 21100, 21400	10MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	20825 to 21375	20825, 21100, 21375	15MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	20850 to 21350	20850, 21100, 21350	20MHz	QPSK, 16QAM	1 RB / 0 RB Offset
Occupied Bandwidth	20775 to 21425	20775, 21100, 21425	5MHz	QPSK, 16QAM	25 RB / 0 RB Offset
	20800 to 21400	20800, 21100, 21400	10MHz	QPSK, 16QAM	50 RB / 0 RB Offset
	20825 to 21375	20825, 21100, 21375	15MHz	QPSK, 16QAM	75 RB / 0 RB Offset
	20850 to 21350	20850, 21100, 21350	20MHz	QPSK, 16QAM	100 RB / 0 RB Offset
Conducted Emission	20775 to 21425	21100	5MHz	QPSK	1 RB / 0 RB Offset
	20800 to 21400	21100	10MHz	QPSK	1 RB / 0 RB Offset
	20825 to 21375	21100	15MHz	QPSK	1 RB / 0 RB Offset
	20850 to 21350	21100	20MHz	QPSK	1 RB / 0 RB Offset
Radiated Emission	20775 to 21425	21100	5MHz	QPSK	1 RB / 0 RB Offset
	20800 to 21400	21100	10MHz	QPSK	1 RB / 0 RB Offset
	20825 to 21375	21100	15MHz	QPSK	1 RB / 0 RB Offset
	20850 to 21350	21100	20MHz	QPSK	1 RB / 0 RB Offset

Band Edge	20775 to 21425	20775	5MHz	QPSK	1 RB / 0 RB Offset	
		21425	5MHz	QPSK	25 RB / 0 RB Offset	
	20800 to 21400	20800	10MHz	QPSK	1 RB / 24 RB Offset	
		21400	10MHz	QPSK	25 RB / 0 RB Offset	
	20825 to 21375	20825	20800	10MHz	QPSK	1 RB / 0 RB Offset
			21400	10MHz	QPSK	50 RB / 0 RB Offset
		21375	15MHz	QPSK	1 RB / 49 RB Offset	
	20850 to 21350	20825	20825	15MHz	QPSK	50 RB / 0 RB Offset
			21375	15MHz	QPSK	1 RB / 0 RB Offset
		20850	20825	15MHz	QPSK	75 RB / 0 RB Offset
			21375	15MHz	QPSK	1 RB / 74 RB Offset
	20850 to 21350	20850	20MHz	QPSK	75 RB / 0 RB Offset	
21350		20MHz	QPSK	1 RB / 0 RB Offset		
Peak To Average Ratio	20775 to 21425	20775, 21100, 21425	5MHz	QPSK, 16QAM	100 RB / 0 RB Offset	
	20800 to 21400	20800, 21100, 21400	10MHz	QPSK, 16QAM	1 RB / 0 RB Offset	
	20825 to 21375	20825, 21100, 21375	15MHz	QPSK, 16QAM	1 RB / 0 RB Offset	
	20850 to 21350	20850, 21100, 21350	20MHz	QPSK, 16QAM	1 RB / 0 RB Offset	
Frequency Stability	20775 to 21425	21100	5MHz	QPSK	1 RB / 0 RB Offset	
	20800 to 21400	21100	10MHz	QPSK	1 RB / 0 RB Offset	
	20825 to 21375	21100	15MHz	QPSK	1 RB / 0 RB Offset	
	20850 to 21350	21100	20MHz	QPSK	1 RB / 0 RB Offset	

**EUT TEST CONDITIONS:**

Test Item	Environmental Conditions	Test Voltage
EIRP	24°C, 63%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	24°C, 63%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	YES	1m	USB cable

## 4. TEST RESULT

### 4.1 OUTPUT POWER MEASUREMENT

#### 4.1.1 LIMIT

Mobile / Portable station are limited to 1 watts e.i.r.p. (LTE 4)

Mobile / Portable station are limited to 2 watts e.i.r.p. (LTE 7)

#### 4.1.2 TEST PROCEDURE

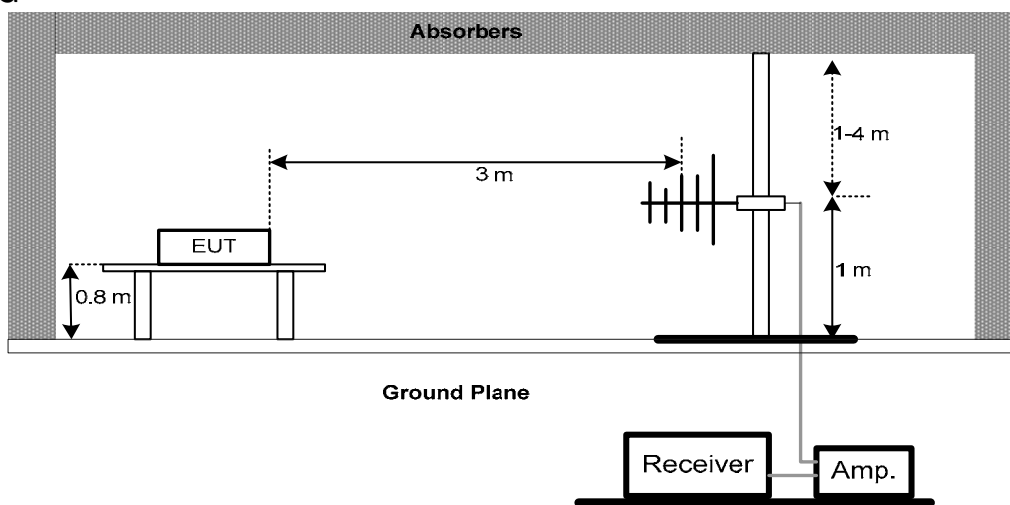
##### EIRP/ERP:

1. All measurements were done at low, middle and high operational frequency range. RBW and VBW setting:  
Set the  $RBW \geq OBW$ .  
Set  $VBW \geq 3 \times RBW$ .  
Set  $span \geq 2 \times RBW$   
Sweep time=auto couple  
Detector=peak  
Ensure that the number of measurement points  $\geq span/RBW$   
Trace mode=max hold  
Allow trace to fully stabilize  
Use the peak marker function to determine the peak amplitude level
2. 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.
3. 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
5. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of Integral, E.R.P power=E.I.P.R power-2.15dBi.

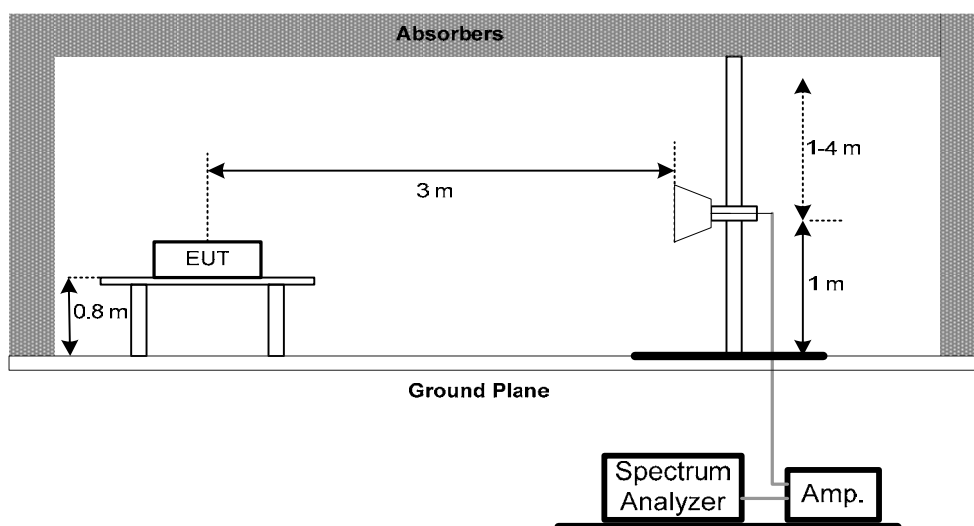
##### Conducted Power:

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**  
**ERP Power Measurement**  
**Below 1G**



**Above 1G**



**Conducted Power Measurement**



**4.1.4 TEST DEVIATION**

No deviation

**4.1.5 TEST RESULTS**

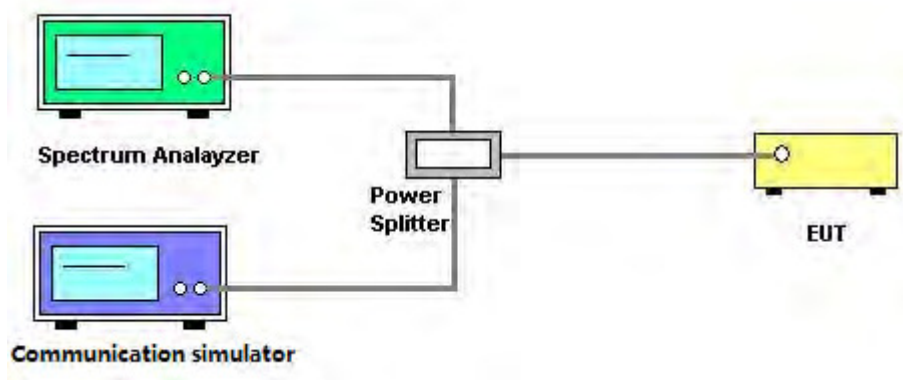
Please refer to the Attachment A.

## 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.

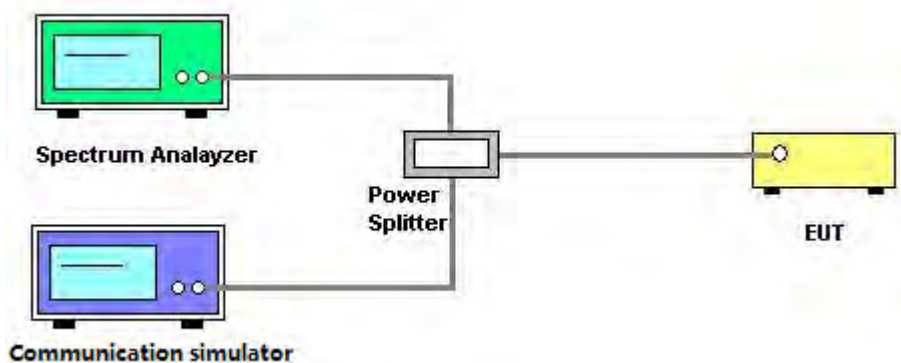
#### 4.3.2 TEST PROCEDURES

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  $RBW \geq 1\%$  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  $43+10\log(P)$ dB below the transmitter power P(Watts)
 
$$=P(W)-[43+10\log(P)](dB)$$

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

$$=-13dBm$$

#### 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

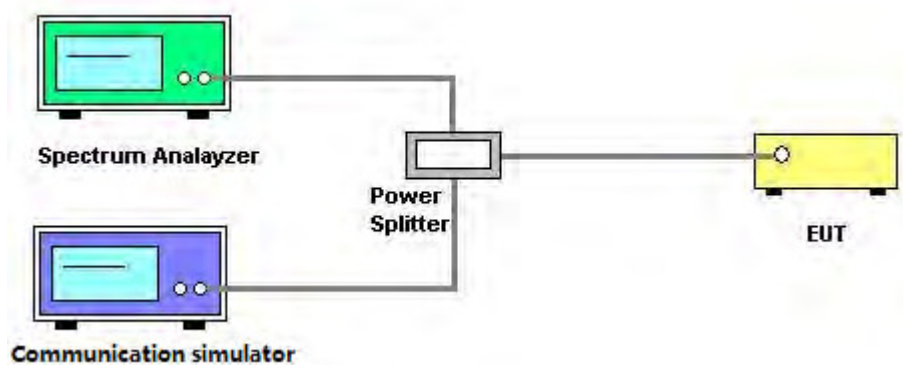
LTE 4: A Power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

LTE 7: 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  $55 + 10 \log(P)$  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

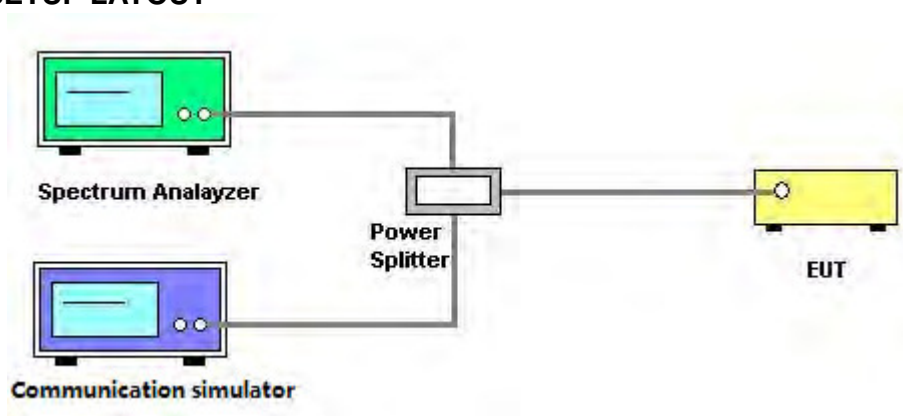
### 4.6.1 LIMIT

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

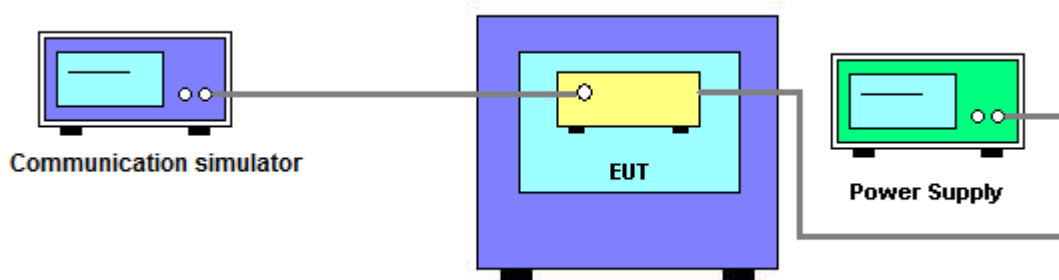
### 4.7.1 LIMIT

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	Amplifier	HP	8447D	2944A09673	Nov. 09, 2016
3	Receiver	AGILENT	N9038A	MY52130039	Oct. 11, 2016
4	Test Cable	emci	LMR-400(30MHz-1GHz)	C-01	Jun. 28, 2016
5	Controller	CT	SC100	N/A	N/A
6	Antenna	ETS	3115	00075789	Mar. 27, 2017
7	Amplifier	Agilent	8449B	3008A02274	Nov. 01, 2016
8	Test Cable	emci	EMC104-SM-SM-10000(1GHz-26.5GHz)	C-68	Jun. 28, 2016
9	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Mar. 27, 2017
10	Microwave Preamplifier With Adaptor	EMC INSTRUMENT	EMC2654045	980039 & HA01	Mar. 27, 2017
11	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
12	Wireless Communication Test Set	(8960 Series) Agilent	E5515C	MY48364183	Mar. 27, 2017
13	Band Reject Filter	Wairwright Instruments Gmbh	WRCG 1850/1910-1830 /1930-60/10SS	17	Mar. 03, 2017
14	HighPass Filter	Wairwright Instruments Gmbh Gmbh	WHK 1.5/15G-10ST	11	Jul. 06, 2016
15	HighPass Filter	Wairwright Instruments Gmbh	WHK 3.1/18G-10SS	24	Mar. 03, 2017
16	HighPass Filter	ZHPF-M1000-4000-1	WHK 1000-4000MHz	B2015073762	Aug. 05, 2016
17	HighPass Filter	ZHPF-M3-12.75G-3869	WHK 3000-12750MHz	B2015073763	Aug. 05, 2016
18	HighPass Filter	ZHPF-M6-18G-1727	WHK 6000-18000MHz	B2015073764	Aug. 05, 2016
19	Active Loop Antenna	R&S	HFH2-Z2	830749/020	Sep. 07, 2016

<b>Conducted Emission &amp; Band Edge &amp; Occupied Bandwidth Measurement</b>					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EXA Spectrum Analyzer	Agilent	N9010A	MY50520044	Mar. 27, 2017
2	Wireless Communication Test Set	(8960 Series)Agilent	E5515C	MY48364183	Mar. 27, 2017
3	wideband radio communication tester	R&S	CMW500	152372	Jan. 29, 2017
4	POWER SPLITTER	Mini-Circuits	ZFRSC-123-S+	331000910-1	Mar. 16, 2017
5	Test Cable	N/A	RG316	Cable4-001	Jul. 15, 2016
6	Test Cable	N/A	RG316	Cable4-002	Jul. 15, 2016
7	Spectrum Analyzer	R&S	FSP 40	100185	Oct. 11, 2016

<b>Frequency Stability Measurement</b>					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Wireless Communication Test Set	(8960 Series)Agilent	E5515C	MY48364183	Mar. 27, 2017
2	wideband radio communication tester	R&S	CMW500	152372	Jan. 29, 2017
3	POWER SPLITTER	Mini-Circuits	ZFRSC-123-S+	331000910-1	Mar. 16, 2017
4	Test Cable	N/A	RG316	Cable4-001	Jul. 15, 2016
5	Const Temp. & Humidity Chamber	GIANT FORCE	ITH-225-20-S	IAB0309-001	Dec. 04, 2016
6	DC power supply	GW Instek	GPC-30300N	EK880675	Oct. 13, 2016

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

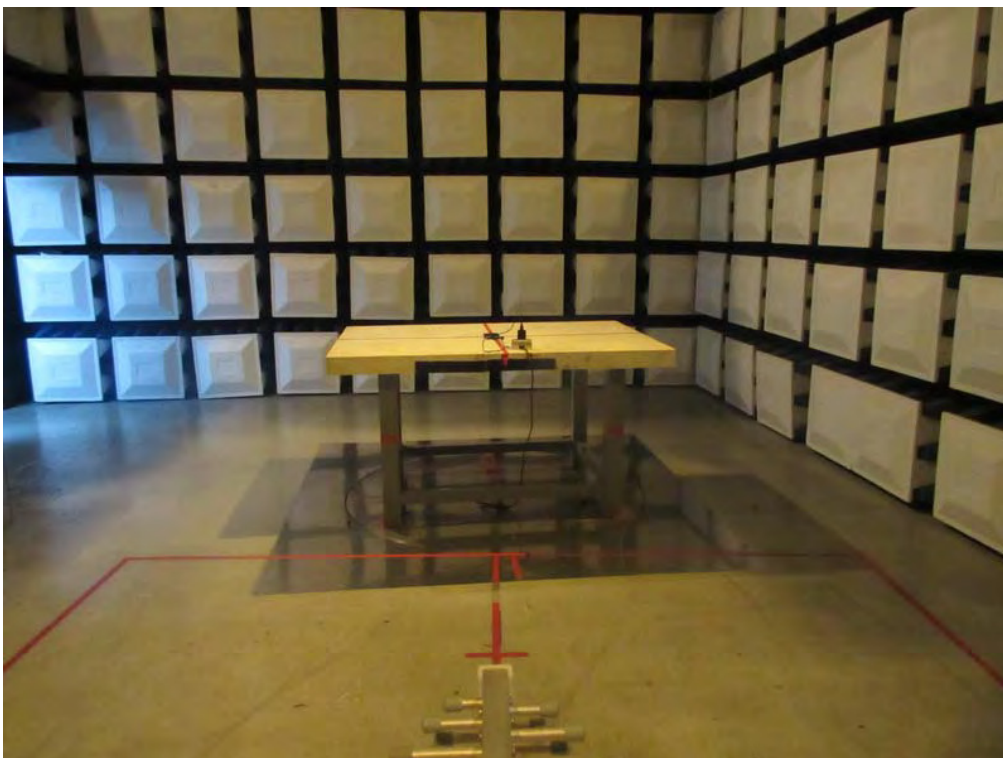
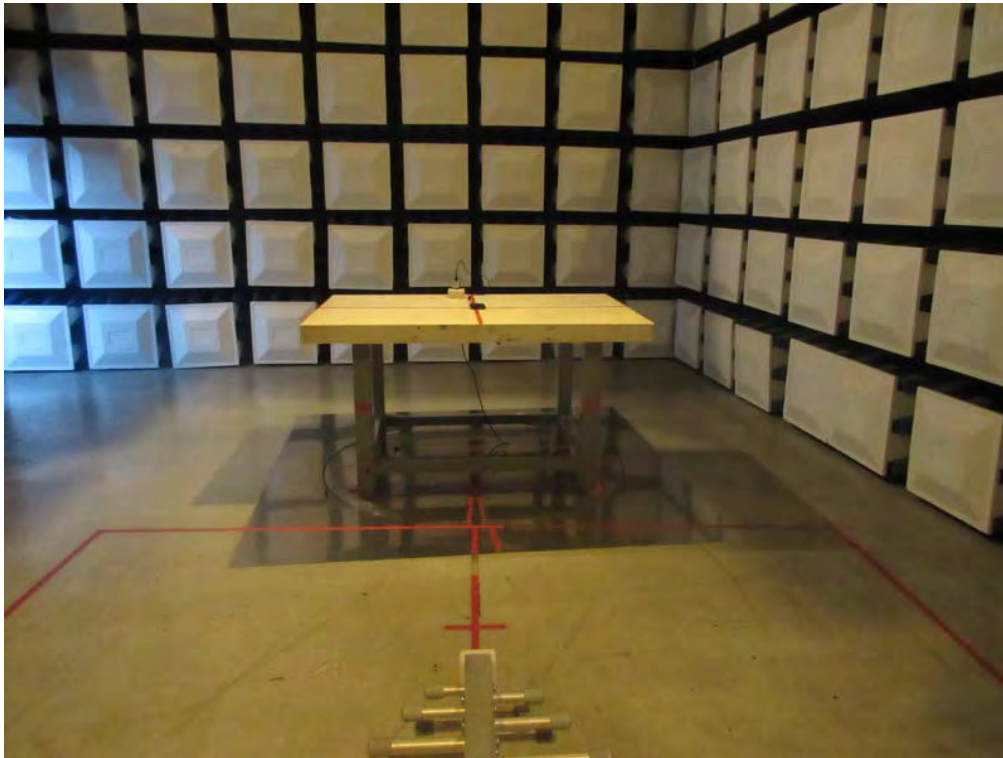
## 6. EUT TEST PHOTO

### Radiated Measurement Photos 9KHz to 30MHz

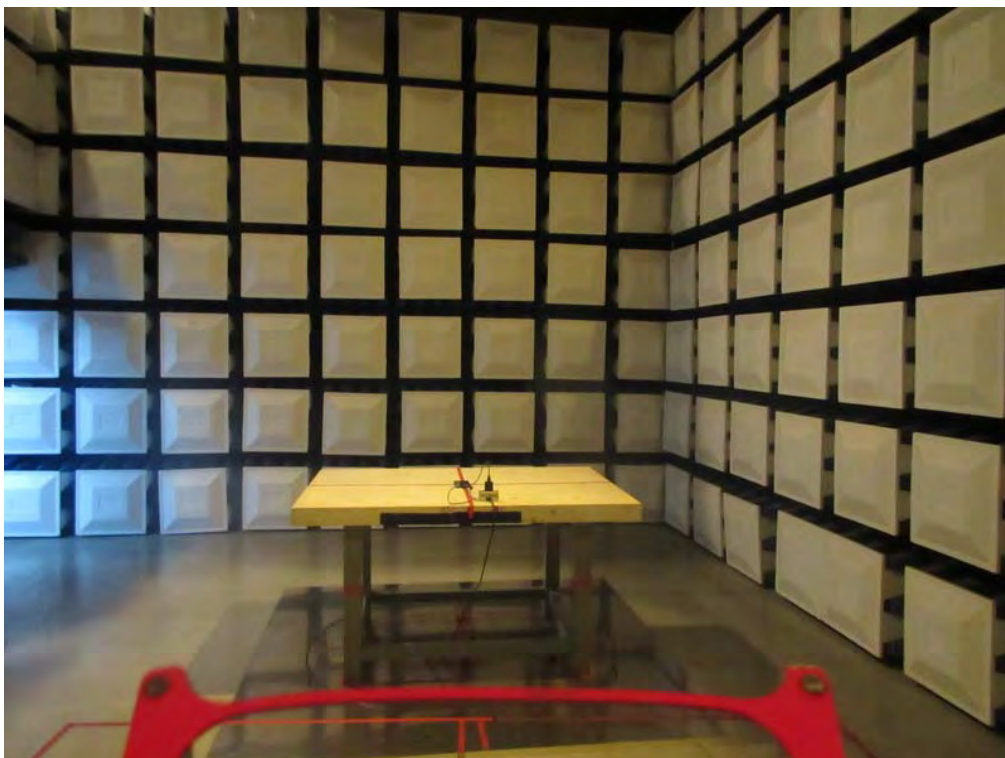
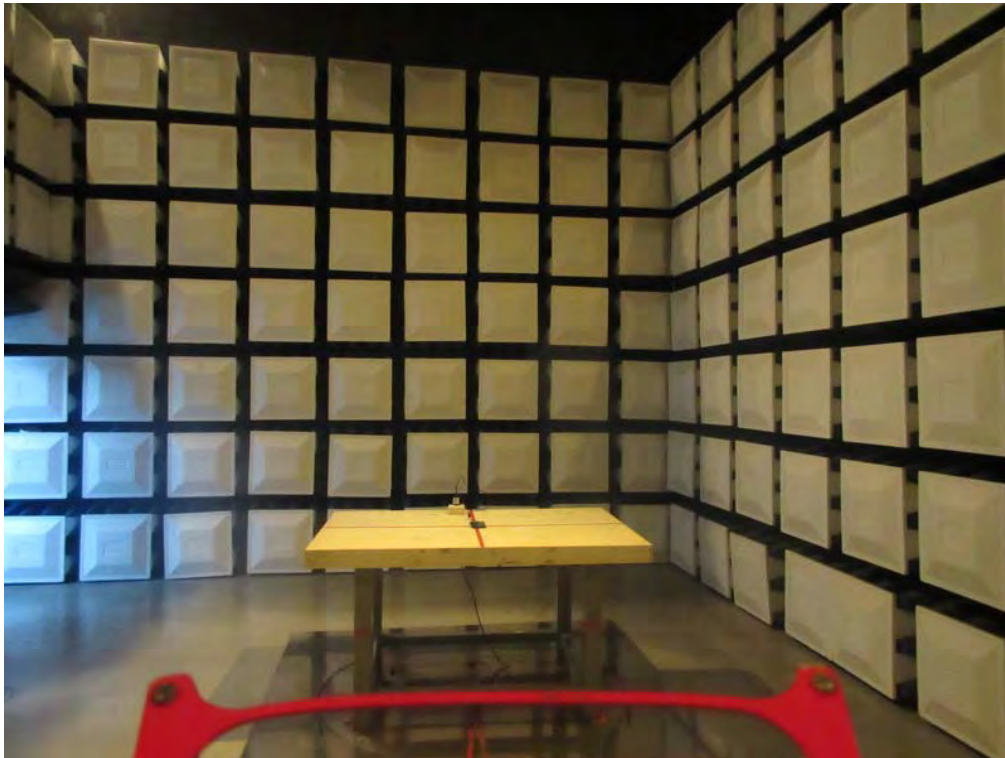




**Radiated Measurement Photos  
Below 1GHz**



**Radiated Measurement Photos  
Above 1GHz**





## ATTACHMENT A - OUTPUT POWER

**Conducted Power:**

LTE Band / BW	Modulation	RB Siset	RB Offset	Low CH	Mid CH	High CH
				19957 CH	20175 CH	20393 CH
				1710.7 MHz	1732.5 MHz	1754.3 MHz
4 / 1.4M	QPSK	1	0	23.17	23.41	23.18
		1	2	23.13	23.47	23.33
		1	5	23.25	23.18	23.34
		3	0	22.14	22.24	22.33
		3	1	22.34	22.25	22.32
		3	3	22.31	22.33	22.26
		6	0	22.14	22.30	22.32
	16QAM	1	0	23.03	22.81	21.54
		1	2	23.20	22.79	21.58
		1	5	22.88	22.74	21.53
		3	0	22.40	22.18	21.97
		3	1	22.37	22.13	21.94
		3	3	22.39	22.37	21.96
		6	0	21.21	20.85	21.31

LTE Band / BW	Modulation	RB Siset	RB Offset	Low CH	Mid CH	High CH
				19965 CH	20175 CH	20385 CH
				1711.5 MHz	1732.5 MHz	1753.5 MHz
4 / 3M	QPSK	1	0	23.28	23.33	23.32
		1	7	23.38	23.26	23.26
		1	14	23.50	23.25	23.36
		8	0	22.08	22.24	22.36
		8	3	22.19	22.13	22.31
		8	7	22.17	22.27	22.28
		15	0	22.21	22.16	22.32
	16QAM	1	0	22.54	22.94	22.56
		1	7	22.03	22.98	22.67
		1	14	22.58	22.75	22.61
		8	0	21.02	21.35	21.26
		8	3	20.98	21.25	21.23
		8	7	20.99	21.19	21.19
		15	0	21.12	21.23	21.16

LTE Band / BW	Modulation	RB Siset	RB Offset	Low CH	Mid CH	High CH
				19975 CH	20175 CH	20375 CH
				1712.5 MHz	1732.5 MHz	1752.5 MHz
4 / 5M	QPSK	1	0	23.24	23.15	23.36
		1	12	22.97	23.11	23.26
		1	24	23.23	23.05	23.38
		12	0	22.09	22.32	22.23
		12	6	22.16	22.10	22.32
		12	13	22.22	22.12	22.34
		25	0	22.21	22.17	22.28
	16QAM	1	0	22.21	22.37	22.58
		1	12	21.69	22.12	22.01
		1	24	22.22	22.26	22.54
		12	0	20.92	21.08	21.07
		12	6	20.96	20.96	21.11
		12	13	21.06	20.99	21.07
		25	0	21.10	21.34	21.32

LTE Band / BW	Modulation	RB Sizer	RB Offset	Low CH	Mid CH	High CH
				20000 CH	20175 CH	20350 CH
				1715 MHz	1732.5 MHz	1750 MHz
4 / 10M	QPSK	1	0	23.47	23.41	23.43
		1	24	23.42	23.19	23.34
		1	49	23.34	23.17	23.53
		25	0	22.22	22.25	22.26
		25	12	22.13	22.17	22.26
		25	25	22.15	22.23	22.38
		50	0	22.19	22.18	22.28
	16QAM	1	0	22.36	22.82	22.58
		1	24	22.25	22.73	22.45
		1	49	22.23	22.79	22.55
		25	0	21.19	21.01	21.24
		25	12	21.12	21.29	21.22
		25	25	21.15	21.15	21.32
		50	0	20.97	21.21	21.17

LTE Band / BW	Modulation	RB Sizer	RB Offset	Low CH	Mid CH	High CH
				20025 CH	20175 CH	20325 CH
				1717.5 MHz	1732.5 MHz	1747.5 MHz
4 / 15M	QPSK	1	0	23.50	23.42	23.21
		1	37	23.47	23.21	23.01
		1	74	23.32	23.23	23.41
		36	0	22.30	23.23	22.23
		36	19	22.18	22.26	22.16
		36	39	22.20	22.18	22.15
		75	0	22.26	22.22	22.19
	16QAM	1	0	22.72	23.14	22.99
		1	37	22.22	22.32	22.99
		1	74	22.66	22.86	23.31
		36	0	21.17	22.86	21.05
		36	19	21.15	20.96	20.99
		36	39	21.05	21.32	21.05
		75	0	21.05	21.26	21.25

LTE Band / BW	Modulation	RB Sizer	RB Offset	Low CH	Mid CH	High CH
				20050 CH	20175 CH	20300 CH
				1720 MHz	1732.5 MHz	1745 MHz
4 / 20M	QPSK	1	0	23.37	23.47	23.48
		1	50	23.58	23.62	23.52
		1	99	23.16	23.30	23.28
		50	0	22.34	22.35	22.28
		50	25	22.20	22.18	22.19
		50	50	22.12	22.28	22.27
		100	0	22.22	22.24	22.18
	16QAM	1	0	22.57	22.28	22.45
		1	50	22.15	21.13	22.51
		1	99	21.95	22.75	23.12
		50	0	21.13	21.13	21.11
		50	25	21.08	21.10	21.11
		50	50	21.13	21.10	21.28
		100	0	21.15	21.14	21.17

LTE Band / BW	Modulation	RB Sizer	RB Offset	Low CH	Mid CH	High CH
				20775 CH	21100 CH	21425 CH
				2502.5 MHz	2535 MHz	2567.5 MHz
7 / 5M	QPSK	1	0	22.51	22.50	22.61
		1	12	22.48	22.37	22.39
		1	24	22.49	22.50	22.42
		12	0	21.68	21.46	21.53
		12	6	21.41	21.41	21.41
		12	13	21.49	21.41	21.48
		25	0	21.39	21.46	21.51
	16QAM	1	0	21.12	21.86	21.72
		1	12	20.92	21.17	21.29
		1	24	21.20	22.00	21.28
		12	0	20.54	20.32	20.37
		12	6	20.35	20.37	20.34
		12	13	20.42	20.18	20.33
		25	0	20.61	20.41	20.58

LTE Band / BW	Modulation	RB Sizer	RB Offset	Low CH	Mid CH	High CH
				20800 CH	21100 CH	21400 CH
				2505 MHz	2535 MHz	2565 MHz
7 / 10M	QPSK	1	0	22.64	22.60	22.64
		1	24	22.62	22.60	22.46
		1	49	22.76	22.42	22.36
		25	0	21.36	21.47	21.58
		25	12	21.33	21.47	21.42
		25	25	21.55	21.49	21.45
		50	0	21.50	21.53	21.56
	16QAM	1	0	21.66	21.78	21.71
		1	24	21.96	21.49	21.66
		1	49	22.16	21.74	21.77
		25	0	20.59	20.34	20.74
		25	12	20.49	20.31	20.41
		25	25	20.65	20.42	20.41
		50	0	20.51	20.38	20.47

