

# FCC Radio Test Report

## FCC ID: R9C-CPH1941

This report concerns: Original Grant

**Project No.** : 1909C106  
**Equipment** : Mobile Phone  
**Brand Name** : OPPO  
**Test Model** : CPH1941  
**Series Model** : N/A  
**Applicant** : Guangdong Oppo Mobile Telecommunications Corp., Ltd.  
**Address** : NO. 18 HaiBin Road, WuSha village, Chang An Town, DongGuan City,Guangdong,China.  
**Manufacturer** : Guangdong Oppo Mobile Telecommunications Corp., Ltd.  
**Address** : NO. 18 HaiBin Road, WuSha village, Chang An Town, DongGuan City,Guangdong,China.  
**Factory** : Guangdong Oppo Mobile Telecommunications Corp., Ltd.  
**Address** : NO. 18 HaiBin Road, WuSha village, Chang An Town, DongGuan City,Guangdong,China.  
**Date of Receipt** : Sep. 19, 2019  
**Date of Test** : Sep. 19, 2019 ~ Oct. 21, 2019  
**Issued Date** : Oct. 24, 2019  
**Report Version** : R00  
**Test Sample** : Engineering Sample No.: DG2019091936 for conducted, DG20190920152 for radiated.  
**Standard(s)** : 47 CFR FCC Part 90 Subpart S  
47 CFR FCC Part 2  
ANSI/TIA/EIA-603-E-2016  
FCC KDB 971168 D01 Power Meas License Digital Systems v03r01

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

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**BTL's** reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **BTL** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **BTL** issued reports.

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The information, data and test plan are provided by manufacturer which may affect the validity of results, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements of applied standards and in all the possible configurations as representative of its intended use.

**Limitation**

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.

Please note that the measurement uncertainty is provided for informational purpose only and is not use in determining the Pass/Fail results.

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**REPORT ISSUED HISTORY**

Report Version	Description	Issued Date
R00	Original Issue.	Oct. 24, 2019

## 1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

<b>FCC Part 90 Subpart S &amp; Part 2</b>			
<b>Standard(s) Section</b>	<b>Test Item</b>	<b>Judgment</b>	<b>Remark</b>
2.1046 & 90.635 (b)	Effective Radiated Power	PASS	-----
2.1049 & 90.209	Occupied Bandwidth	PASS	-----
2.1053 & 90.669	Conducted Spurious Emissions	PASS	-----
2.1053 & 90.669	Radiated Spurious Emissions	PASS	-----
2.1053 & 90.691	Mask Measurements	PASS	-----
-	Peak To Average Ratio	PASS	Record Only
2.1055 & 90.213	Frequency Stability	PASS	-----

Note:

(1) "N/A" denotes test is not applicable in this test report.

### 1.1 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 Registration Number for FCC: 357015

BTL's Designation Number for FCC: CN1240

### 1.2 MEASUREMENT UNCERTAINTY

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

The BTL measurement uncertainty as below table:

#### 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	4.88
		30MHz ~ 200MHz	H	4.14
		200MHz ~ 1,000MHz	V	4.62
		200MHz ~ 1,000MHz	H	4.80

Test Site	Method	Measurement Frequency Range	U,(dB)
DG-CB03 (3m)	CISPR	1GHz ~ 6GHz	4.58
		6GHz ~ 18GHz	5.18

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

### 1.3 TEST ENVIRONMENT CONDITIONS

Test Item	Temperature	Humidity	Test Voltage	Tested By
Output Power & ERP	23.4°C	41.5%	DC 3.87V	Vegeta Li
Occupied Bandwidth	23.4°C	41.5%	DC 3.87V	Vegeta Li
Conducted Spurious Emissions	23.4°C	41.5%	DC 3.87V	Vegeta Li
Radiated Spurious Emissions	24°C	68%	AC 120V/60Hz	Berton Luo
Mask	23.4°C	41.5%	DC 3.87V	Vegeta Li
Peak to Average Ratio	23.4°C	41.5%	DC 3.87V	Vegeta Li
Frequency Stability	Normal and Extreme			Vegeta Li

## 2. GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF EUT

Equipment	Mobile Phone			
Brand Name	OPPO			
Test Model	CPH1941			
Series Model	N/A			
Model Difference(s)	N/A			
Hardware Version	11			
Software Version	ColorOS V6.0.1			
Firmware Version	TBD			
Power Source	1. DC Voltage supplied from AC/DC adapter. 1# Model: OP52KAUH 2# Model: OP52JAUH 3# Model: OP52YAUH 2. Supplied from Li-ion Polymer battery. 1# Factory / Model: NVT / BLP727 (NA-P727-92) 2# Factory / Model: Desay / BLP727 (DA-P727-923) 3# Factory / Model: Sunwoda / BLP727 (XA-P727-922) 4# Factory / Model: Desay / BLP727 (DD-P727-918) 5# Factory / Model: Desay / BLP727 (DA-P727-931) 3. Supplied from USB port.			
Power Rating	1. I/P:100-240V~ 50/60Hz 0.4A O/P:5V --- 2A 2. 3.87Vdc, 5000mAh/19.35Wh 3. DC 5V			
IEMI No.	Radiated	868467040020432		
	Conducted	868467040020648		
Modulation Type	LTE	UL: QPSK, 16QAM, 64QAM DL: QPSK, 16QAM, 64QAM		
Max. ERP	LTE Band 26 (Channel Bandwidth: 1.4MHz)	QPSK	22.30	dBm
		16QAM	21.75	dBm
		64QAM	20.89	dBm
	LTE Band 26 (Channel Bandwidth: 3MHz)	QPSK	22.36	dBm
		16QAM	21.79	dBm
		64QAM	20.94	dBm
	LTE Band 26 (Channel Bandwidth: 5MHz)	QPSK	22.51	dBm
		16QAM	21.95	dBm
		64QAM	20.92	dBm
	LTE Band 26 (Channel Bandwidth: 10MHz)	QPSK	22.30	dBm
		16QAM	21.78	dBm
		64QAM	20.81	dBm

Note:

- For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.



## 2. Channel List:

LTE Band 26					
Test Frequency ID	Bandwidth (MHz)	N <sub>UL</sub>	Frequency of Uplink (MHz)	N <sub>DL</sub>	Frequency of Downlink (MHz)
Low Range	1.4	26697	814.7	8697	859.7
	3	26705	815.5	8705	860.5
	5	26715	816.5	8715	861.5
Mid Range	1.4/3/5/10	26740	819	8740	864
High Range	1.4	26783	823.3	8783	868.3
	3	26775	822.5	8775	867.5
	5	26765	821.5	8765	866.5

## 3. Table for Filed Antenna:

## Main Antenna

Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Note
N/A	N/A	Internal	N/A	0.5	LTE Band 26

## Second Antenna

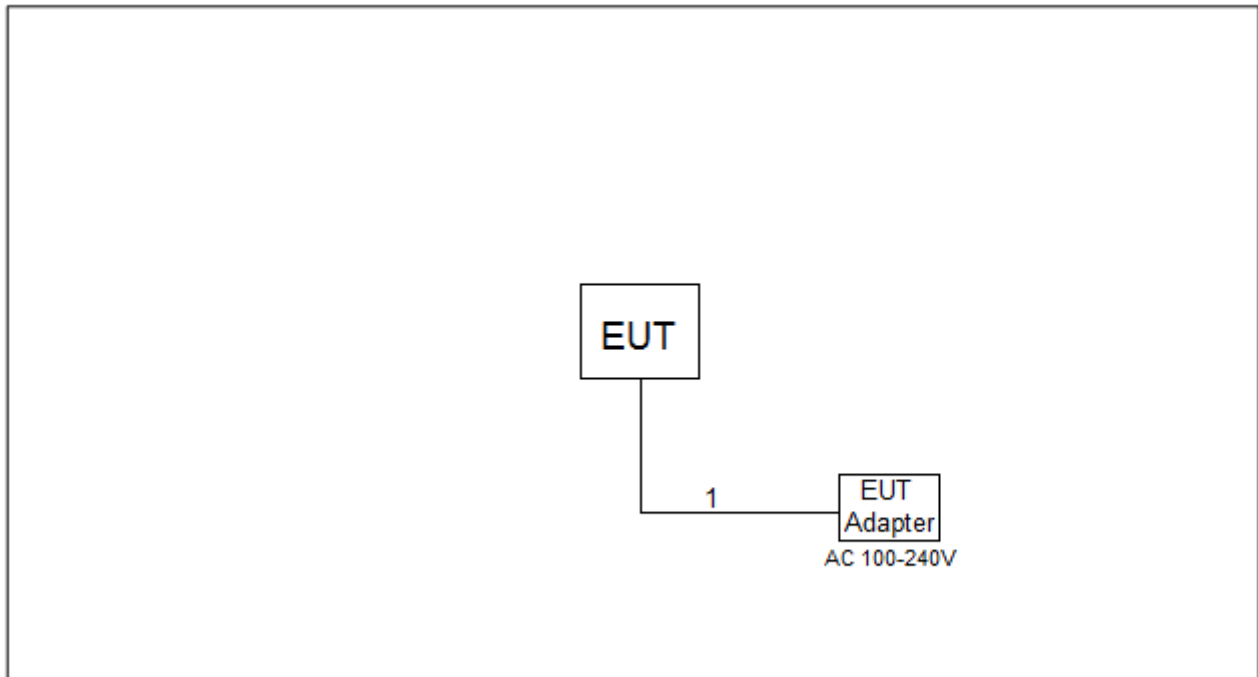
Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Note
N/A	N/A	Internal	N/A	0.5	LTE Band 26

## 2.2 DESCRIPTION OF TEST MODES

Following mode(s) is (were) found to be the worst case(s) and selected for the final test.

LTE BAND 26 MODE					
Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
Output Power & ERP	26697 to 26783	26697, 26740, 26783	1.4MHz	QPSK, 16QAM, 64QAM	1RB/3RB/6RB
	26705 to 26775	26705, 26740, 26775	3MHz	QPSK, 16QAM, 64QAM	1RB/8RB/15RB
	26715 to 26765	26715, 26740, 26765	5MHz	QPSK, 16QAM, 64QAM	1RB/12RB/25RB
	26740	26740	10MHz	QPSK, 16QAM, 64QAM	1RB/25RB/50RB
Occupied Bandwidth	26697 to 26783	26697, 26740, 26783	1.4MHz	QPSK, 16QAM, 64QAM	6RB
	26705 to 26775	26705, 26740, 26775	3MHz	QPSK, 16QAM, 64QAM	15RB
	26715 to 26765	26715, 26740, 26765	5MHz	QPSK, 16QAM, 64QAM	25RB
	26740	26740	10MHz	QPSK, 16QAM, 64QAM	1RB/25RB/50RB
Conducted Spurious Emissions	26697 to 26783	26740	1.4MHz	QPSK	1RB
	26705 to 26775	26740	5MHz	QPSK	1RB
	26715 to 26765	26740	10MHz	QPSK	1RB
Radiated Spurious Emissions	26697 to 26783	26740	1.4MHz	QPSK	1RB
	26705 to 26775	26740	5MHz	QPSK	1RB
	26715 to 26765	26740	10MHz	QPSK	1RB
Mask	26697 to 26783	26697, 26783	1.4MHz	QPSK	1RB 6RB
	26705 to 26775	26705, 26775	3MHz	QPSK	1RB 15RB
	26715 to 26765	26715, 26765	5MHz	QPSK	1RB 25RB
	26740	26740	10MHz	QPSK	1RB
					50RB
Peak To Average Ratio	26697 to 26783	26697, 26740, 26783	1.4MHz	QPSK, 16QAM, 64QAM	1RB
	26705 to 26775	26705, 26740, 26775	3MHz	QPSK, 16QAM, 64QAM	1RB
	26715 to 26765	26715, 26740, 26765	5MHz	QPSK, 16QAM, 64QAM	1RB
	26740	26740	10MHz	QPSK, 16QAM, 64QAM	1RB
Frequency Stability	26697 to 26783	26740	1.4MHz	QPSK	1RB
	26705 to 26775	26740	3MHz	QPSK	1RB
	26715 to 26765	26740	5MHz	QPSK	1RB
	26740	26740	10MHz	QPSK	1RB

### 2.3 BLOCK DIGRAM 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.	Series No.
-	-	-	-	-

Item	Cable Type	Shielded Type	Ferrite Core	Length
1	DC Cable	NO	NO	1m

### 3. TEST RESULT

#### 3.1 OUTPUT POWER MEASUREMENT

##### 3.1.1 LIMIT

Mobile / Portable station are limited to 100 watts e.r.p.

##### 3.1.2 TEST PROCEDURE

The testing follows FCC KDB 971168 v03r01 Section 5.0.

##### ERP:

$EIRP = \text{Output Power} + \text{Antenan gain}$

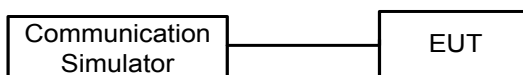
$ERP = EIPR - 2.15\text{dBi}$ .

##### Output 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.

##### 3.1.3 TESTSETUP LAYOUT

###### Output Power Measurement



##### 3.1.4 TEST DEVIATION

No deviation

##### 3.1.5 TEST RESULTS

Please refer to the APPENDIX A.

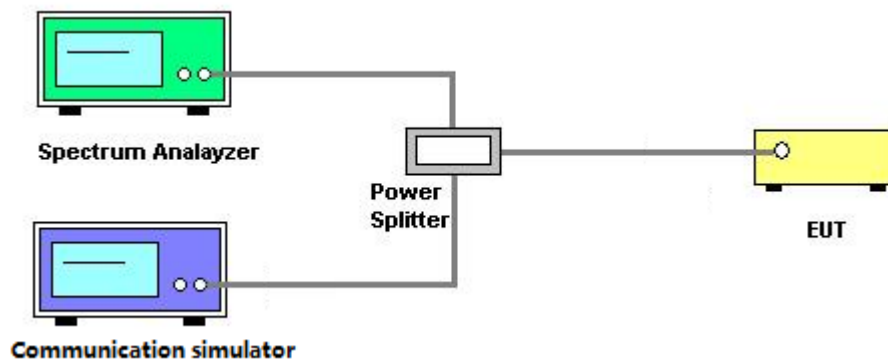
## 3.2 OCCUPIED BANDWIDTH MEASUREMENT

### 3.2.1 TEST PROCEDURE

The testing follows FCC KDB 971168 v03r01 Section 4.0.

1. 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.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3.  $RBW = (1\% \sim 5\%) * EBW$   
 $VBW \geq 3 * RBW$
4. Set spectrum analyzer with RMS detector.

### 3.2.2 TEST SETUP LAYOUT



### 3.2.3 TEST DEVIATION

No deviation

### 3.2.4 TEST RESULTS

Please refer to the APPENDIX B.

### 3.3 CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

#### 3.3.1 LIMIT

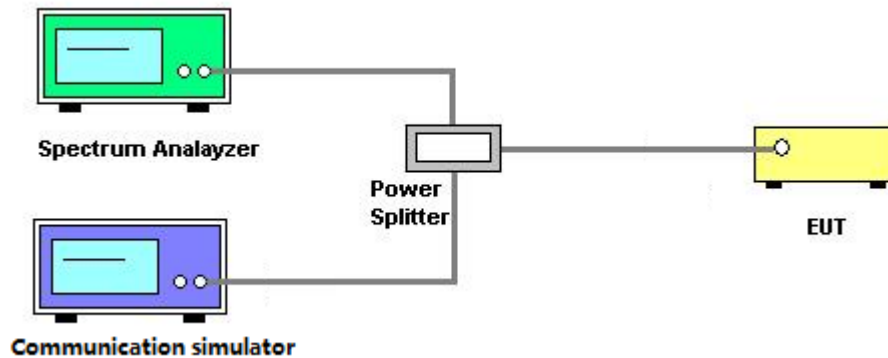
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. The emission limit equal to -13dBm.

#### 3.3.2 TEST PROCEDURES

The testing follows FCC KDB 971168 v03r01 Section 6.0.

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. 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.
3. Set spectrum analyzer with RMS detector.
4. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

#### 3.3.3 TESTSETUP LAYOUT



#### 3.3.4 TESTDEVIATION

No deviation

#### 3.3.5 TEST RESULTS

Please refer to the APPENDIX C.

### **3.4 RADIATED SPURIOUS EMISSIONS MEASUREMENT**

#### **3.4.1 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.

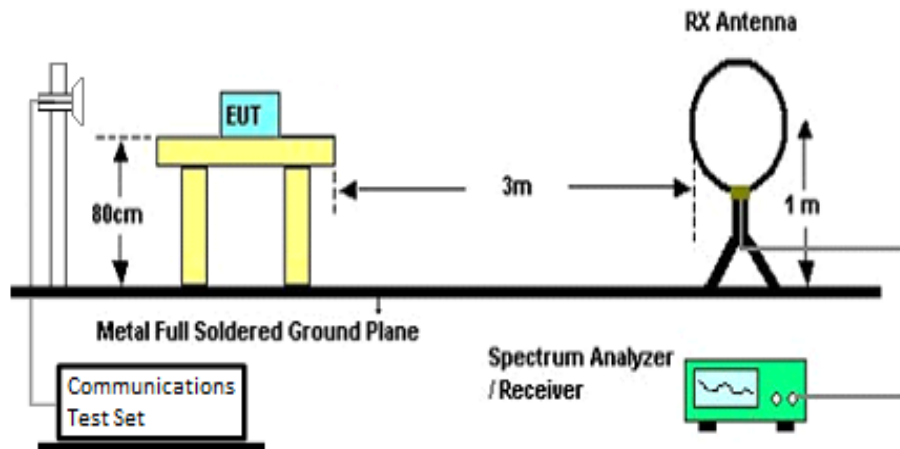
#### **3.4.2 TEST PROCEDURES**

The testing follows FCC KDB 971168 v03r01 Section 5.8.

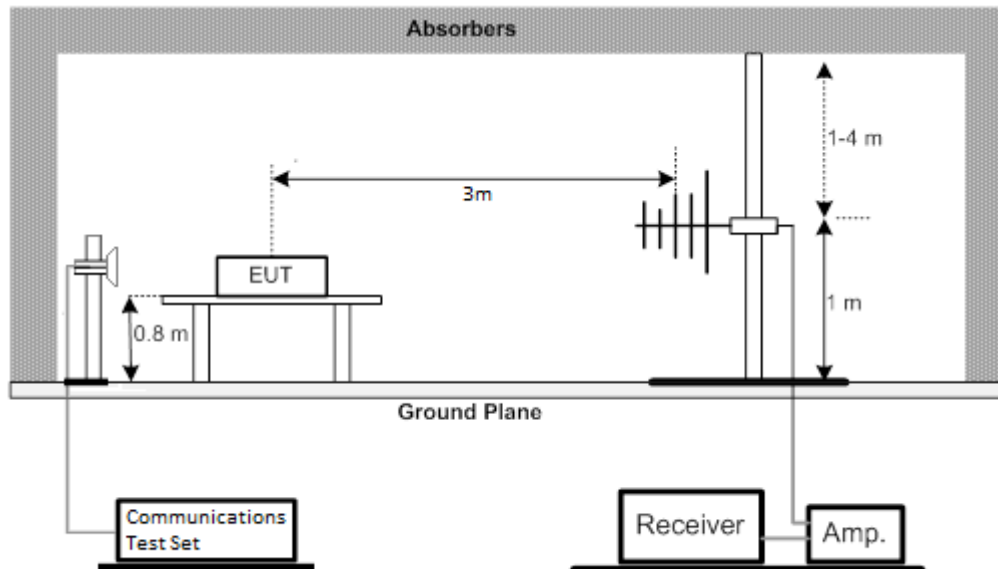
1. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. 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.  $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$ .
4. ERP can be calculated form EIRP by subtracting the gain of dipole,  $ERP = EIPR - 2.15\text{dBi}$ .
5. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

### 3.4.3 TEST SETUP LAYOUT

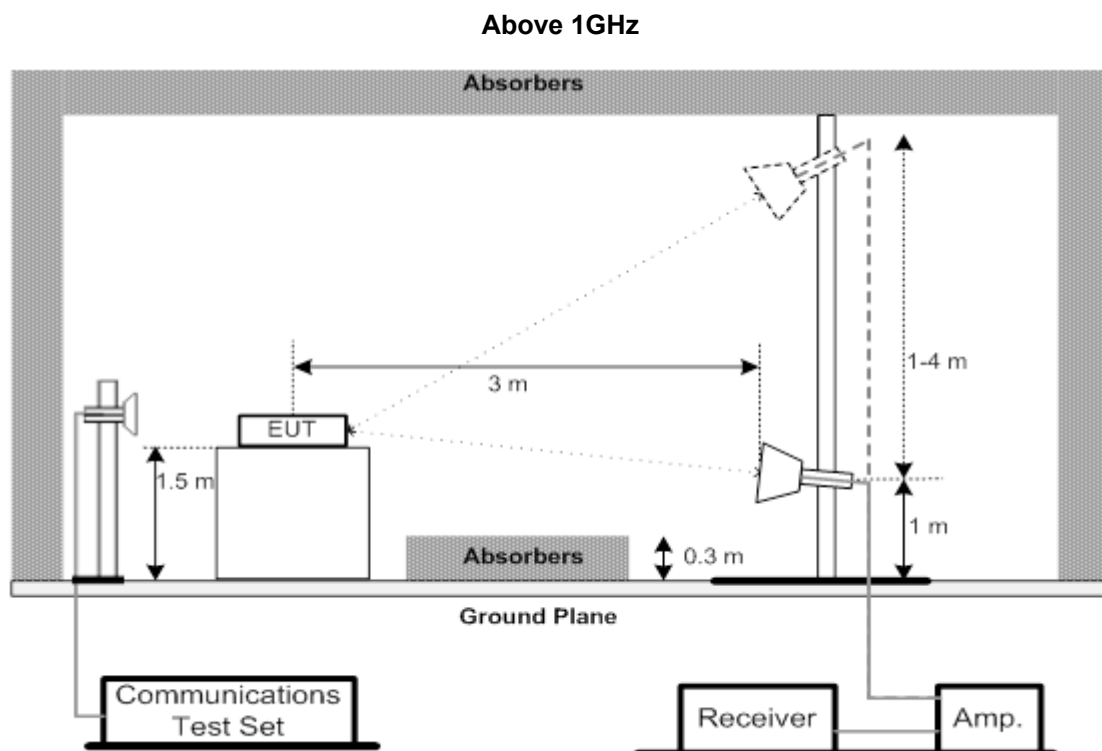
#### Below 30MHz



#### 30MHz to 1000MHz







#### 3.4.4 TESTDEVIATION

No deviation

#### 3.4.5 TEST RESULTS (9KHZ TO 30MHZ)

Please refer to the APPENDIX D.

#### 3.4.6 TEST RESULTS (30MHZ TO 1000MHZ)

Please refer to the APPENDIX E.

#### 3.4.7 TEST RESULTS (ABOVE 1000MHZ)

Please refer to the APPENDIX F.

### 3.5 MASK MEASUREMENTS

#### 3.5.1 LIMIT

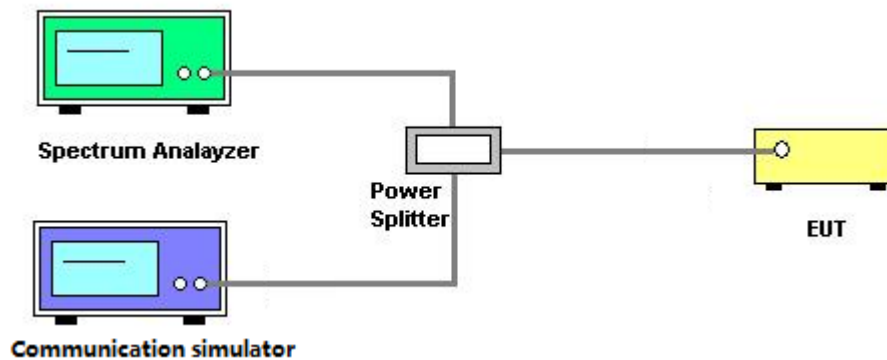
According to FCC part 90.691 shall be tested the emission mask. For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least  $116 \text{ Log}_{10}(f/6.1)$  decibels or  $50+10\text{Log}_{10}(P)$  decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz. For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least  $43 + 10\text{Log}_{10}(P)$  decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

#### 3.5.2 TEST PROCEDURES

The testing follows FCC KDB 971168 v03r01 Section 6.0.

1. All measurements were done at low and high operational frequency range.
2. Set RBW=1% of 26dBc bandwidth, VBW=3 X RBW, detector=RMS, Sweep time = Auto.
3. Record the max trace plot into the test report.

#### 3.5.3 TESTSETUP LAYOUT



#### 3.5.4 TESTDEVIATION

No deviation

#### 3.5.5 TEST RESULTS

Please refer to the APPENDIX G.

### 3.6 PEAK TO AVERAGE RATIO MEASUREMENT

#### 3.6.1 LIMIT

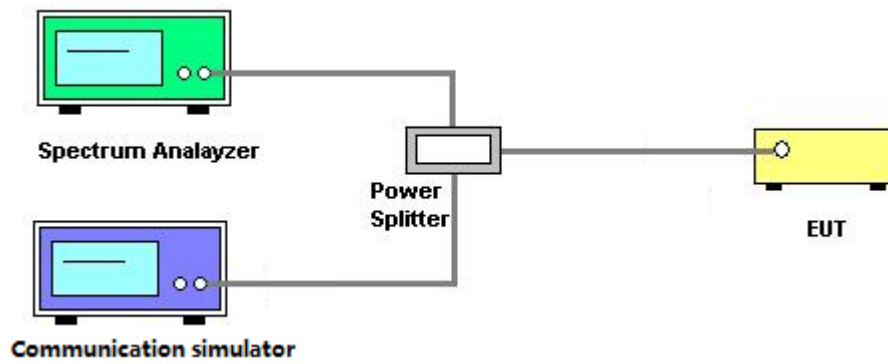
In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB.

#### 3.6.2 TEST PROCEDURES

The testing follows FCC KDB 971168 v03r01 Section 5.7.

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%.

#### 3.6.3 TEST SETUP LAYOUT



#### 3.6.4 TEST DEVIATION

No deviation

#### 3.6.5 TEST RESULTS

Please refer to the APPENDIX H.

### 3.7 FREQUENCY STABILITY MEASUREMENT

#### 3.7.1 LIMIT

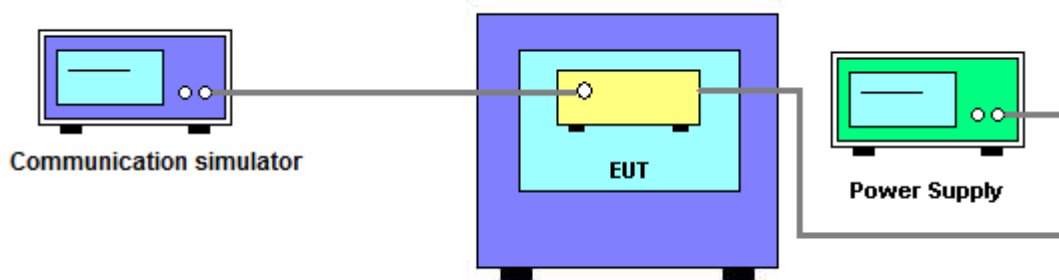
$\pm 1.5$  ppm is for base and fixed station.  $\pm 2.5$  ppm is for mobile station.

#### 3.7.2 TEST PROCEDURES

The testing follows FCC KDB 971168 v03r01 Section 9.0.

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.

#### 3.7.3 TESTSETUP LAYOUT



#### 3.7.4 TESTDEVIATION

No deviation

#### 3.7.5 TEST RESULTS

Please refer to the APPENDIX I.

## 5. LIST OF MEASUREMENT EQUIPMENTS

Radiated Spurious Emission Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Antenna	Schwarzbeck	VULB9160	9160-3232	Mar. 09, 2020
2	Amplifier	Agilent	8449B	3008A02274	Mar. 10, 2020
3	HighPass Filter	Wairwright Instruments Gmbh	WHK 1.5/15G-10ST	11	Mar. 10, 2020
4	Band Reject Filter	Wairwright Instruments Gmbh	WRCG 1710/1785-1690/1805-60/12SS	38	Mar. 10, 2020
5	Band Reject Filter	Wairwright Instruments Gmbh	WRCG 824/849-810/863-60/9SS	7	Mar. 10, 2020
6	Band Reject Filter	Wairwright Instruments Gmbh	WRCG 880/915-860/935-60/9SS	14	Mar. 10, 2020
7	Band Reject Filter	Wairwright Instruments Gmbh	WRCG 1850/1910-1830/1930-60/10SS	17	Mar. 10, 2020
8	HighPass Filter	Wairwright Instruments Gmbh	WHK3.1/18G-10SS	24	Mar. 10, 2020
9	Wireless Communication Test SET	Agilent	E5515C	MY48364183	Mar. 10, 2020
10	Microwave Preamplifier With Adaptor	EMC INSTRUMENT	EMC2654045	980039 & HA01	Mar. 10, 2020
11	Receiver	Agilent	N9038A	MY52130039	Aug. 03, 2020
12	wideband radio communication tester	R&S	CMW500	152372	Mar. 10, 2020
13	High pass filter	KANGMAIWEI	ZHPF-M3-12.75G-3869	B2015073763	Feb. 12, 2020
14	High pass filter	KANGMAIWEI	ZHPF-M1000-4000-1	B2015073762	Feb. 12, 2020
15	High pass filter	KANGMAIWEI	ZHPF-M6-186-1727	B2015073764	Feb. 12, 2020
16	Cable	emci	LMR-400(30MHz-1GHz)(8m+5m)	N/A	May. 24, 2020
17	Cable	mitron	B10-01-01-12M	18072744	Jun. 29, 2020
18	Controller	ETS-Lindgren	2090	N/A	N/A
19	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
20	Loop Antenna	EM	EM-6876-1	230	Jan. 15, 2020
21	Double Ridged Guide Antenna	ETS	3115	75789	Mar. 09, 2020
22	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Jun. 23, 2020

Conducted Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Wireless Communication Test SET	Agilent	E5515C	MY48364183	Mar. 10, 2020
2	EXA Spectrum Analyzer	Agilent	N9010A	MY50520044	Mar. 10, 2020
3	POWER SPLITTER	Mini-Circuits	ZFRSC-123-S+	331000910-1	Mar. 10, 2020
4	wideband radio communication tester	R&S	CMW500	152372	Mar. 10, 2020

Frequency Stability Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Wireless Communication Test SET	Agilent	E5515C	MY48364183	Mar. 10, 2020
2	Multi-output DC Power Supply	GW Instek	GPC-3030DN	EK880675	Sep. 26, 2020
3	POWER SPLITTER	Mini-Circuits	ZFRSC-123-S+	331000910-1	Mar. 10, 2020
4	wideband radio communication tester	R&S	CMW500	152372	Mar. 10, 2020
5	Const Temp,& Humidity Chamber	Bell	BTH-50C	20170306001	Mar. 10, 2020

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

## APPENDIX A - OUTPUT POWER

**Output Power (dBm):**

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				26697CH	26740CH	26783CH
				814.7MHz	819MHz	823.3MHz
26 / 1.4M	QPSK	1	0	23.85	23.94	23.83
		1	2	23.84	23.95	23.87
		1	5	23.79	23.88	23.86
		3	0	23.79	23.92	23.85
		3	1	23.82	23.91	23.86
		3	2	23.80	23.88	23.84
	6	0	23.07	23.11	23.08	
	16QAM	1	0	23.25	23.32	23.03
		1	2	23.36	23.40	23.08
		1	5	23.22	23.32	23.04
		3	0	22.99	23.13	22.93
		3	1	23.00	23.11	22.94
		3	2	23.01	23.09	22.93
	6	0	22.20	22.07	22.14	
	64QAM	1	0	21.96	22.31	22.43
		1	2	22.44	22.35	22.54
		1	5	22.37	22.29	22.41
		3	0	22.09	22.03	22.31
		3	1	22.15	22.11	22.36
		3	2	22.17	22.08	22.41
	6	0	21.40	21.25	21.07	

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				26705CH	26740CH	26775CH
				815.5MHz	819MHz	822.5MHz
26 / 3M	QPSK	1	0	20.03	23.89	23.97
		1	7	24.00	23.97	23.86
		1	14	24.01	23.98	19.89
		8	0	23.24	23.24	23.21
		8	4	23.23	23.22	23.23
		8	7	23.21	23.17	23.10
		15	0	23.27	23.20	23.25
	16QAM	1	0	19.61	23.09	23.43
		1	7	23.44	23.18	23.33
		1	14	23.36	23.15	19.04
		8	0	22.31	22.27	22.33
		8	4	22.32	22.32	22.31
		8	7	22.30	22.25	22.20
	15	0	22.23	22.19	22.34	
	64QAM	1	0	19.42	22.22	22.47
		1	7	22.59	22.41	22.41
		1	14	22.49	22.29	19.35
		8	0	21.31	21.24	21.23
		8	4	21.35	21.27	21.25
		8	7	21.29	21.22	21.11
		15	0	21.21	21.23	21.26



LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				26715CH	26740CH	26765CH
				816.5MHz	819MHz	821.5MHz
26 / 5M	QPSK	1	0	21.01	23.98	24.14
		1	13	24.12	24.12	24.16
		1	24	24.15	24.01	20.92
		12	0	23.30	23.23	23.29
		12	6	23.27	23.26	23.27
		12	11	23.26	23.23	23.26
		25	0	23.33	23.24	23.25
	16QAM	1	0	20.02	23.25	23.43
		1	13	23.60	23.42	23.42
		1	24	23.59	23.28	20.24
		12	0	22.43	22.31	22.34
		12	6	22.39	22.33	22.35
		12	11	22.38	22.31	22.34
		25	0	22.38	22.31	22.35
	64QAM	1	0	19.16	22.39	22.52
		1	13	22.24	22.57	22.57
		1	24	22.25	22.46	19.08
		12	0	21.31	21.19	21.35
		12	6	21.33	21.18	21.34
		12	11	21.37	21.14	21.31
		25	0	21.34	21.18	21.28

LTE Band / BW	Modulation	RB Size	RB Offset	Mid CH
				26740CH
				819MHz
26 / 10M	QPSK	1	0	23.90
		1	25	23.95
		1	49	23.77
		25	0	23.31
		25	13	23.29
		25	25	23.19
		50	0	23.22
	16QAM	1	0	23.40
		1	25	23.43
		1	49	23.21
		25	0	22.35
		25	13	22.33
		25	25	22.26
		50	0	22.29
	64QAM	1	0	22.43
		1	25	22.46
		1	49	22.25
		25	0	21.27
		25	13	21.24
		25	25	21.16
		50	0	21.19

**ERP (dBm):**

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				26697CH	26740CH	26783CH
				814.7MHz	819MHz	823.3MHz
26 / 1.4M	QPSK	1	0	22.20	22.29	22.18
		1	2	22.19	22.30	22.22
		1	5	22.14	22.23	22.21
		3	0	22.14	22.27	22.20
		3	1	22.17	22.26	22.21
		3	2	22.15	22.23	22.19
		6	0	21.42	21.46	21.43
	16QAM	1	0	21.60	21.67	21.38
		1	2	21.71	21.75	21.43
		1	5	21.57	21.67	21.39
		3	0	21.34	21.48	21.28
		3	1	21.35	21.46	21.29
		3	2	21.36	21.44	21.28
		6	0	20.55	20.42	20.49
	64QAM	1	0	20.31	20.66	20.78
		1	2	20.79	20.70	20.89
		1	5	20.72	20.64	20.76
		3	0	20.44	20.38	20.66
		3	1	20.50	20.46	20.71
		3	2	20.52	20.43	20.76
		6	0	19.75	19.60	19.42