LTE Band / BW	Modulation	RB Sizer	RB Offset	Low CH	Mid CH	High CH
				20825 CH	21100 CH	21375 CH
				2507.5 MHz	2535 MHz	2562.5 MHz
7 / 15M	QPSK	1	0	22.81	22.76	22.64
		1	37	22.55	22.45	22.34
		1	74	22.68	22.81	22.48
		36	0	21.48	21.51	21.56
		36	19	21.43	21.38	21.42
		36	39	21.57	21.46	21.41
		75	0	21.59	21.52	21.54
	16QAM	1	0	21.73	22.23	22.38
		1	37	21.38	21.67	22.01
		1	74	21.96	22.22	22.01
		36	0	20.57	20.52	20.61
		36	19	20.54	20.44	20.35
		36	39	20.66	20.70	20.36
		75	0	20.52	20.49	20.52

LTE Band / BW	Modulation	RB Sizer	RB Offset	Low CH	Mid CH	High CH
				20850 CH	21100 CH	21350 CH
				2510 MHz	2535 MHz	2560 MHz
7 / 20M	QPSK	1	0	22.75	22.85	22.87
		1	50	22.44	22.41	22.33
		1	99	22.44	22.41	22.24
		50	0	21.51	21.70	21.68
		50	25	21.62	21.40	21.43
		50	50	21.54	21.49	21.41
		100	0	21.62	21.49	21.53
	16QAM	1	0	21.59	22.37	22.02
		1	50	21.52	21.62	21.62
		1	99	21.38	22.25	21.74
		50	0	20.68	20.58	20.56
		50	25	20.70	20.41	20.31
		50	50	20.62	20.52	20.28
		100	0	20.65	20.50	20.54

**E.I.R.P Power**

LTE Band IV_1.4M					
Plane	Channel	Frequency (MHz)	EIRP(dBm)		Polarization (H/V)
			QPSK	16QAM	
X	19957	1710.7	21.87	22.04	H
	20175	1732.5	22.81	22.84	H
	20393	1754.3	22.45	22.16	H
	19957	1710.7	15.85	15.87	V
	20175	1732.5	15.29	15.69	V
	20393	1754.3	14.66	15.85	V

LTE Band IV_3M					
Plane	Channel	Frequency (MHz)	EIRP(dBm)		Polarization (H/V)
			QPSK	16QAM	
X	19965	1711.5	25.03	24.97	H
	20175	1732.5	24.96	25.08	H
	20385	1753.5	25.61	25.94	H
	19965	1711.5	18.73	18.39	V
	20175	1732.5	17.55	18.91	V
	20385	1753.5	17.45	17.55	V

LTE Band IV_5M					
Plane	Channel	Frequency (MHz)	EIRP(dBm)		Polarization (H/V)
			QPSK	16QAM	
X	19975	1712.5	24.89	25.43	H
	20175	1732.5	26.08	26.08	H
	20375	1752.5	26.13	26.07	H
	19975	1712.5	18.16	18.46	V
	20175	1732.5	17.07	17.48	V
	20375	1752.5	16.56	17.10	V

LTE Band IV_10M					
Plane	Channel	Frequency (MHz)	EIRP(dBm)		Polarization (H/V)
			QPSK	16QAM	
X	20000	1715	26.97	26.58	H
	20175	1732.5	27.39	27.03	H
	20350	1750	27.78	26.77	H
	20000	1715	21.37	21.23	V
	20175	1732.5	20.09	19.61	V
	20350	1750	20.06	20.59	V

LTE Band IV_15M					
Plane	Channel	Frequency (MHz)	EIRP(dBm)		Polarization (H/V)
			QPSK	16QAM	
X	20025	1717.5	26.94	27.64	H
	20175	1732.5	26.40	26.13	H
	20325	1747.5	26.92	27.05	H
	20025	1717.5	20.98	22.43	V
	20175	1732.5	21.39	20.56	V
	20325	1747.5	20.38	20.79	V

LTE Band IV_20M					
Plane	Channel	Frequency (MHz)	EIRP(dBm)		Polarization (H/V)
			QPSK	16QAM	
X	20050	1720	27.04	27.31	H
	20175	1732.5	26.89	26.86	H
	20300	1745	27.76	27.99	H
	20050	1720	21.41	20.80	V
	20175	1732.5	19.85	19.20	V
	20300	1745	20.37	20.57	V

LTE Band VII_5M					
Plane	Channel	Frequency (MHz)	EIRP(dBm)		Polarization (H/V)
			QPSK	16QAM	
X	20775	2502.5	21.37	21.08	H
	21100	2535	19.20	15.55	H
	21425	2567.5	17.94	18.99	H
	20775	2502.5	19.88	20.07	V
	21100	2535	20.19	19.82	V
	21425	2567.5	19.28	20.47	V

LTE Band VII_10M					
Plane	Channel	Frequency (MHz)	EIRP(dBm)		Polarization (H/V)
			QPSK	16QAM	
X	20800	2505	22.36	22.57	H
	21100	2535	21.39	20.76	H
	21400	2565	20.85	20.80	H
	20800	2505	22.27	21.76	V
	21100	2535	22.06	21.87	V
	21400	2565	22.53	21.71	V



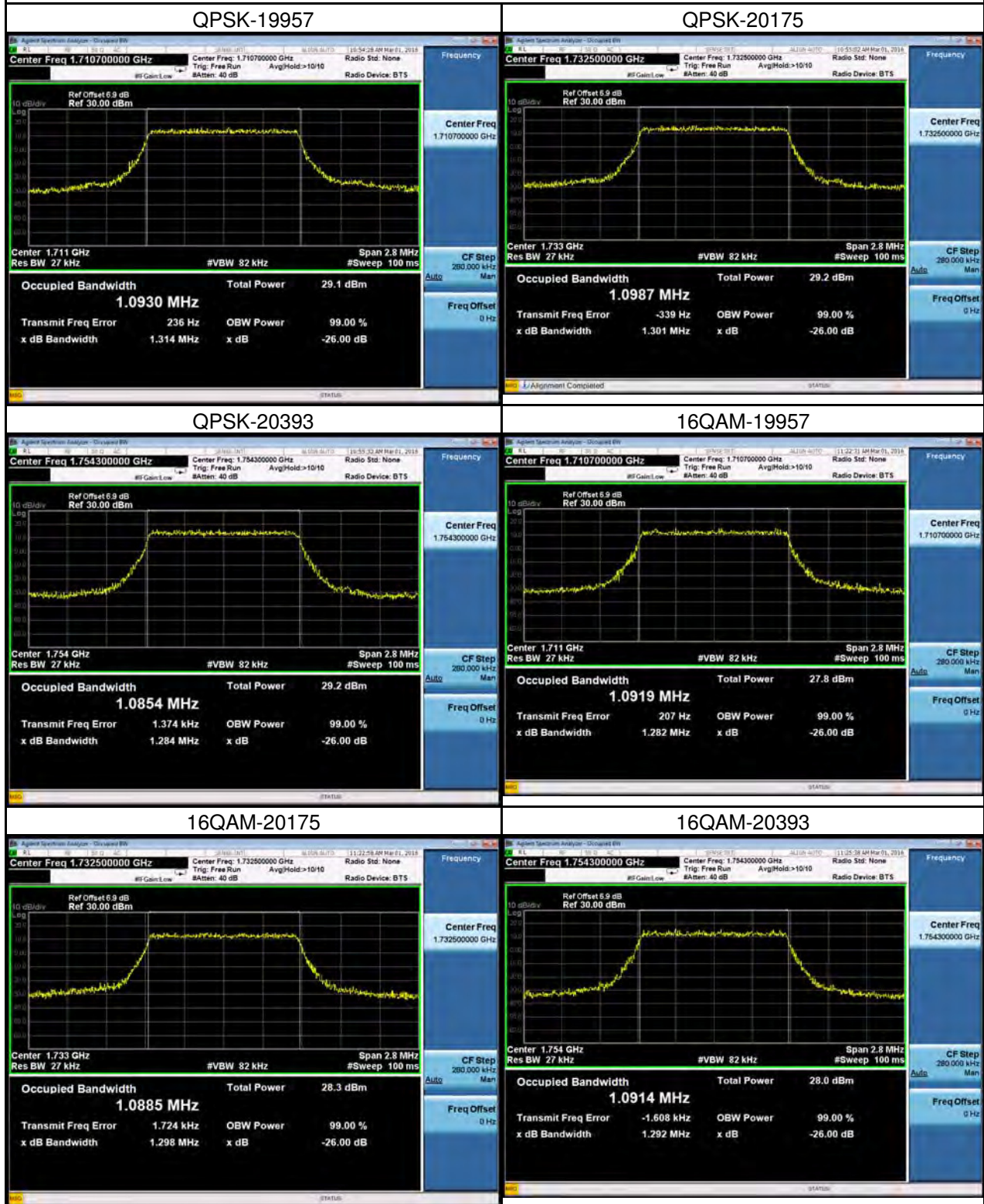
LTE Band VII_15M					
Plane	Channel	Frequency (MHz)	EIRP(dBm)		Polarization (H/V)
			QPSK	16QAM	
X	20825	2507.5	22.73	22.28	H
	21100	2535	21.88	21.63	H
	21375	2562.5	20.91	21.31	H
	20825	2507.5	22.44	23.01	V
	21100	2535	22.92	21.70	V
	21375	2562.5	21.31	21.86	V

LTE Band VII_20M					
Plane	Channel	Frequency (MHz)	EIRP(dBm)		Polarization (H/V)
			QPSK	16QAM	
X	20850	2510	22.59	22.73	H
	21100	2535	21.61	21.78	H
	21350	2560	21.45	21.63	H
	20850	2510	21.44	22.89	V
	21100	2535	22.14	22.15	V
	21350	2560	22.30	22.24	V

## **ATTACHMENT B - OCCUPIED BANDWIDTH**

LTE Band IV_1.4M					
QPSK			16QAM		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
19957	1710.7	1.093	19957	1710.7	1.092
20175	1732.5	1.099	20175	1732.5	1.089
20393	1754.3	1.085	20393	1754.3	1.091
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
19957	1710.7	1.314	19957	1710.7	1.282
20175	1732.5	1.301	20175	1732.5	1.298
20393	1754.3	1.284	20393	1754.3	1.292

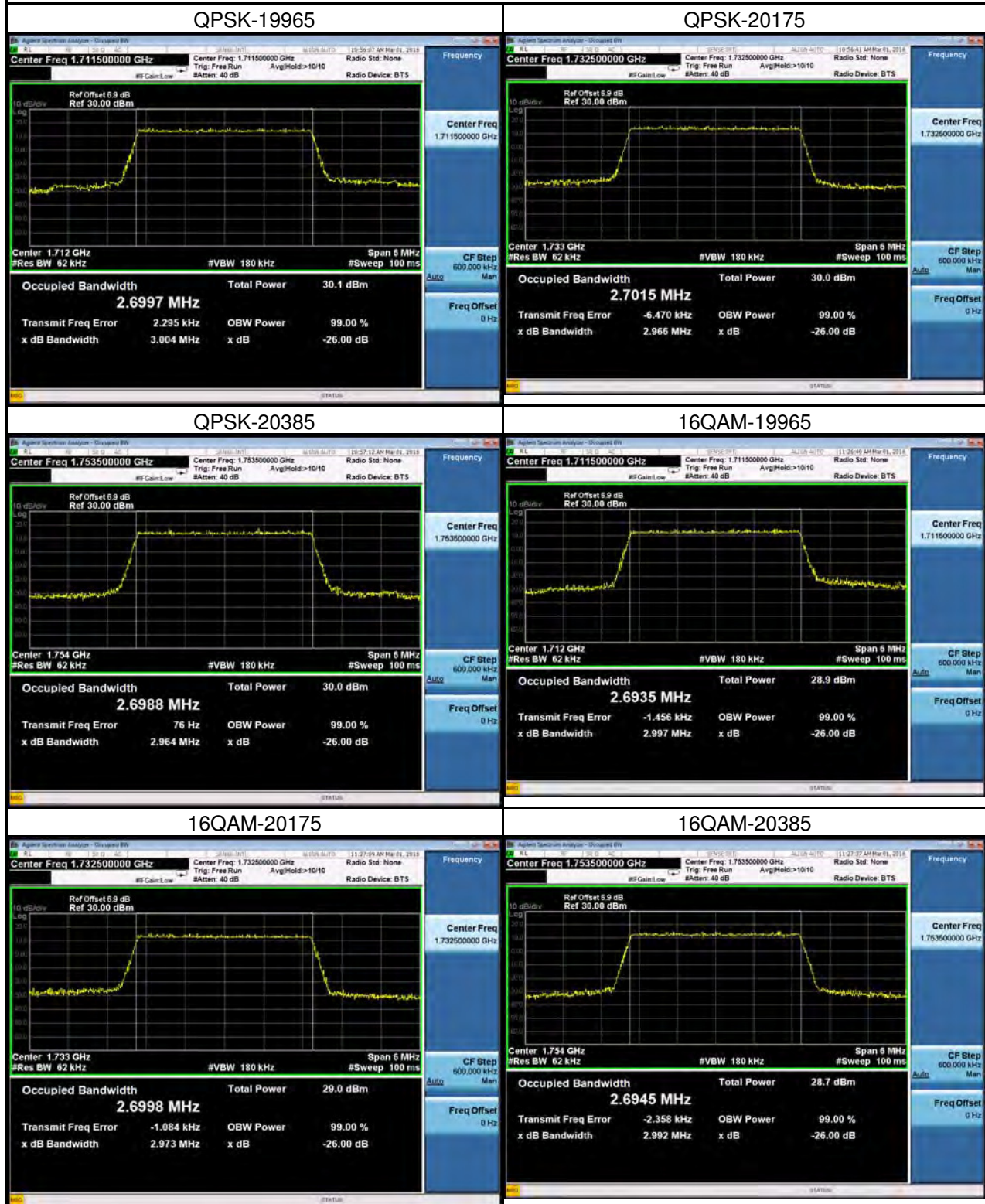
### Spectrum Plot



LTE Band IV_3M					
QPSK			16QAM		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
19965	1711.5	2.700	19965	1711.5	2.694
20175	1732.5	2.702	20175	1732.5	2.700
20385	1753.5	2.700	20385	1753.5	2.700
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
19965	1711.5	3.004	19965	1711.5	2.997
20175	1732.5	2.966	20175	1732.5	2.973
20385	1753.5	2.964	20385	1753.5	2.992



### Spectrum Plot



LTE Band IV_5M					
QPSK			16QAM		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
19975	1712.5	4.509	19975	1712.5	4.509
20175	1732.5	4.509	20175	1732.5	4.505
20375	1752.5	4.517	20375	1752.5	4.508
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
19975	1712.5	5.040	19975	1712.5	4.977
20175	1732.5	4.994	20175	1732.5	4.989
20375	1752.5	5.009	20375	1752.5	4.935

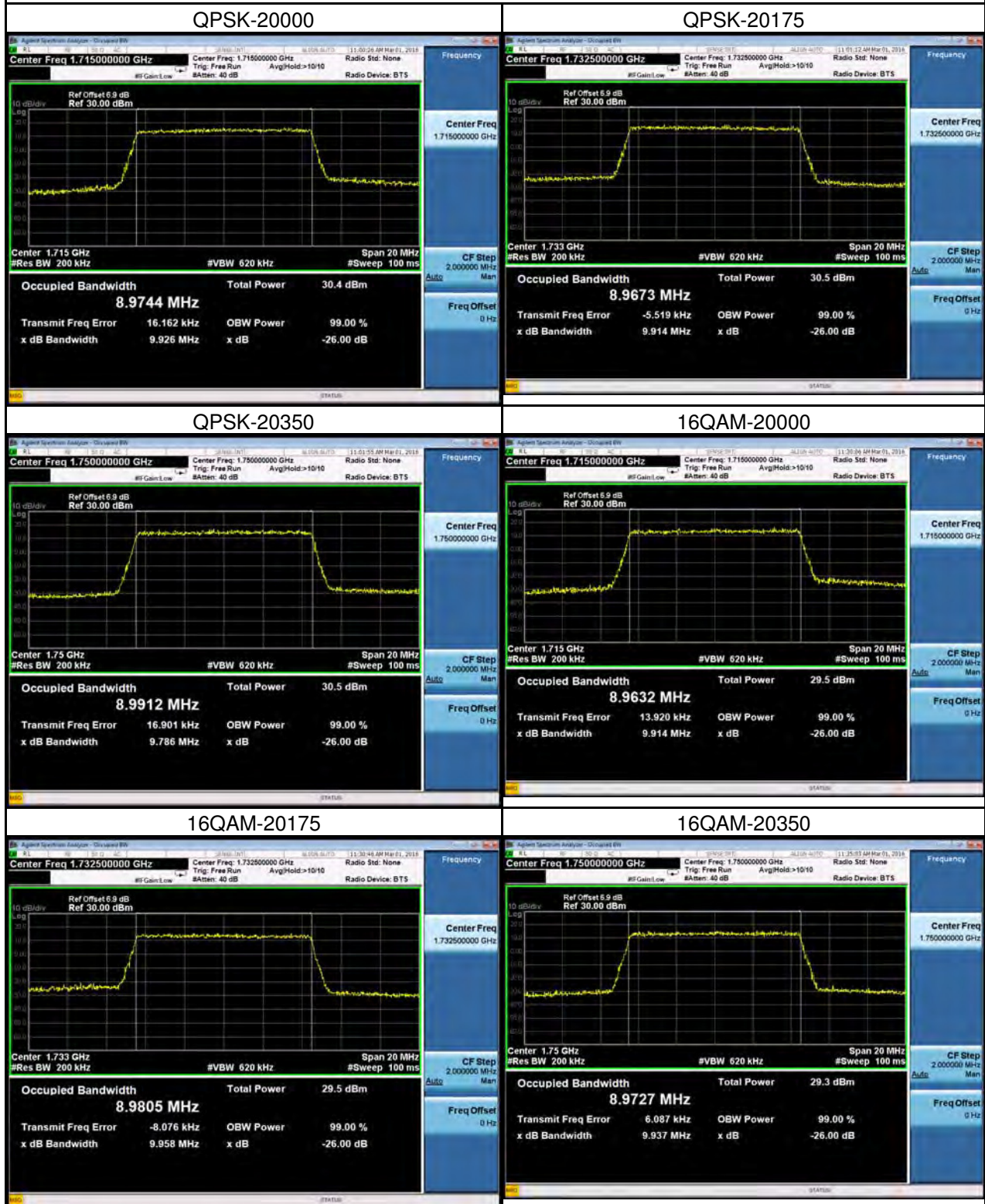
### Spectrum Plot





LTE Band IV_10M					
QPSK			16QAM		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
20000	1715	8.974	20000	1715	8.963
20175	1732.5	8.967	20175	1732.5	8.981
20350	1750	8.991	20350	1750	8.973
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20000	1715	9.926	20000	1715	9.914
20175	1732.5	9.914	20175	1732.5	9.958
20350	1750	9.786	20350	1750	9.937

### Spectrum Plot



LTE Band IV_15M					
QPSK			16QAM		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
20025	1717.5	13.459	20025	1717.5	13.452
20175	1732.5	13.487	20175	1732.5	13.476
20325	1747.5	13.460	20325	1747.5	13.446
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20025	1717.5	14.760	20025	1717.5	14.720
20175	1732.5	15.150	20175	1732.5	14.700
20325	1747.5	14.690	20325	1747.5	14.720

### Spectrum Plot





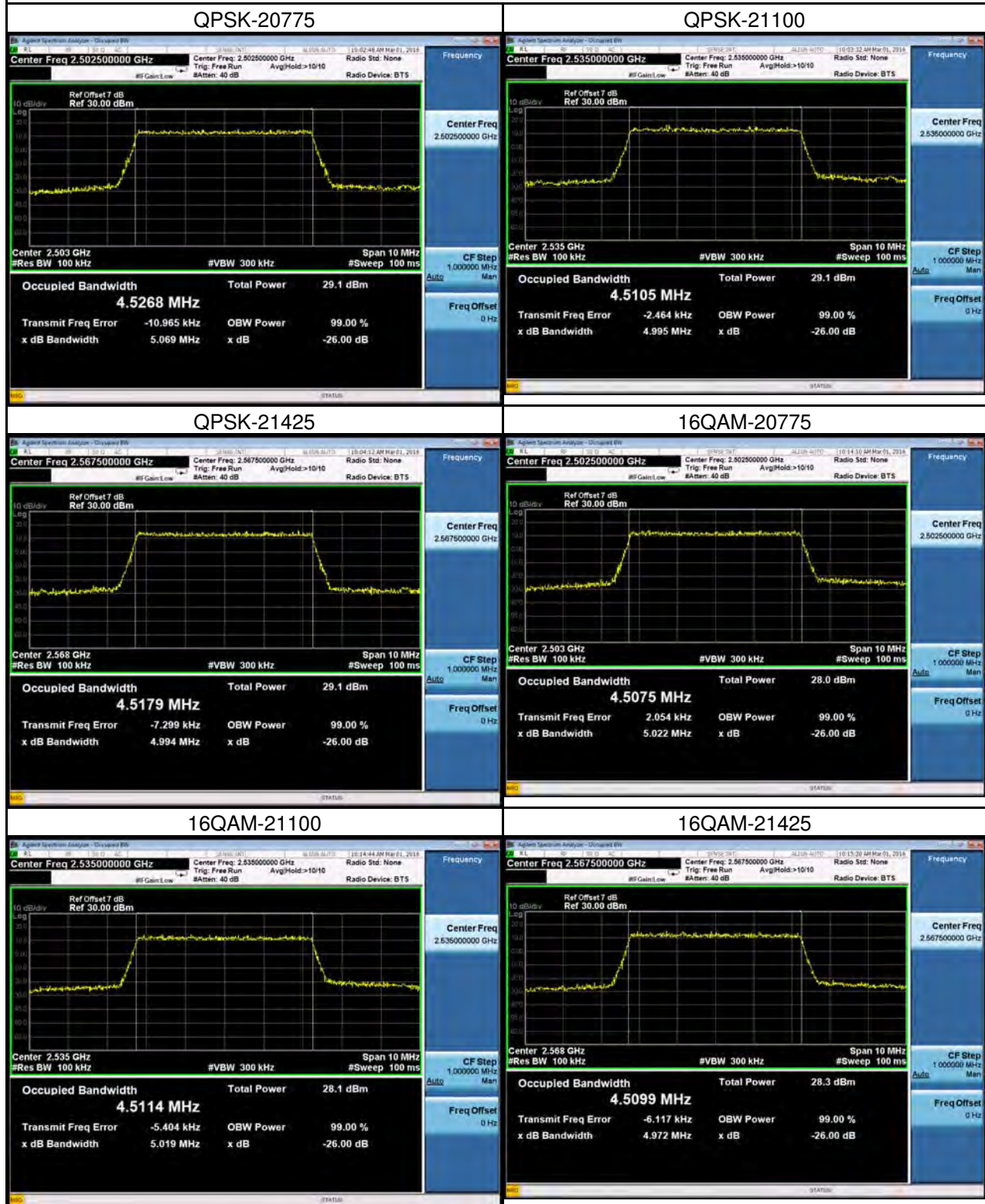
LTE Band IV_20M					
QPSK			16QAM		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
20050	1720	17.881	20050	1720	17.880
20175	1732.5	17.954	20175	1732.5	17.962
20300	1745	17.924	20300	1745	17.938
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20050	1720	19.390	20050	1720	19.410
20175	1732.5	19.410	20175	1732.5	19.530
20300	1745	19.450	20300	1745	19.430

### Spectrum Plot



LTE Band VII_5M					
QPSK			16QAM		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
20775	2502.5	4.527	20775	2502.5	4.508
21100	2535	4.511	21100	2535	4.511
21425	2567.5	4.518	21425	2567.5	4.510
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20775	2502.5	5.069	20775	2502.5	5.022
21100	2535	4.995	21100	2535	5.019
21425	2567.5	4.994	21425	2567.5	4.972

### Spectrum Plot





LTE Band VII_10M					
QPSK			16QAM		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
20800	2505	8.988	20800	2505	8.976
21100	2535	8.977	21100	2535	8.978
21400	2565	8.978	21400	2565	8.999
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20800	2505	9.969	20800	2505	9.939
21100	2535	9.846	21100	2535	9.877
21400	2565	9.920	21400	2565	9.855

### Spectrum Plot



LTE Band VII_15M					
QPSK			16QAM		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
20825	2507.5	13.485	20825	2507.5	13.495
21100	2535	13.456	21100	2535	13.452
21375	2562.5	13.450	21375	2562.5	13.453
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20825	2507.5	14.750	20825	2507.5	14.670
21100	2535	14.670	21100	2535	14.750
21375	2562.5	14.740	21375	2562.5	14.720

### Spectrum Plot





LTE Band VII_20M					
QPSK			16QAM		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
20850	2510	17.925	20850	2510	17.968
21100	2535	17.922	21100	2535	17.953
21350	2560	17.879	21350	2560	17.913
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20850	2510	19.590	20850	2510	19.530
21100	2535	19.410	21100	2535	19.430
21350	2560	19.420	21350	2560	19.500

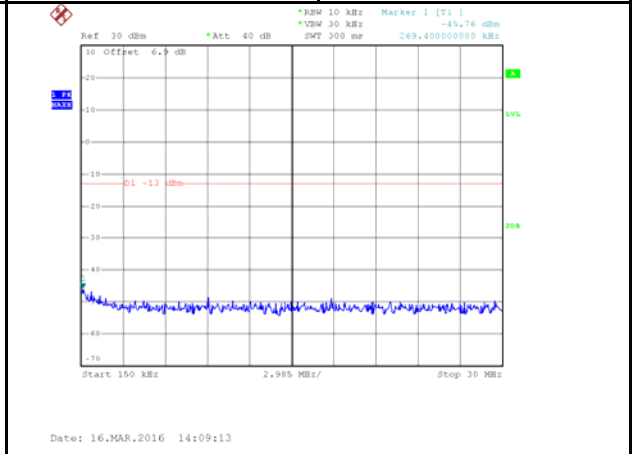
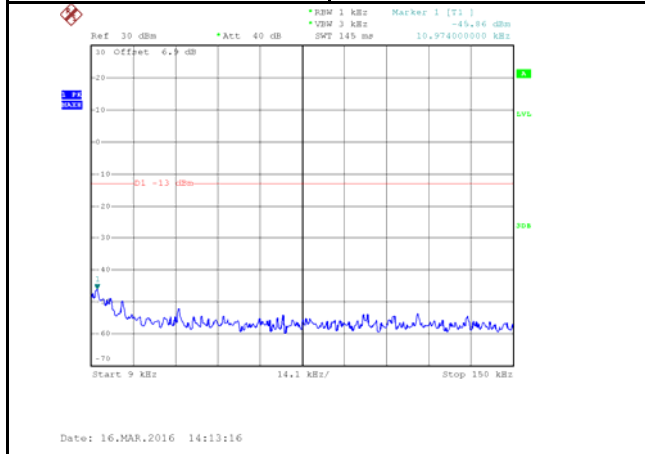
### Spectrum Plot



## ATTACHMENT C - CONDUCTED EMISSIONS

LTE Band IV\_1.4M

Channel	Frequency(MHz)	Channel	Frequency(MHz)
20175	1732.5	20175	1732.5



Channel	Frequency(MHz)		
20175	1732.5	-	-

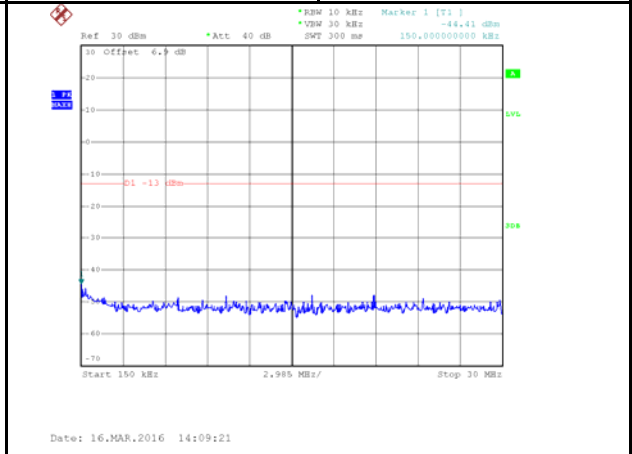
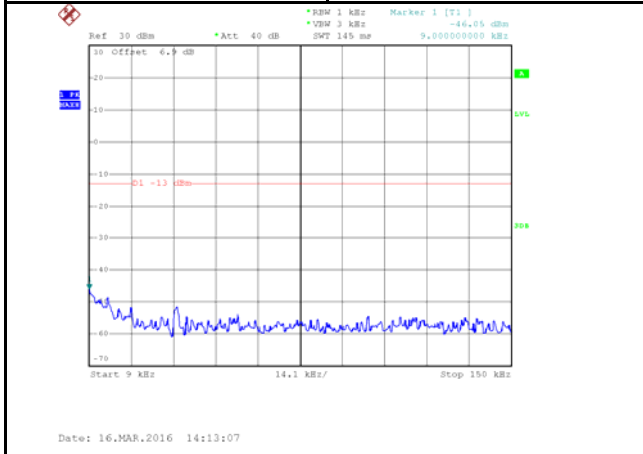


Frequency
-

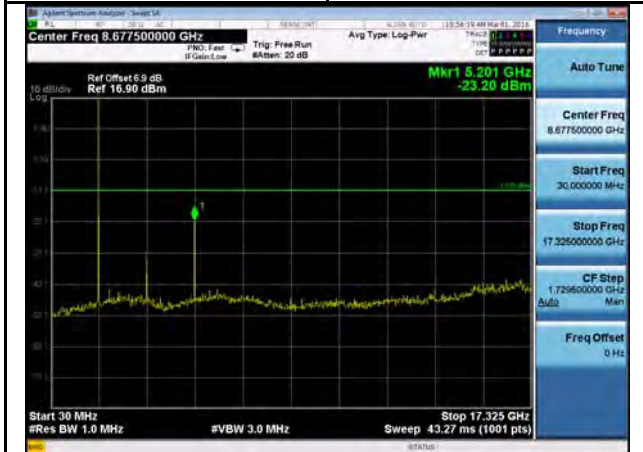


LTE Band IV\_3M

Channel	Frequency(MHz)	Channel	Frequency(MHz)
20175	1732.5	20175	1732.5



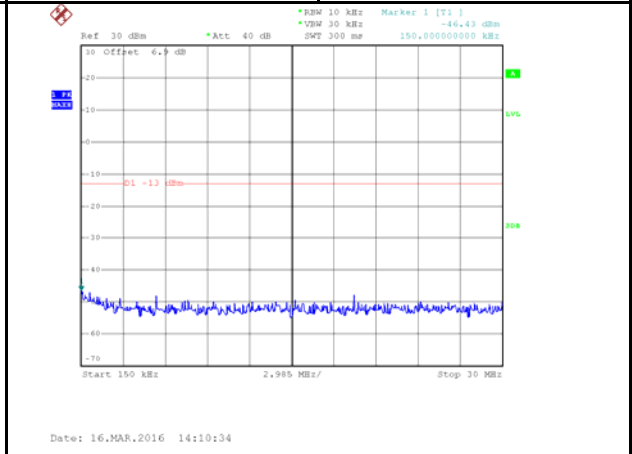
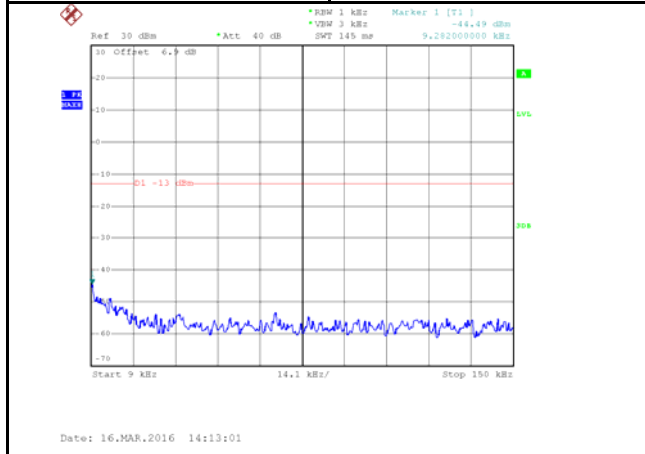
Channel	Frequency(MHz)		
20175	1732.5	-	-



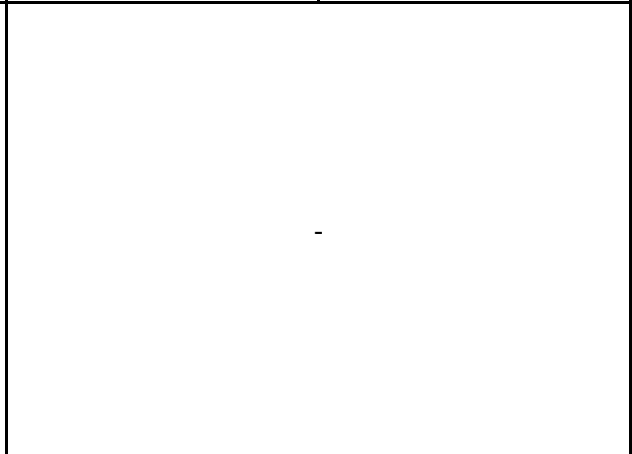
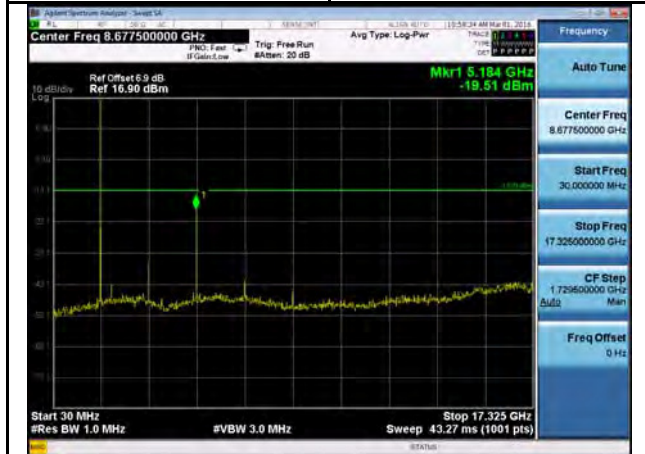
Frequency
-