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				26705CH	26740CH	26775CH
				815.5MHz	819MHz	822.5MHz
26 / 3M	QPSK	1	0	18.38	22.24	22.32
		1	7	22.35	22.32	22.21
		1	14	22.36	22.33	18.24
		8	0	21.59	21.59	21.56
		8	4	21.58	21.57	21.58
		8	7	21.56	21.52	21.45
		15	0	21.62	21.55	21.60
	16QAM	1	0	17.96	21.44	21.78
		1	7	21.79	21.53	21.68
		1	14	21.71	21.50	17.39
		8	0	20.66	20.62	20.68
		8	4	20.67	20.67	20.66
		8	7	20.65	20.60	20.55
		15	0	20.58	20.54	20.69
	64QAM	1	0	17.77	20.57	20.82
		1	7	20.94	20.76	20.76
		1	14	20.84	20.64	17.70
		8	0	19.66	19.59	19.58
		8	4	19.70	19.62	19.60
		8	7	19.64	19.57	19.46
		15	0	19.56	19.58	19.61

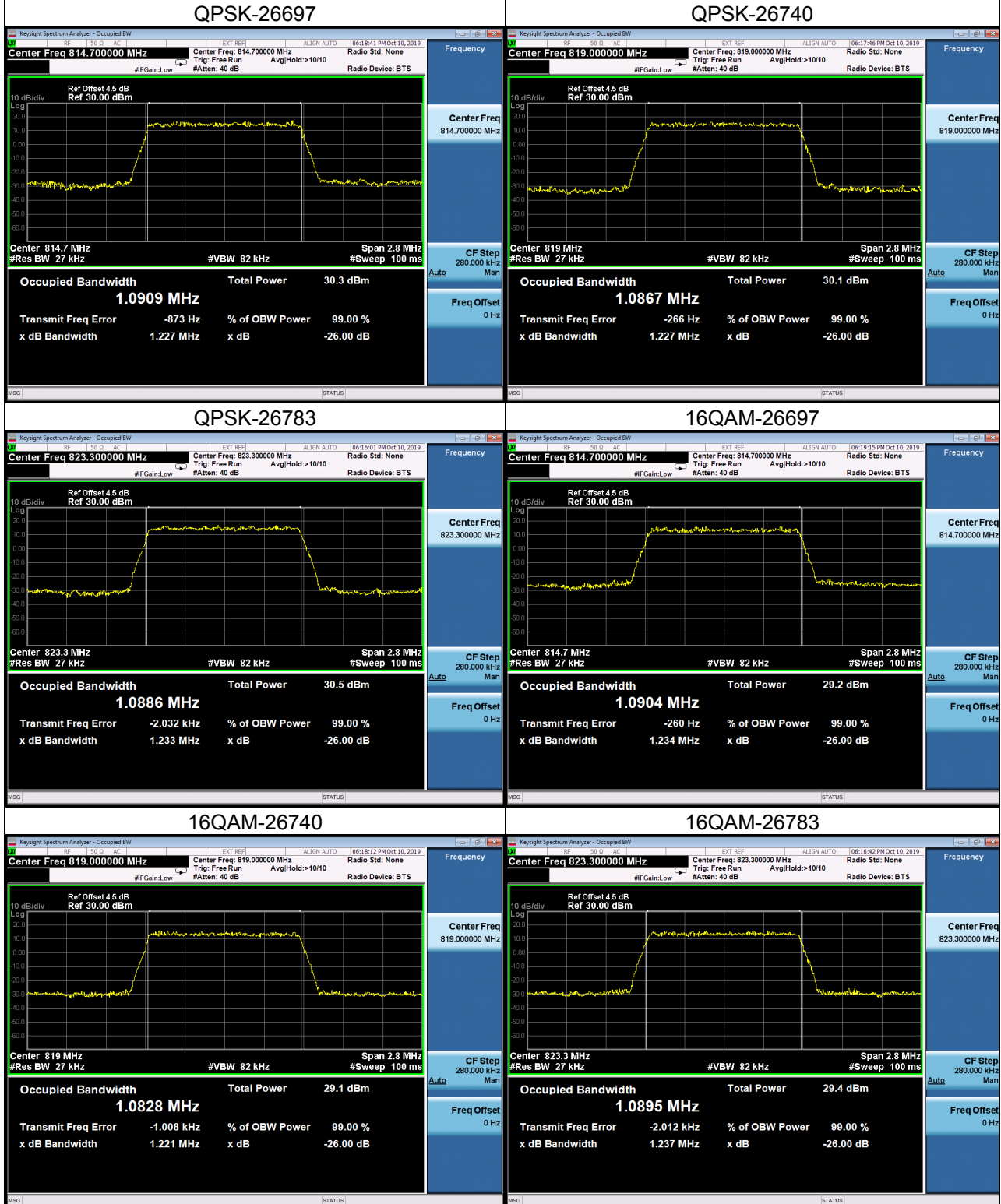
LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				26715CH	26740CH	26765CH
				816.5MHz	819MHz	821.5MHz
26 / 5M	QPSK	1	0	19.36	22.33	22.49
		1	13	22.47	22.47	22.51
		1	24	22.50	22.36	19.27
		12	0	21.65	21.58	21.64
		12	6	21.62	21.61	21.62
		12	11	21.61	21.58	21.61
		25	0	21.68	21.59	21.60
	16QAM	1	0	18.37	21.60	21.78
		1	13	21.95	21.77	21.77
		1	24	21.94	21.63	18.59
		12	0	20.78	20.66	20.69
		12	6	20.74	20.68	20.70
		12	11	20.73	20.66	20.69
		25	0	20.73	20.66	20.70
	64QAM	1	0	17.51	20.74	20.87
		1	13	20.59	20.92	20.92
		1	24	20.60	20.81	17.43
		12	0	19.66	19.54	19.70
		12	6	19.68	19.53	19.69
		12	11	19.72	19.49	19.66
		25	0	19.69	19.53	19.63

LTE Band / BW	Modulation	RB Size	RB Offset	Mid CH
				26740CH
				819MHz
26 / 10M	QPSK	1	0	22.25
		1	25	22.30
		1	49	22.12
		25	0	21.66
		25	13	21.64
		25	25	21.54
		50	0	21.57
	16QAM	1	0	21.75
		1	25	21.78
		1	49	21.56
		25	0	20.70
		25	13	20.68
		25	25	20.61
		50	0	20.64
	64QAM	1	0	20.78
		1	25	20.81
		1	49	20.60
		25	0	19.62
		25	13	19.59
		25	25	19.51
		50	0	19.54

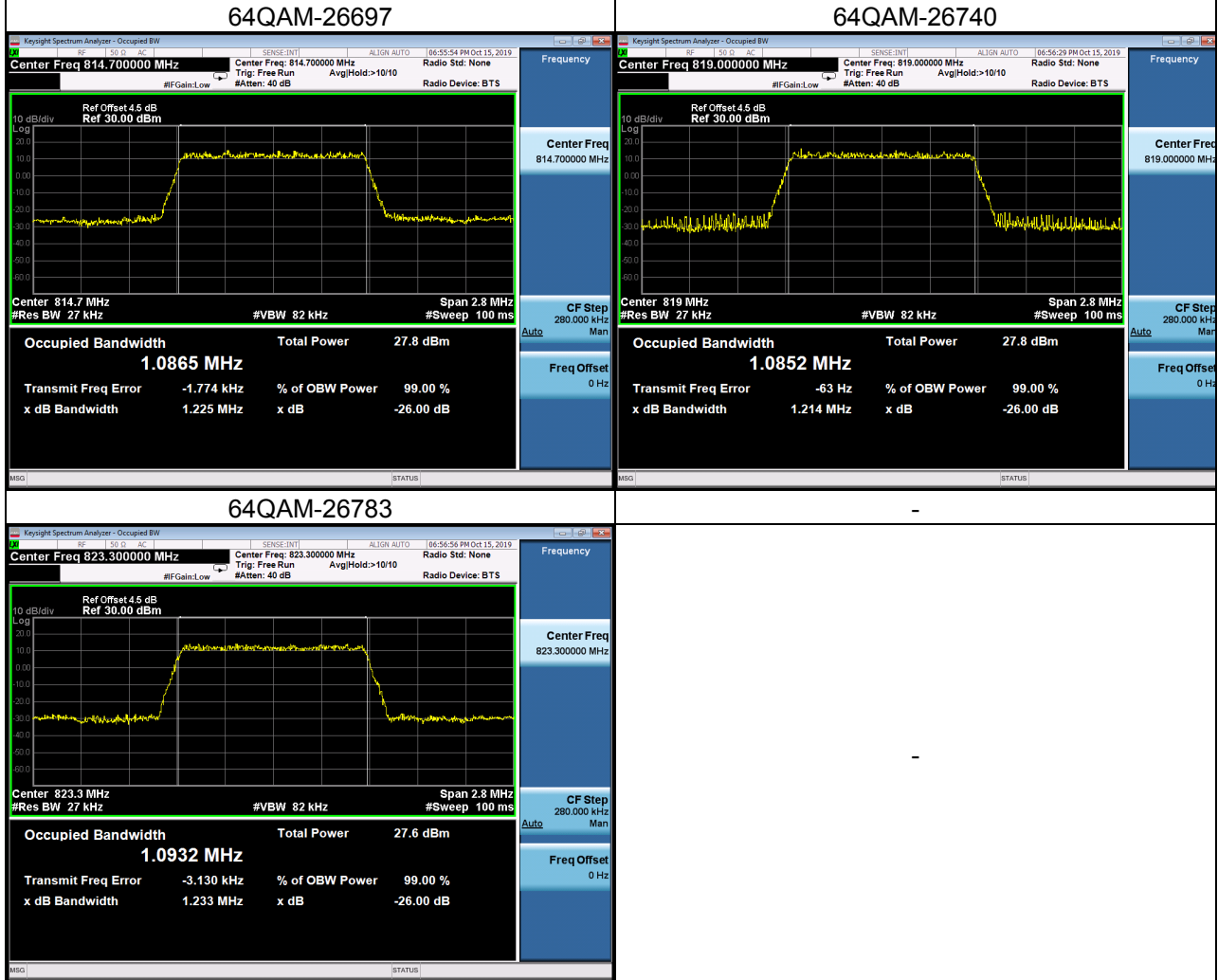
## **APPENDIX B - OCCUPIED BANDWIDTH**

LTE Band 26_1.4M					
QPSK					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
26697	814.7	1.0909	26697	814.7	1.2270
26740	819	1.0867	26740	819	1.2270
26783	823.3	1.0886	26783	823.3	1.2330
16QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
26697	814.7	1.0904	26697	814.7	1.2340
26740	819	1.0828	26740	819	1.2210
26783	823.3	1.0895	26783	823.3	1.2370
64QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
26697	814.7	1.0865	26697	814.7	1.2250
26740	819	1.0852	26740	819	1.2140
26783	823.3	1.0932	26783	823.3	1.2330

## Spectrum Plot



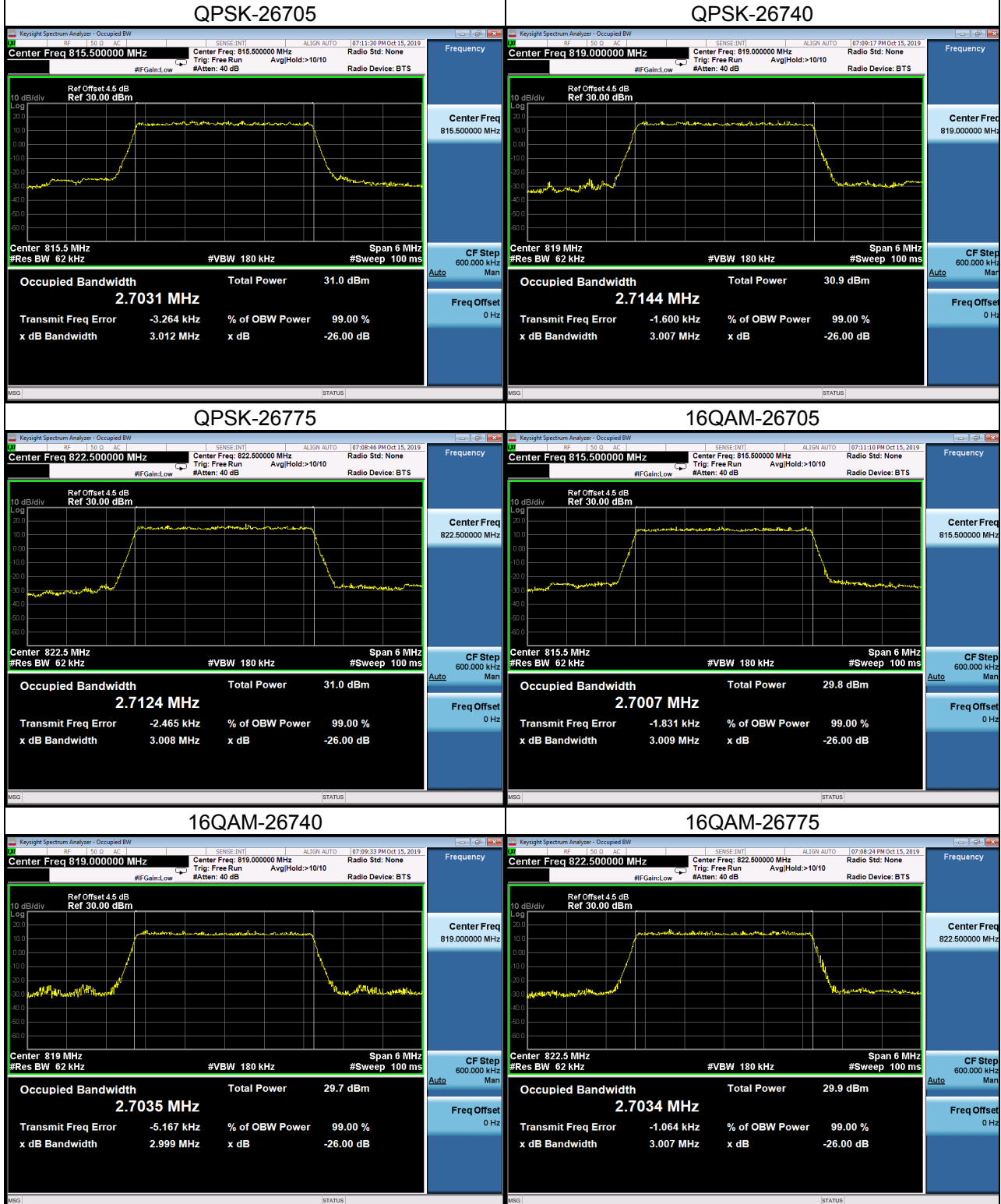
## Spectrum Plot



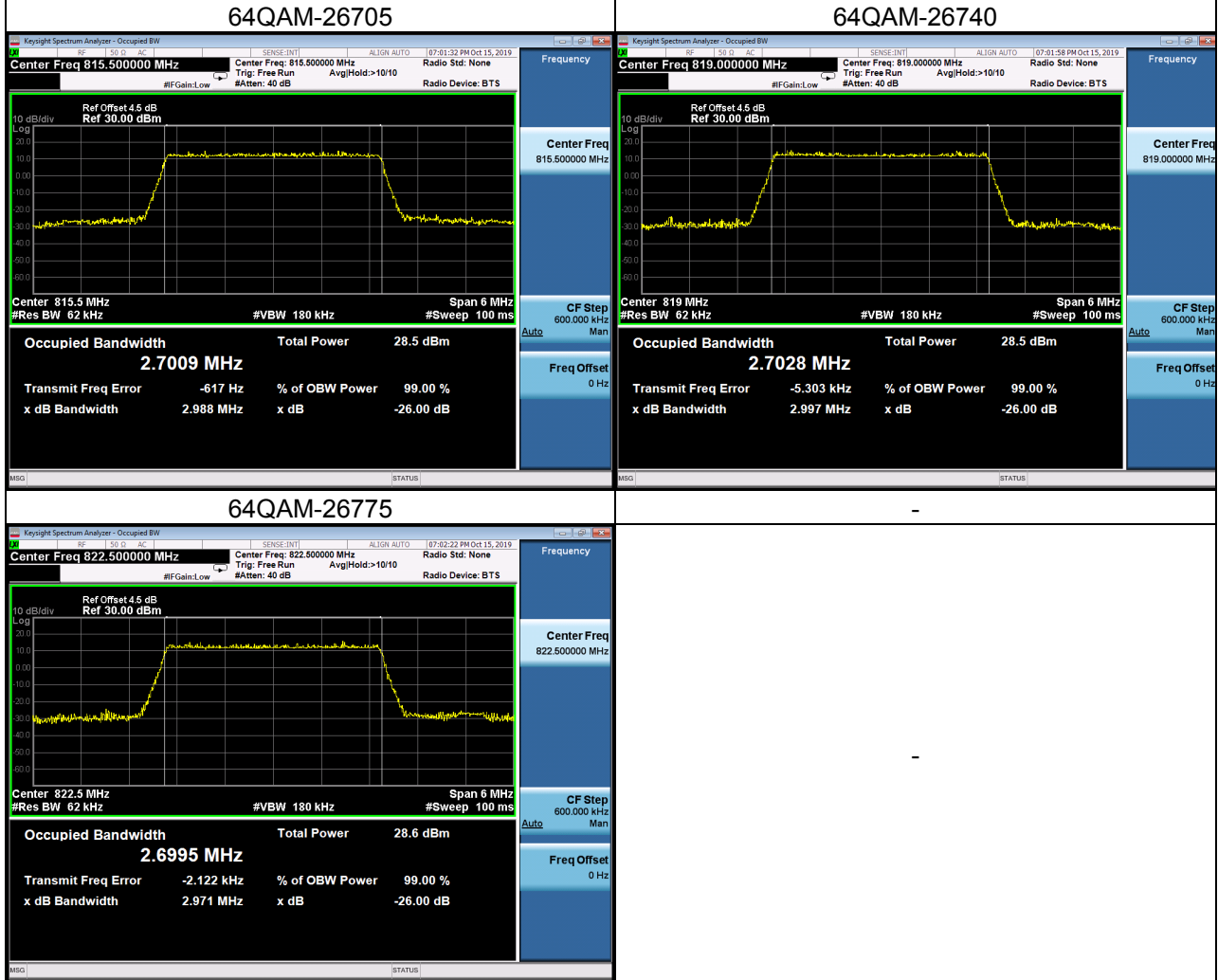
LTE Band 26_3M					
QPSK					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
26705	815.5	2.7031	26705	815.5	3.0120
26740	819	2.7144	26740	819	3.0070
26775	822.5	2.7124	26775	822.5	3.0080
16QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
26705	815.5	2.7007	26705	815.5	3.0090
26740	819	2.7035	26740	819	2.9990
26775	822.5	2.7034	26775	822.5	3.0070
64QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
26705	815.5	2.7009	26705	815.5	2.9880
26740	819	2.7028	26740	819	2.9970
26775	822.5	2.6995	26775	822.5	2.9710