LTE Band IV\_5M

Channel	Frequency(MHz)	Channel	Frequency(MHz)
20175	1732.5	20175	1732.5

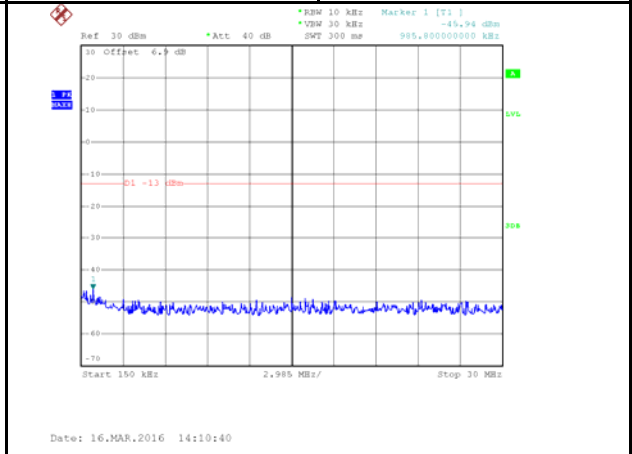
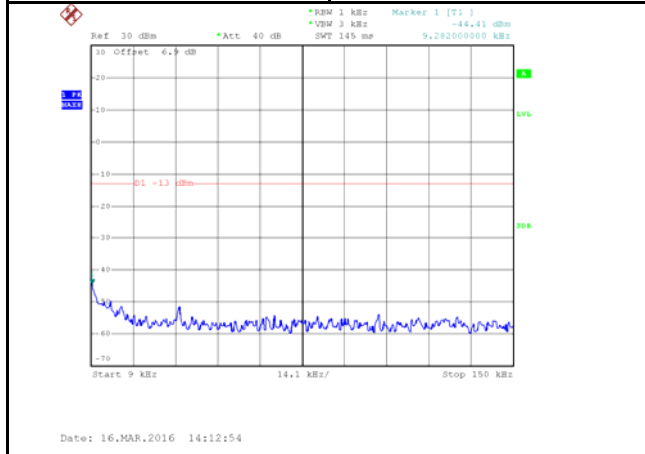


Channel	Frequency(MHz)		
20175	1732.5	-	-

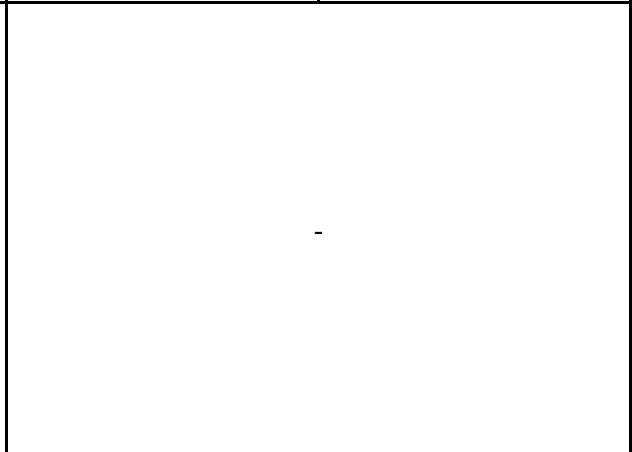
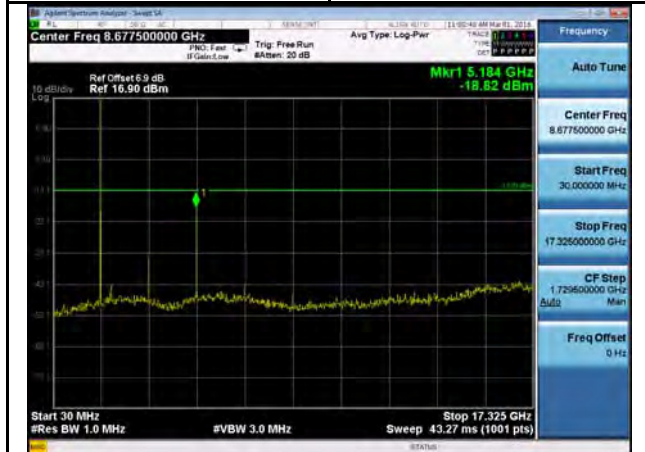


LTE Band IV\_10M

Channel	Frequency(MHz)	Channel	Frequency(MHz)
20175	1732.5	20175	1732.5



Channel	Frequency(MHz)		
20175	1732.5	-	-

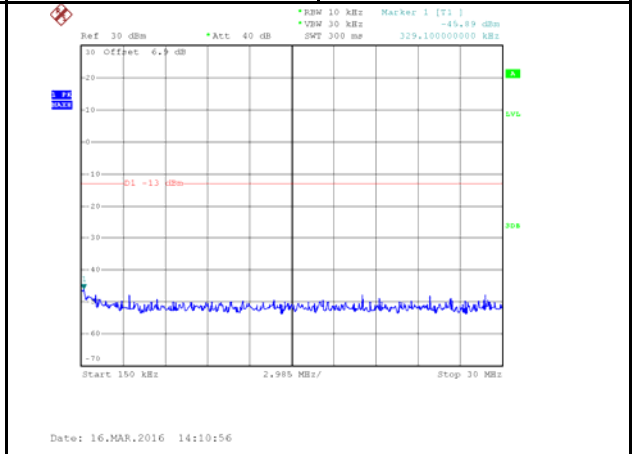
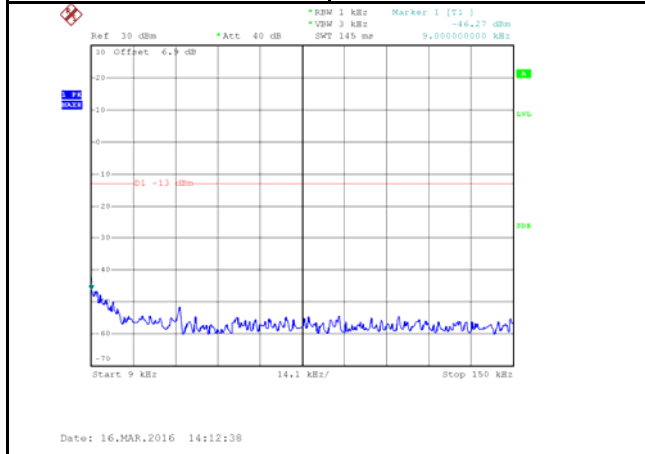


LTE Band IV\_15M

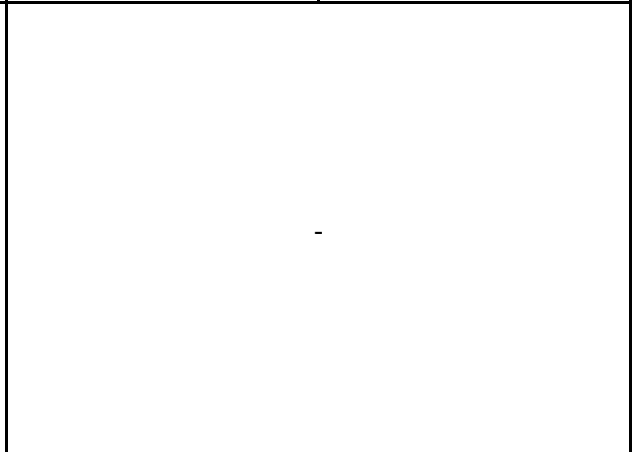
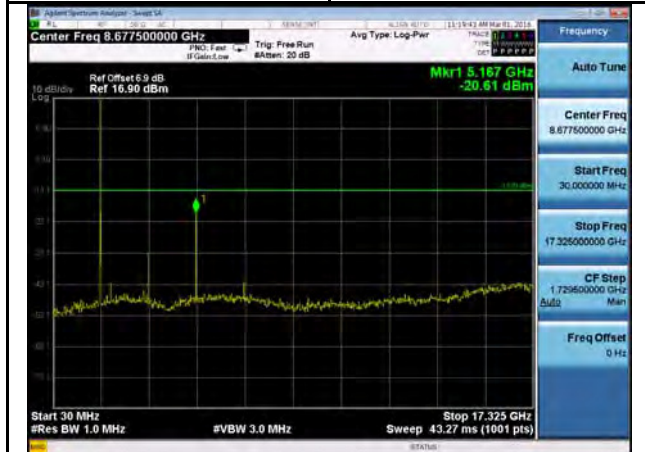
Channel	Frequency(MHz)	Channel	Frequency(MHz)
20175	1732.5	20175	1732.5
Date: 16.MAR.2016 14:12:45		Date: 16.MAR.2016 14:10:48	
Channel	Frequency(MHz)	-	-
20175	1732.5	-	-

LTE Band IV\_20M

Channel	Frequency(MHz)	Channel	Frequency(MHz)
20175	1732.5	20175	1732.5

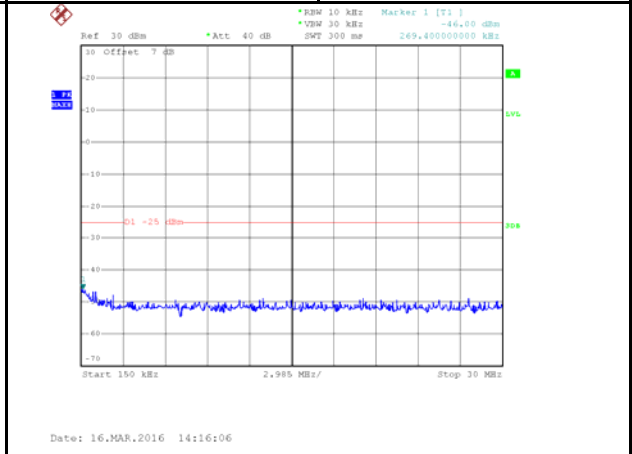
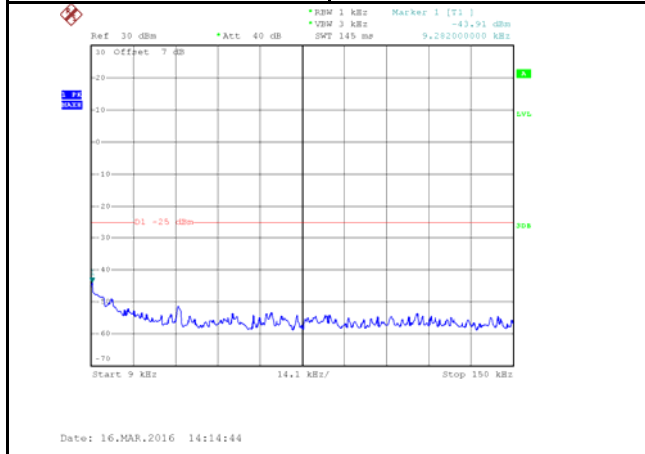


Channel	Frequency(MHz)		
20175	1732.5	-	-



LTE Band VII\_5M

Channel	Frequency(MHz)	Channel	Frequency(MHz)
21100	2535	21100	2535



Channel	Frequency(MHz)		
21100	2535	-	-



Frequency
-

LTE Band VII\_10M

Channel	Frequency(MHz)	Channel	Frequency(MHz)
21100	2535	21100	2535
Date: 16.MAR.2016 14:14:50		Date: 16.MAR.2016 14:15:44	

Channel	Frequency(MHz)		
21100	2535	-	-

		<p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 12.690000000 GHz</p> <p>Start Freq 30.000000 MHz</p> <p>Stop Freq 26.350000000 GHz</p> <p>CF Step 2.532000000 GHz</p> <p>Man</p> <p>Freq Offset 0 Hz</p>	
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LTE Band VII\_15M

Channel	Frequency(MHz)	Channel	Frequency(MHz)
21100	2535	21100	2535
Date: 16.MAR.2016 14:14:56		Date: 16.MAR.2016 14:15:37	

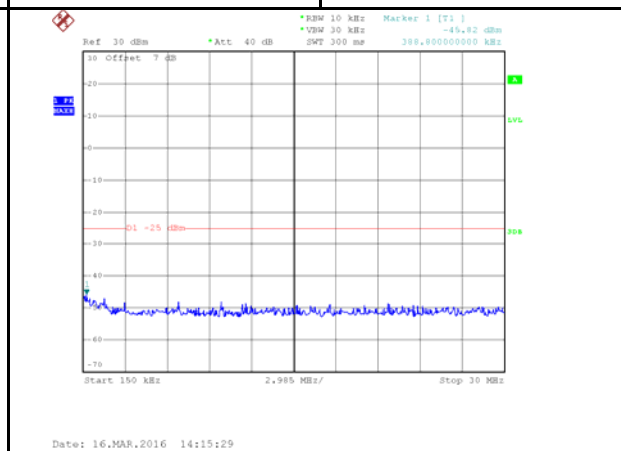
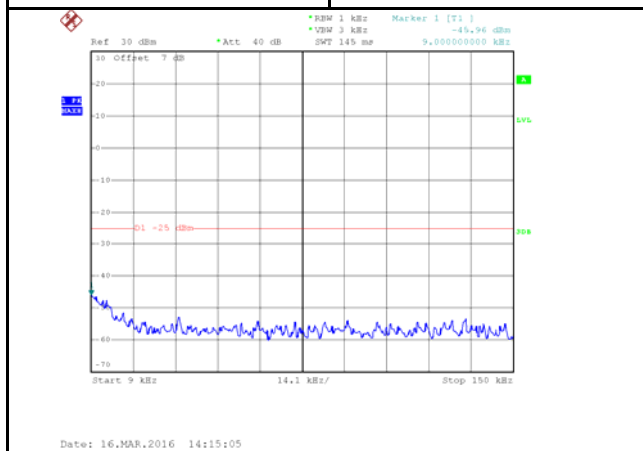
Channel	Frequency(MHz)		
21100	2535	-	-

	<p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 12.690000000 GHz</p> <p>Start Freq 30.000000 MHz</p> <p>Stop Freq 25.350000000 GHz</p> <p>CF Step 2.532000000 GHz</p> <p>Freq Offset 0 Hz</p>
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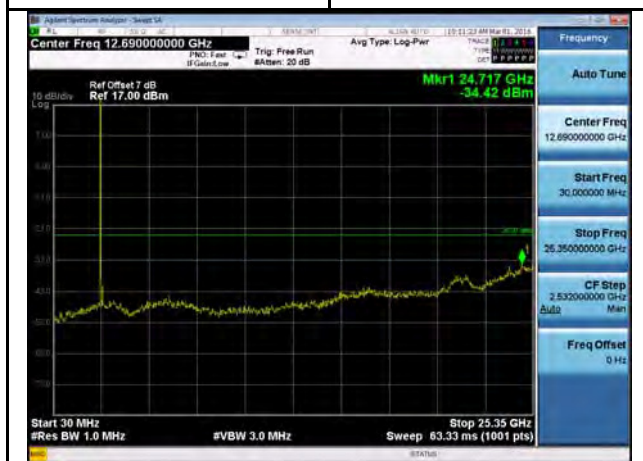


LTE Band VII\_20M

Channel	Frequency(MHz)	Channel	Frequency(MHz)
21100	2535	21100	2535



Channel	Frequency(MHz)		
21100	2535	-	-



Channel	Frequency(MHz)		
-	-	-	-

## ATTACHMENT D - RADIATED EMISSION

Test Mode:	LTE Band IV_TX CH20175
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Frequency (MHz)	Ant 0°/90°	Read level dBuV/m	Factor (dB)	Measured(FS) (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Note
0.0120	0°	13.80	24.81	38.61	126.02	-87.41	AVG
0.0120	0°	14.45	24.81	39.26	146.02	-106.76	PK
0.0232	0°	6.12	24.10	30.22	120.29	-90.08	AVG
0.0232	0°	8.20	24.10	32.30	140.29	-108.00	PK
0.0362	0°	3.70	23.27	26.97	116.43	-89.46	AVG
0.0362	0°	5.46	23.27	28.73	136.43	-107.70	PK
0.0521	0°	1.24	22.36	23.60	113.27	-89.67	AVG
0.0521	0°	2.35	22.36	24.71	133.27	-108.56	PK
0.5025	0°	19.60	19.81	39.41	73.58	-34.17	QP
1.9535	0°	23.42	19.50	42.92	69.54	-26.62	QP

Frequency (MHz)	Ant 0°/90°	Read level dBuV/m	Factor (dB)	Measured(FS) (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Note
0.0129	90°	13.16	24.30	37.46	125.39	-87.93	AVG
0.0129	90°	14.20	24.30	38.50	145.39	-106.89	PK
0.0268	90°	7.30	23.87	31.17	119.04	-87.87	AVG
0.0268	90°	8.45	23.87	32.32	139.04	-106.72	PK
0.0425	90°	5.50	22.88	28.38	115.04	-86.66	AVG
0.0425	90°	6.63	22.88	29.51	135.04	-105.53	PK
0.0534	90°	1.80	22.33	24.13	113.05	-88.92	AVG
0.0534	90°	2.50	22.33	24.83	133.05	-108.22	PK
0.6220	90°	22.60	20.19	42.79	71.73	-28.94	QP
2.0515	90°	24.42	19.47	43.89	69.54	-25.65	QP

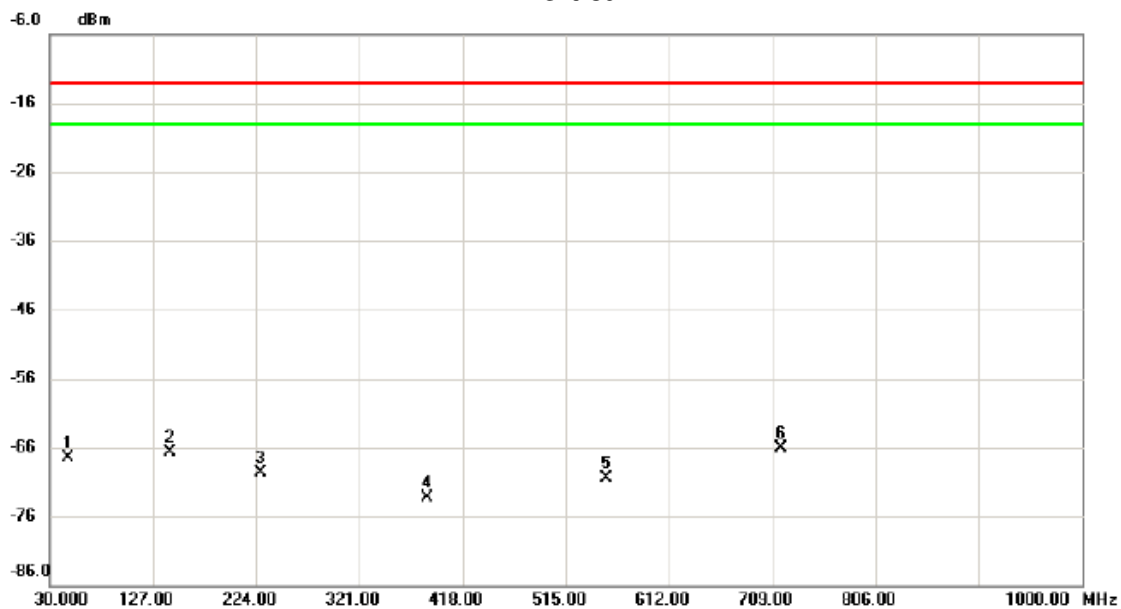
Test Mode:	LTE Band VII_TX CH21100
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Frequency (MHz)	Ant 0°/90°	Read level dBuV/m	Factor (dB)	Measured(FS) (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Note
0.0127	0°	13.20	24.76	37.96	125.53	-87.57	AVG
0.0127	0°	14.40	24.76	39.16	145.53	-106.37	PK
0.0265	0°	6.15	23.89	30.04	119.14	-89.10	AVG
0.0265	0°	8.32	23.89	32.21	139.14	-106.93	PK
0.0325	0°	3.45	23.51	26.96	117.37	-90.41	AVG
0.0325	0°	5.68	23.51	29.19	137.37	-108.18	PK
0.0540	0°	1.78	22.32	24.10	112.96	-88.86	AVG
0.0540	0°	2.32	22.32	24.64	132.96	-108.32	PK
0.5014	0°	19.25	19.80	39.05	73.60	-34.55	QP
1.9530	0°	23.17	19.50	42.67	69.54	-26.87	QP

Frequency (MHz)	Ant 0°/90°	Read level dBuV/m	Factor (dB)	Measured(FS) (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Note
0.0125	90°	13.75	24.30	38.05	125.67	-87.62	AVG
0.0125	90°	14.24	24.30	38.54	145.67	-107.13	PK
0.0245	90°	7.13	24.02	31.15	119.82	-88.68	AVG
0.0245	90°	8.75	24.02	32.77	139.82	-107.06	PK
0.0434	90°	5.28	22.82	28.10	114.85	-86.76	AVG
0.0434	90°	6.60	22.82	29.42	134.85	-105.44	PK
0.0575	90°	1.70	22.25	23.95	112.41	-88.46	AVG
0.0575	90°	2.15	22.25	24.40	132.41	-108.01	PK
0.6250	90°	22.42	20.20	42.62	71.69	-29.07	QP
2.0524	90°	24.67	19.47	44.14	69.54	-25.40	QP

Test Mode: LTE Band IV\_TX CH20175\_1.4M

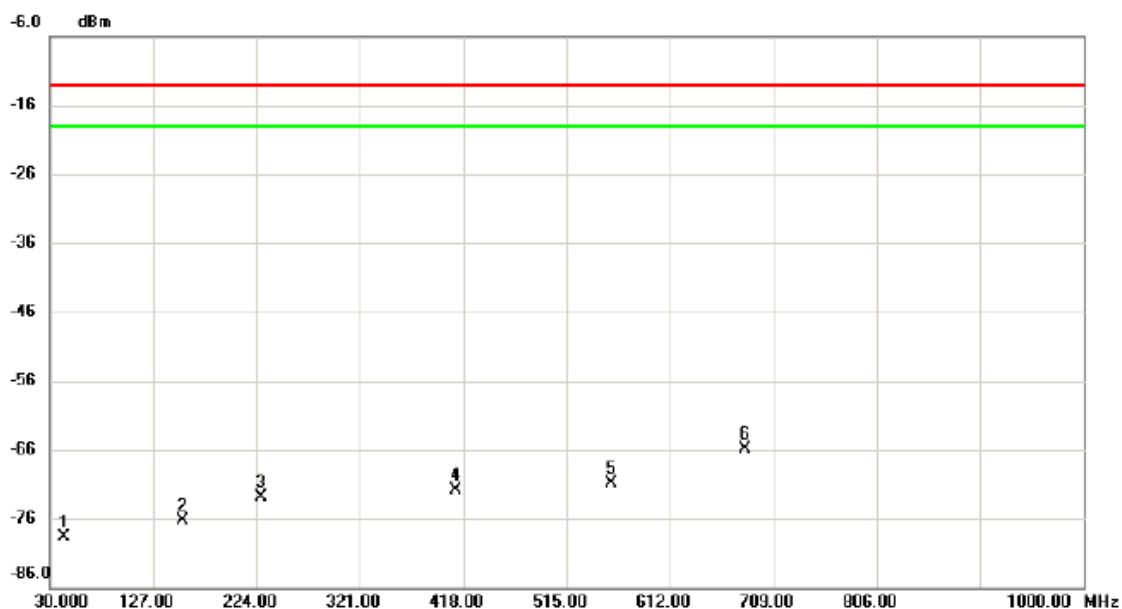
Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		47.4600	-69.61	2.17	-67.44	-13.00	-54.44	peak	
2		142.5200	-70.02	3.41	-66.61	-13.00	-53.61	peak	
3		227.8800	-72.30	2.68	-69.62	-13.00	-56.62	peak	
4		385.0200	-79.38	6.04	-73.34	-13.00	-60.34	peak	
5		553.8000	-78.78	8.18	-70.60	-13.00	-57.60	peak	
6	*	716.7600	-79.62	13.57	-66.05	-13.00	-53.05	peak	

Test Mode: LTE Band IV\_TX CH20175\_1.4M

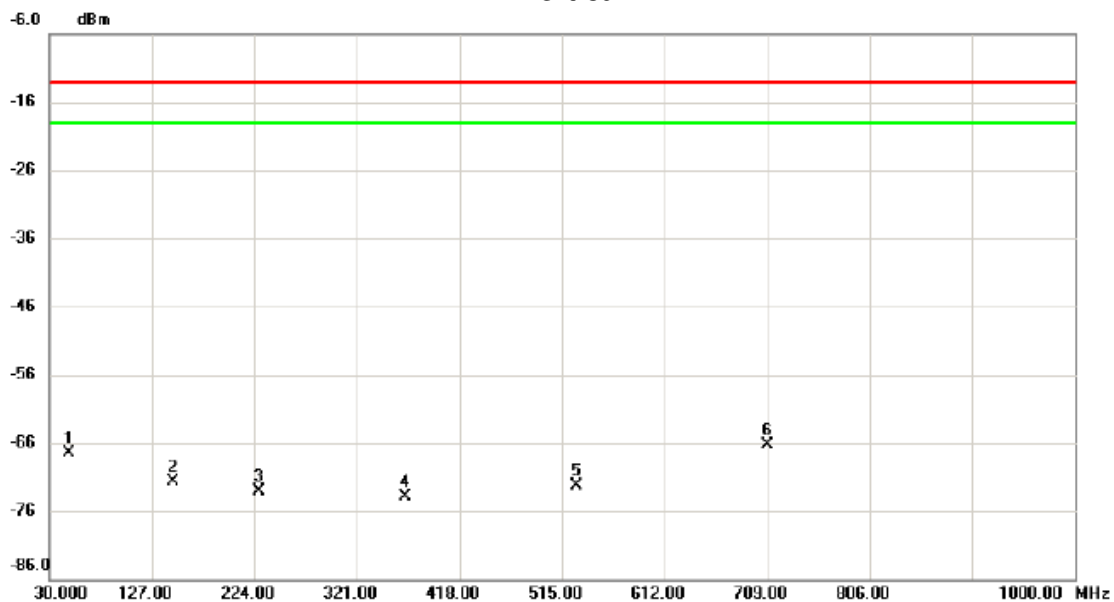
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		43.5800	-81.51	2.78	-78.73	-13.00	-65.73	peak	
2		155.1300	-79.72	3.48	-76.24	-13.00	-63.24	peak	
3		228.8500	-75.87	2.94	-72.93	-13.00	-59.93	peak	
4		411.2100	-78.41	6.44	-71.97	-13.00	-58.97	peak	
5		556.7100	-79.06	8.24	-70.82	-13.00	-57.82	peak	
6	*	682.8100	-78.79	12.81	-65.98	-13.00	-52.98	peak	

Test Mode: LTE Band IV\_TX CH20175\_3M

### Vertical

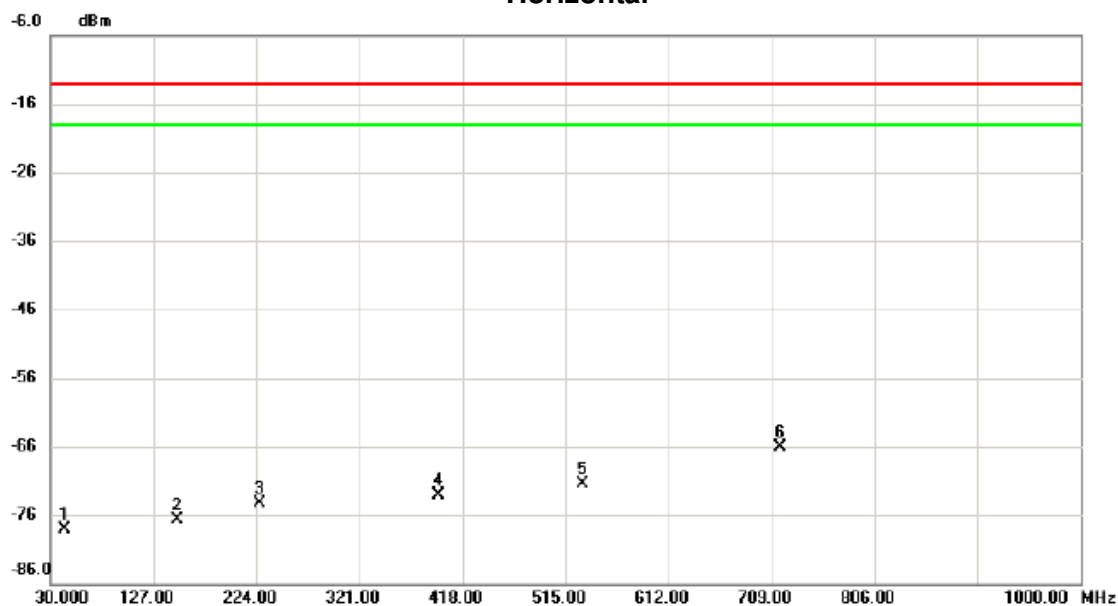


No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		48.4300	-69.30	1.83	-67.47	-13.00	-54.47	peak	
2		146.4000	-75.54	3.84	-71.70	-13.00	-58.70	peak	
3		228.8500	-76.01	2.94	-73.07	-13.00	-60.07	peak	
4		366.5900	-78.43	4.50	-73.93	-13.00	-60.93	peak	
5		528.5800	-80.34	8.08	-72.26	-13.00	-59.26	peak	
6	*	709.0000	-80.15	13.76	-66.39	-13.00	-53.39	peak	



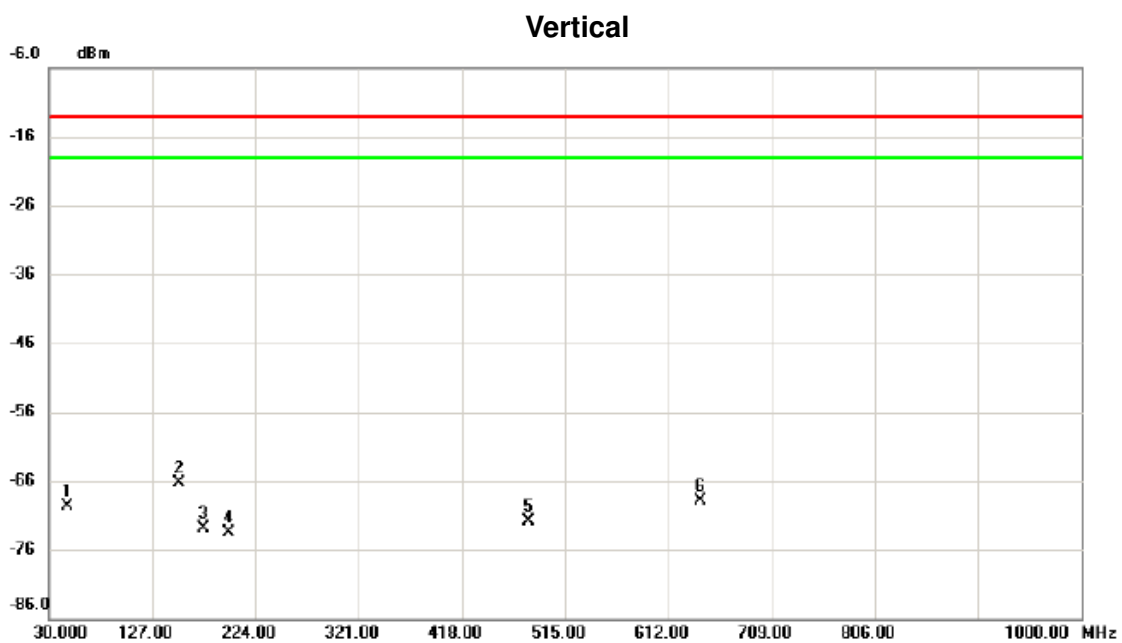
Test Mode: LTE Band IV\_TX CH20175\_3M

### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		43.5800	-80.84	2.78	-78.06	-13.00	-65.06	peak	
2		149.3100	-80.96	4.16	-76.80	-13.00	-63.80	peak	
3		226.9100	-76.64	2.41	-74.23	-13.00	-61.23	peak	
4		394.7200	-79.11	5.94	-73.17	-13.00	-60.17	peak	
5		530.5200	-79.49	8.08	-71.41	-13.00	-58.41	peak	
6	*	717.7300	-79.66	13.55	-66.11	-13.00	-53.11	peak	