## Spectrum Plot

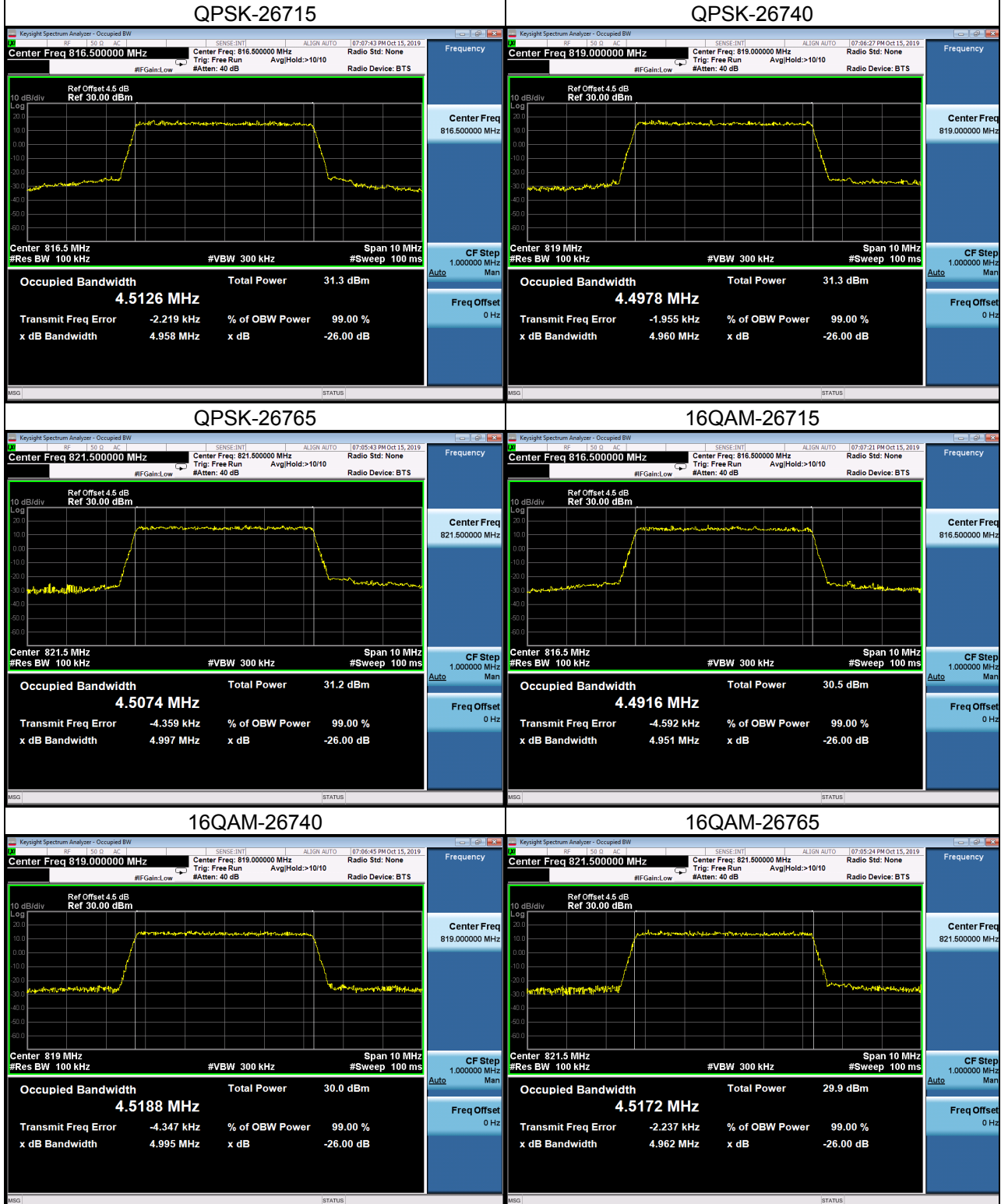


## Spectrum Plot



LTE Band 26_5M					
QPSK					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
26715	816.5	4.5126	26715	816.5	4.9580
26740	819	4.4978	26740	819	4.9600
26765	821.5	4.5074	26765	821.5	4.9970
16QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
26715	816.5	4.4916	26715	816.5	4.9510
26740	819	4.5188	26740	819	4.9950
26765	821.5	4.5172	26765	821.5	4.9620
64QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
26715	816.5	4.4999	26715	816.5	4.9680
26740	819	4.4993	26740	819	4.9690
26765	821.5	4.5131	26765	821.5	4.9520

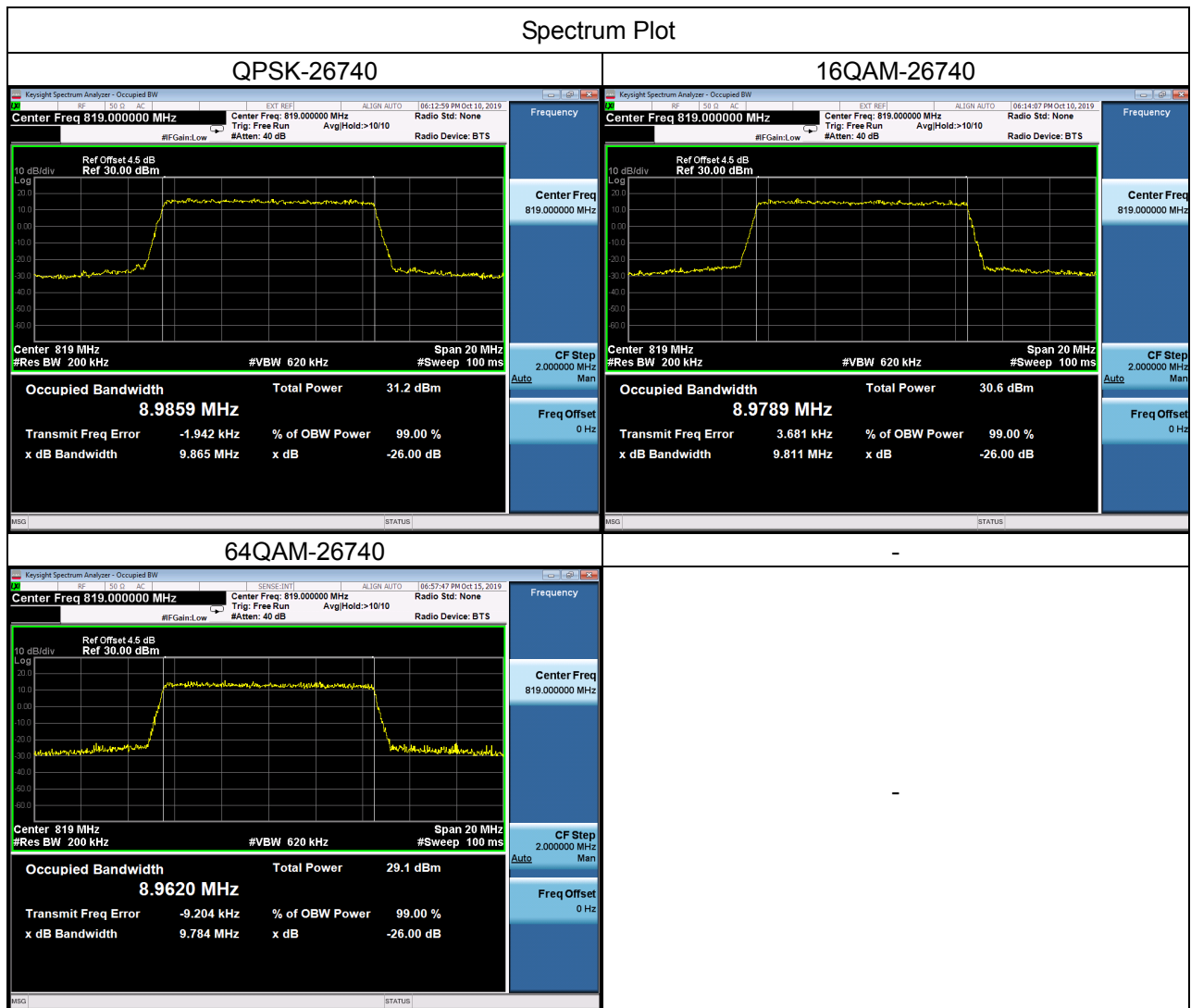
## Spectrum Plot



## Spectrum Plot



LTE Band 26_10M					
QPSK					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
26740	819	8.9859	26740	819	9.8650
16QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
26740	819	8.9789	26740	819	9.8110
64QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
26740	819	8.9620	26740	819	9.7840



## **APPENDIX C - CONDUCTED SPURIOUS EMISSIONS**

LTE Band 26_1.4M Spectrum Plot			
Channel	Frequency(MHz)	Channel	Frequency(MHz)
26740	819	26740	819
<p>Date: 8.OCT.2019 13:09:45</p>		<p>Date: 8.OCT.2019 13:08:43</p>	
Channel	Frequency(MHz)	-	-
26740	819	-	-
<p>Date: 8.OCT.2019 13:03:49</p>			



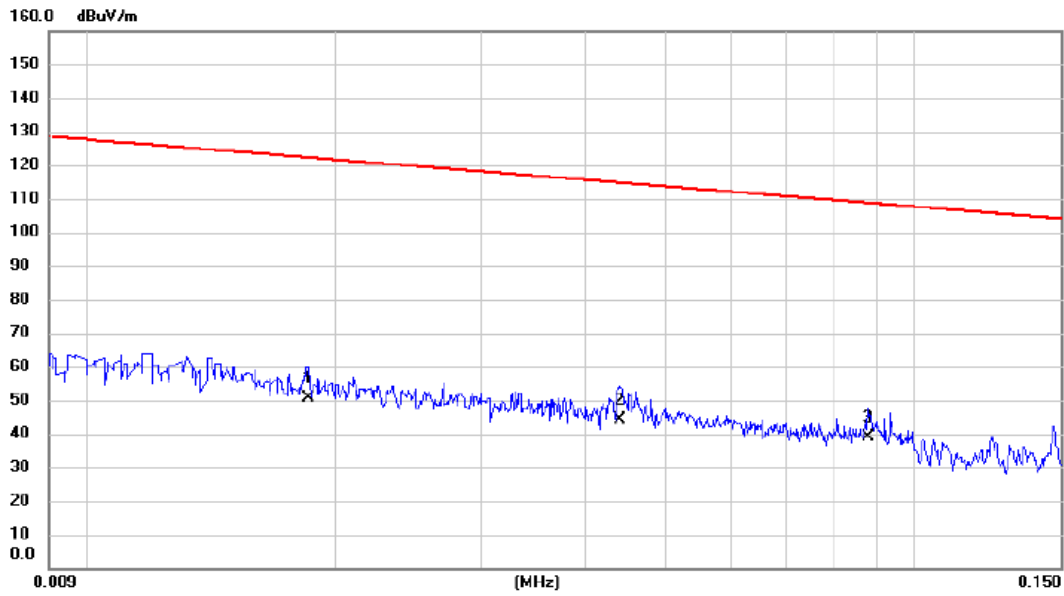
LTE Band 26_5M Spectrum Plot			
Channel	Frequency(MHz)	Channel	Frequency(MHz)
26740	819	26740	819
<p>Date: 8.OCT.2019 13:10:20</p>		<p>Date: 8.OCT.2019 13:07:54</p>	
Channel	Frequency(MHz)	-	-
26740	819	-	-
<p>Date: 8.OCT.2019 13:11:13</p>			

LTE Band 26_10M Spectrum Plot			
Channel	Frequency(MHz)	Channel	Frequency(MHz)
26740	819	26740	819
<p>Date: 8.OCT.2019 13:13:01</p>		<p>Date: 8.OCT.2019 13:14:03</p>	
Channel	Frequency(MHz)	-	-
26740	819	-	-
<p>Date: 8.OCT.2019 13:12:31</p>		-	

## **APPENDIX D - RADIATED SPURIOUS EMISSIONS (9KHZ TO 30MHZ)**

Test Mode	TX Mode
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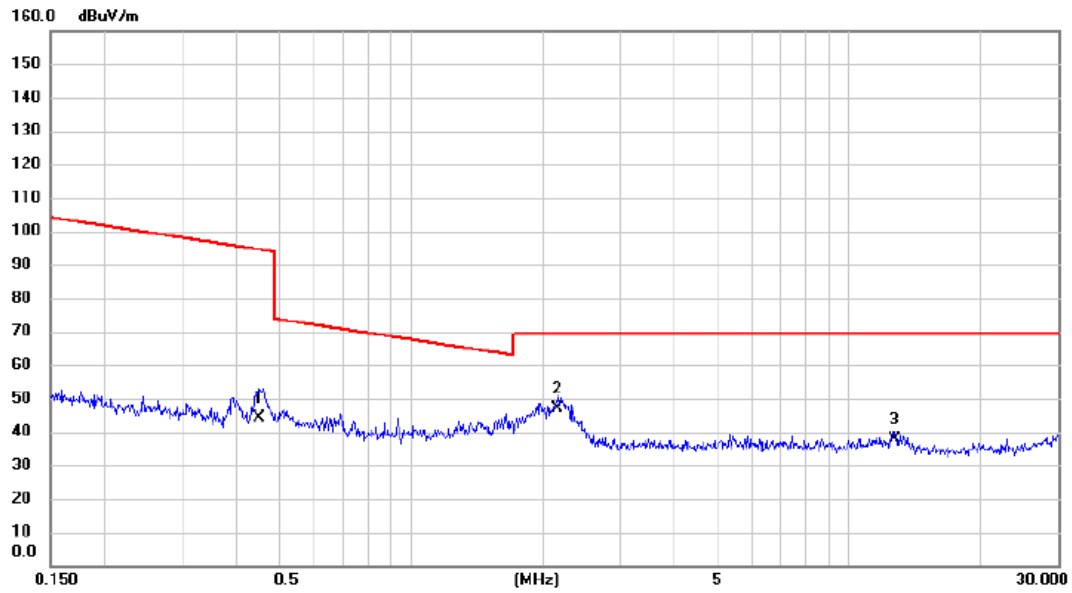
**Ant 0°**



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1		0.018	36.20	14.27	50.47	122.26	-71.79	AVG	
2		0.044	30.30	13.91	44.21	114.74	-70.53	AVG	
3	*	0.088	25.30	13.54	38.84	108.73	-69.89	AVG	

Test Mode	TX Mode
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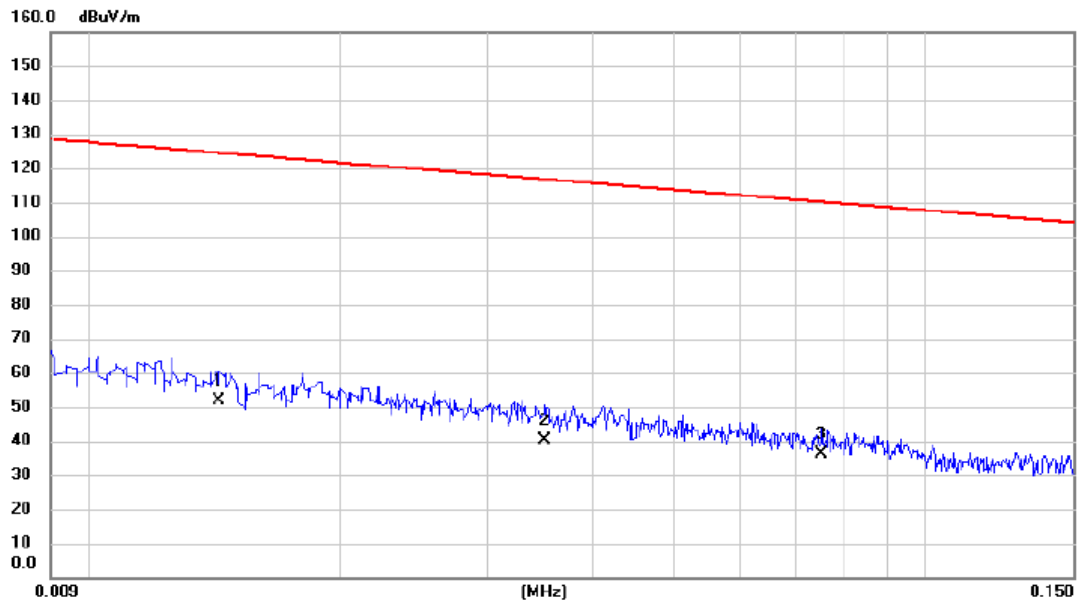
**Ant 0°**



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1		0.452	31.20	13.18	44.38	94.51	-50.13	AVG	
2	*	2.167	35.20	11.72	46.92	69.54	-22.62	QP	
3		12.716	26.10	11.60	37.70	69.54	-31.84	QP	

Test Mode	TX Mode
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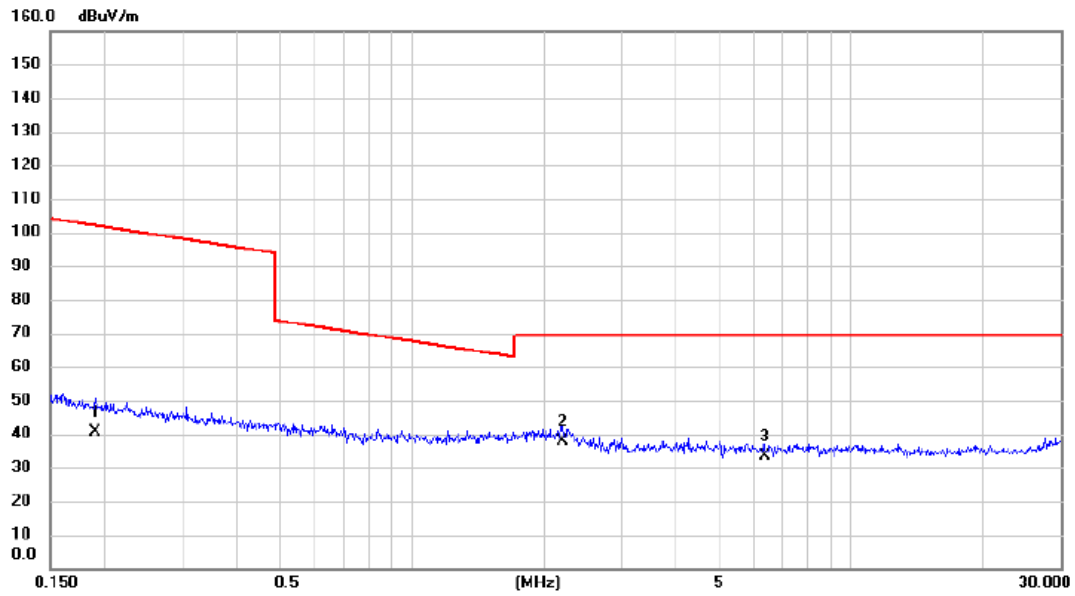
**Ant 90°**



No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1 *	0.014	36.30	15.53	51.83	124.50	-72.67	AVG	
2	0.035	26.20	13.88	40.08	116.72	-76.64	AVG	
3	0.075	22.50	13.53	36.03	110.08	-74.05	AVG	

Test Mode	TX Mode
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**Ant 90°**



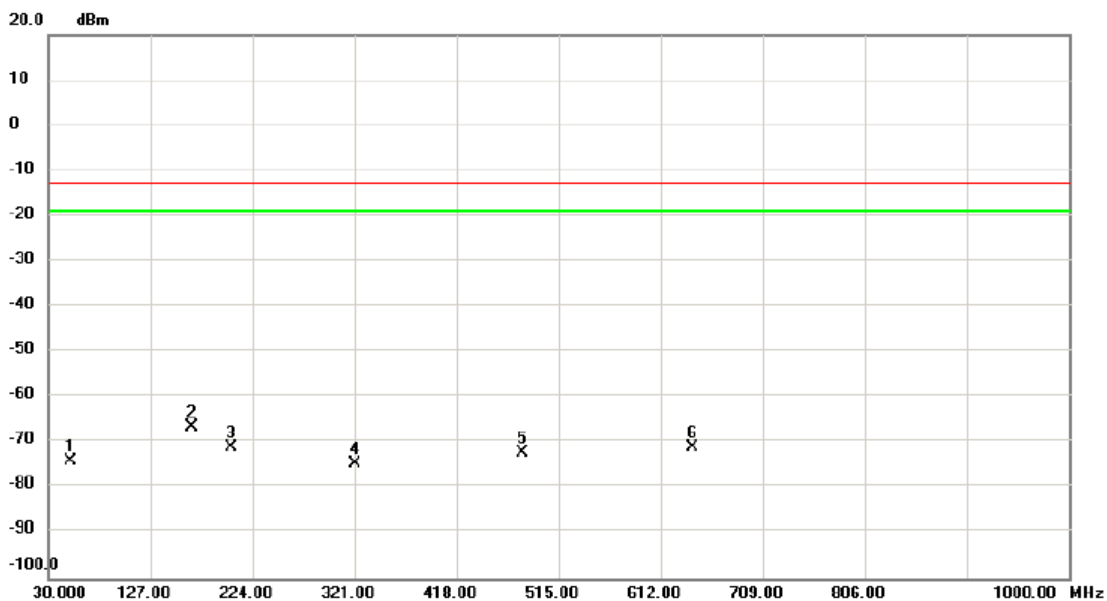
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1		0.190	27.10	13.60	40.70	102.03	-61.33	AVG	
2	*	2.213	26.30	11.69	37.99	69.54	-31.55	QP	
3		6.352	22.20	11.07	33.27	69.54	-36.27	QP	

## **APPENDIX E - RADIATED SPURIOUS EMISSIONS (30MHZ TO 1000MHZ)**



Test Mode LTE Band 26\_TX CH26740\_1.4M\_Main Antenna

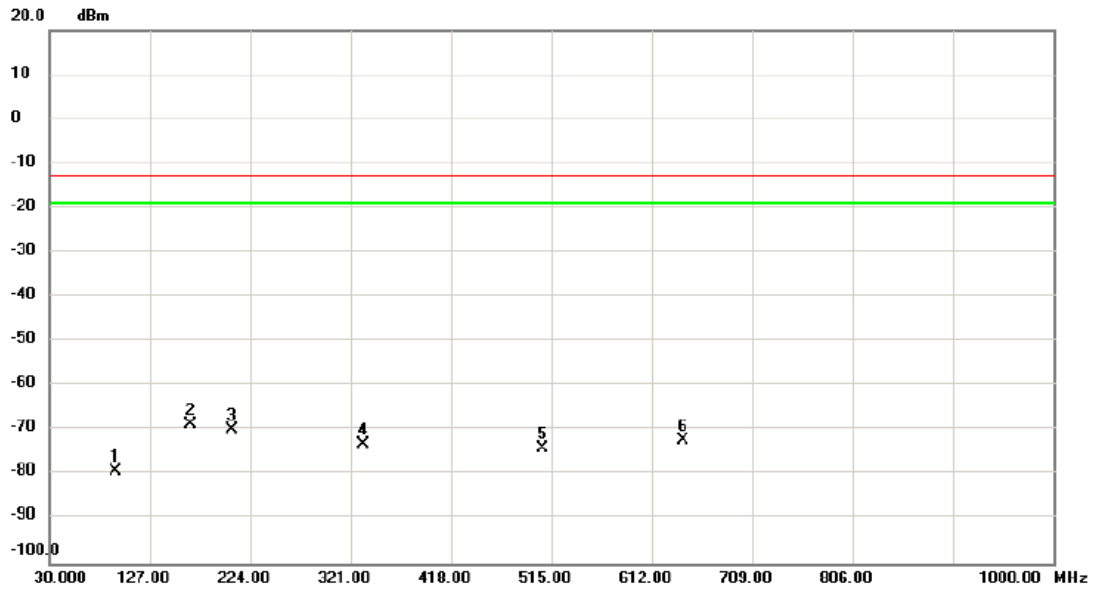
### Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		50.855	-60.18	-13.93	-74.11	-13.00	-61.11	peak	
2	*	165.800	-54.76	-11.89	-66.65	-13.00	-53.65	peak	
3		204.115	-55.62	-15.42	-71.04	-13.00	-58.04	peak	
4		321.485	-63.37	-11.21	-74.58	-13.00	-61.58	peak	
5		480.080	-64.42	-7.91	-72.33	-13.00	-59.33	peak	
6		642.555	-66.31	-4.87	-71.18	-13.00	-58.18	peak	

Test Mode | LTE Band 26\_TX CH26740\_1.4M\_Main Antenna

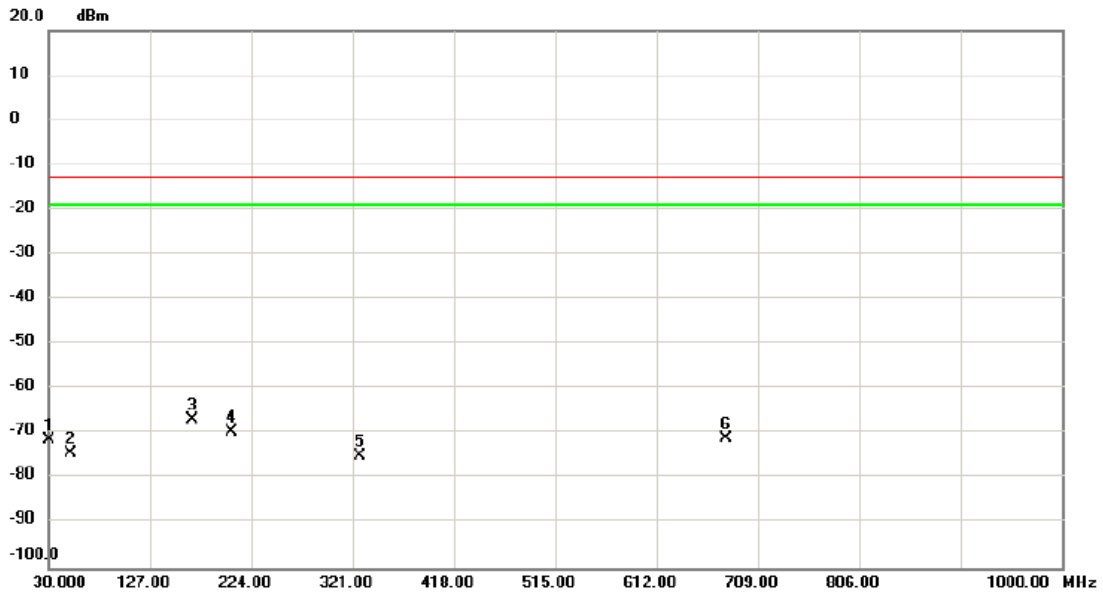
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		94.020	-63.51	-15.69	-79.20	-13.00	-66.20	peak	
2	*	166.770	-56.73	-12.03	-68.76	-13.00	-55.76	peak	
3		206.540	-54.33	-15.52	-69.85	-13.00	-56.85	peak	
4		332.640	-62.13	-11.02	-73.15	-13.00	-60.15	peak	
5		506.270	-66.38	-7.69	-74.07	-13.00	-61.07	peak	
6		642.070	-67.43	-4.88	-72.31	-13.00	-59.31	peak	

Test Mode | LTE Band 26\_TX CH26740\_5M\_Main Antenna

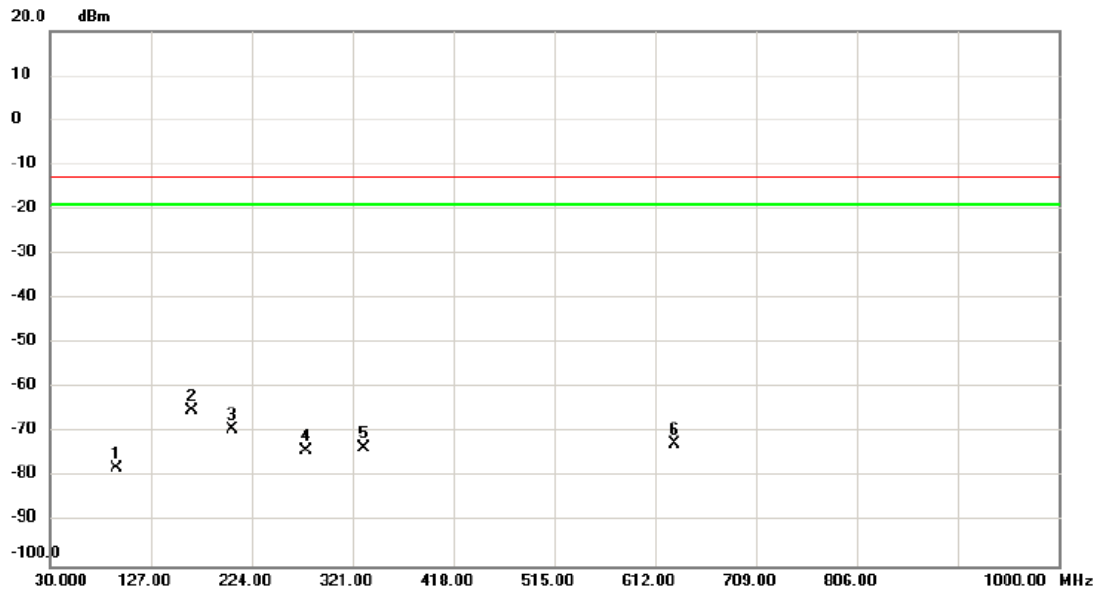
### Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		
1		30.970	-56.35	-14.91	-71.26	-13.00	-58.26	peak	
2		50.855	-60.52	-13.93	-74.45	-13.00	-61.45	peak	
3	*	167.255	-54.70	-12.10	-66.80	-13.00	-53.80	peak	
4		204.600	-54.08	-15.44	-69.52	-13.00	-56.52	peak	
5		327.790	-63.77	-11.11	-74.88	-13.00	-61.88	peak	
6		677.960	-66.82	-4.33	-71.15	-13.00	-58.15	peak	

Test Mode | LTE Band 26\_TX CH26740\_5M\_Main Antenna

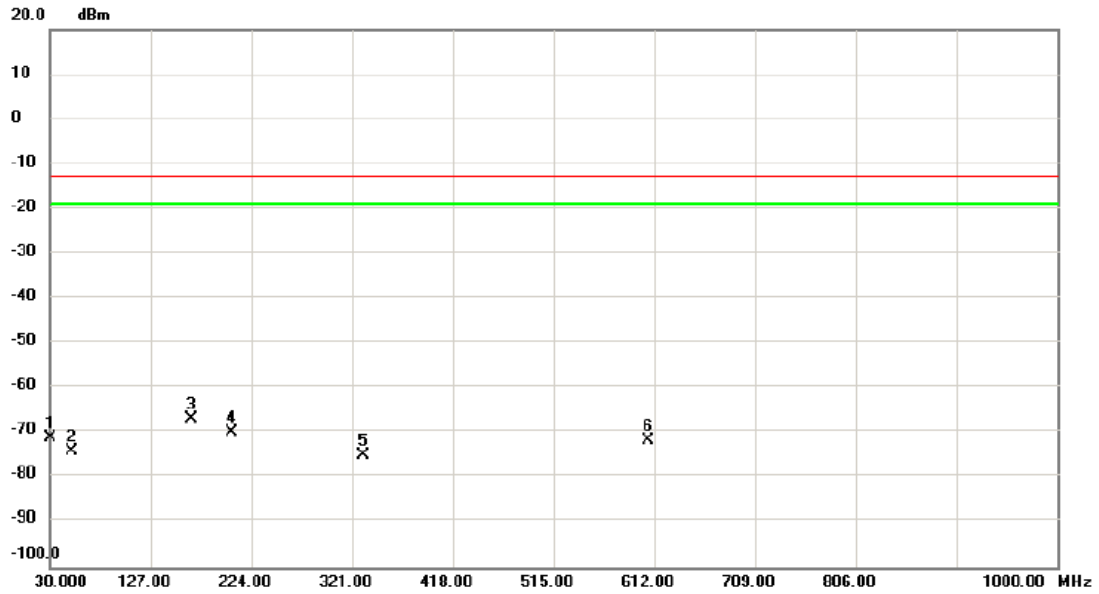
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		94.020	-62.18	-15.69	-77.87	-13.00	-64.87	peak	
2	*	166.285	-53.21	-11.96	-65.17	-13.00	-52.17	peak	
3		205.570	-53.77	-15.48	-69.25	-13.00	-56.25	peak	
4		275.895	-61.04	-12.88	-73.92	-13.00	-60.92	peak	
5		331.670	-62.28	-11.04	-73.32	-13.00	-60.32	peak	
6		630.915	-67.35	-5.13	-72.48	-13.00	-59.48	peak	

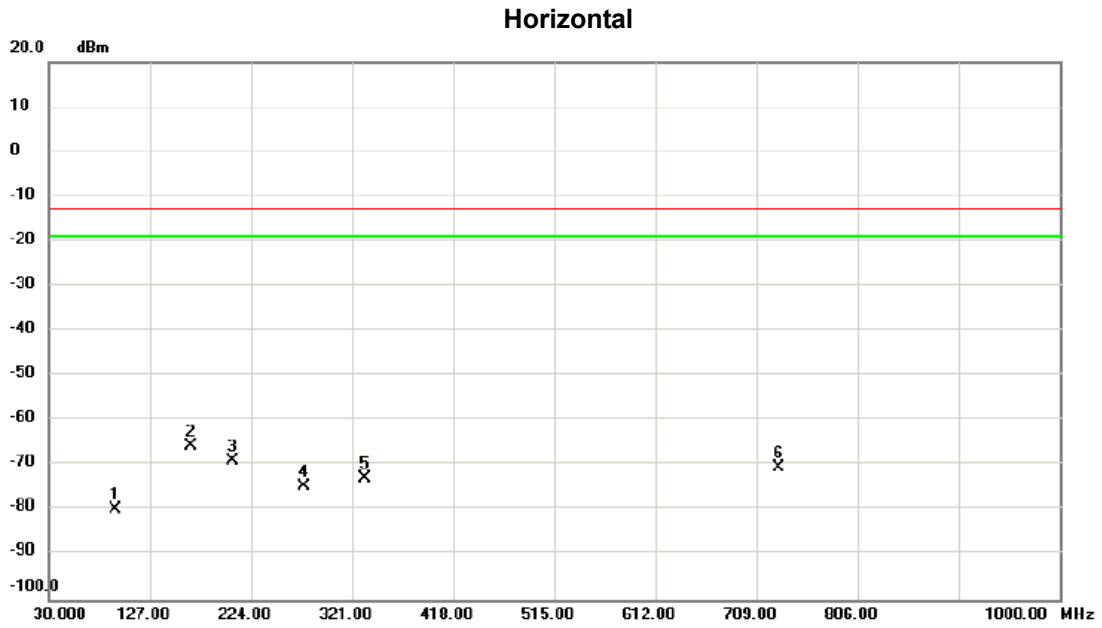
Test Mode | LTE Band 26\_TX CH26740\_10M\_Main Antenna

### Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		30.000	-56.08	-15.02	-71.10	-13.00	-58.10	peak	
2		50.855	-60.11	-13.93	-74.04	-13.00	-61.04	peak	
3	*	165.800	-54.94	-11.89	-66.83	-13.00	-53.83	peak	
4		205.085	-54.40	-15.45	-69.85	-13.00	-56.85	peak	
5		331.670	-63.99	-11.04	-75.03	-13.00	-62.03	peak	
6		606.665	-66.07	-5.65	-71.72	-13.00	-58.72	peak	