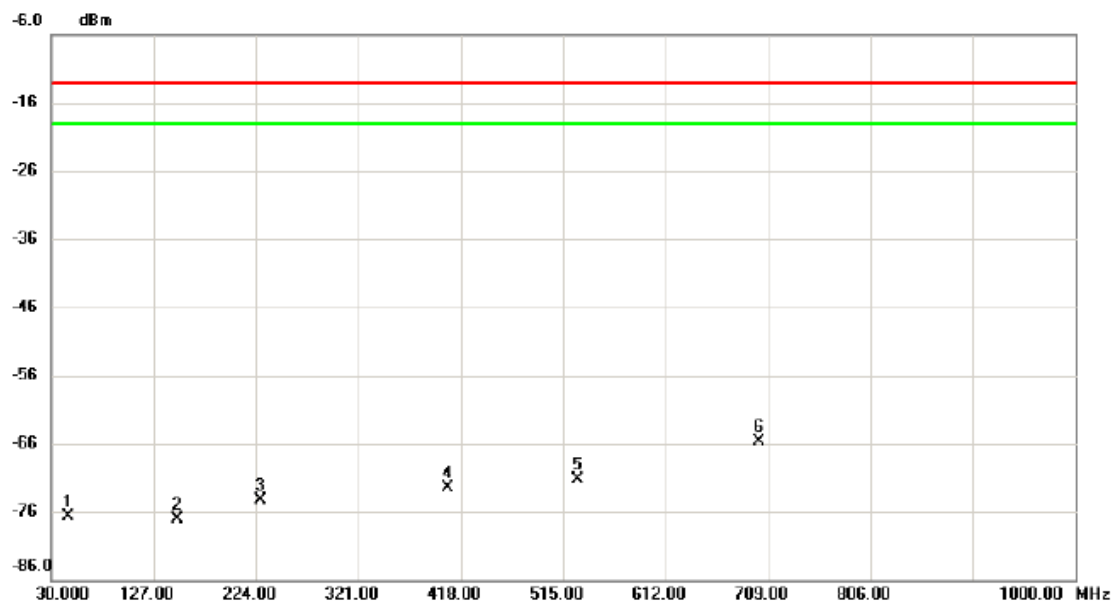
Test Mode: LTE Band IV\_TX CH20175\_5M



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		47.4600	-71.09	1.29	-69.80	-13.00	-56.80	peak	
2	*	152.2200	-69.44	3.16	-66.28	-13.00	-53.28	peak	
3		175.5000	-73.34	0.37	-72.97	-13.00	-59.97	peak	
4		198.7800	-71.20	-2.25	-73.45	-13.00	-60.45	peak	
5		480.0800	-78.37	6.38	-71.99	-13.00	-58.99	peak	
6		642.0700	-78.80	9.89	-68.91	-13.00	-55.91	peak	

Test Mode: LTE Band IV\_TX CH20175\_5M

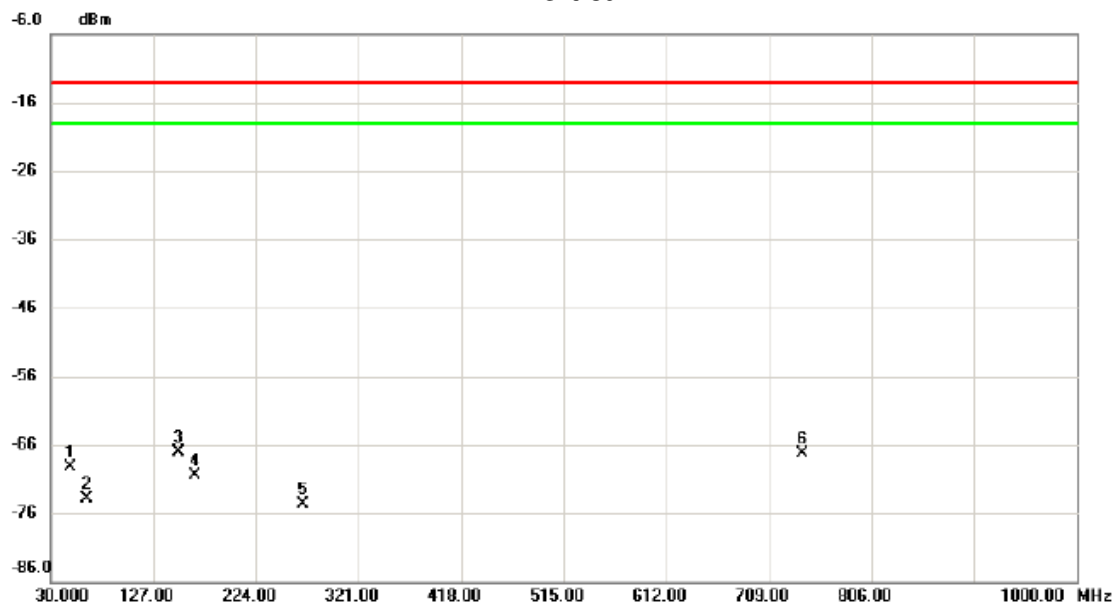
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		45.5200	-79.57	2.87	-76.70	-13.00	-63.70	peak	
2		149.3100	-81.27	4.16	-77.11	-13.00	-64.11	peak	
3		228.8500	-77.29	2.94	-74.35	-13.00	-61.35	peak	
4		405.3900	-78.70	6.15	-72.55	-13.00	-59.55	peak	
5		528.5800	-79.38	8.08	-71.30	-13.00	-58.30	peak	
6	*	700.2700	-79.72	13.97	-65.75	-13.00	-52.75	peak	

Test Mode: LTE Band IV\_TX CH20175\_10M

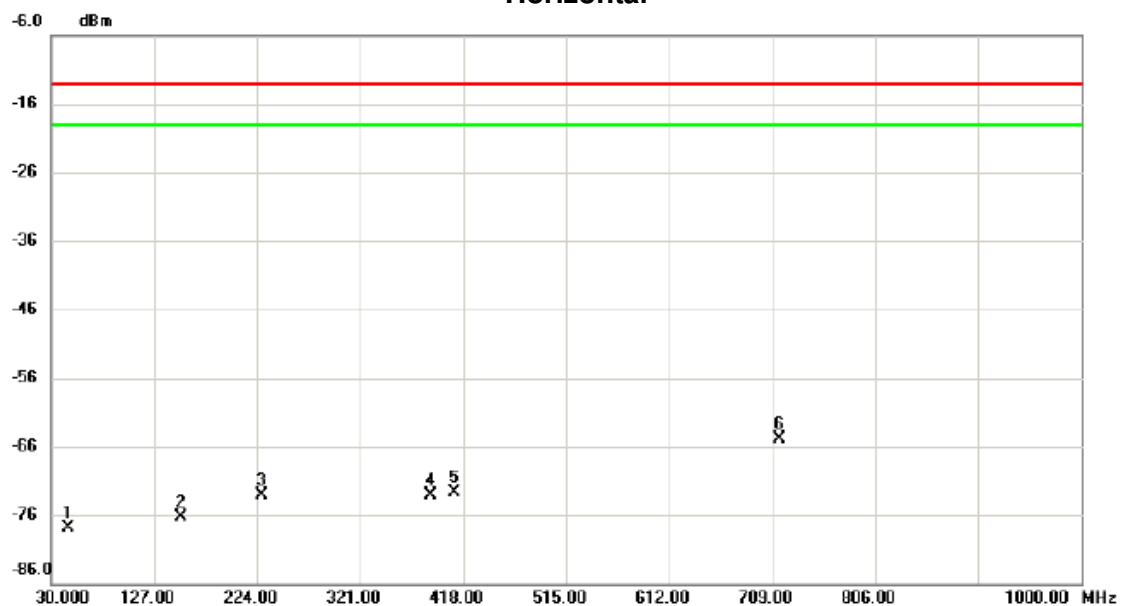
### Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		48.4300	-70.39	1.03	-69.36	-13.00	-56.36	peak	
2		63.9500	-74.94	0.98	-73.96	-13.00	-60.96	peak	
3	*	150.2800	-70.18	3.15	-67.03	-13.00	-54.03	peak	
4		165.8000	-71.77	1.27	-70.50	-13.00	-57.50	peak	
5		268.6200	-76.67	1.99	-74.68	-13.00	-61.68	peak	
6		741.0100	-79.36	12.12	-67.24	-13.00	-54.24	peak	

Test Mode: LTE Band IV\_TX CH20175\_10M

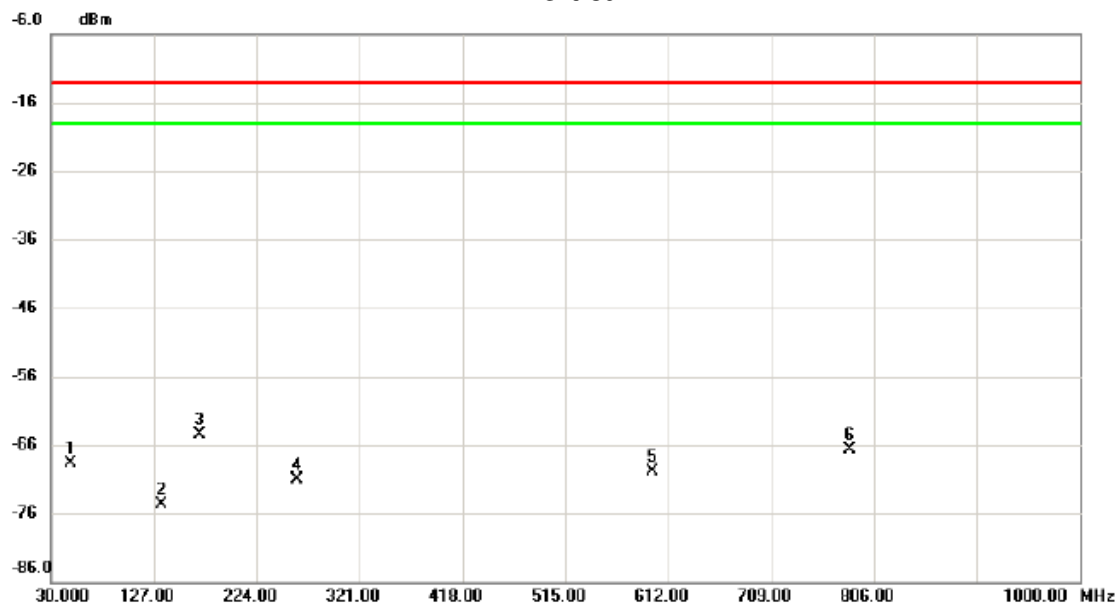
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		45.5200	-80.75	2.87	-77.88	-13.00	-64.88	peak	
2		152.2200	-80.27	3.91	-76.36	-13.00	-63.36	peak	
3		228.8500	-76.08	2.94	-73.14	-13.00	-60.14	peak	
4		386.9600	-79.17	6.02	-73.15	-13.00	-60.15	peak	
5		409.2700	-78.95	6.34	-72.61	-13.00	-59.61	peak	
6	*	715.7900	-78.58	13.60	-64.98	-13.00	-51.98	peak	

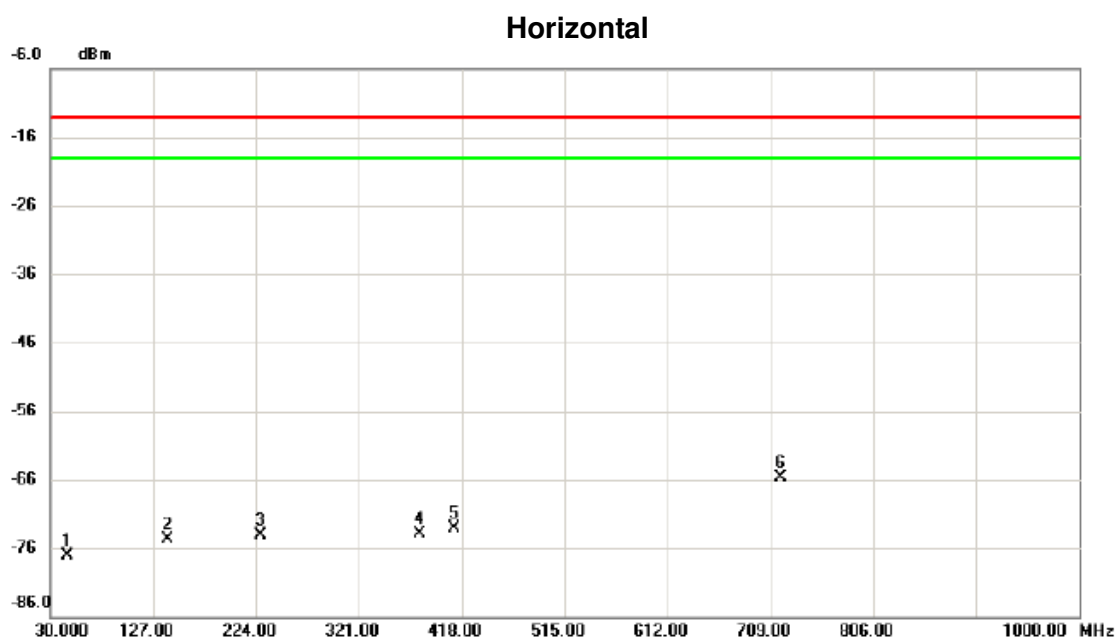
Test Mode: LTE Band IV\_TX CH20175\_15M

### Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		48.4300	-69.82	1.03	-68.79	-13.00	-55.79	peak	
2		133.7900	-75.04	0.43	-74.61	-13.00	-61.61	peak	
3	*	170.6500	-64.52	-0.06	-64.58	-13.00	-51.58	peak	
4		261.8300	-72.18	1.01	-71.17	-13.00	-58.17	peak	
5		596.4800	-78.49	8.61	-69.88	-13.00	-56.88	peak	
6		782.7200	-78.70	12.09	-66.61	-13.00	-53.61	peak	

Test Mode: LTE Band IV\_TX CH20175\_15M

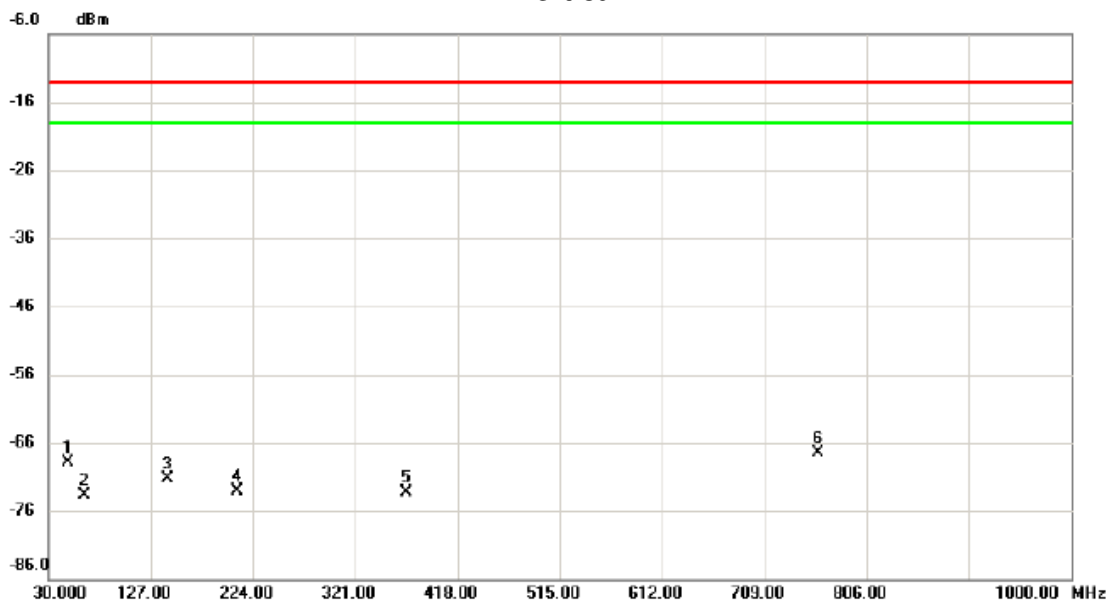


No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		45.5200	-79.90	2.87	-77.03	-13.00	-64.03	peak	
2		140.5800	-77.92	3.19	-74.73	-13.00	-61.73	peak	
3		228.8500	-76.95	2.94	-74.01	-13.00	-61.01	peak	
4		378.2300	-79.81	5.89	-73.92	-13.00	-60.92	peak	
5		411.2100	-79.63	6.44	-73.19	-13.00	-60.19	peak	
6	*	718.7000	-79.28	13.53	-65.75	-13.00	-52.75	peak	



Test Mode: LTE Band IV\_TX CH20175\_20M

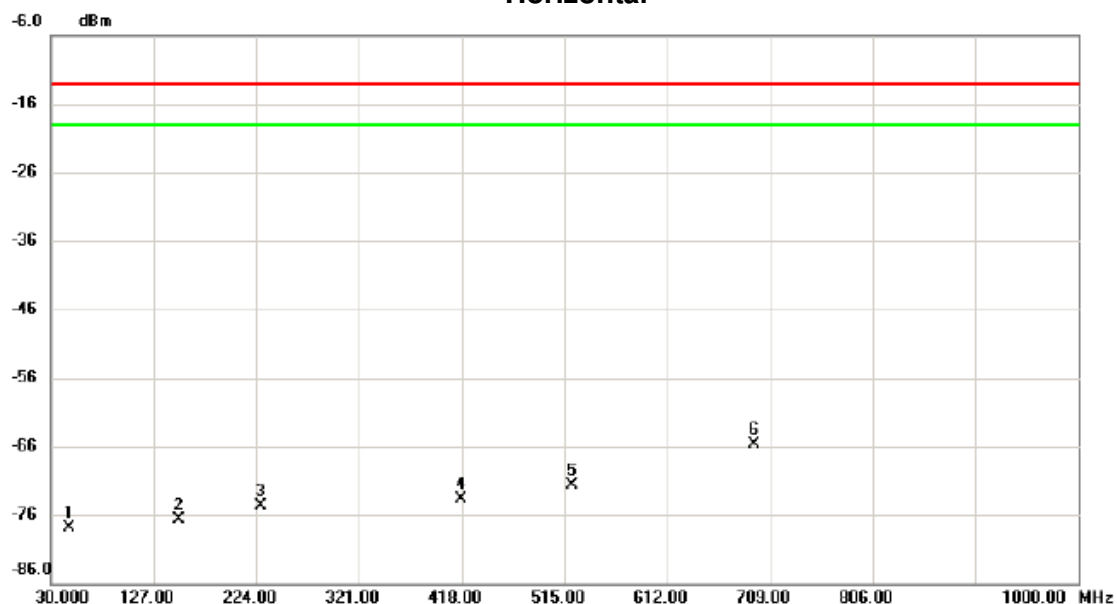
### Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		48.4300	-69.99	1.03	-68.96	-13.00	-55.96	peak	
2		63.9500	-74.73	0.98	-73.75	-13.00	-60.75	peak	
3		143.4900	-73.71	2.50	-71.21	-13.00	-58.21	peak	
4		208.4800	-70.60	-2.46	-73.06	-13.00	-60.06	peak	
5		369.5000	-76.54	3.30	-73.24	-13.00	-60.24	peak	
6	*	760.4100	-79.82	12.36	-67.46	-13.00	-54.46	peak	

Test Mode: LTE Band IV\_TX CH20175\_20M

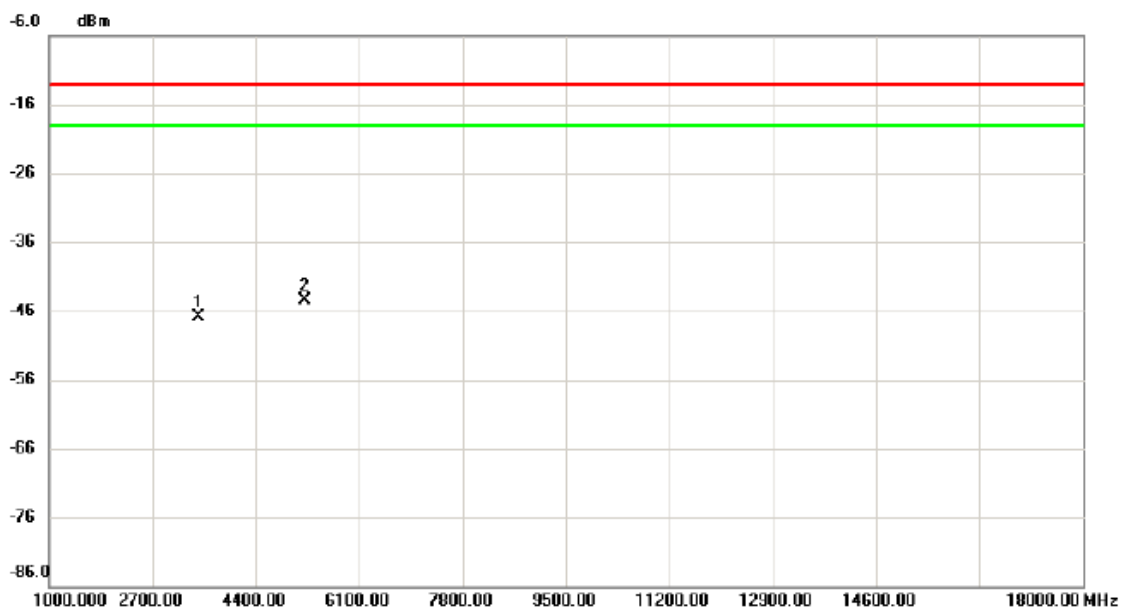
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		47.4600	-80.08	2.17	-77.91	-13.00	-64.91	peak	
2		151.2500	-80.81	4.05	-76.76	-13.00	-63.76	peak	
3		228.8500	-77.60	2.94	-74.66	-13.00	-61.66	peak	
4		417.0300	-80.34	6.73	-73.61	-13.00	-60.61	peak	
5		521.7900	-79.88	8.08	-71.80	-13.00	-58.80	peak	
6	*	693.4800	-79.27	13.54	-65.73	-13.00	-52.73	peak	

Test Mode: LTE Band IV\_TX CH20175\_1.4M

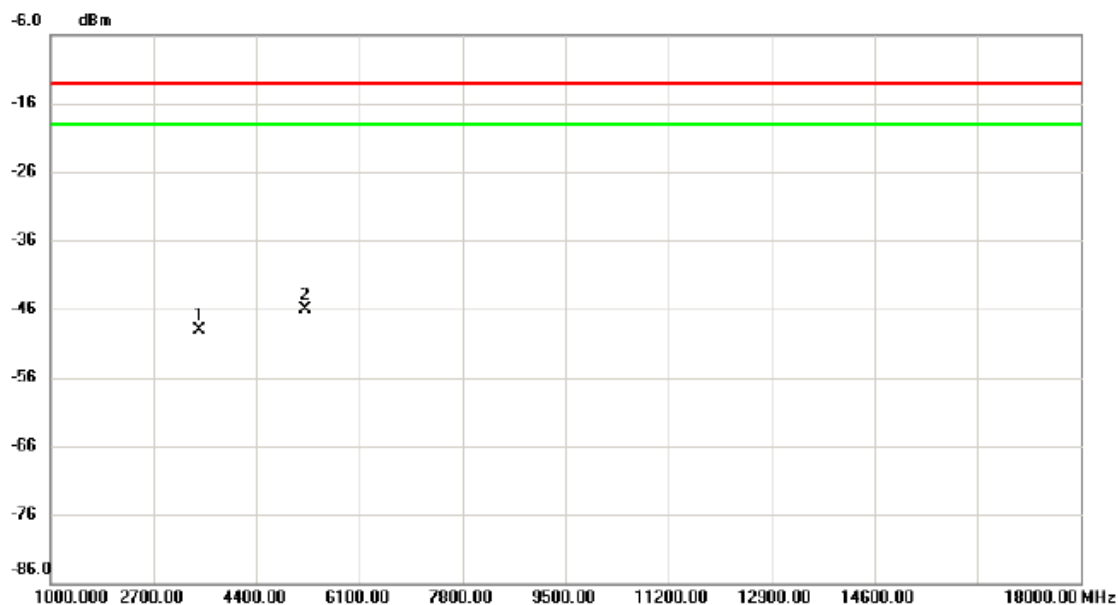
### Vertical



No. Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	3465.000	-61.04	14.13	-46.91	-13.00	-33.91	peak	
2 *	5199.000	-59.59	15.17	-44.42	-13.00	-31.42	peak	

Test Mode: LTE Band IV\_TX CH20175\_1.4M

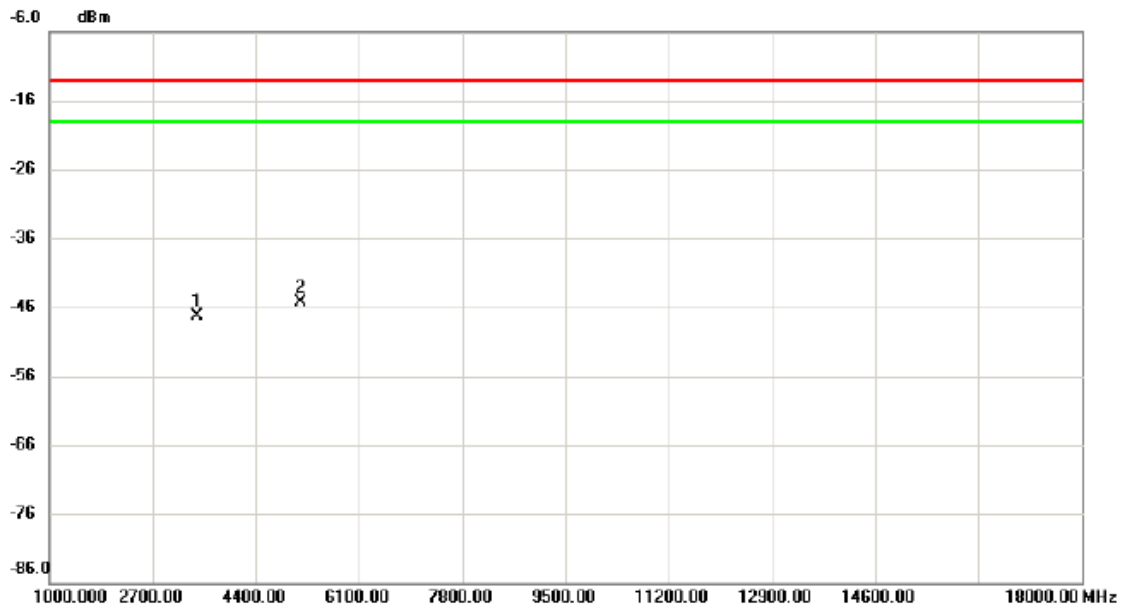
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		3465.000	-59.60	10.50	-49.10	-13.00	-36.10	peak	
2	*	5199.000	-61.60	15.43	-46.17	-13.00	-33.17	peak	

Test Mode: LTE Band IV\_TX CH20175\_3M

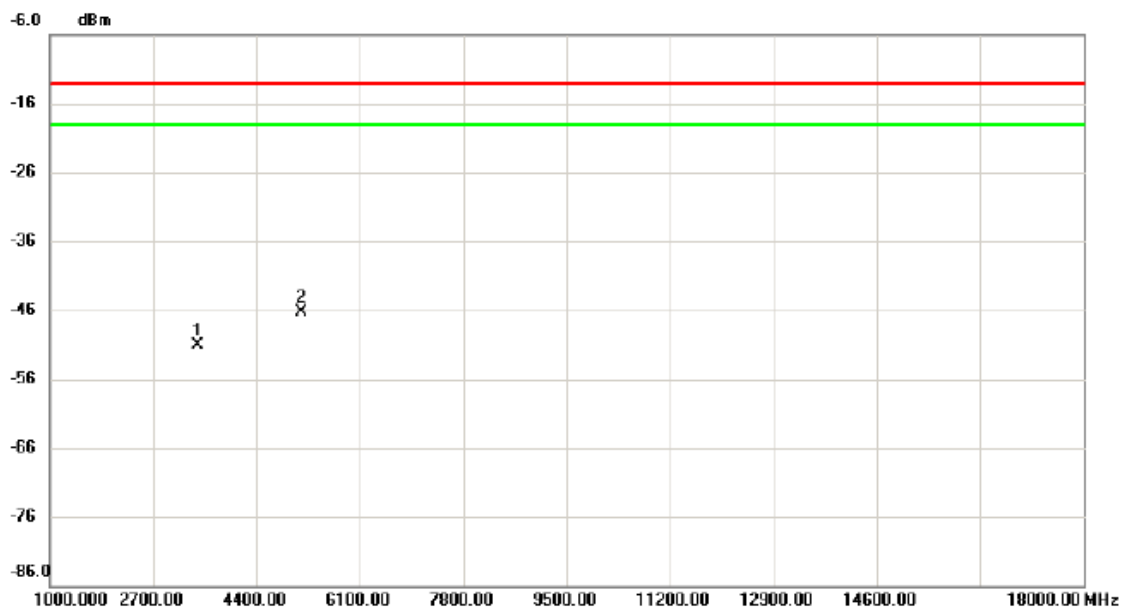
Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		3431.000	-61.24	14.01	-47.23	-13.00	-34.23	peak	
2	*	5131.000	-60.24	14.97	-45.27	-13.00	-32.27	peak	

Test Mode: LTE Band IV\_TX CH20175\_3M

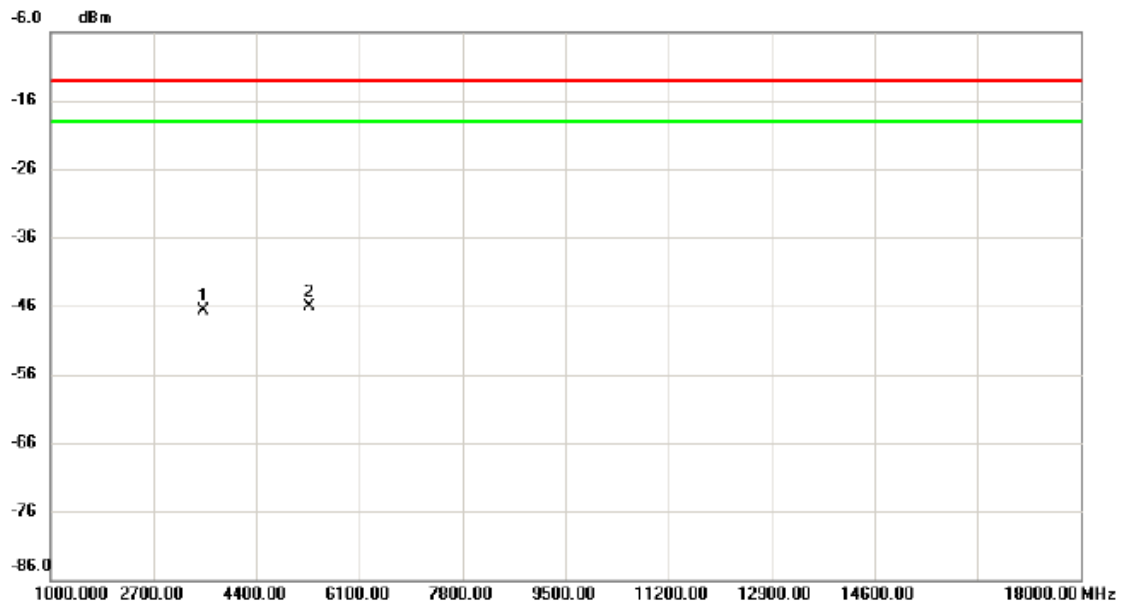
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		3431.000	-61.37	10.37	-51.00	-13.00	-38.00	peak	
2	*	5131.000	-61.44	15.17	-46.27	-13.00	-33.27	peak	

Test Mode: LTE Band IV\_TX CH20175\_5M

Vertical

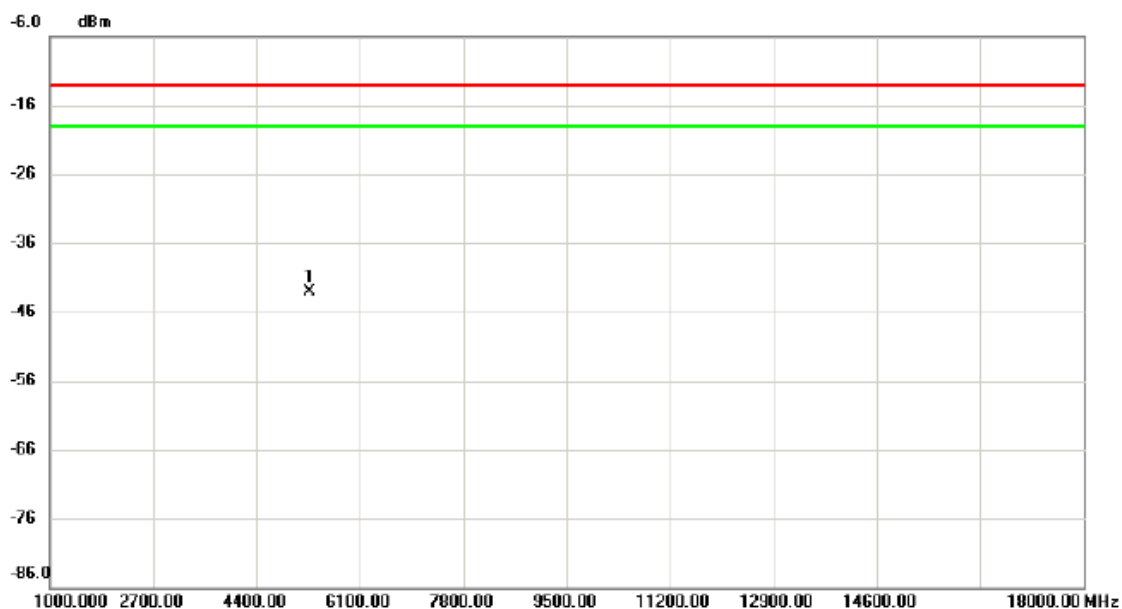


No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		3516.000	-60.96	14.28	-46.68	-13.00	-33.68	peak	
2	*	5267.000	-61.50	15.38	-46.12	-13.00	-33.12	peak	