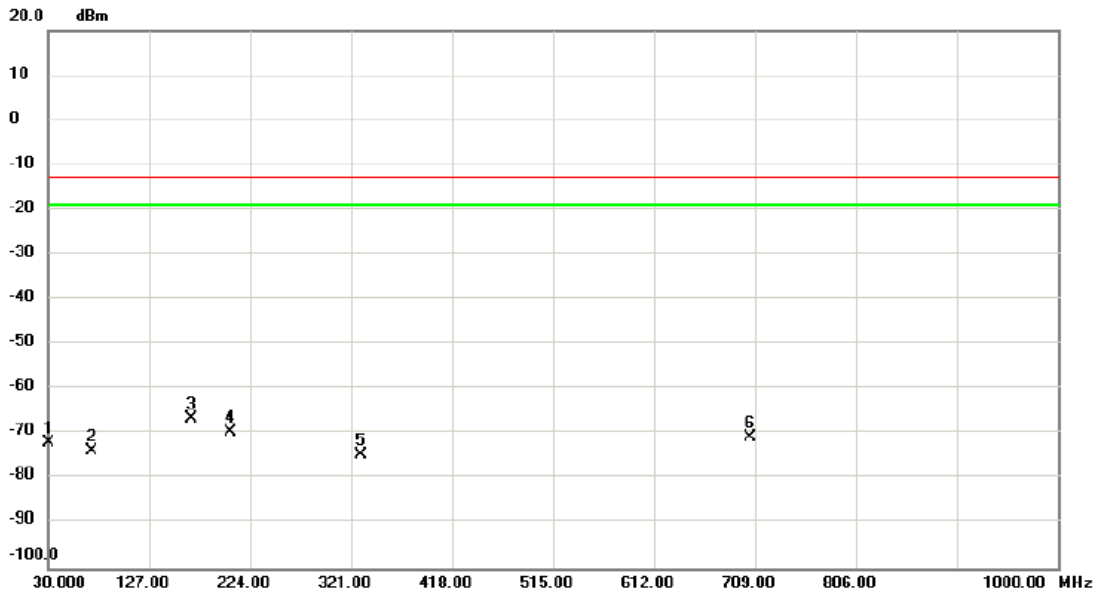
Test Mode | LTE Band 26\_TX CH26740\_10M\_Main Antenna



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		94.020	-63.95	-15.69	-79.64	-13.00	-66.64	peak	
2	*	166.285	-53.66	-11.96	-65.62	-13.00	-52.62	peak	
3		206.055	-53.31	-15.50	-68.81	-13.00	-55.81	peak	
4		274.440	-61.70	-12.95	-74.65	-13.00	-61.65	peak	
5		332.640	-61.94	-11.02	-72.96	-13.00	-59.96	peak	
6		730.340	-66.71	-3.82	-70.53	-13.00	-57.53	peak	

Test Mode | LTE Band 26\_TX CH26740\_1.4M\_Second Antenna

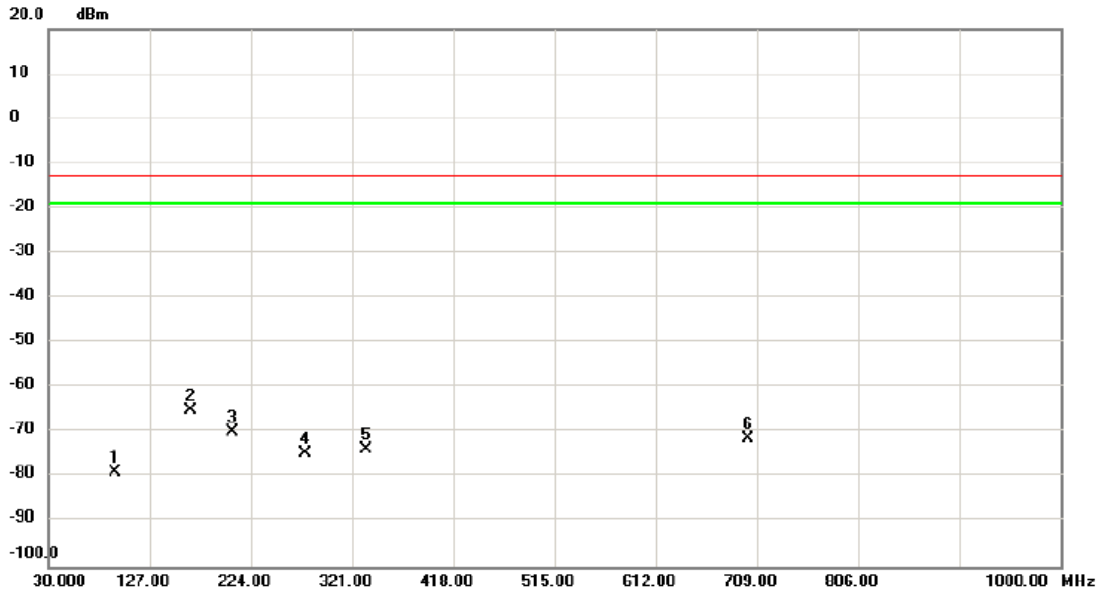
### Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		30.000	-56.91	-15.02	-71.93	-13.00	-58.93	peak	
2		71.710	-57.06	-16.56	-73.62	-13.00	-60.62	peak	
3	*	167.740	-54.35	-12.17	-66.52	-13.00	-53.52	peak	
4		205.570	-53.99	-15.48	-69.47	-13.00	-56.47	peak	
5		330.700	-63.56	-11.05	-74.61	-13.00	-61.61	peak	
6		704.150	-66.64	-3.99	-70.63	-13.00	-57.63	peak	

Test Mode | LTE Band 26\_TX CH26740\_1.4M\_Second Antenna

### Horizontal

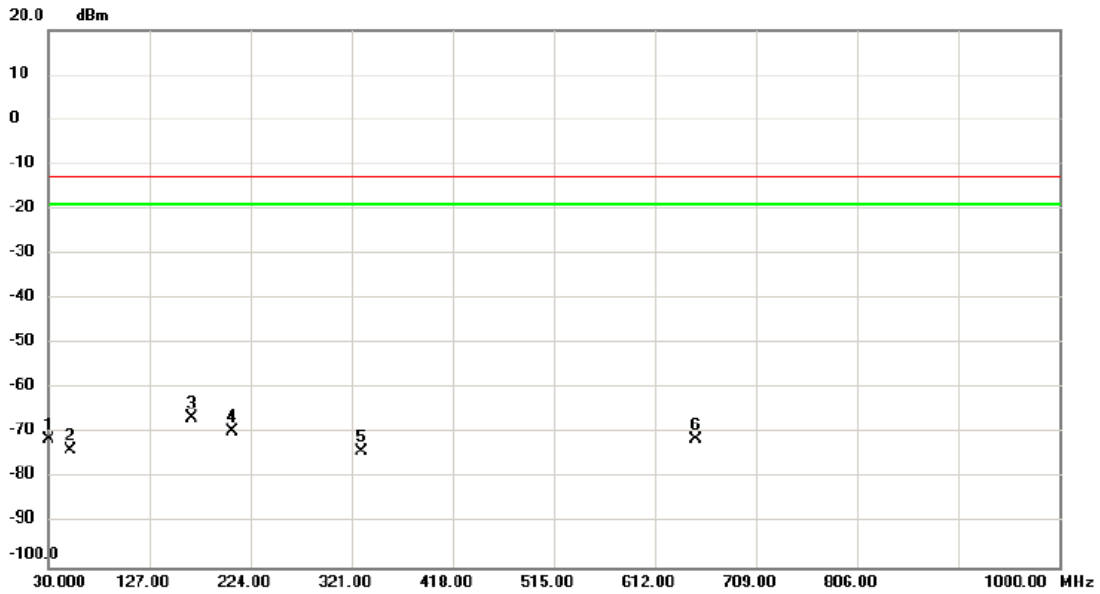


No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		94.020	-63.26	-15.69	-78.95	-13.00	-65.95	peak	
2	*	166.285	-52.99	-11.96	-64.95	-13.00	-51.95	peak	
3		206.540	-54.21	-15.52	-69.73	-13.00	-56.73	peak	
4		276.380	-61.77	-12.86	-74.63	-13.00	-61.63	peak	
5		334.095	-62.72	-11.00	-73.72	-13.00	-60.72	peak	
6		700.270	-67.26	-4.03	-71.29	-13.00	-58.29	peak	



Test Mode | LTE Band 26\_TX CH26740\_5M\_Second Antenna

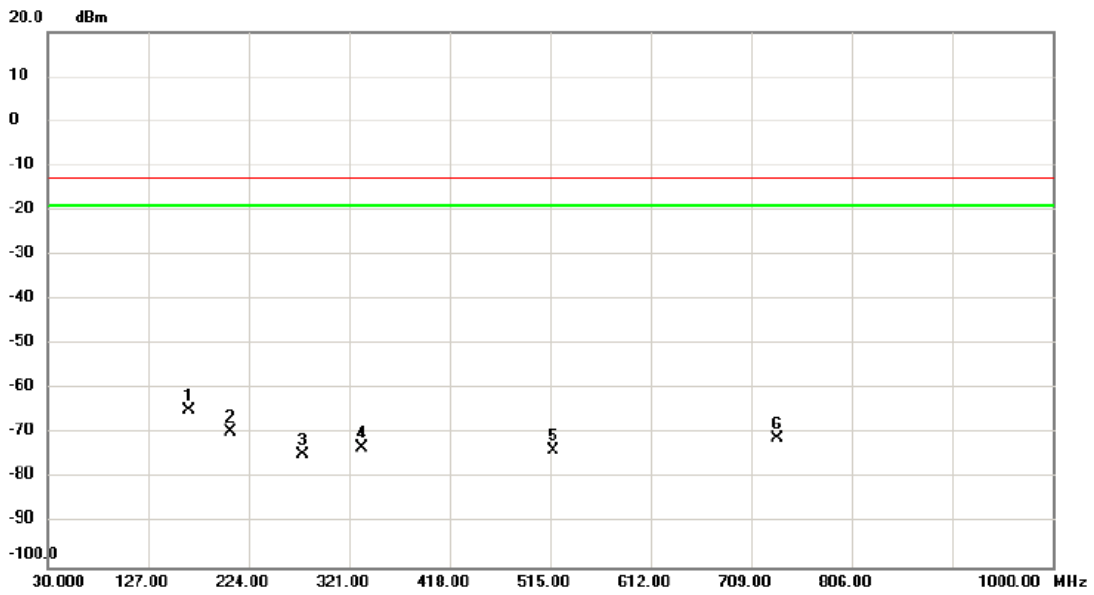
### Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		30.000	-56.39	-15.02	-71.41	-13.00	-58.41	peak	
2		50.855	-59.85	-13.93	-73.78	-13.00	-60.78	peak	
3	*	167.255	-54.52	-12.10	-66.62	-13.00	-53.62	peak	
4		206.055	-53.91	-15.50	-69.41	-13.00	-56.41	peak	
5		330.700	-62.96	-11.05	-74.01	-13.00	-61.01	peak	
6		651.770	-66.62	-4.69	-71.31	-13.00	-58.31	peak	

Test Mode | LTE Band 26\_TX CH26740\_5M\_Second Antenna

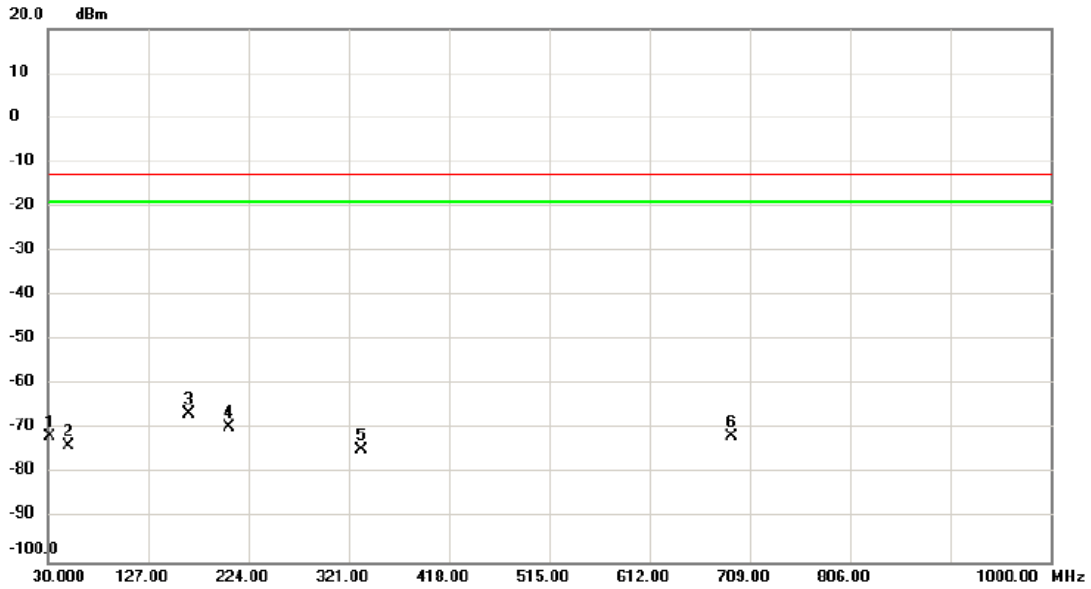
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	166.770	-52.80	-12.03	-64.83	-13.00	-51.83	peak	
2		206.540	-54.07	-15.52	-69.59	-13.00	-56.59	peak	
3		275.895	-61.90	-12.88	-74.78	-13.00	-61.78	peak	
4		333.125	-62.19	-11.01	-73.20	-13.00	-60.20	peak	
5		518.395	-66.12	-7.58	-73.70	-13.00	-60.70	peak	
6		733.735	-67.23	-3.80	-71.03	-13.00	-58.03	peak	

Test Mode | LTE Band 26\_TX CH26740\_10M\_Second Antenna

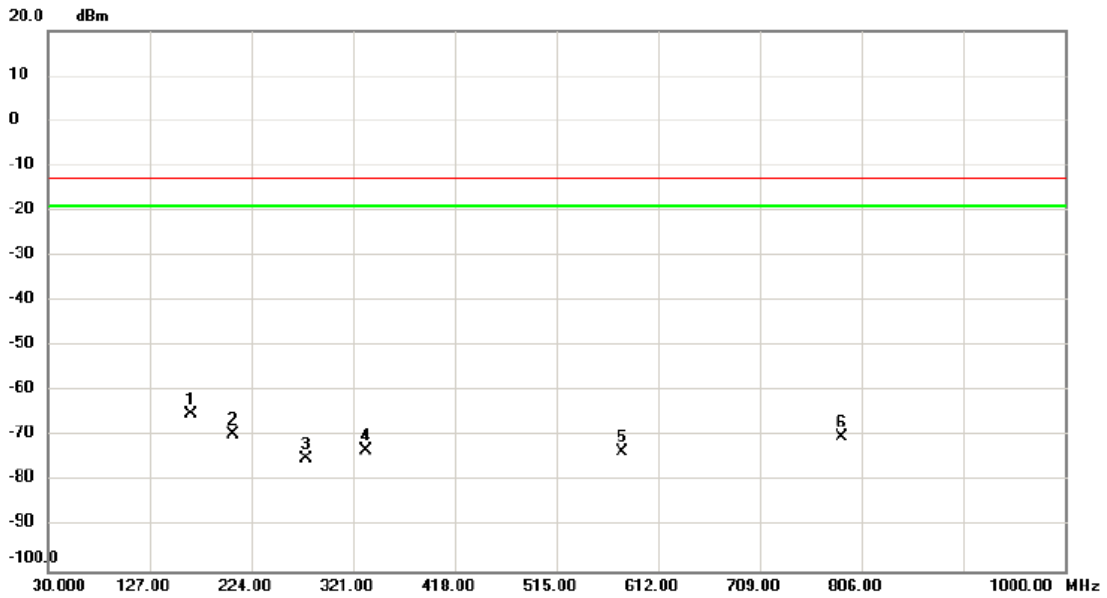
### Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		31.940	-56.79	-14.81	-71.60	-13.00	-58.60	peak	
2		49.400	-59.63	-13.99	-73.62	-13.00	-60.62	peak	
3	*	166.770	-54.53	-12.03	-66.56	-13.00	-53.56	peak	
4		205.085	-54.14	-15.45	-69.59	-13.00	-56.59	peak	
5		333.125	-63.55	-11.01	-74.56	-13.00	-61.56	peak	
6		691.055	-67.62	-4.16	-71.78	-13.00	-58.78	peak	

Test Mode | LTE Band 26\_TX CH26740\_10M\_Second Antenna

### Horizontal

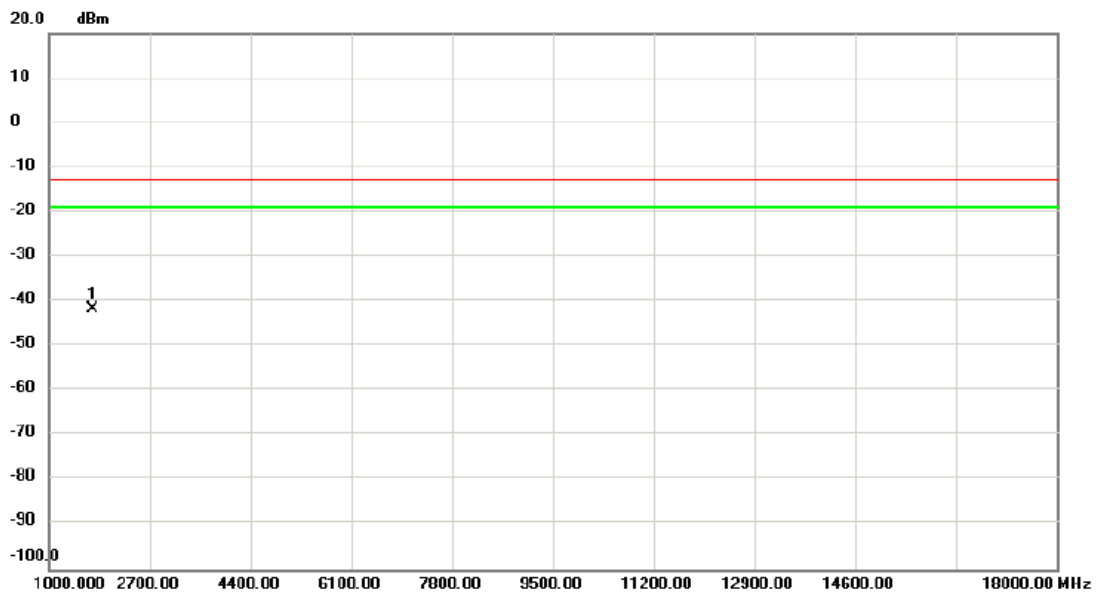


No. Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1 *	166.770	-52.98	-12.03	-65.01	-13.00	-52.01	peak	
2	206.540	-54.07	-15.52	-69.59	-13.00	-56.59	peak	
3	276.380	-62.17	-12.86	-75.03	-13.00	-62.03	peak	
4	332.640	-62.28	-11.02	-73.30	-13.00	-60.30	peak	
5	578.050	-67.06	-6.45	-73.51	-13.00	-60.51	peak	
6	787.570	-67.03	-3.17	-70.20	-13.00	-57.20	peak	

## **APPENDIX F - RADIATED SPURIOUS EMISSIONS (ABOVE 1000MHZ)**

Test Mode | LTE Band 26\_TX CH26740\_1.4M\_Main Antenna

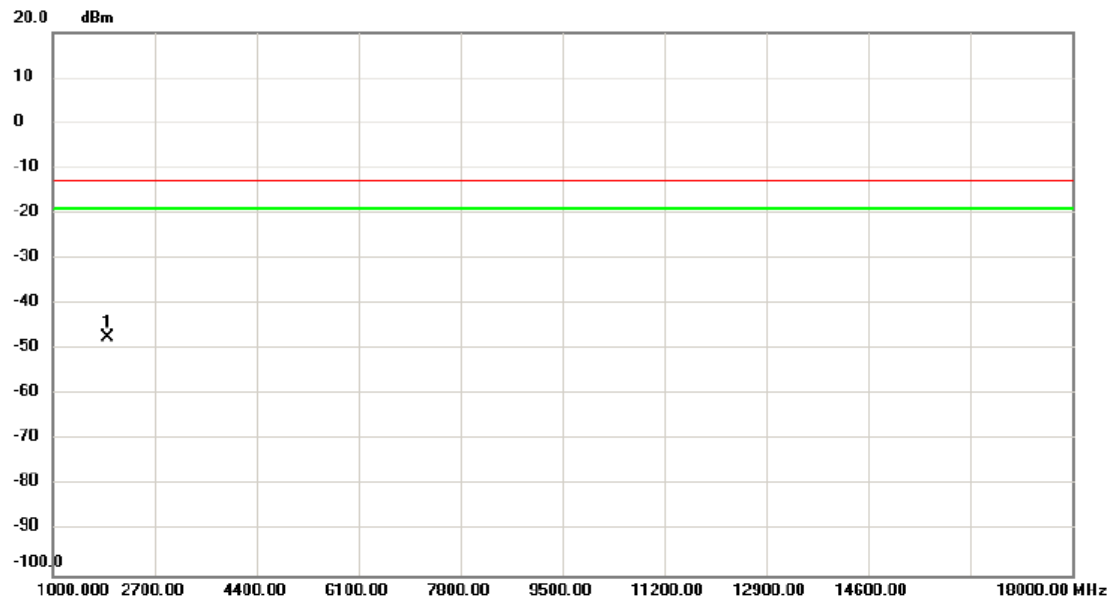
### Vertical



No. Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1 *	1731.000	-36.84	-4.70	-41.54	-13.00	-28.54	peak	

Test Mode	LTE Band 26_TX CH26740_1.4M_Main Antenna
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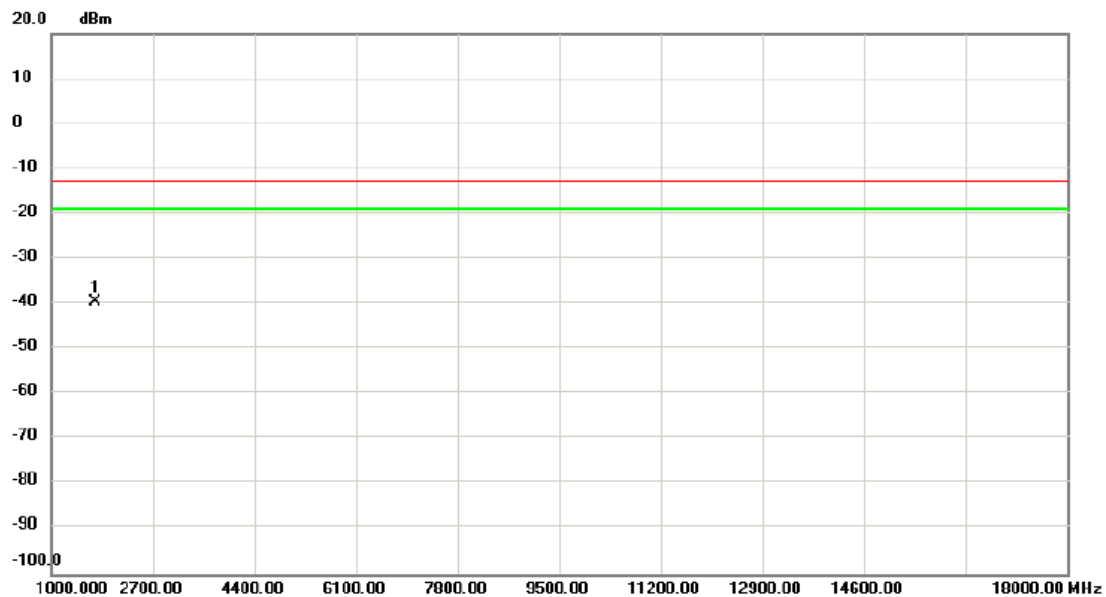
### Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		
1	*	1918.000	-43.93	-3.54	-47.47	-13.00	-34.47	peak	

Test Mode | LTE Band 26\_TX CH26740\_5M\_Main Antenna

### Vertical

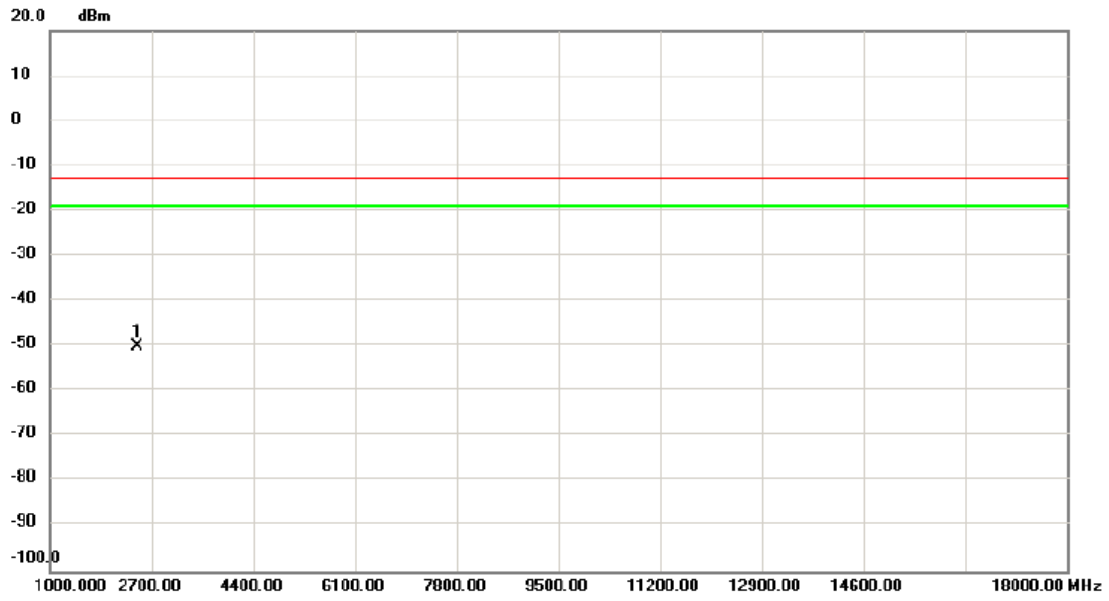


No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	1731.000	-34.88	-4.70	-39.58	-13.00	-26.58	peak	



Test Mode	LTE Band 26_TX CH26740_5M_Main Antenna
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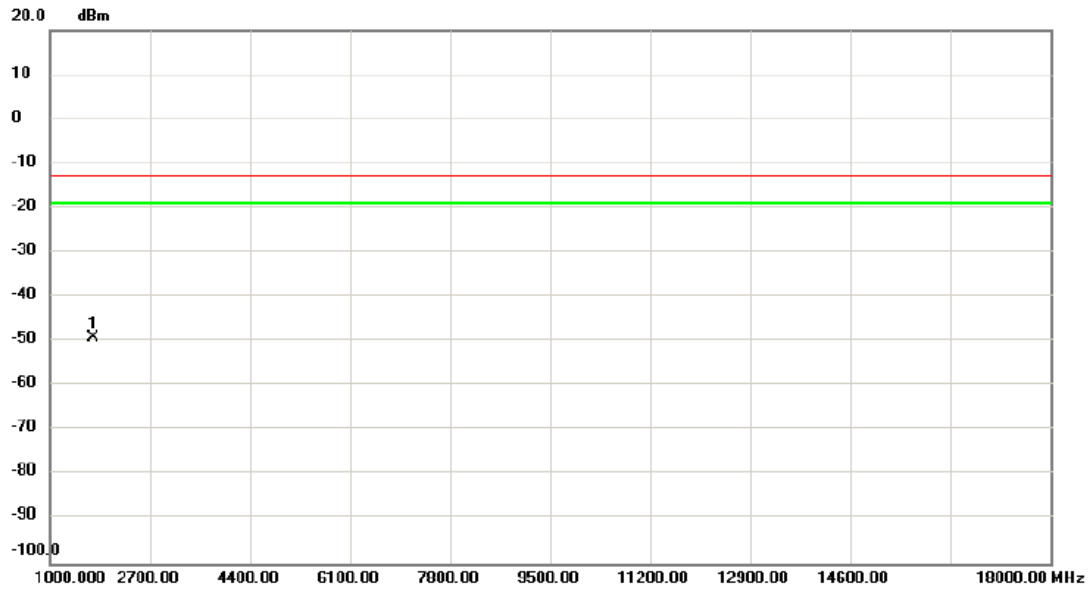
### Horizontal



No. Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1 *	2453.500	-46.62	-3.55	-50.17	-13.00	-37.17	peak	

Test Mode | LTE Band 26\_TX CH26740\_10M\_Main Antenna

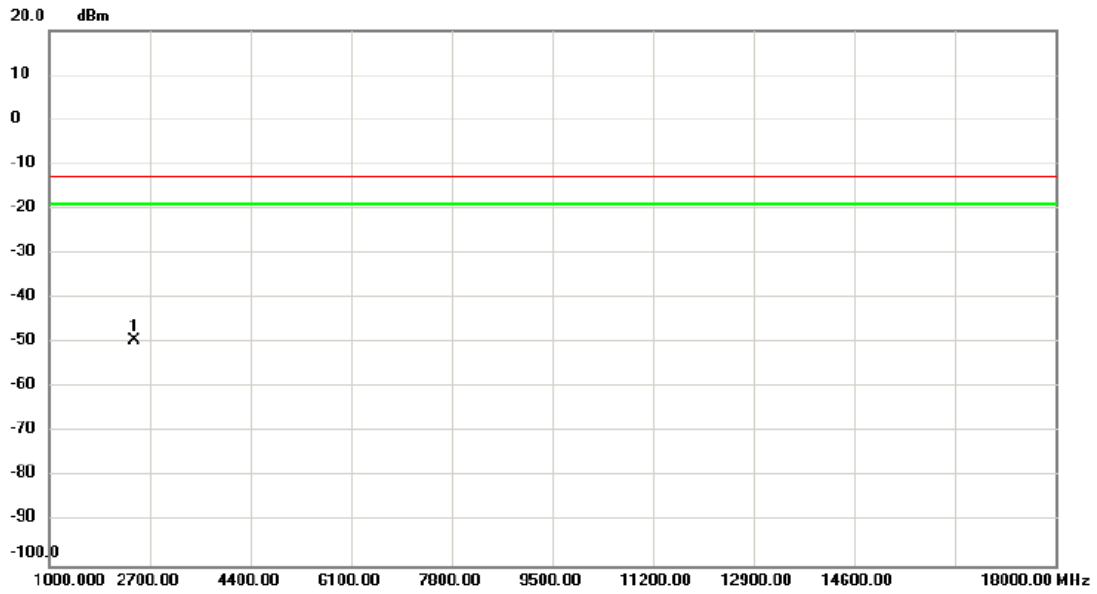
### Vertical



No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
	MHz	dBm	dB	dBm	dBm	dB		
1 *	1731.000	-44.36	-4.70	-49.06	-13.00	-36.06	peak	

Test Mode | LTE Band 26\_TX CH26740\_10M\_Main Antenna

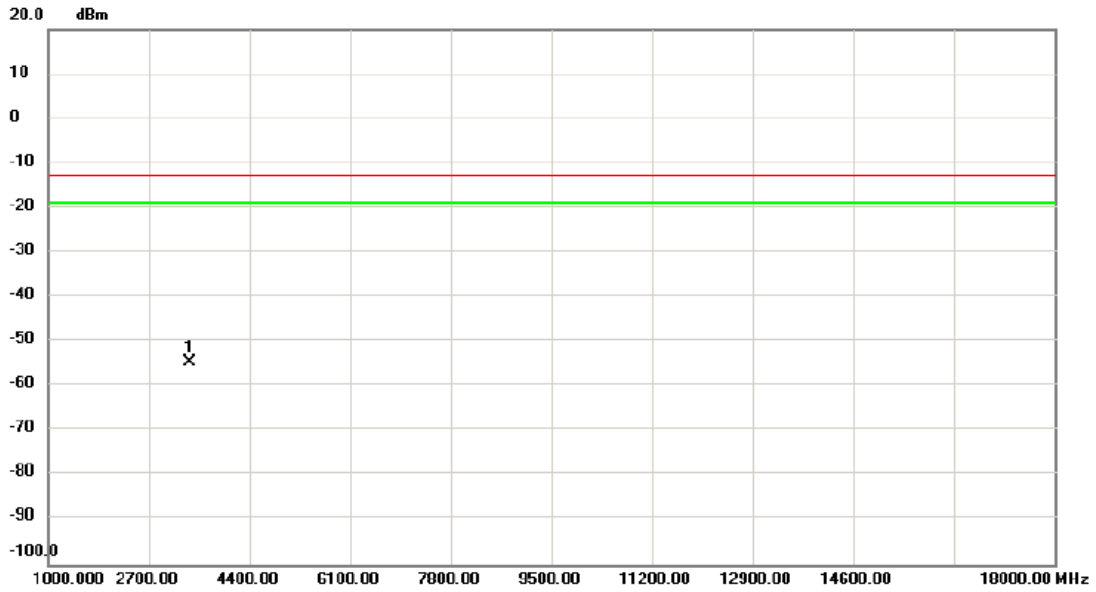
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	2445.000	-45.85	-3.53	-49.38	-13.00	-36.38	peak	

Test Mode | LTE Band 26\_TX CH26740\_1.4M\_Second Antenna

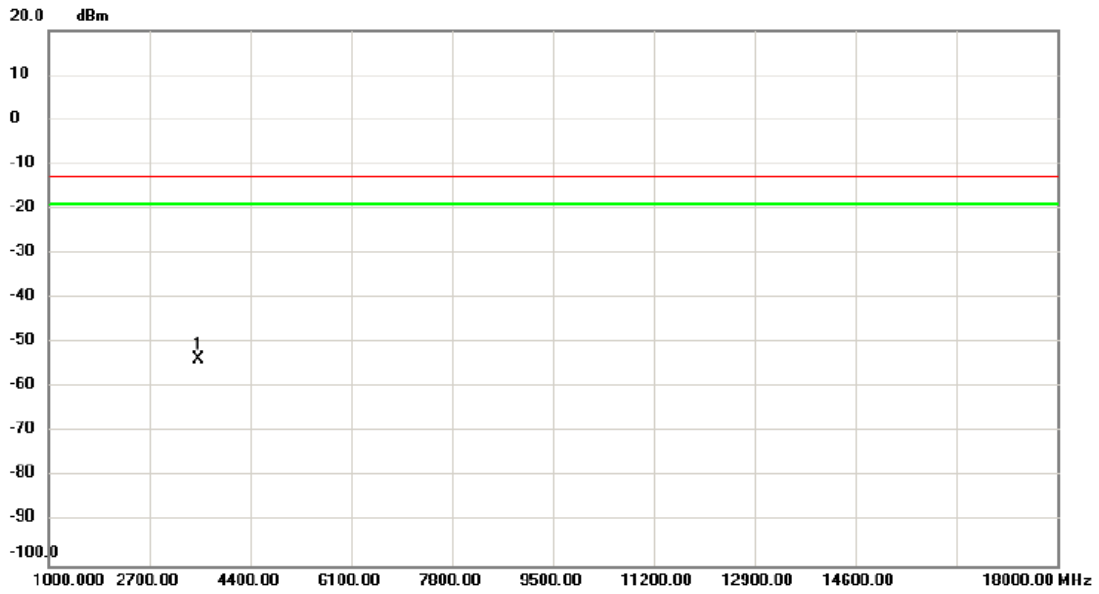
### Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	3397.000	-55.18	0.68	-54.50	-13.00	-41.50	peak	