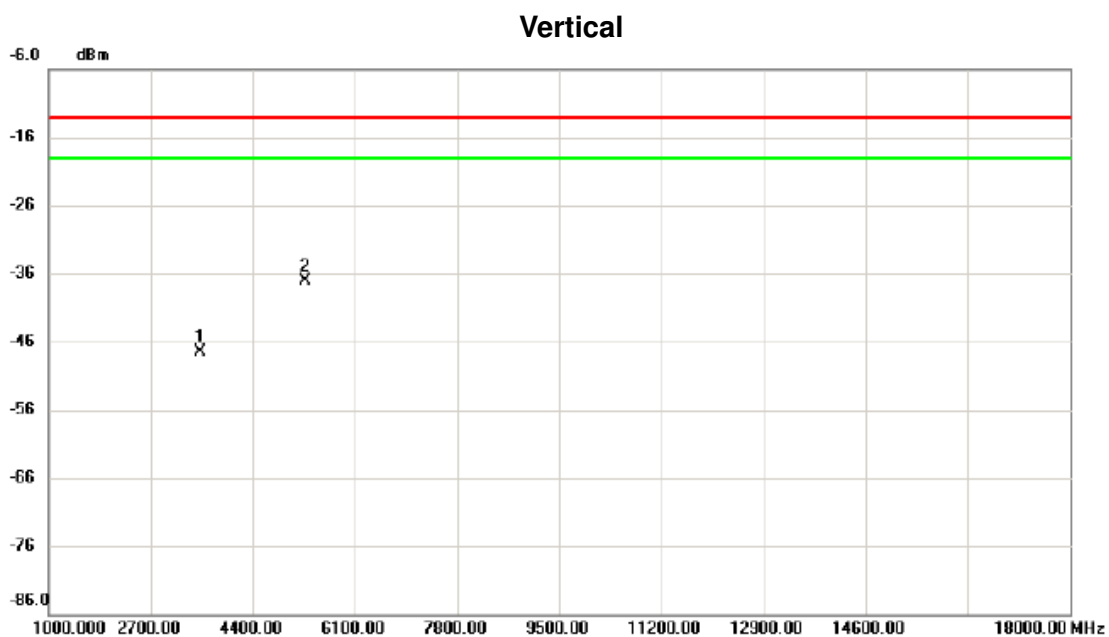
Test Mode: LTE Band IV\_TX CH20175\_5M

### Horizontal



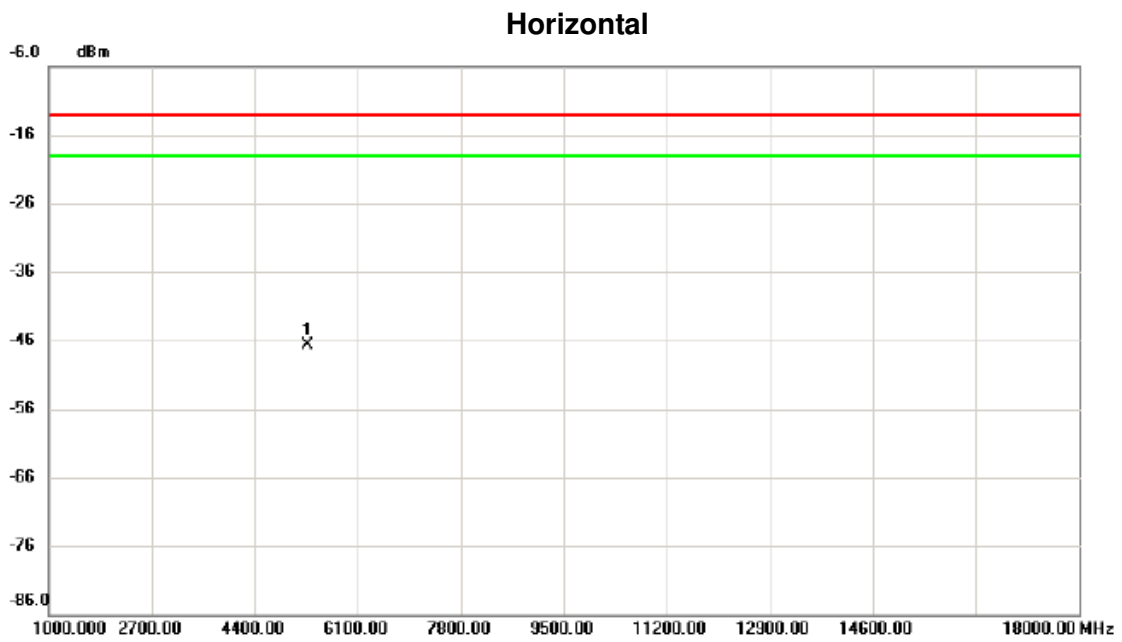
No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	5267.000	-58.83	15.69	-43.14	-13.00	-30.14	peak	

Test Mode: LTE Band IV\_TX CH20175\_10M



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		3516.000	-61.75	14.28	-47.47	-13.00	-34.47	peak	
2	*	5267.000	-52.54	15.38	-37.16	-13.00	-24.16	peak	

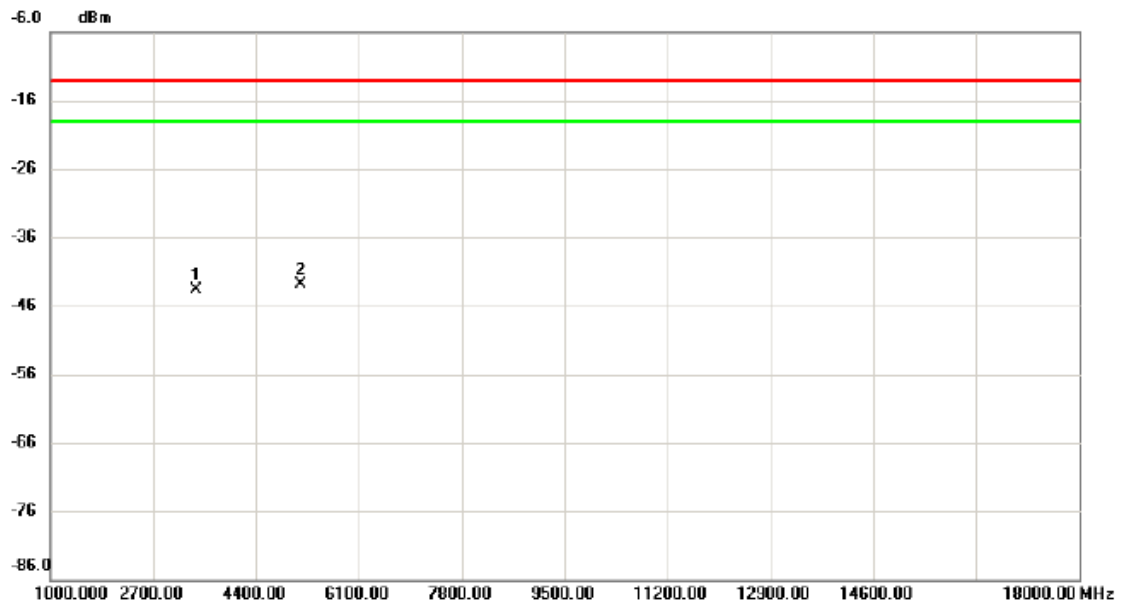
Test Mode: LTE Band IV\_TX CH20175\_10M



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	5267.000	-62.36	15.69	-46.67	-13.00	-33.67	peak	

Test Mode: LTE Band IV\_TX CH20175\_15M

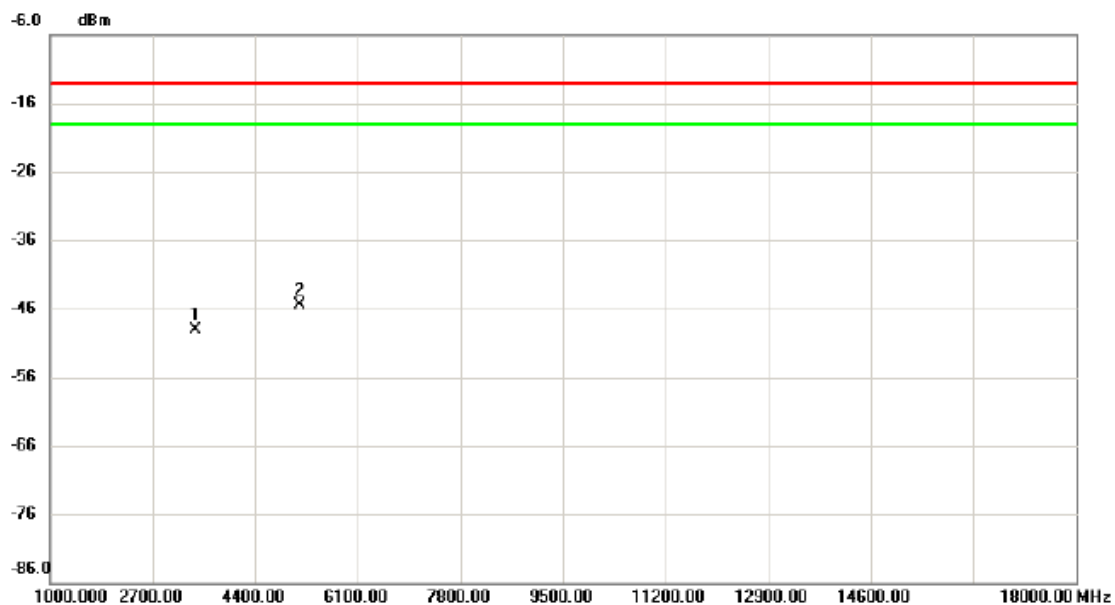
Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		3414.000	-57.66	13.95	-43.71	-13.00	-30.71	peak	
2	*	5131.000	-57.92	14.97	-42.95	-13.00	-29.95	peak	

Test Mode: LTE Band IV\_TX CH20175\_15M

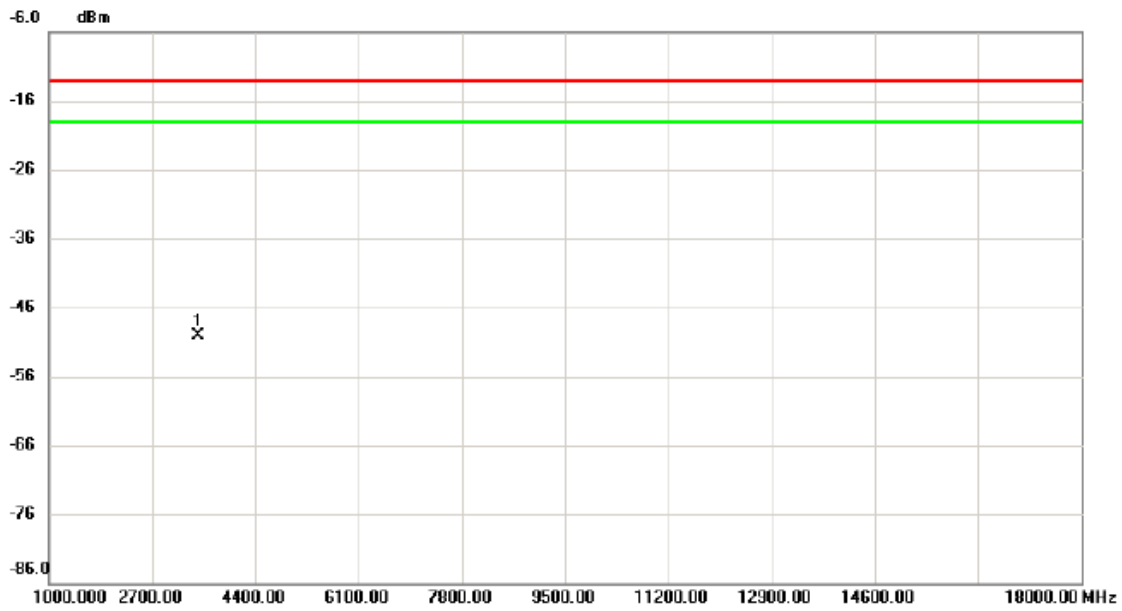
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		3414.000	-59.47	10.30	-49.17	-13.00	-36.17	peak	
2	*	5131.000	-60.66	15.17	-45.49	-13.00	-32.49	peak	

Test Mode: LTE Band IV\_TX CH20175\_20M

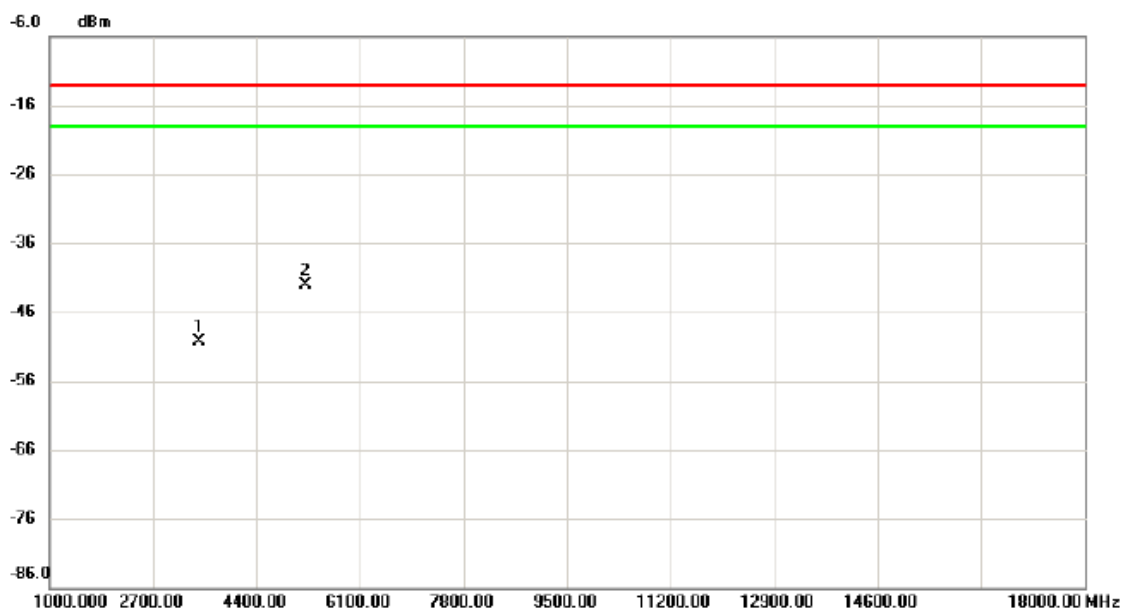
Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	3465.000	-64.22	14.13	-50.09	-13.00	-37.09	peak	

Test Mode: LTE Band IV\_TX CH20175\_20M

### Horizontal

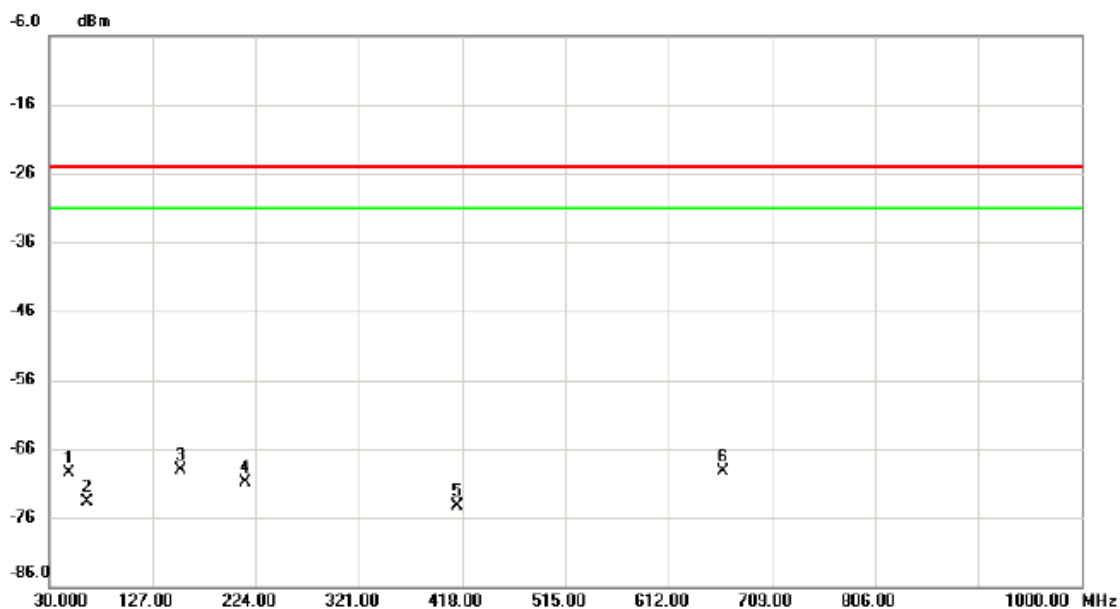


No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		3465.000	-60.80	10.50	-50.30	-13.00	-37.30	peak	
2	*	5199.000	-57.46	15.43	-42.03	-13.00	-29.03	peak	



Test Mode: LTE Band VII\_TX CH21100\_5M

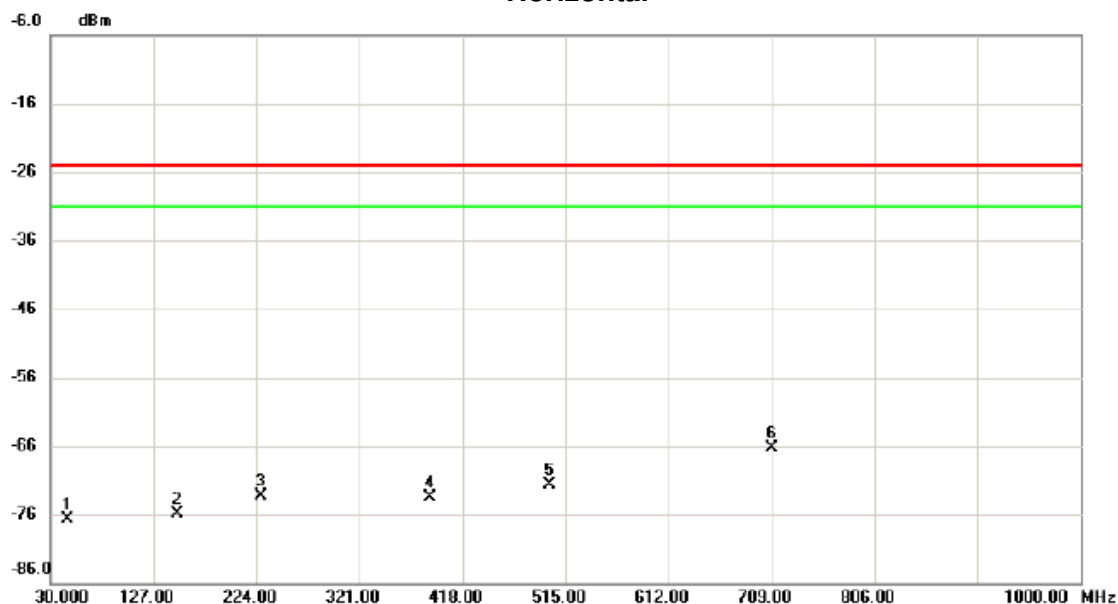
Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		48.4300	-70.61	1.03	-69.58	-25.00	-44.58	peak	
2		64.9200	-74.82	1.10	-73.72	-25.00	-48.72	peak	
3	*	153.1900	-72.34	3.16	-69.18	-25.00	-44.18	peak	
4		214.3000	-68.81	-2.02	-70.83	-25.00	-45.83	peak	
5		413.1500	-78.67	4.47	-74.20	-25.00	-49.20	peak	
6		662.4400	-79.42	10.21	-69.21	-25.00	-44.21	peak	

Test Mode: LTE Band VII\_TX CH21100\_5M

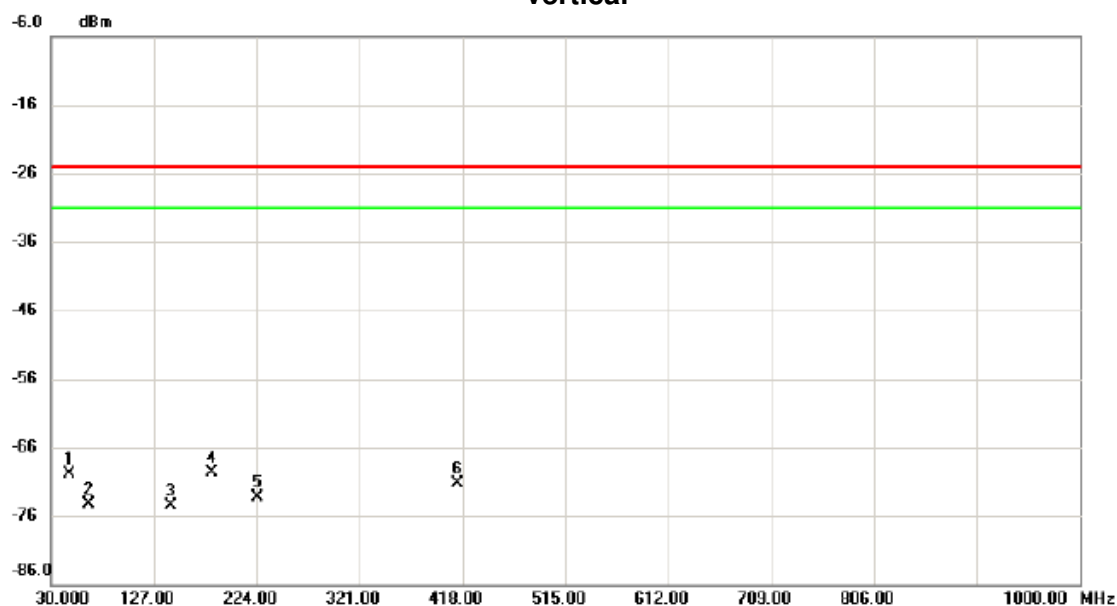
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		45.5200	-79.63	2.87	-76.76	-25.00	-51.76	peak	
2		149.3100	-80.11	4.16	-75.95	-25.00	-50.95	peak	
3		228.8500	-76.21	2.94	-73.27	-25.00	-48.27	peak	
4		387.9300	-79.50	6.01	-73.49	-25.00	-48.49	peak	
5		499.4800	-79.67	8.02	-71.65	-25.00	-46.65	peak	
6	*	709.9700	-79.94	13.74	-66.20	-25.00	-41.20	peak	

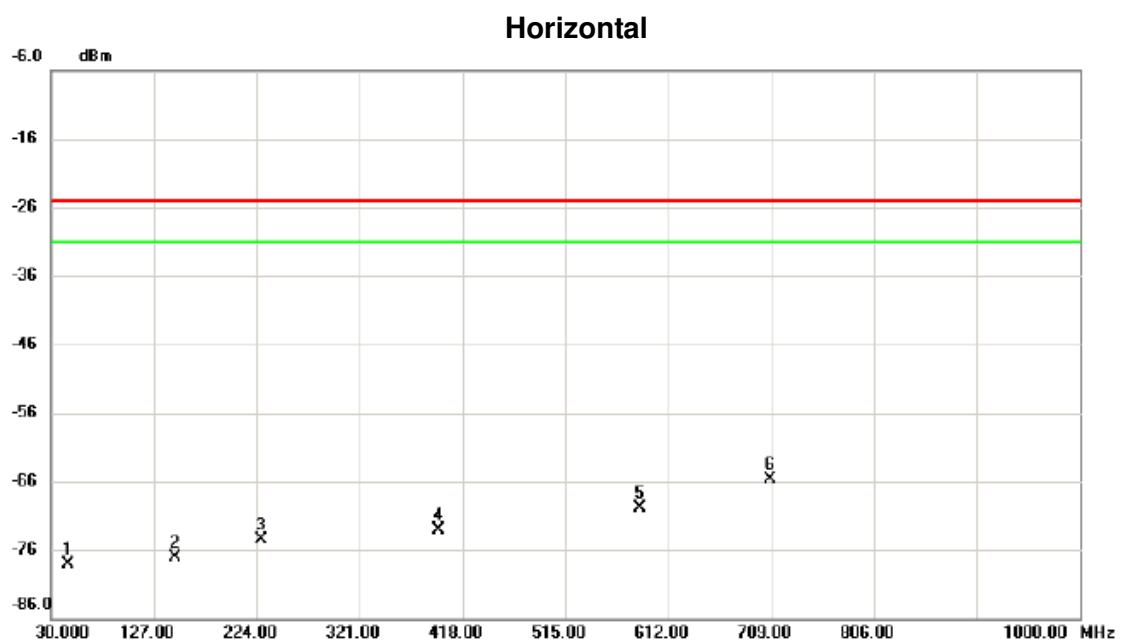
Test Mode: LTE Band VII\_TX CH21100\_10M

### Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		47.4600	-71.18	1.29	-69.89	-25.00	-44.89	peak	
2		64.9200	-75.44	1.10	-74.34	-25.00	-49.34	peak	
3		143.4900	-76.99	2.50	-74.49	-25.00	-49.49	peak	
4	*	181.3200	-70.09	0.43	-69.66	-25.00	-44.66	peak	
5		224.9700	-72.91	-0.46	-73.37	-25.00	-48.37	peak	
6		413.1500	-75.86	4.47	-71.39	-25.00	-46.39	peak	

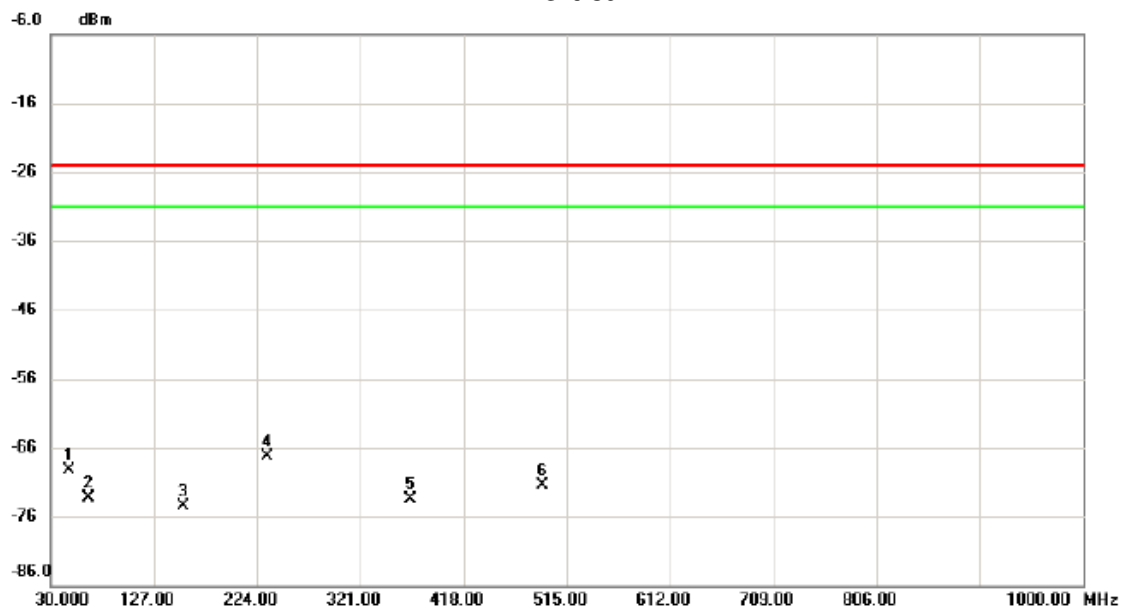
Test Mode: LTE Band VII\_TX CH21100\_10M



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		45.5200	-80.94	2.87	-78.07	-25.00	-53.07	peak	
2		146.4000	-80.92	3.84	-77.08	-25.00	-52.08	peak	
3		227.8800	-77.15	2.68	-74.47	-25.00	-49.47	peak	
4		394.7200	-79.06	5.94	-73.12	-25.00	-48.12	peak	
5		585.8100	-78.76	8.84	-69.92	-25.00	-44.92	peak	
6	*	708.0300	-79.56	13.79	-65.77	-25.00	-40.77	peak	

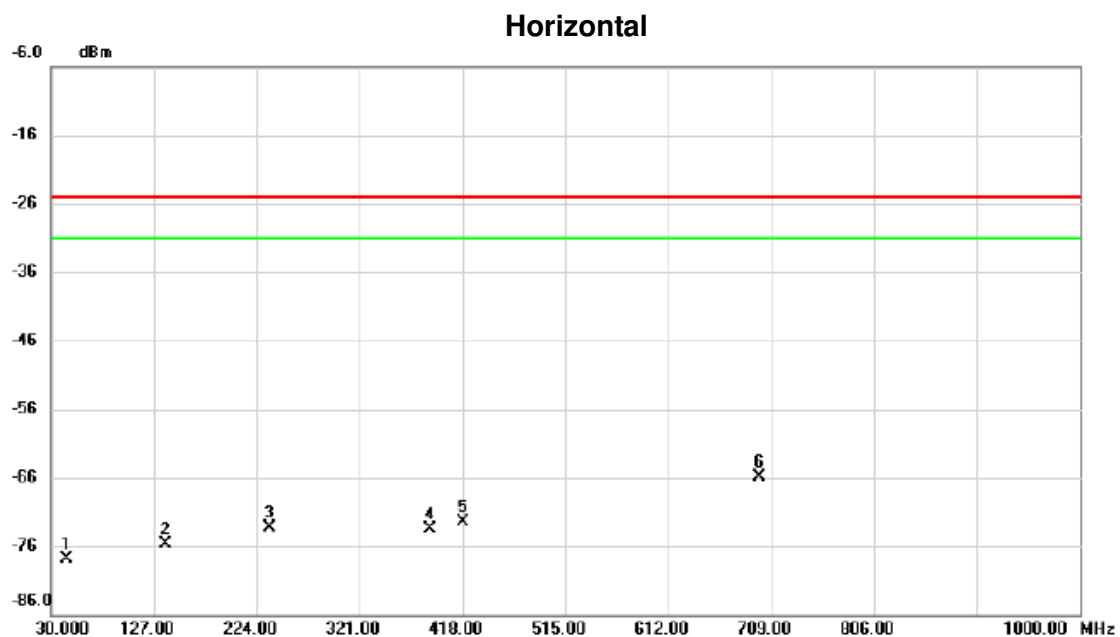
Test Mode: LTE Band VII\_TX CH21100\_15M

### Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		47.4600	-70.63	1.29	-69.34	-25.00	-44.34	peak	
2		64.9200	-74.33	1.10	-73.23	-25.00	-48.23	peak	
3		154.1600	-77.61	3.16	-74.45	-25.00	-49.45	peak	
4	*	233.7000	-67.66	0.39	-67.27	-25.00	-42.27	peak	
5		368.5300	-76.72	3.25	-73.47	-25.00	-48.47	peak	
6		492.6900	-78.72	7.12	-71.60	-25.00	-46.60	peak	

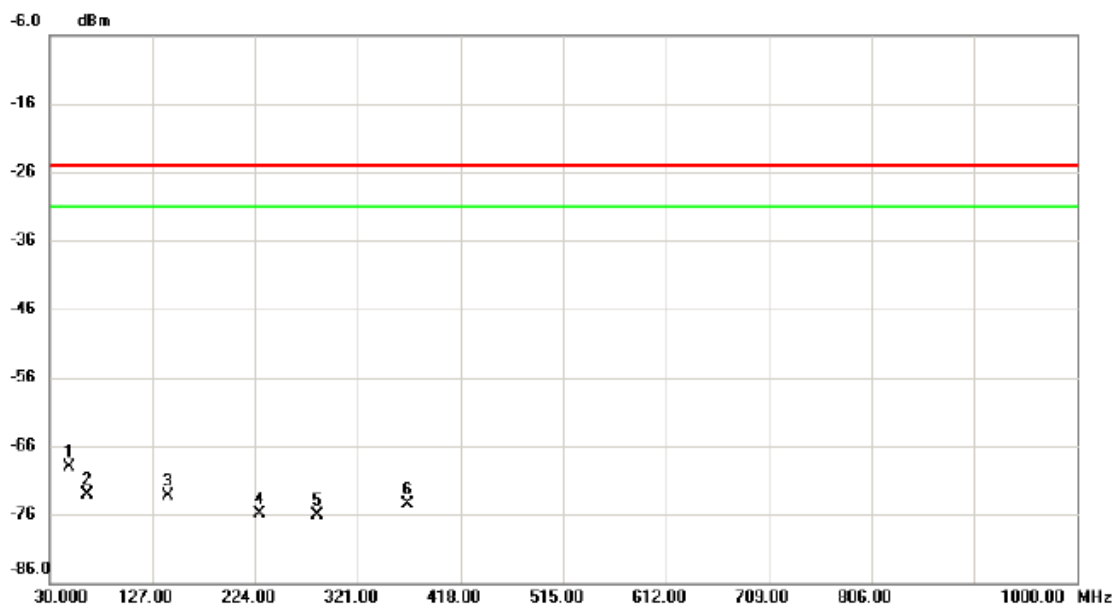
Test Mode: LTE Band VII\_TX CH21100\_15M



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		44.5500	-80.86	2.97	-77.89	-25.00	-52.89	peak	
2		137.6700	-77.90	2.24	-75.66	-25.00	-50.66	peak	
3		235.6400	-76.15	2.77	-73.38	-25.00	-48.38	peak	
4		386.9600	-79.51	6.02	-73.49	-25.00	-48.49	peak	
5		418.0000	-79.28	6.78	-72.50	-25.00	-47.50	peak	
6	*	698.3300	-79.80	13.87	-65.93	-25.00	-40.93	peak	

Test Mode: LTE Band VII\_TX CH21100\_20M

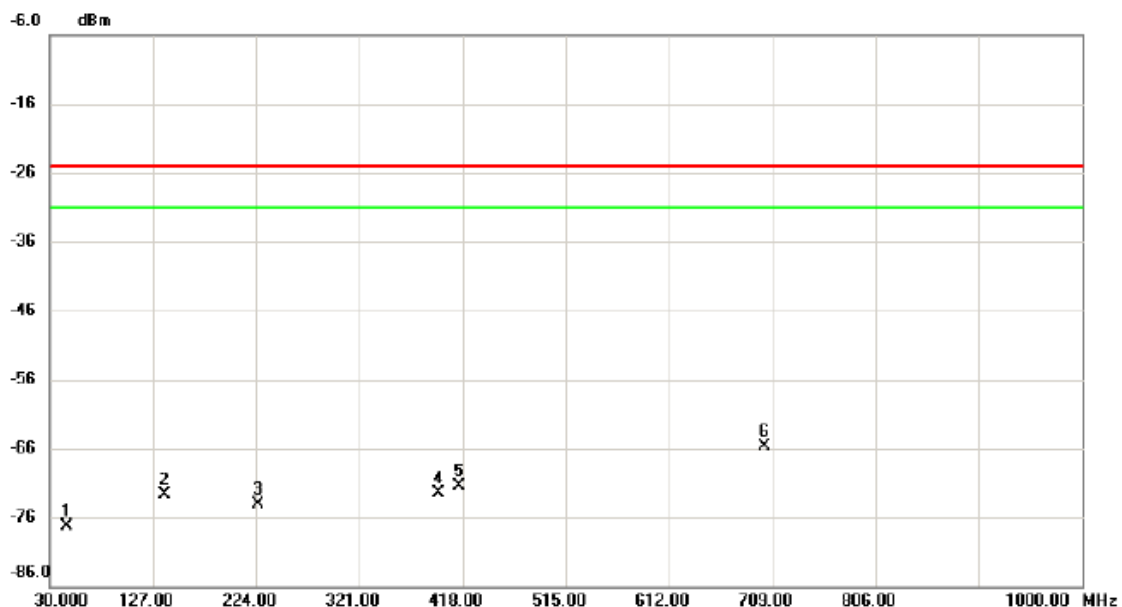
### Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	48.4300	-70.17	1.03	-69.14	-25.00	-44.14	peak	
2		64.9200	-74.12	1.10	-73.02	-25.00	-48.02	peak	
3		141.5500	-75.63	2.31	-73.32	-25.00	-48.32	peak	
4		227.8800	-76.05	0.08	-75.97	-25.00	-50.97	peak	
5		283.1700	-78.62	2.51	-76.11	-25.00	-51.11	peak	
6		368.5300	-77.75	3.25	-74.50	-25.00	-49.50	peak	

Test Mode: LTE Band VII\_TX CH21100\_20M

### Horizontal

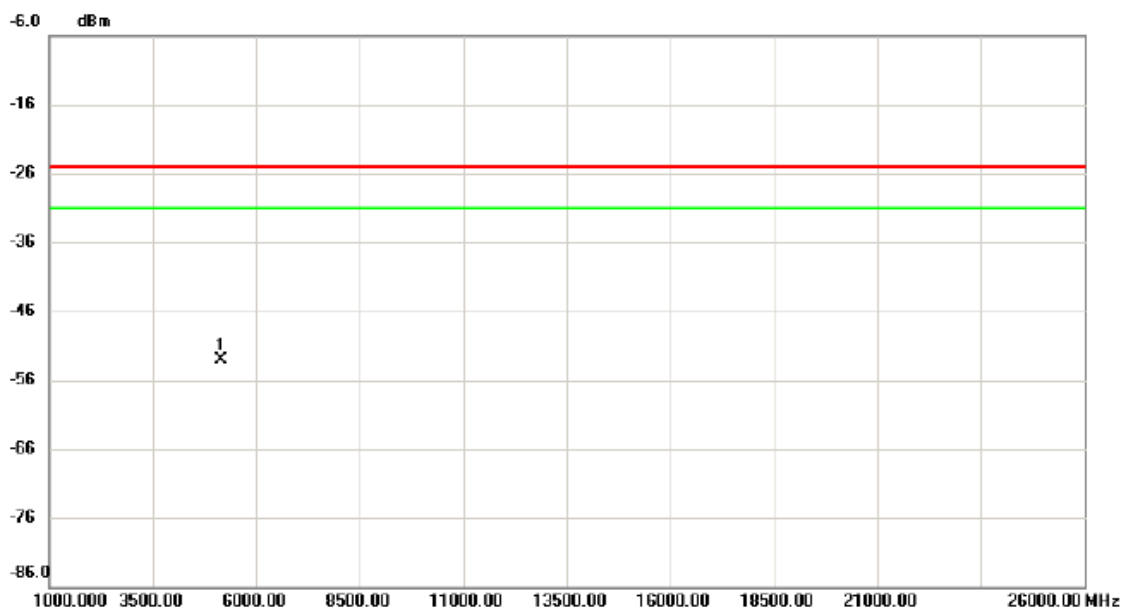


No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		46.4900	-79.86	2.52	-77.34	-25.00	-52.34	peak	
2		137.6700	-74.97	2.24	-72.73	-25.00	-47.73	peak	
3		225.9400	-76.22	2.15	-74.07	-25.00	-49.07	peak	
4		395.6900	-78.41	5.93	-72.48	-25.00	-47.48	peak	
5		414.1200	-78.11	6.59	-71.52	-25.00	-46.52	peak	
6	*	702.2100	-79.56	13.93	-65.63	-25.00	-40.63	peak	



Test Mode: LTE Band VII\_TX CH21100\_5M

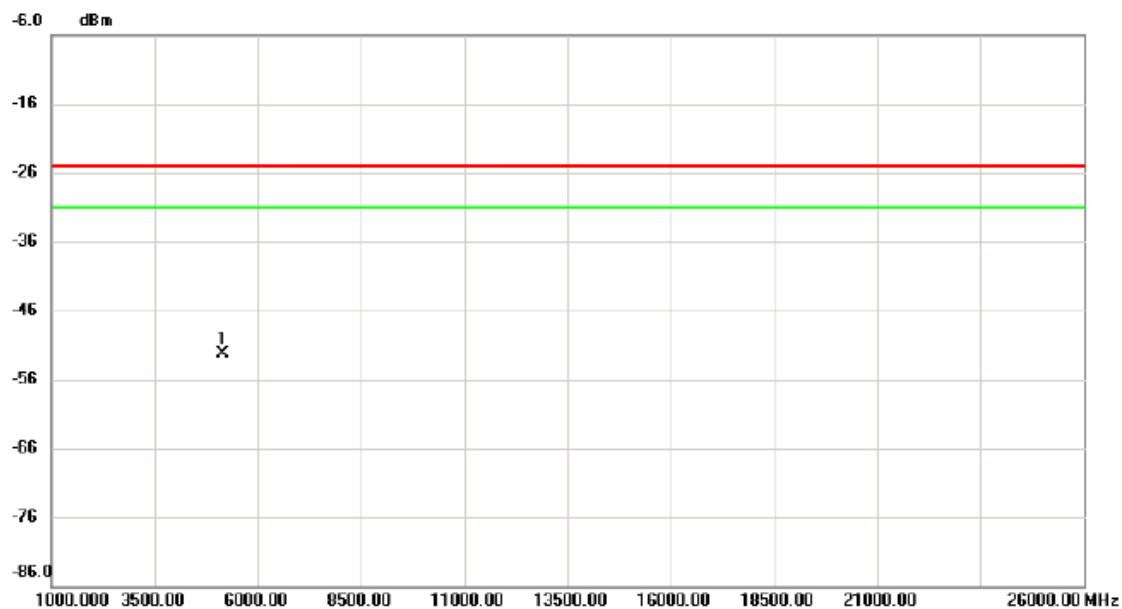
Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	5135.000	-67.98	14.98	-53.00	-25.00	-28.00	peak	

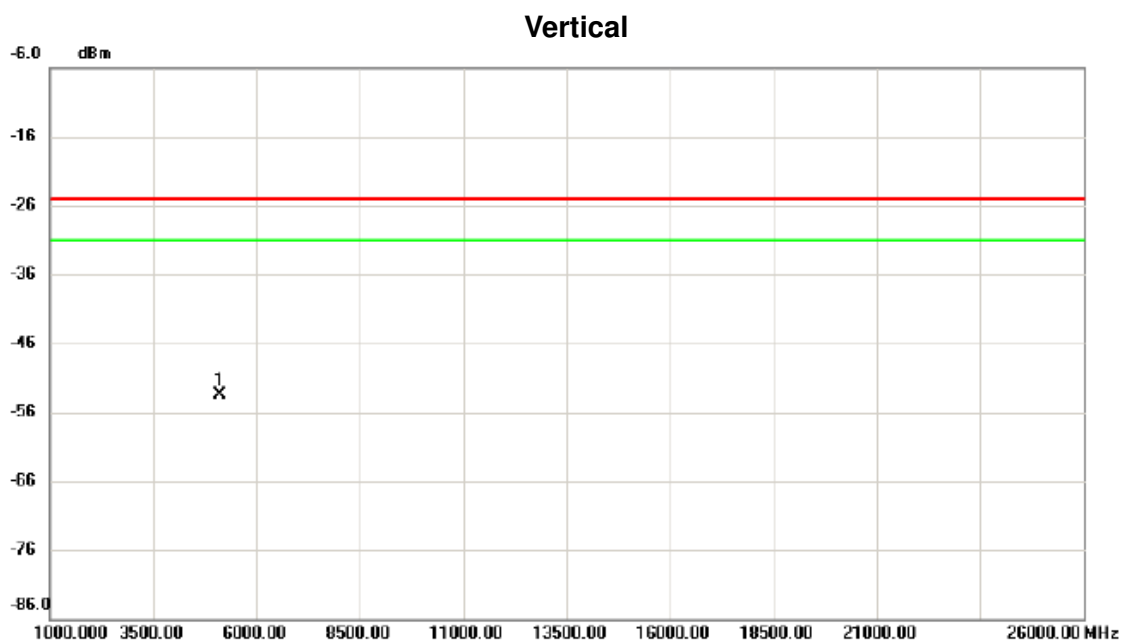
Test Mode: LTE Band VII\_TX CH21100\_5M

### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	5135.000	-67.52	15.18	-52.34	-25.00	-27.34	peak	

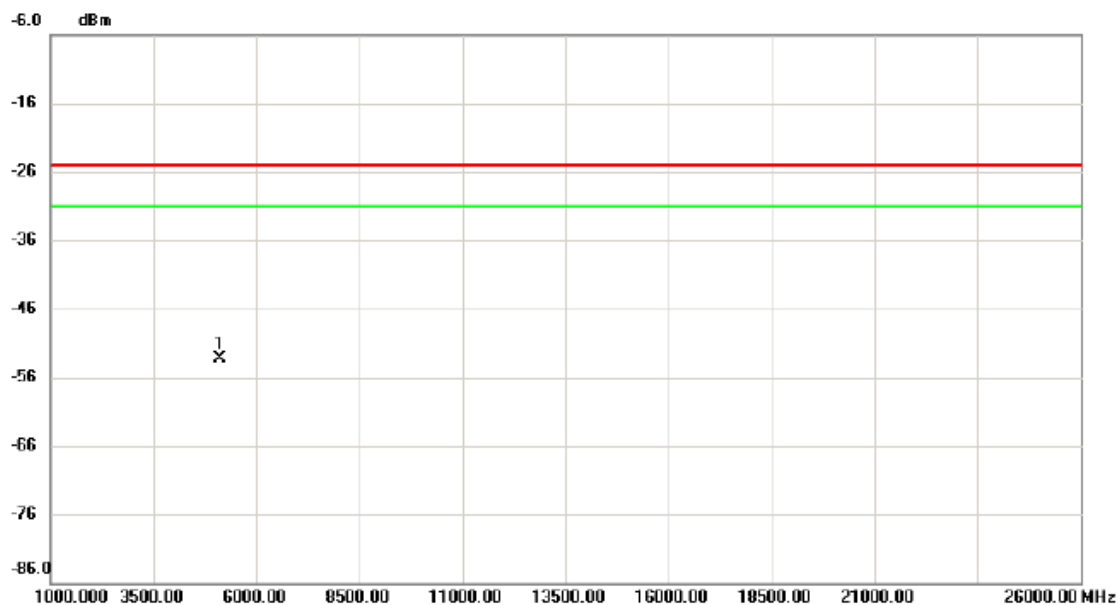
Test Mode: LTE Band VII\_TX CH21100\_10M



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	5130.000	-68.51	14.97	-53.54	-25.00	-28.54	peak	

Test Mode: LTE Band VII\_TX CH21100\_10M

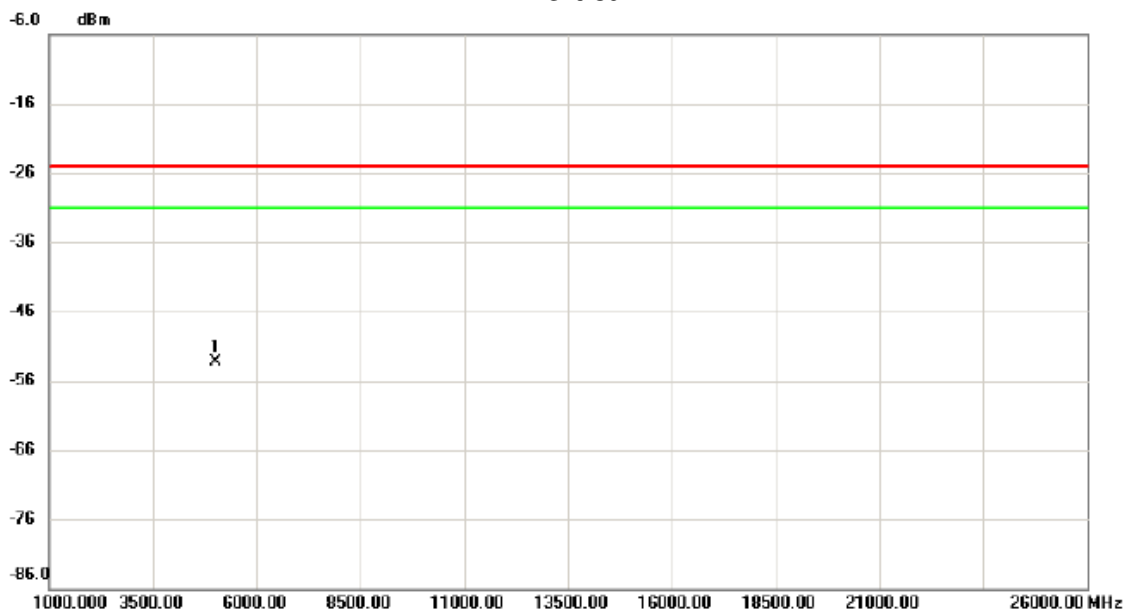
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	5130.000	-68.40	15.16	-53.24	-25.00	-28.24	peak	

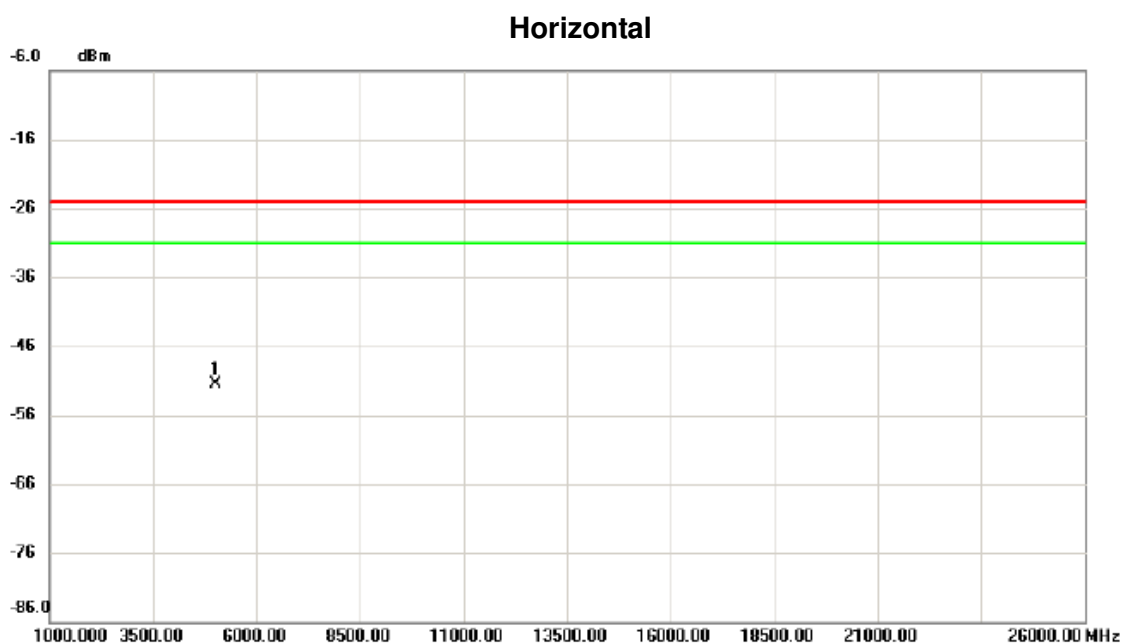
Test Mode: LTE Band VII\_TX CH21100\_15M

### Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	5015.000	-67.93	14.62	-53.31	-25.00	-28.31	peak	

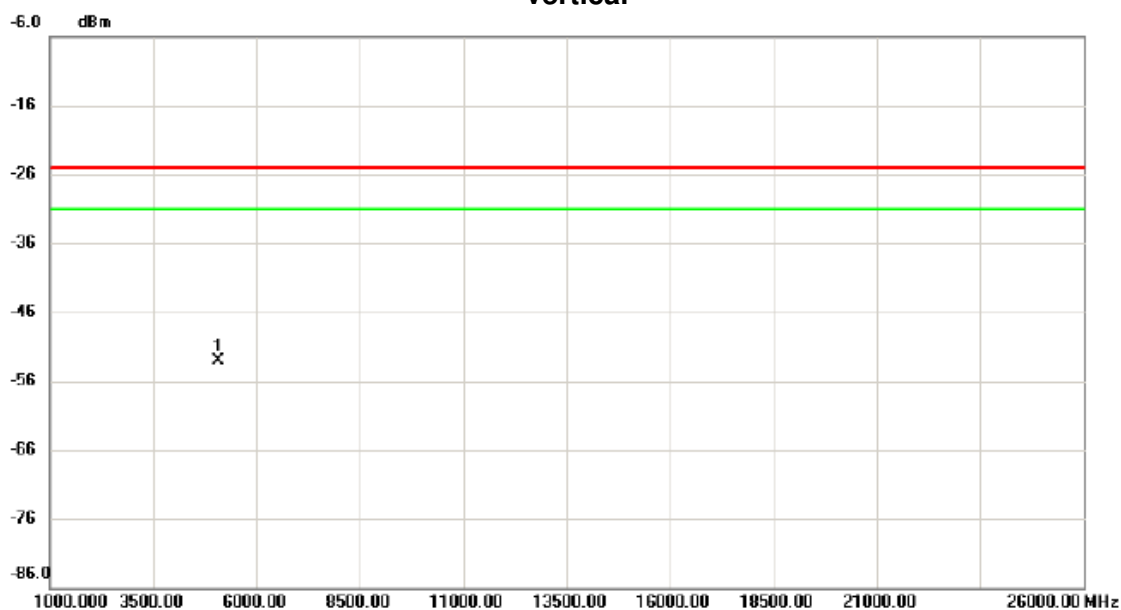
Test Mode: LTE Band VII\_TX CH21100\_15M



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	5015.000	-66.26	14.72	-51.54	-25.00	-26.54	peak	

Test Mode: LTE Band VII\_TX CH21100\_20M

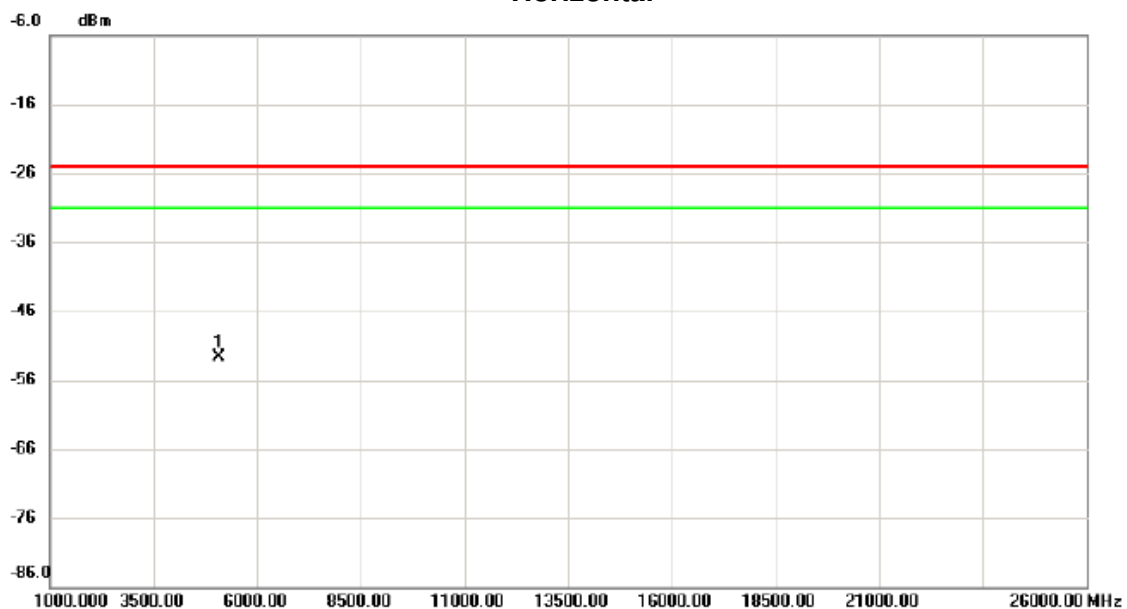
### Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	5075.000	-67.85	14.80	-53.05	-25.00	-28.05	peak	

Test Mode: LTE Band VII\_TX CH21100\_20M

### Horizontal



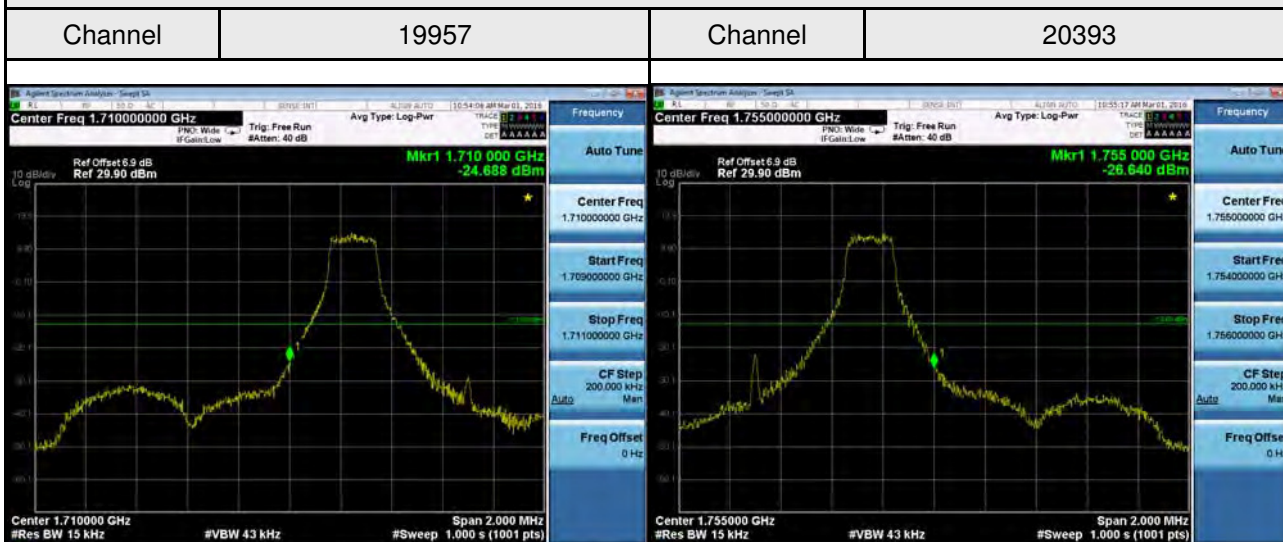
No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	5075.000	-67.66	14.95	-52.71	-25.00	-27.71	peak	



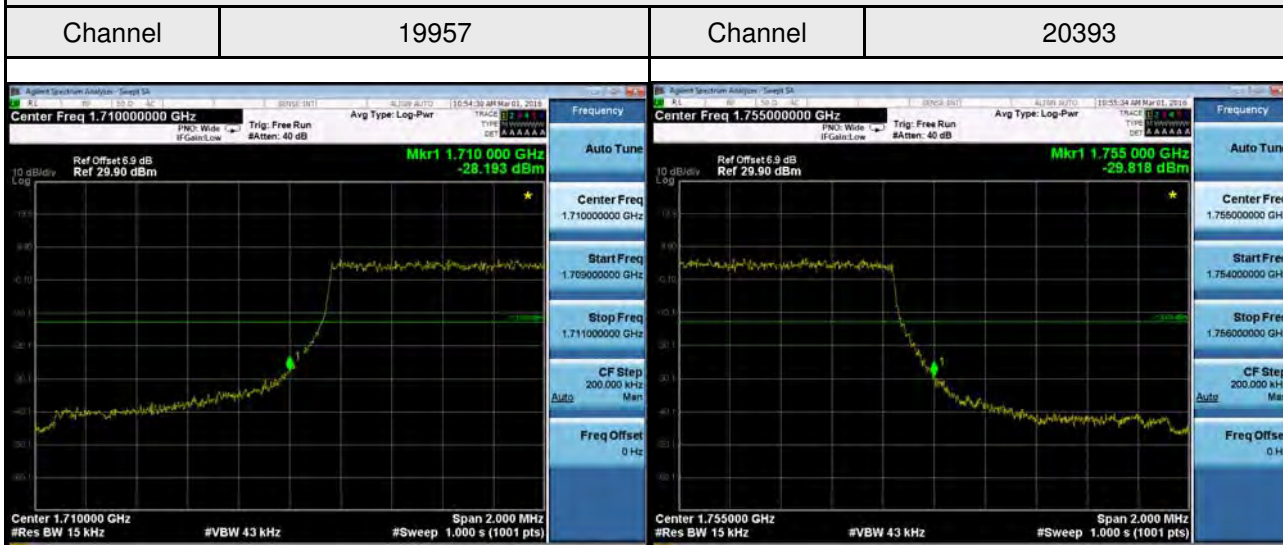
## ATTACHMENT E - BAND EDGE

LTE Band IV\_1.4M

1RB0

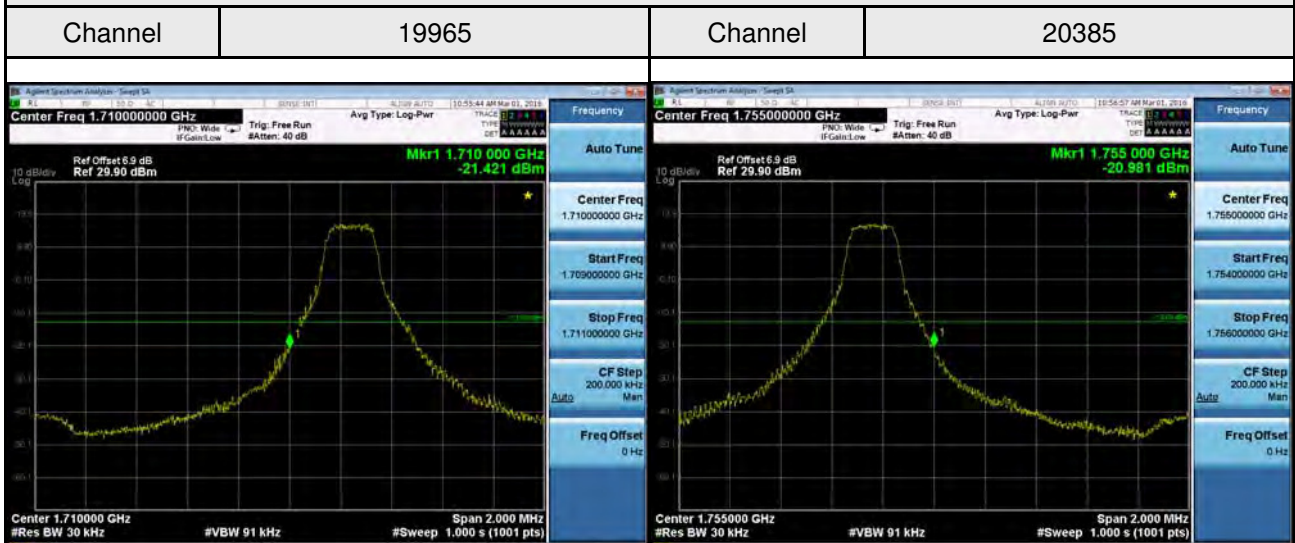


6RB0



LTE Band IV\_3M

1RB0

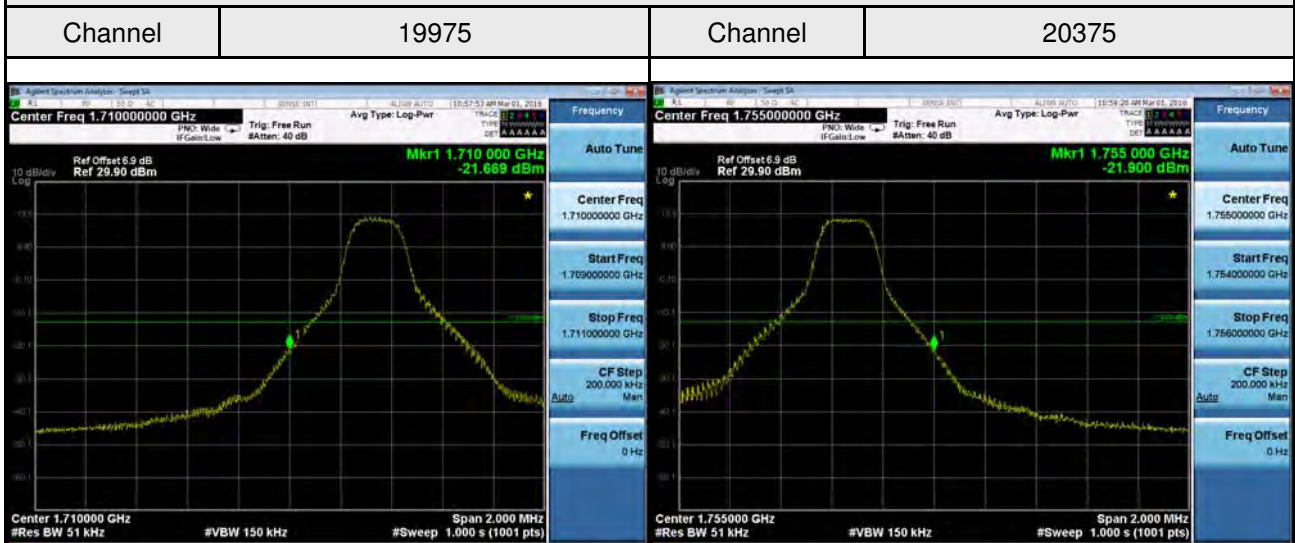


15RB0

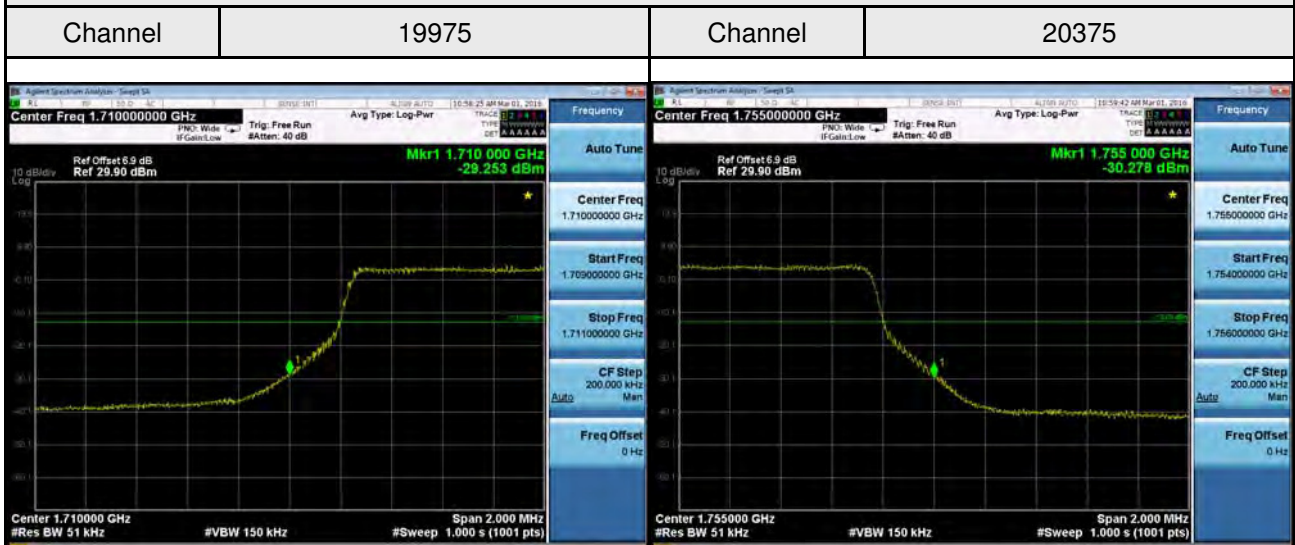


LTE Band IV\_5M

1RB0



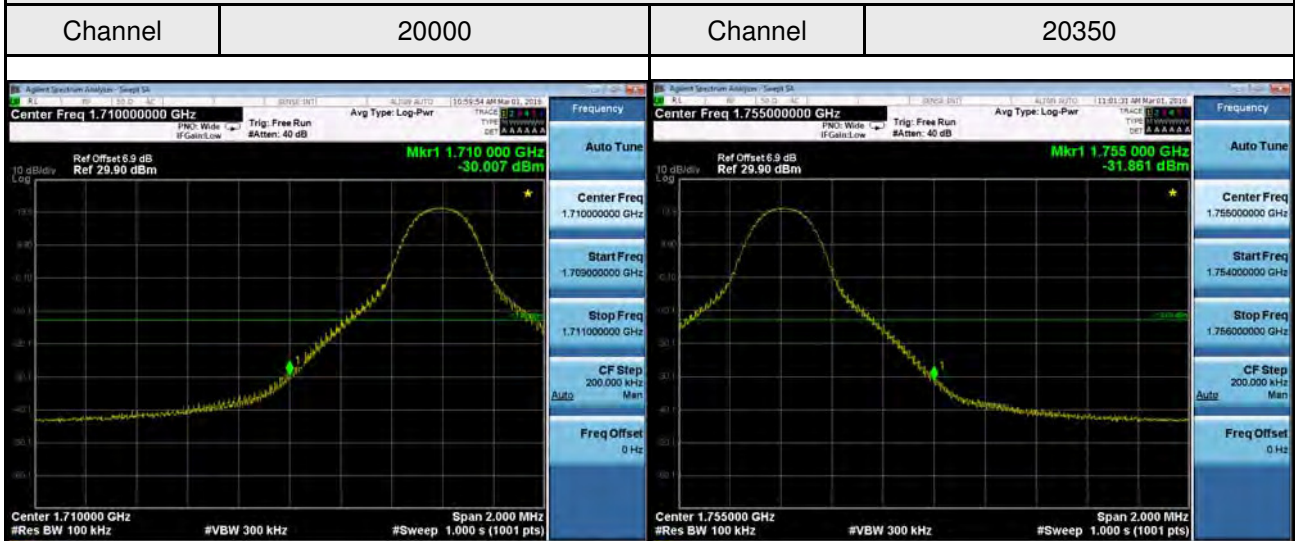
25RB0



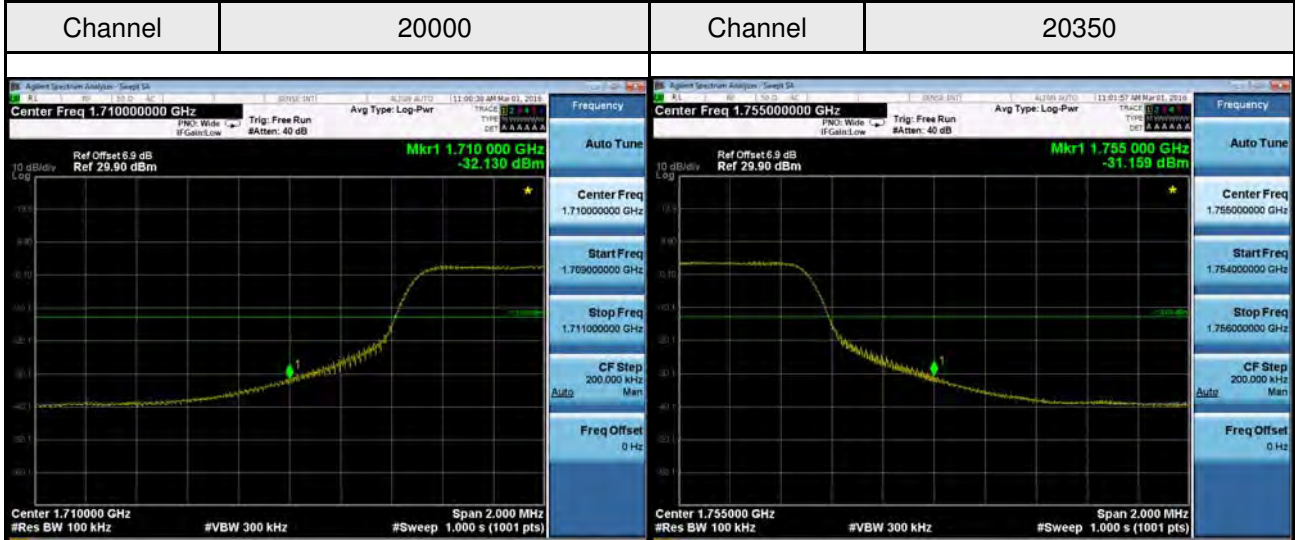


LTE Band IV\_10M

1RB0

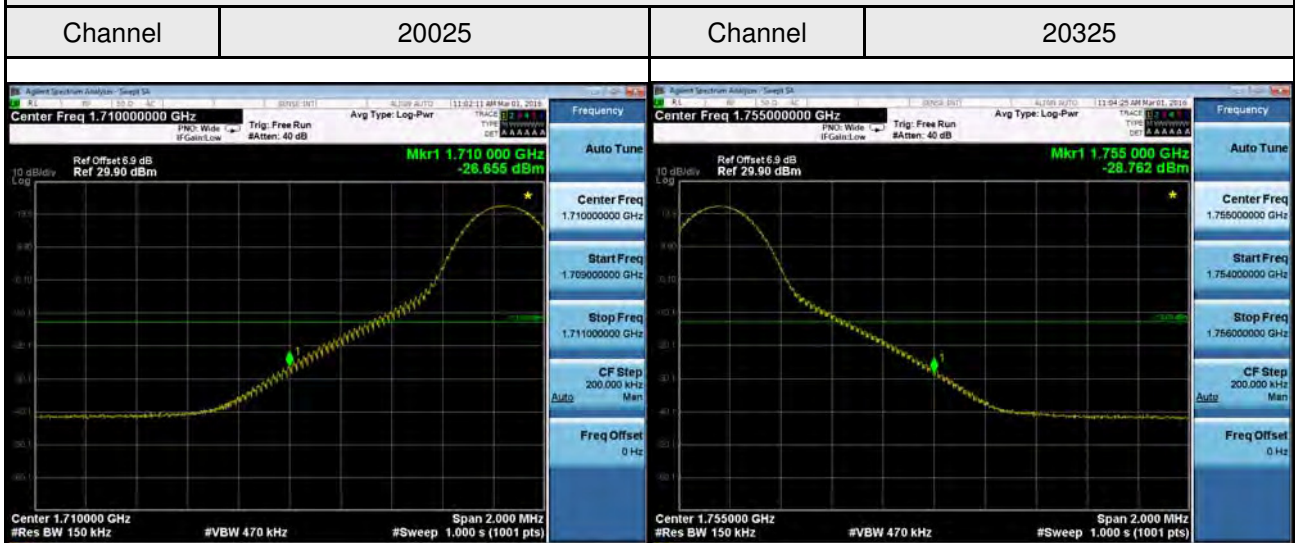


50RB0

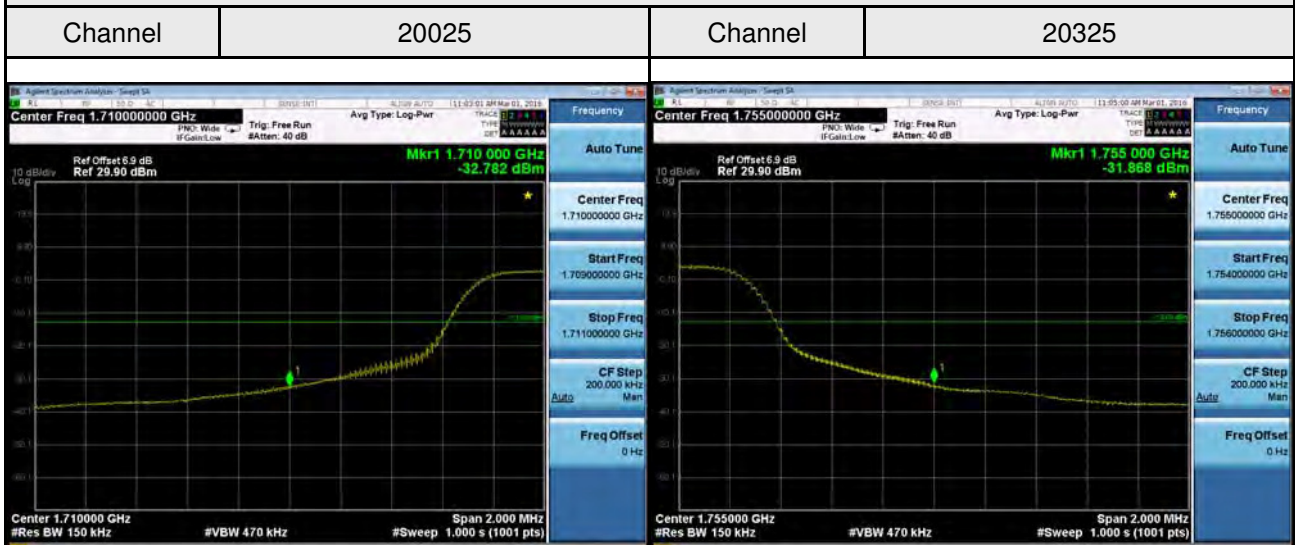


LTE Band IV\_15M

1RB0

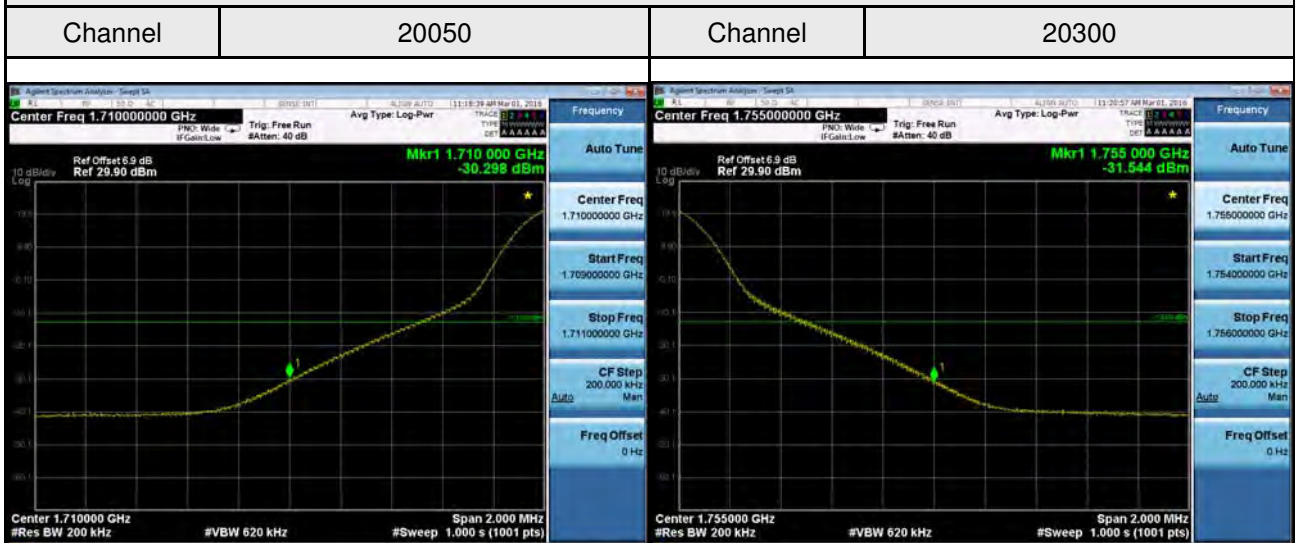


75RB0

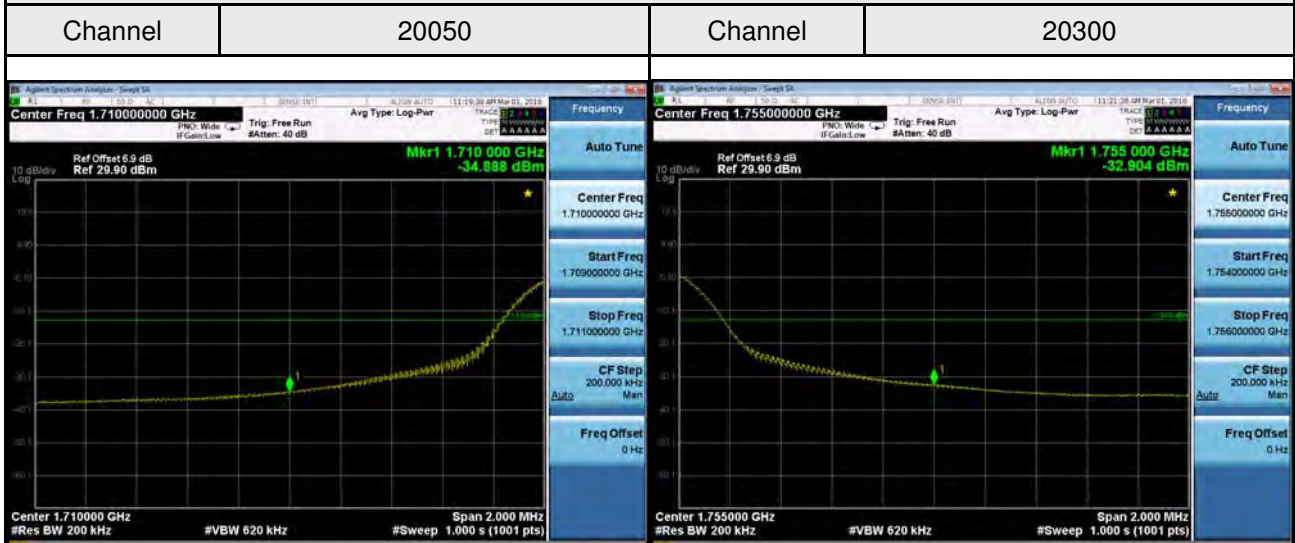


LTE Band IV\_20M

1RB0



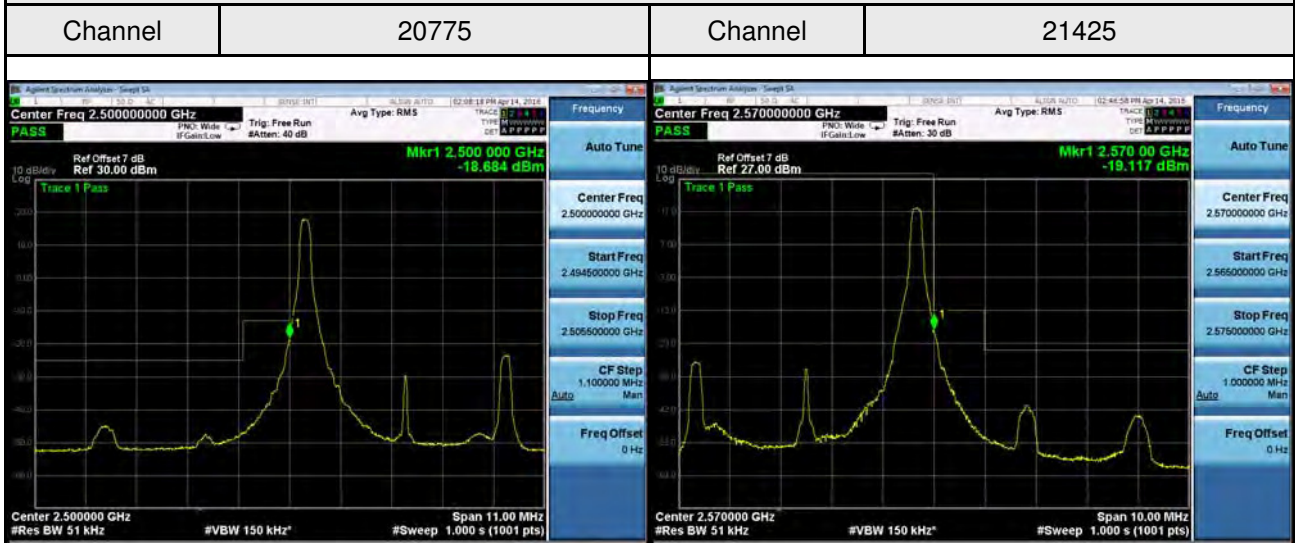
100RB0



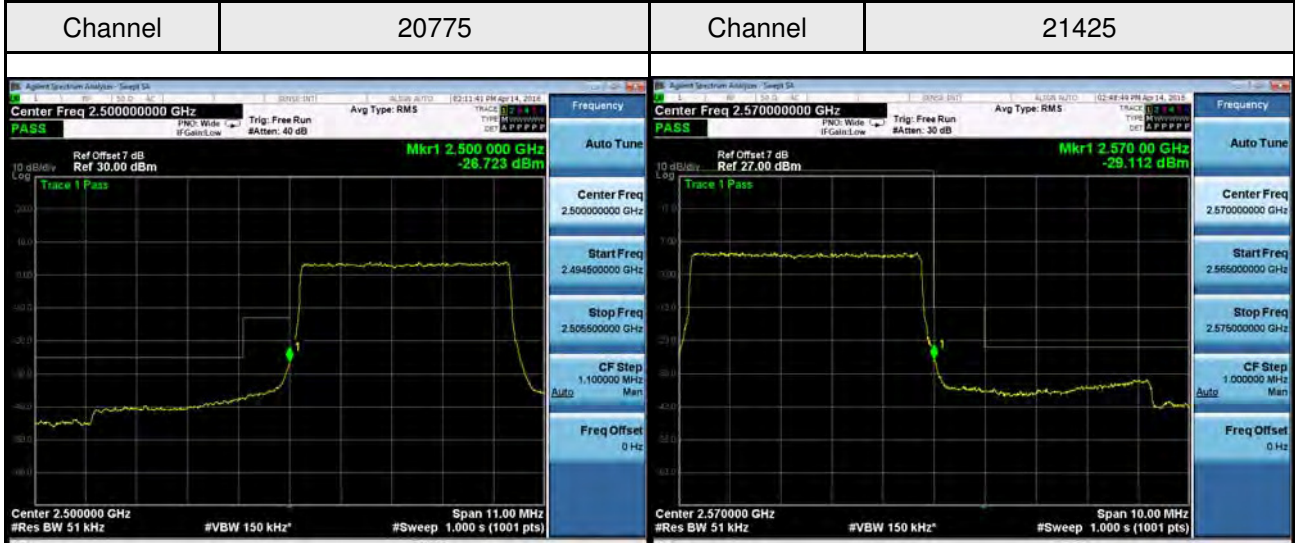


LTE Band VII\_5M

1RB0



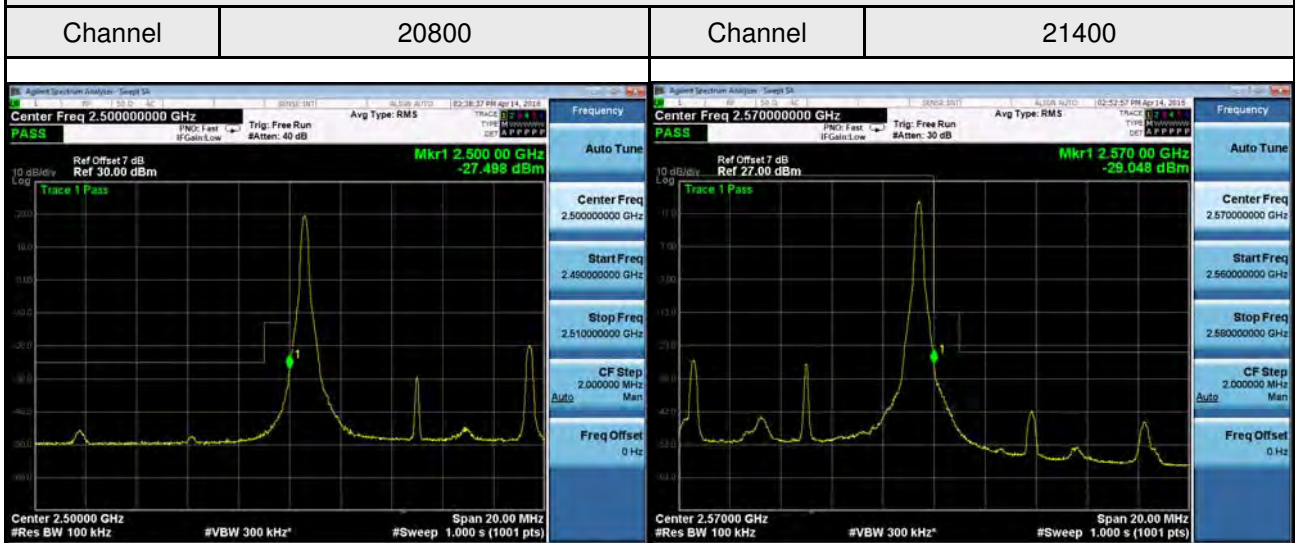
25RB0



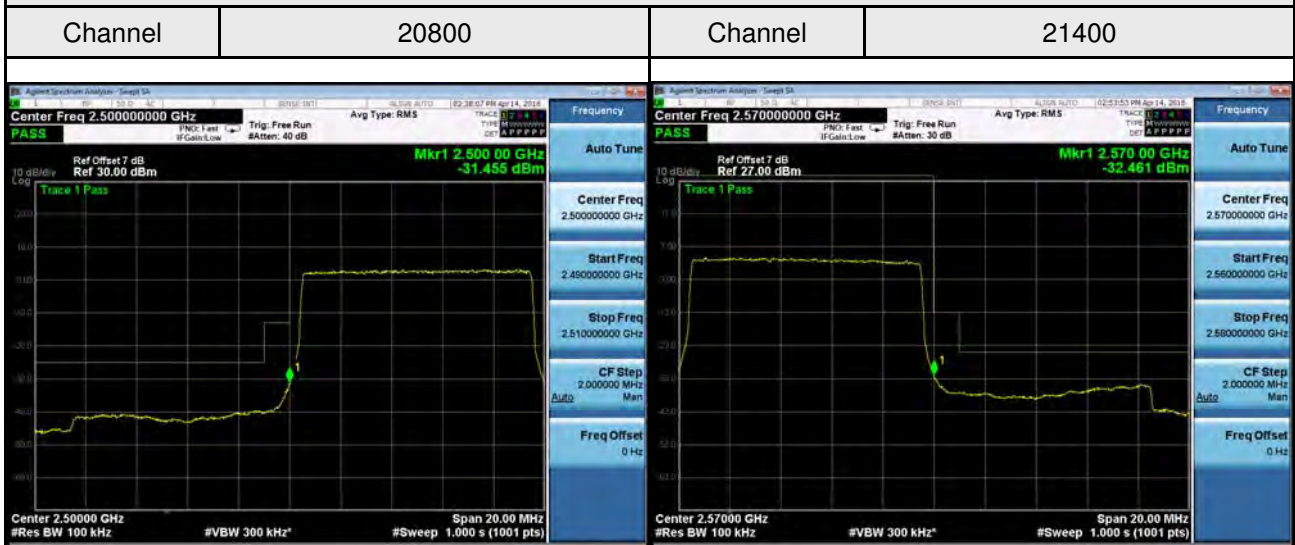


LTE Band VII\_10M

1RB0

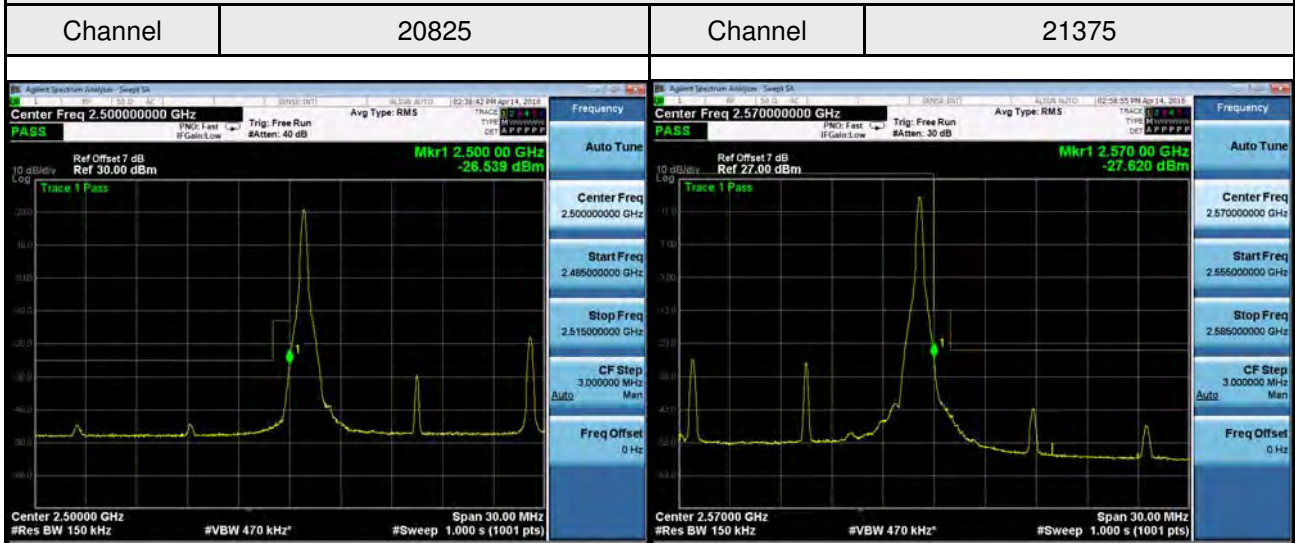


50RB0

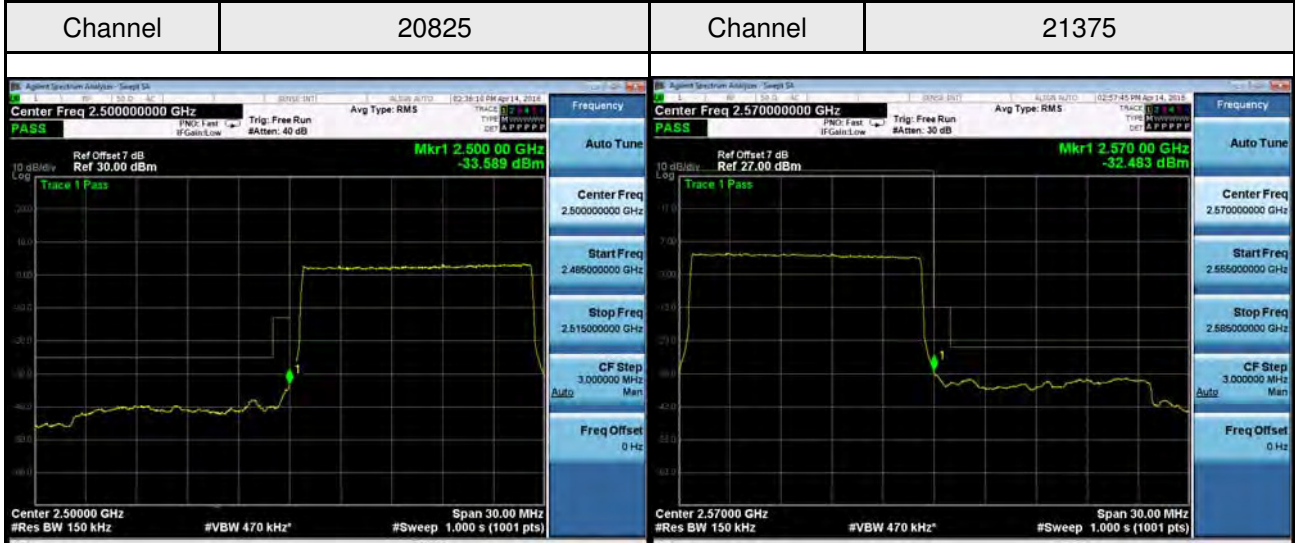


LTE Band VII\_15M

1RB0

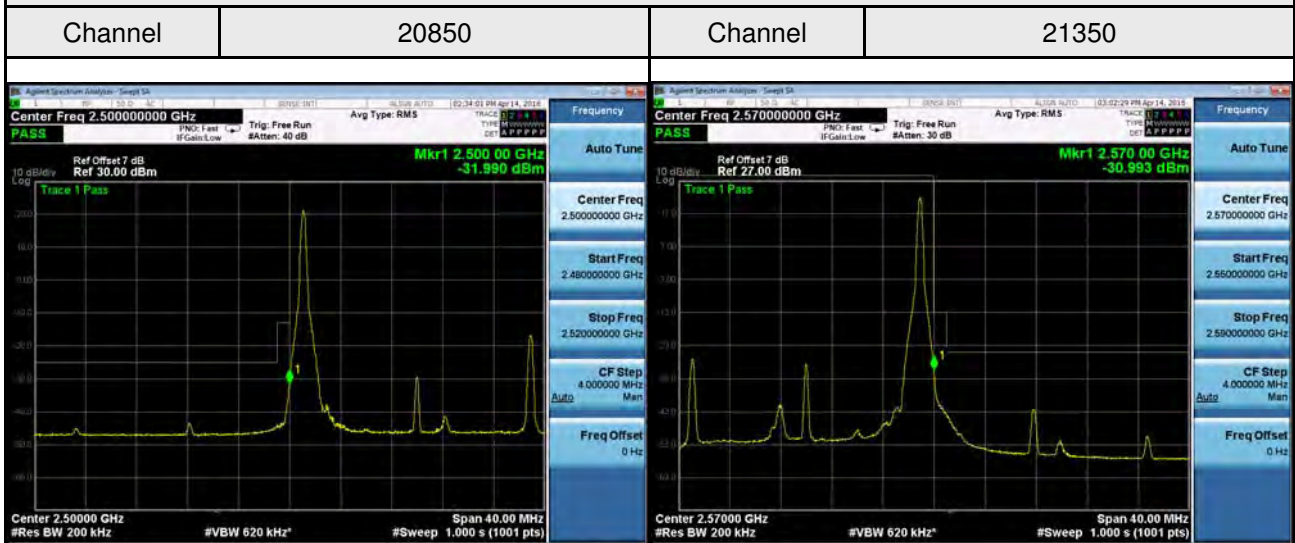


75RB0



LTE Band VII\_20M

1RB0



100RB0



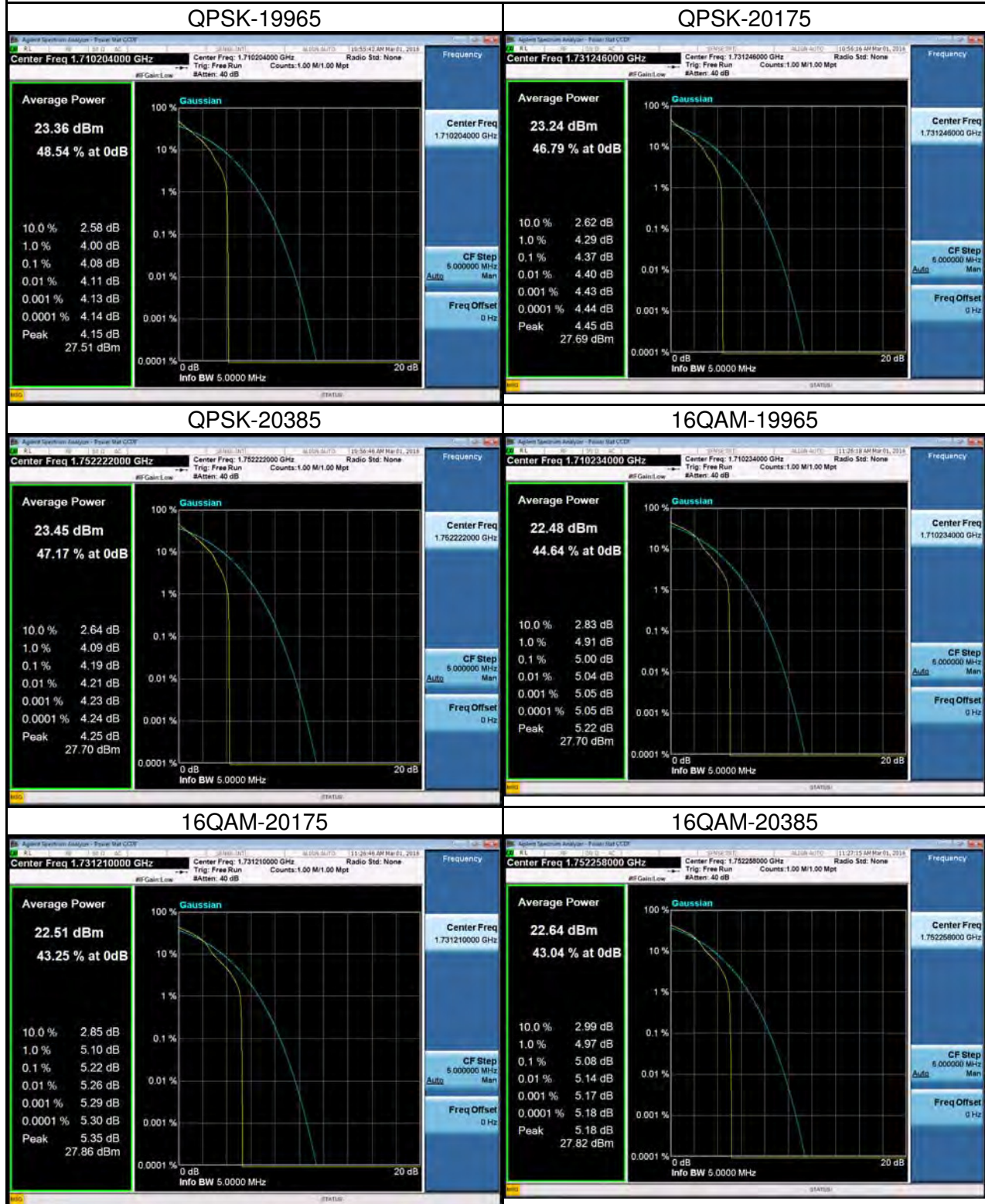
## ATTACHMENT F - PEAK TO AVERAGE RATIO



### LTE Band IV Spectrum Plot\_1.4M

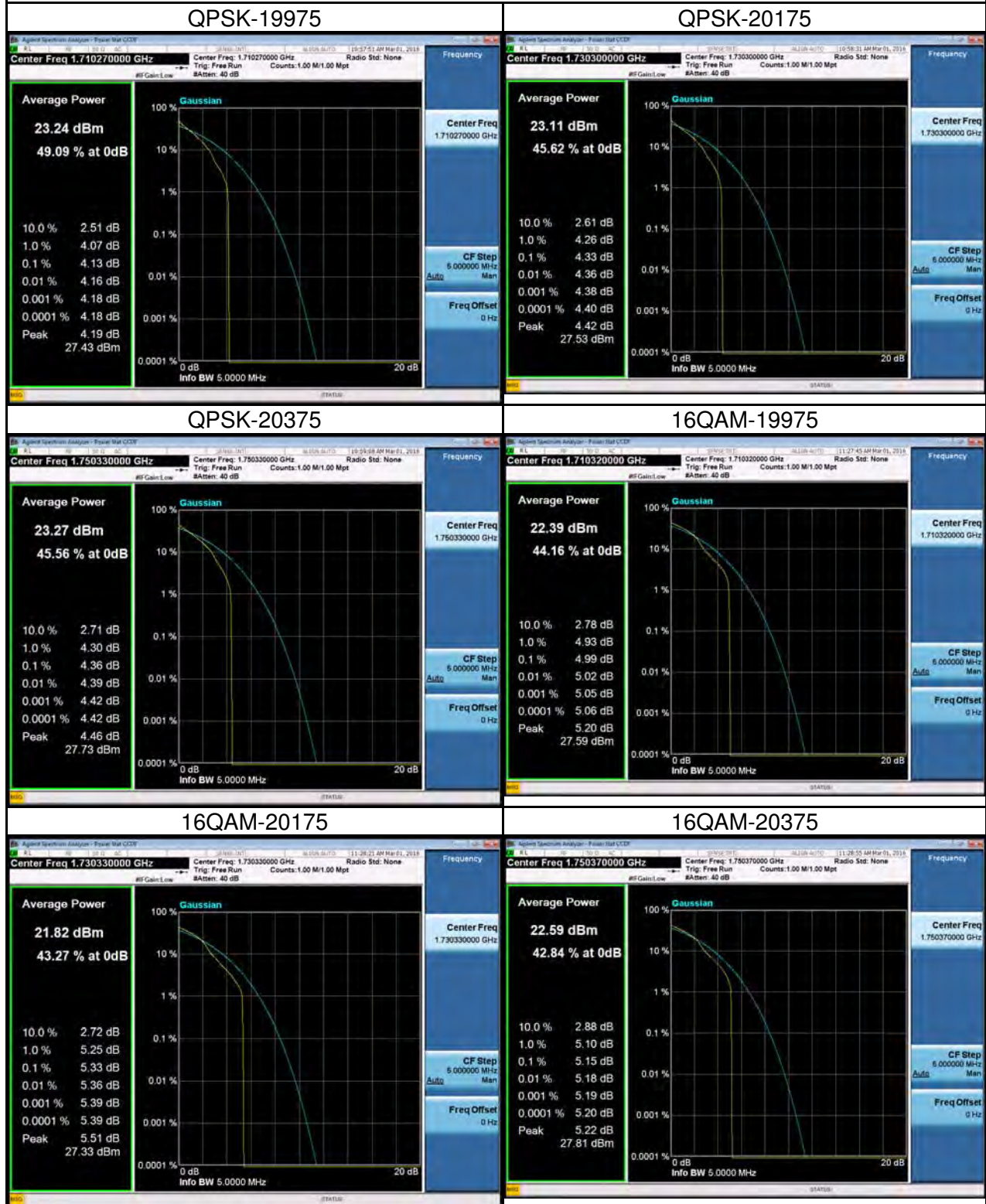


### LTE Band IV Spectrum Plot\_3M

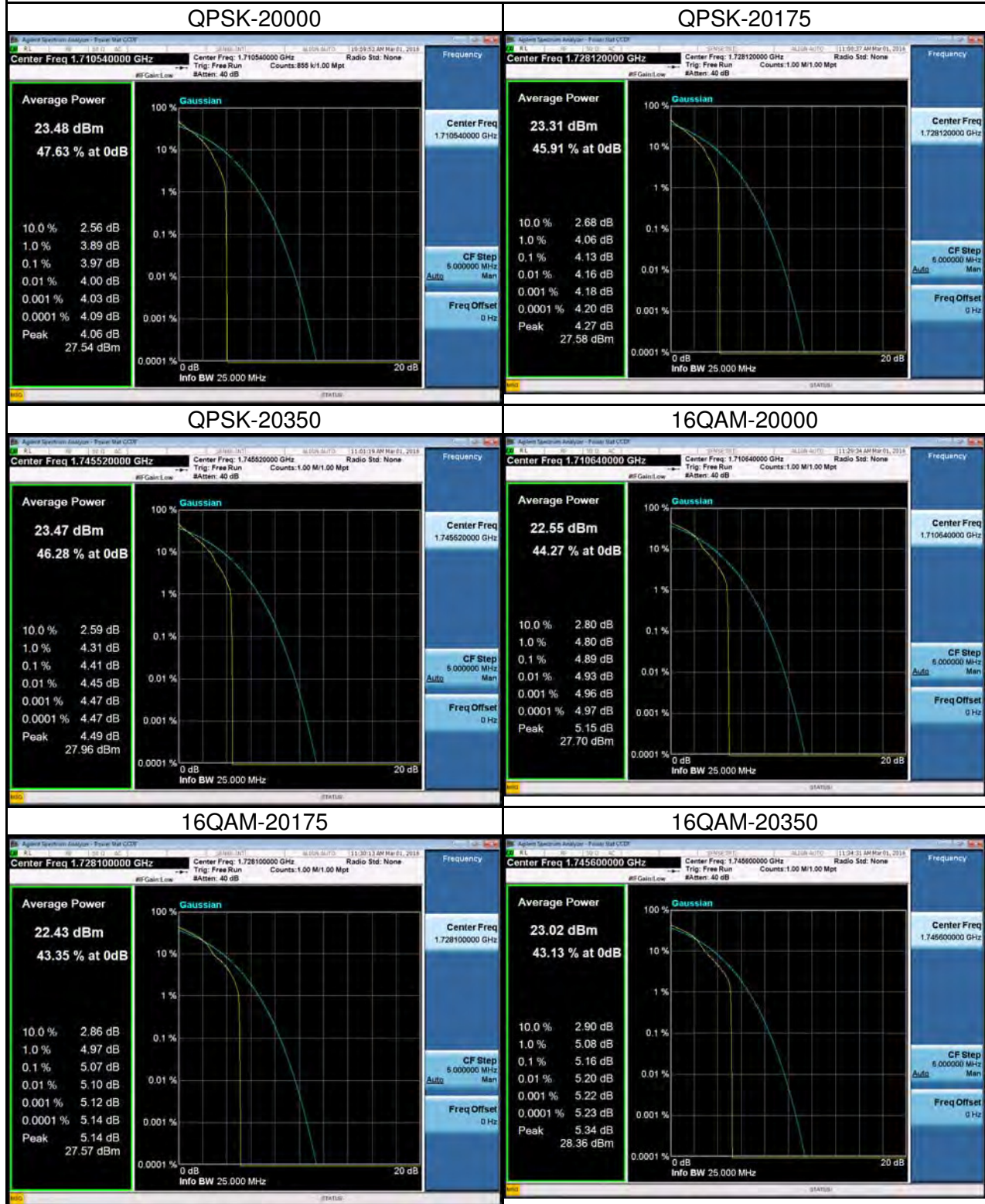




### LTE Band IV Spectrum Plot\_5M

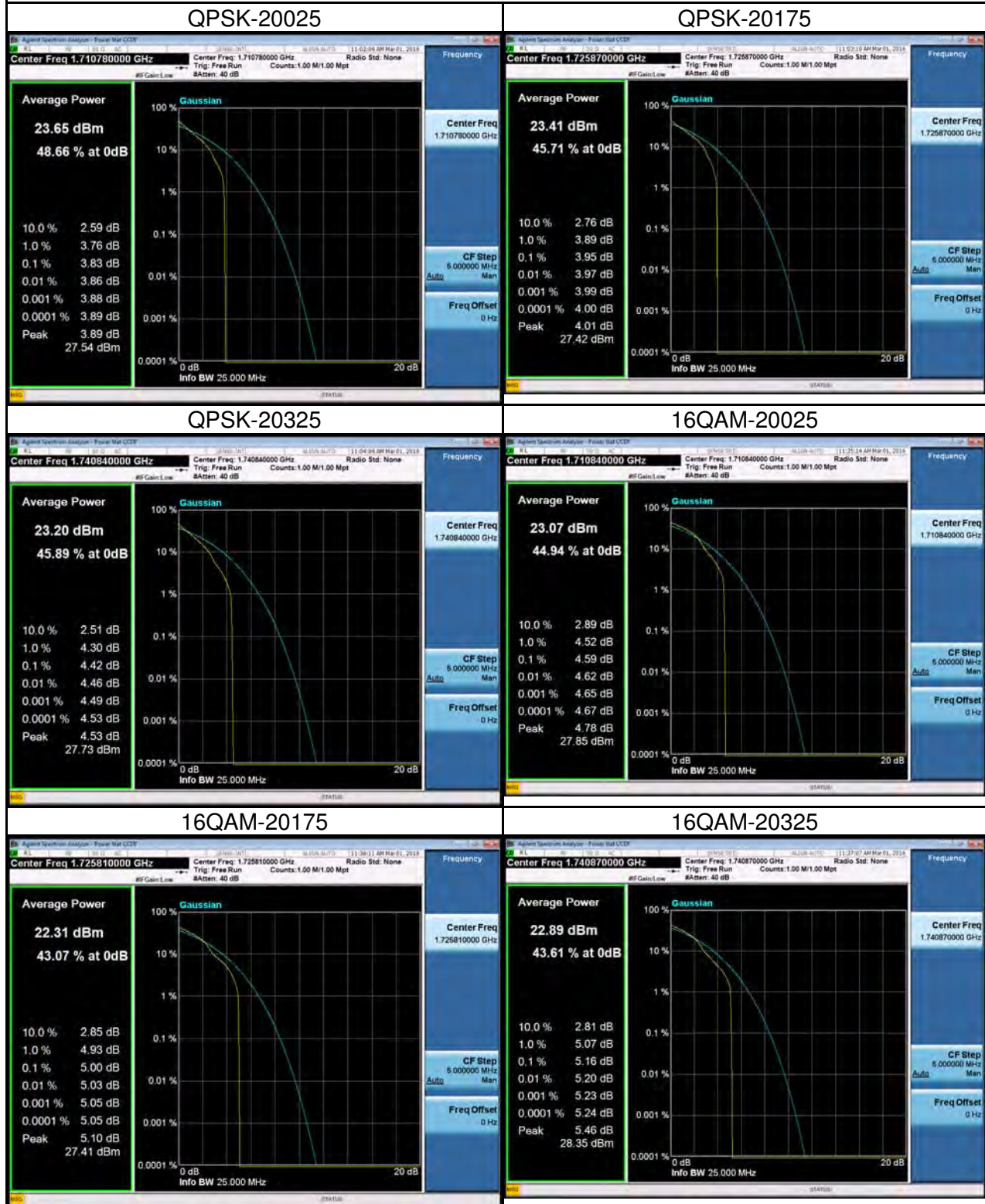


### LTE Band IV Spectrum Plot\_10M

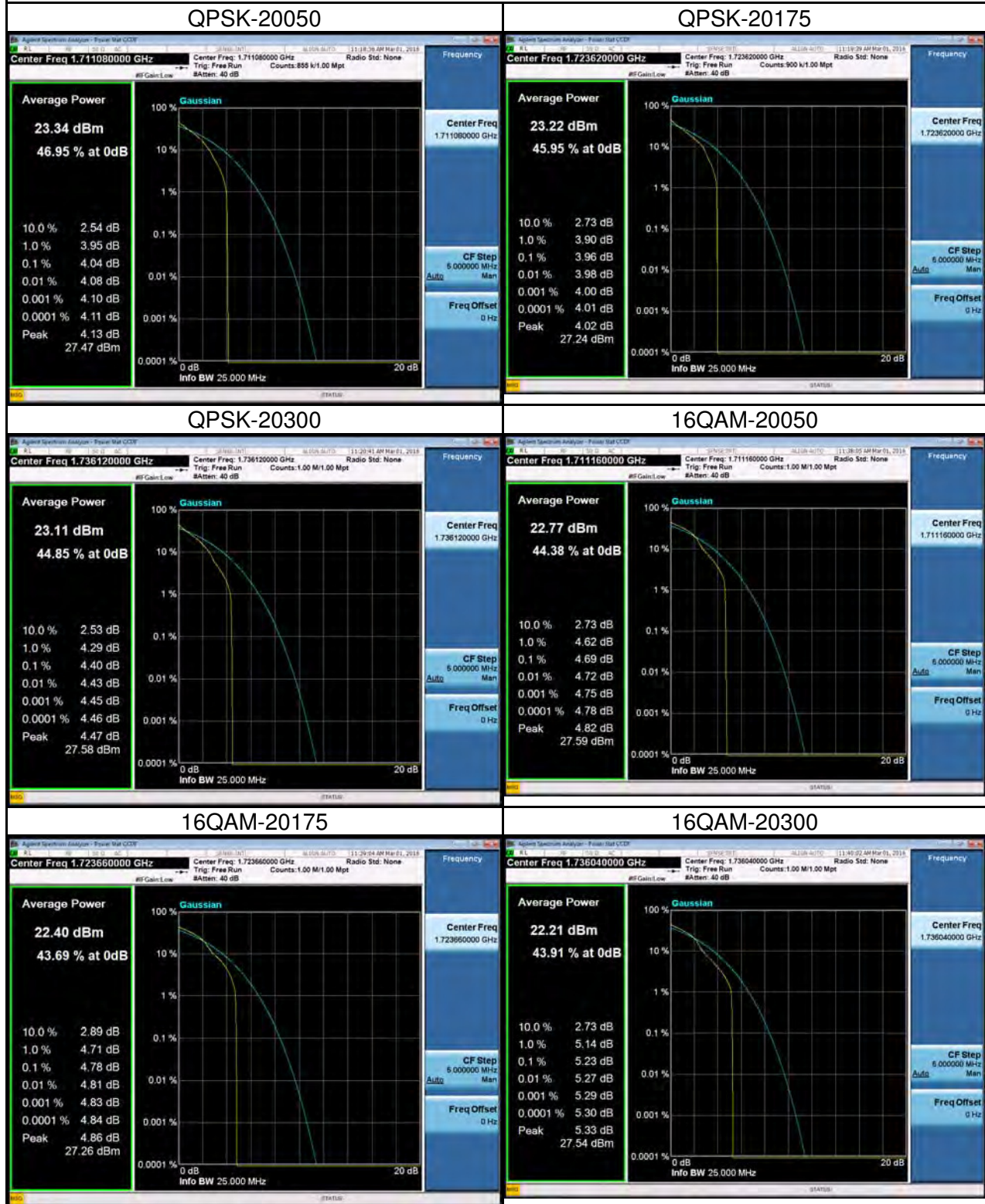




### LTE Band IV Spectrum Plot\_15M

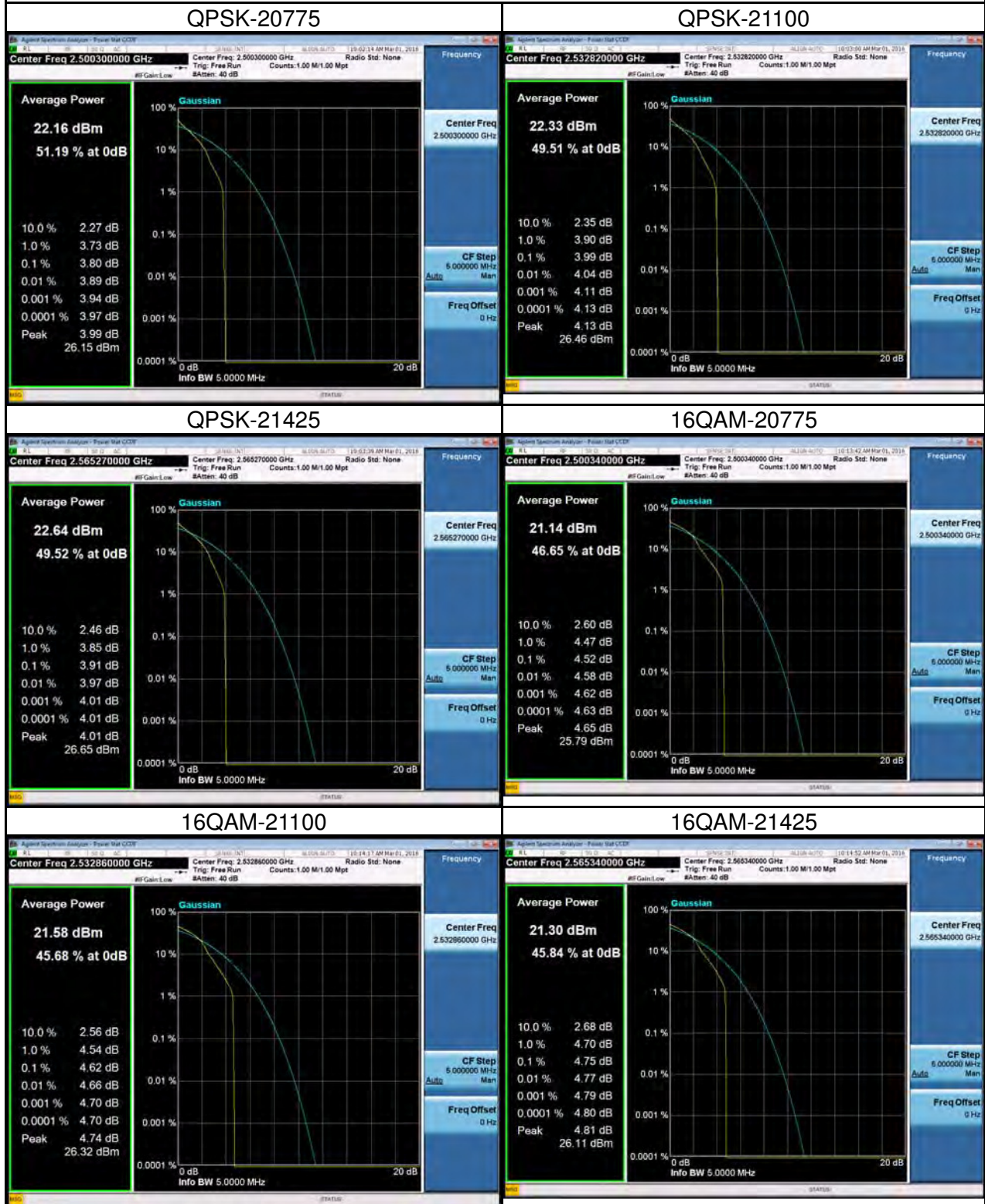


### LTE Band IV Spectrum Plot\_20M





### LTE Band VII Spectrum Plot\_5M

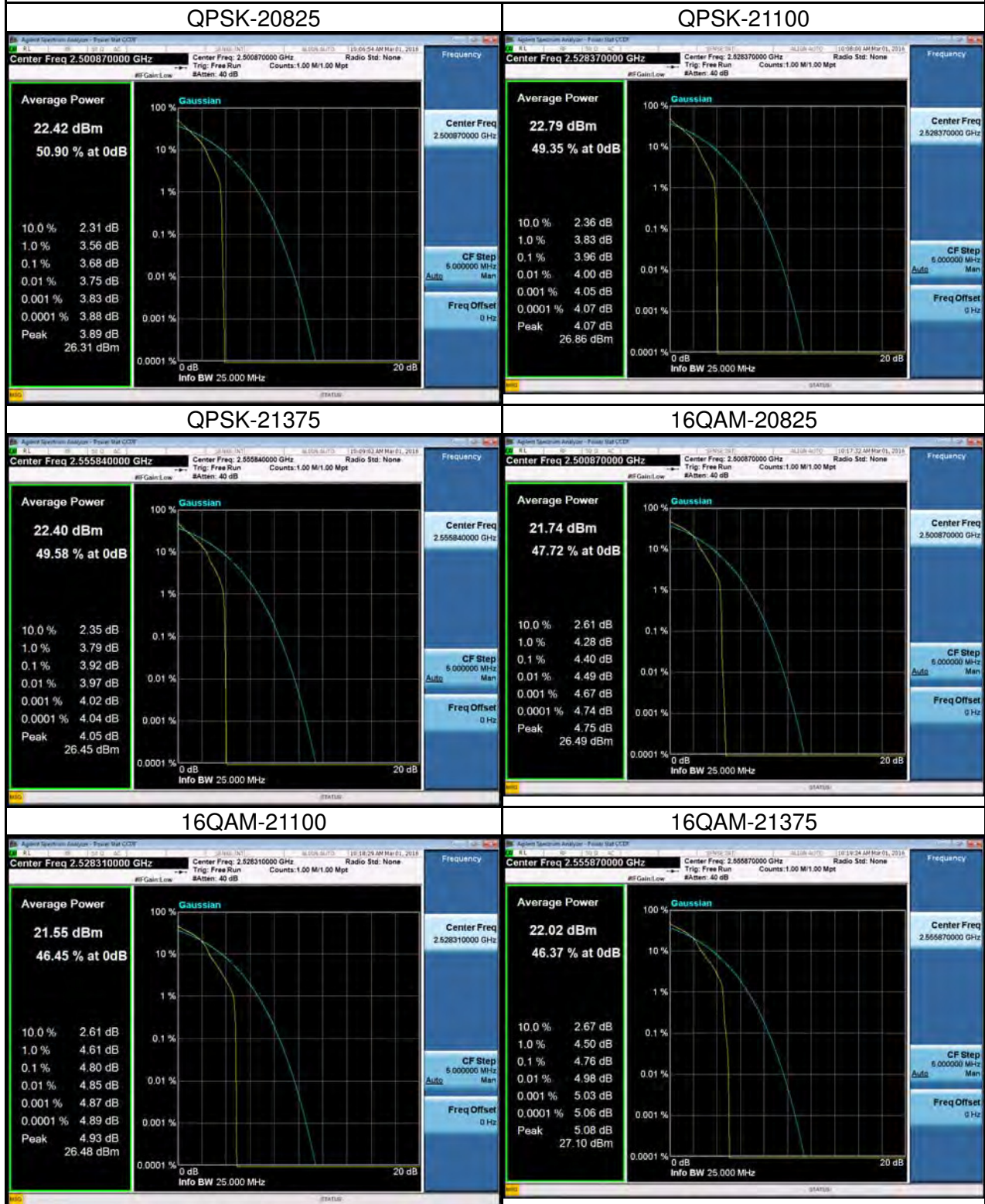


### LTE Band VII Spectrum Plot\_10M

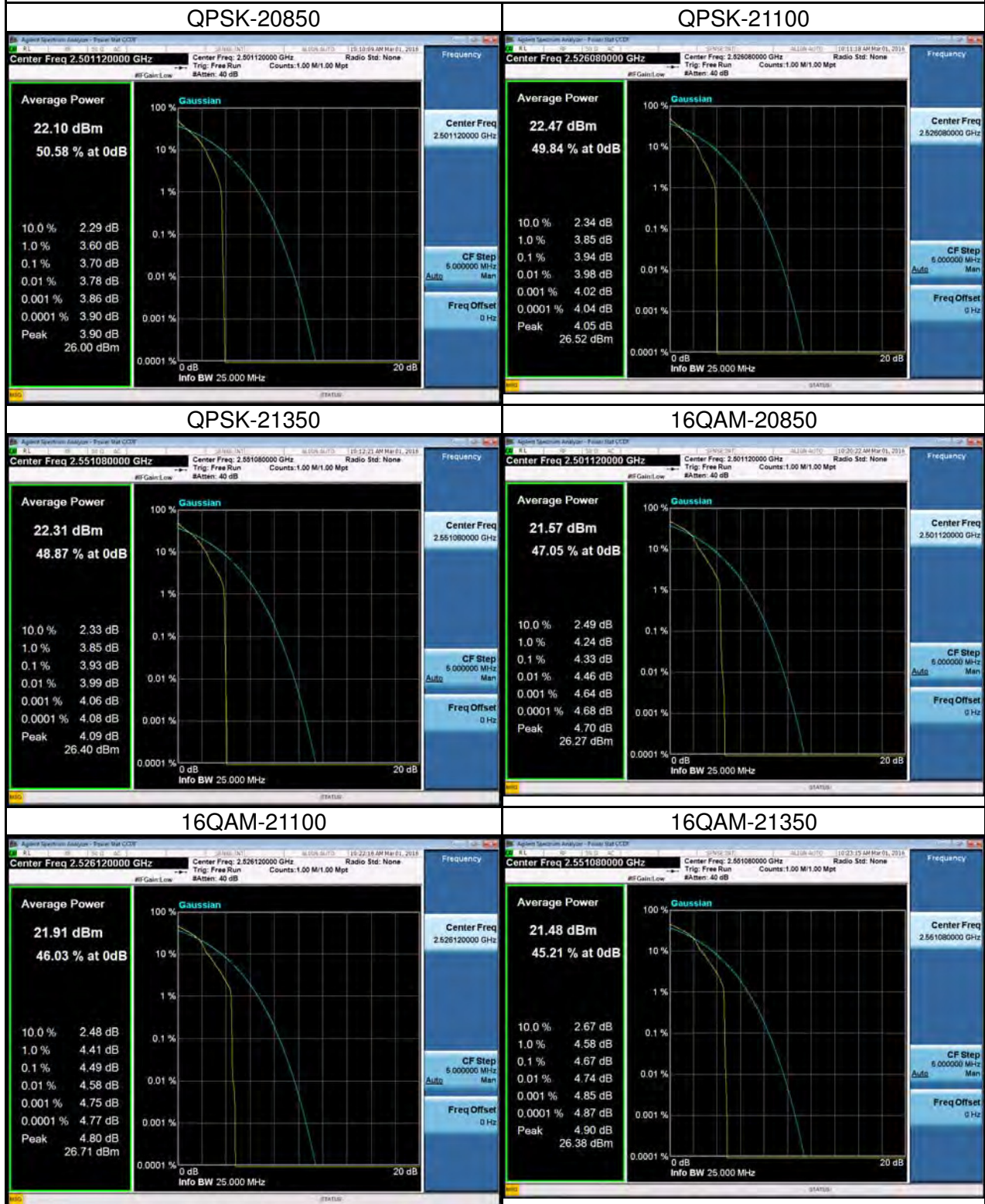




### LTE Band VII Spectrum Plot\_15M



### LTE Band VII Spectrum Plot\_20M



## ATTACHMENT G - FREQUENCY STABILITY

Test Mode:	LTE Band IV_CH20175_1.4M
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### Temperature vs. Frequency Stability

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
-30	4.25	0.002453102	2.5
-20	3.26	0.001881674	2.5
-10	-2.52	0.001454545	2.5
0	2.65	0.001529582	2.5
10	5.21	0.003007215	2.5
20	-2.11	0.001217893	2.5
30	3.54	0.002043290	2.5
40	4.71	0.002718615	2.5
50	-1.64	0.000946609	2.5
Max. Deviation (ppm)	<b>5.21</b>	<b>0.003007215</b>	2.5

### Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
3.8	4.54	0.002620491	2.5
3.5	4.47	0.002580087	2.5
4.35	2.59	0.001494949	2.5
Max. Deviation (ppm)	<b>4.54</b>	<b>0.002620491</b>	2.5



Test Mode:	LTE Band IV_CH20175_3M
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### Temperature vs. Frequency Stability

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
-30	1.71	0.000987013	2.5
-20	-2.38	0.001373737	2.5
-10	-3.42	0.001974026	2.5
0	-2.85	0.001645022	2.5
10	-1.46	0.000842713	2.5
20	-2.91	0.001679654	2.5
30	3.61	0.002083694	2.5
40	-1.43	0.000825397	2.5
50	4.56	0.002632035	2.5
Max. Deviation (ppm)	<b>4.56</b>	<b>0.002632035</b>	2.5

### Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
3.8	3.21	0.001852814	2.5
3.5	5.56	0.003209235	2.5
4.35	3.65	0.002106782	2.5
Max. Deviation (ppm)	<b>5.56</b>	<b>0.003209235</b>	2.5

Test Mode:	LTE Band IV_CH20175_5M
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### Temperature vs. Frequency Stability

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
-30	2.42	0.001396825	2.5
-20	-1.43	0.000825397	2.5
-10	7.15	0.004126984	2.5
0	-2.24	0.001292929	2.5
10	-3.51	0.002025974	2.5
20	-1.43	0.000825397	2.5
30	-2.48	0.001431457	2.5
40	-5.77	0.003330447	2.5
50	4.78	0.002759019	2.5
Max. Deviation (ppm)	<b>7.15</b>	<b>0.004126984</b>	2.5

### Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
3.8	2.23	0.001287157	2.5
3.5	-1.84	0.001062049	2.5
4.35	5.19	0.002995671	2.5
Max. Deviation (ppm)	<b>5.19</b>	<b>0.002995671</b>	2.5

Test Mode:	LTE Band IV_CH20175_10M
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### Temperature vs. Frequency Stability

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
-30	3.61	0.002083694	2.5
-20	-4.26	0.002458874	2.5
-10	-1.45	0.000836941	2.5
0	-2.61	0.001506494	2.5
10	1.42	0.000819625	2.5
20	-2.43	0.001402597	2.5
30	-4.17	0.002406926	2.5
40	-2.24	0.001292929	2.5
50	4.49	0.002591631	2.5
Max. Deviation (ppm)	<b>4.49</b>	<b>0.002591631</b>	2.5

### Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
3.8	-2.51	0.001448773	2.5
3.5	3.73	0.002152958	2.5
4.35	2.54	0.001466089	2.5
Max. Deviation (ppm)	3.73	<b>0.002152958</b>	2.5

Test Mode:	LTE Band IV_CH20175_15M
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### Temperature vs. Frequency Stability

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
-30	2.54	0.001466089	2.5
-20	3.72	0.002147186	2.5
-10	-1.51	0.000871573	2.5
0	2.25	0.001298701	2.5
10	-3.57	0.002060606	2.5
20	3.22	0.001858586	2.5
30	-2.84	0.001639250	2.5
40	6.17	0.003561328	2.5
50	-2.62	0.001512266	2.5
Max. Deviation (ppm)	<b>6.17</b>	<b>0.003561328</b>	2.5

### Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
3.8	-2.58	0.001489177	2.5
3.5	0.71	0.000409812	2.5
4.35	-3.54	0.002043290	2.5
Max. Deviation (ppm)	3.54	<b>0.002043290</b>	2.5

Test Mode:	LTE Band IV_CH20175_20M
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### Temperature vs. Frequency Stability

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
-30	-1.94	0.001119769	2.5
-20	2.29	0.001321789	2.5
-10	3.51	0.002025974	2.5
0	-2.21	0.001275613	2.5
10	-3.52	0.002031746	2.5
20	2.45	0.001414141	2.5
30	2.24	0.001292929	2.5
40	-4.42	0.002551227	2.5
50	4.29	0.002476190	2.5
Max. Deviation (ppm)	<b>4.42</b>	<b>0.002551227</b>	2.5

### Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
3.8	4.36	0.002516595	2.5
3.5	-3.46	0.001997114	2.5
4.35	2.51	0.001448773	2.5
Max. Deviation (ppm)	4.36	<b>0.002516595</b>	2.5

Test Mode:	LTE Band VII_CH21100_5M
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### Temperature vs. Frequency Stability

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
-30	-4.41	0.001739645	2.5
-20	1.15	0.000453649	2.5
-10	2.54	0.001001972	2.5
0	-1.56	0.000615385	2.5
10	5.34	0.002106509	2.5
20	-2.54	0.001001972	2.5
30	-0.51	0.000201183	2.5
40	2.72	0.001072978	2.5
50	4.57	0.001802761	2.5
Max. Deviation (ppm)	<b>5.34</b>	<b>0.002106509</b>	2.5

### Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
3.8	-1.45	0.000571992	2.5
3.5	-4.42	0.001743590	2.5
4.35	3.52	0.001388560	2.5
Max. Deviation (ppm)	<b>4.42</b>	<b>0.001743590</b>	2.5

Test Mode:	LTE Band VII_CH21100_10M
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### Temperature vs. Frequency Stability

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
-30	2.25	0.000887574	2.5
-20	-4.34	0.001712032	2.5
-10	-2.35	0.000927022	2.5
0	-1.55	0.000611440	2.5
10	-5.52	0.002177515	2.5
20	1.12	0.000441815	2.5
30	2.21	0.000871795	2.5
40	1.32	0.000520710	2.5
50	-2.21	0.000871795	2.5
Max. Deviation (ppm)	<b>2.25</b>	<b>0.002177515</b>	2.5

### Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
3.8	-4.62	0.001822485	2.5
3.5	-3.42	0.001349112	2.5
4.35	3.75	0.001479290	2.5
Max. Deviation (ppm)	<b>4.62</b>	<b>0.001822485</b>	2.5

Test Mode:	LTE Band VII_CH21100_15M
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### Temperature vs. Frequency Stability

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
-30	-5.43	0.002142012	2.5
-20	3.51	0.001384615	2.5
-10	-2.71	0.001069034	2.5
0	2.62	0.001033531	2.5
10	-1.24	0.000489152	2.5
20	4.26	0.001680473	2.5
30	3.12	0.001230769	2.5
40	3.27	0.001289941	2.5
50	3.51	0.001384615	2.5
Max. Deviation (ppm)	<b>5.43</b>	<b>0.002142012</b>	2.5

### Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
3.8	-5.39	0.002126233	2.5
3.5	1.03	0.000406312	2.5
4.35	0.95	0.000374753	2.5
Max. Deviation (ppm)	<b>5.39</b>	<b>0.002126233</b>	2.5



Test Mode:	LTE Band VII_CH21100_20M
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### Temperature vs. Frequency Stability

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
-30	-1.25	0.000493097	2.5
-20	-2.63	0.001037475	2.5
-10	-3.55	0.001400394	2.5
0	-1.53	0.000603550	2.5
10	-3.94	0.001554241	2.5
20	2.51	0.000990138	2.5
30	-4.34	0.001712032	2.5
40	-2.42	0.000954635	2.5
50	6.25	0.002465483	2.5
Max. Deviation (ppm)	<b>6.25</b>	<b>0.002465483</b>	2.5

### Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
3.8	-5.84	0.002303748	2.5
3.5	3.62	0.001428008	2.5
4.35	-2.21	0.000871795	2.5
Max. Deviation (ppm)	<b>5.84</b>	<b>0.002303748</b>	2.5