Test Mode	LTE Band 26_TX CH26740_1.4M_Second Antenna
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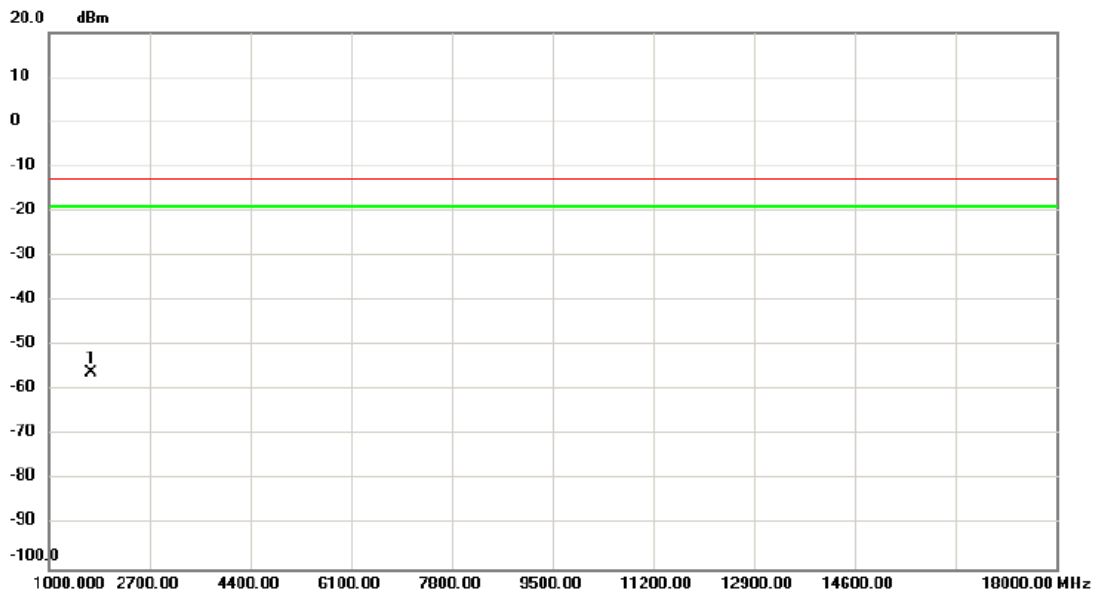
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	3516.000	-54.83	1.13	-53.70	-13.00	-40.70	peak	

Test Mode | LTE Band 26\_TX CH26740\_5M\_Second Antenna

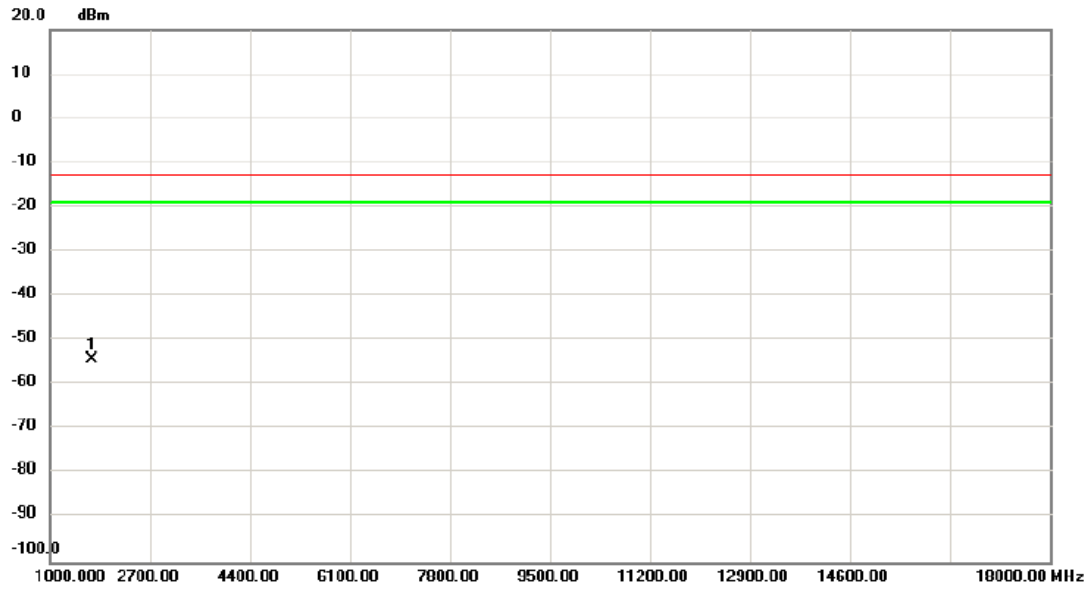
### Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	1722.500	-51.32	-4.75	-56.07	-13.00	-43.07	peak	

Test Mode | LTE Band 26\_TX CH26740\_5M\_Second Antenna

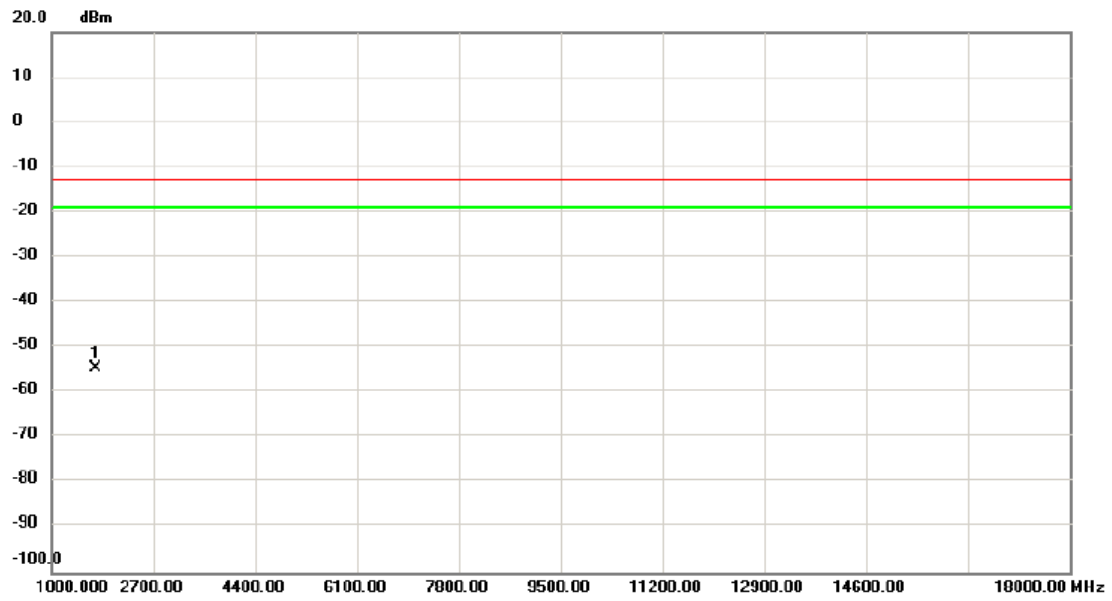
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	1714.000	-49.42	-4.81	-54.23	-13.00	-41.23	peak	

Test Mode | LTE Band 26\_TX CH26740\_10M\_Second Antenna

### Vertical

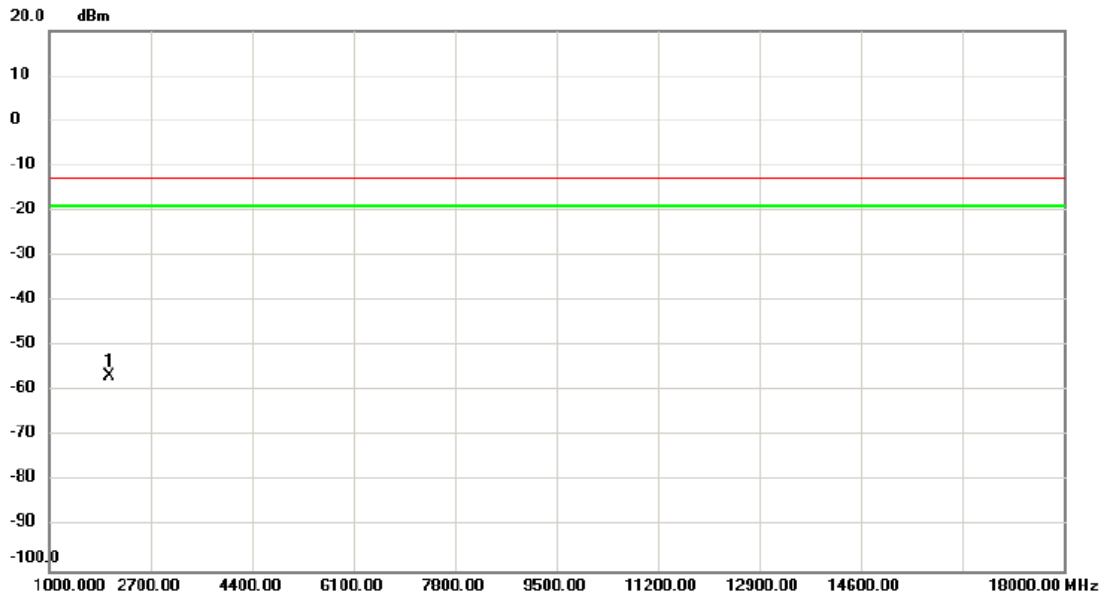


No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	1731.000	-49.79	-4.70	-54.49	-13.00	-41.49	peak	



Test Mode | LTE Band 26\_TX CH26740\_10M\_Second Antenna

### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	2003.000	-53.73	-3.03	-56.76	-13.00	-43.76	peak	

## APPENDIX G - MASK

## LTE Band 26\_1.4M

1RB#0

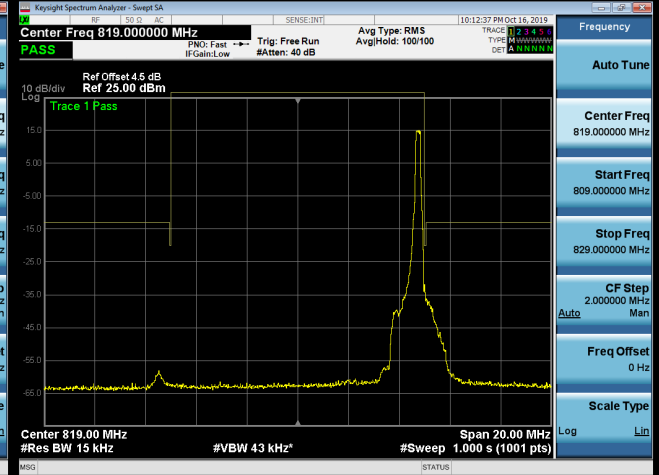
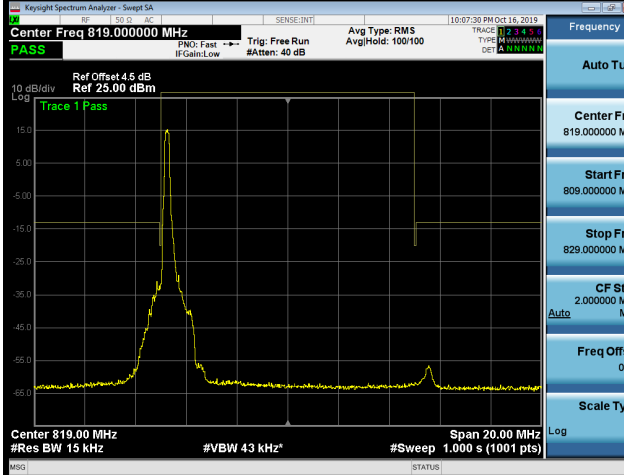
1RB#5

Channel

26697

Channel

26783



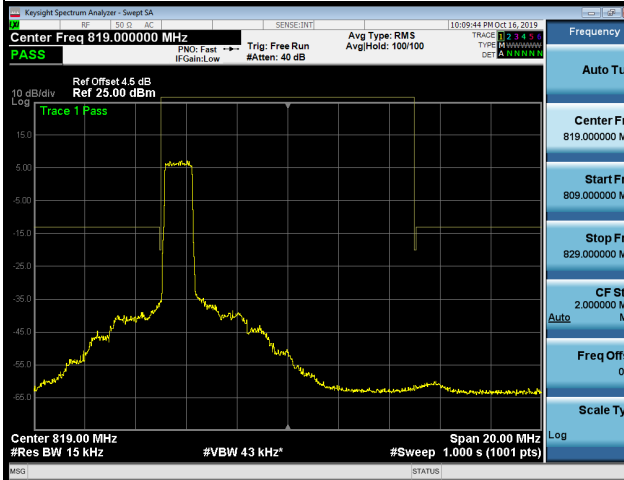
## 6RB#0

Channel

26697

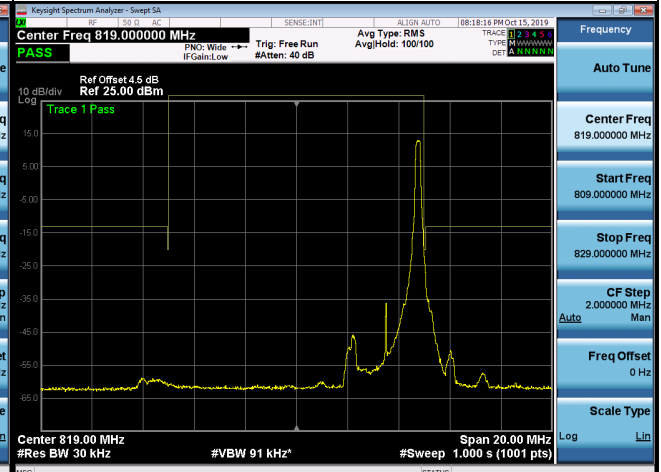
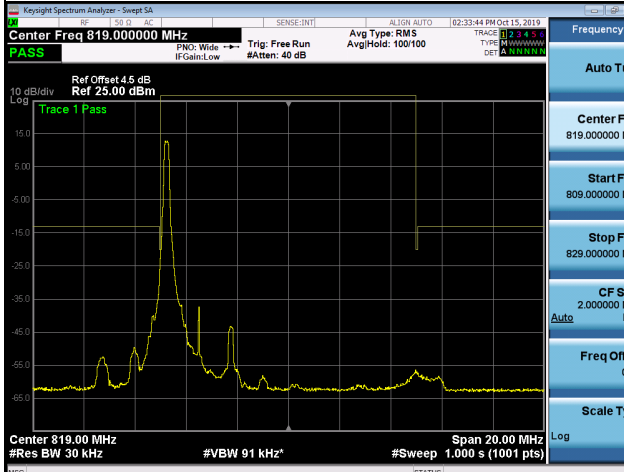
Channel

26783



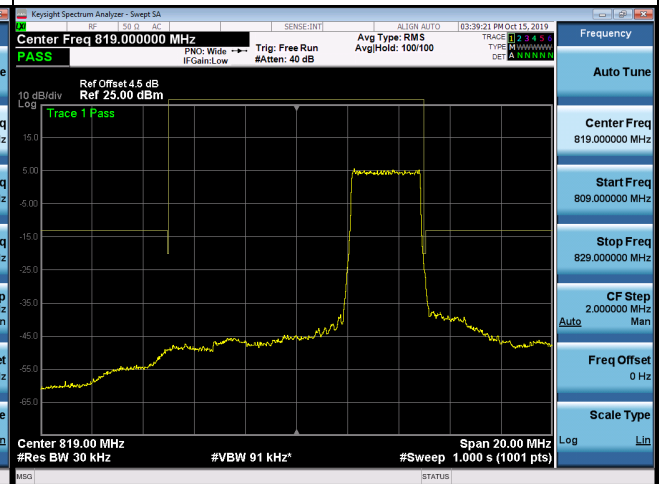
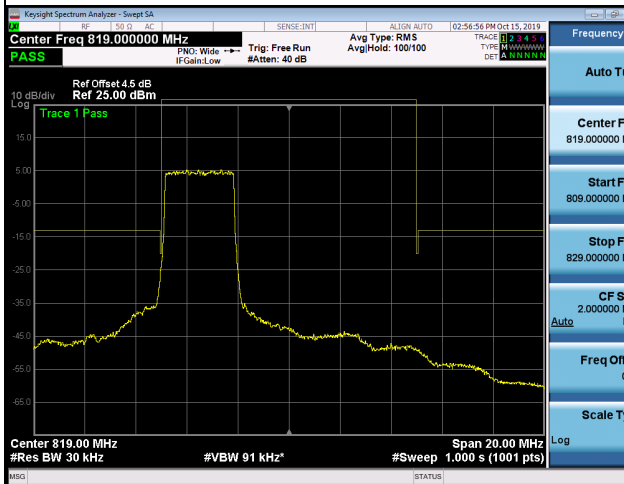
## LTE Band 26\_3M

1RB#0		1RB#14	
Channel	26705	Channel	26775



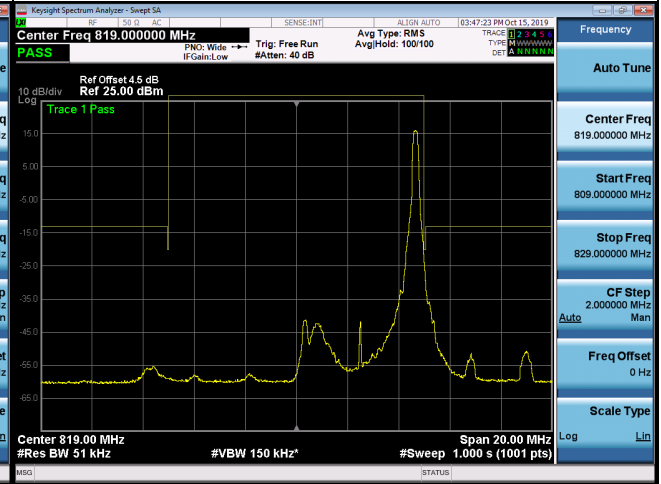
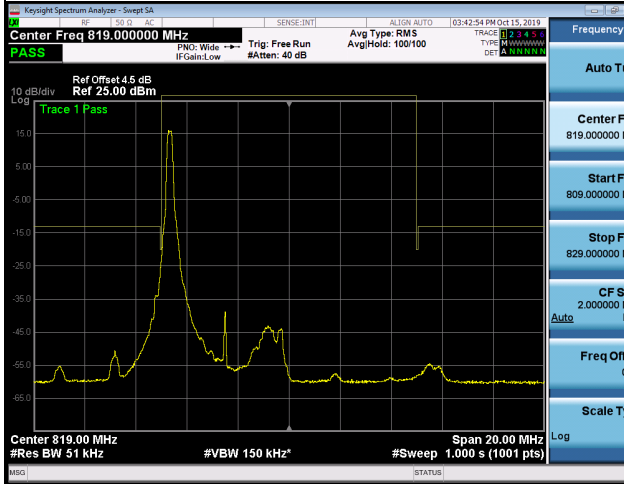
## 15RB#0

Channel		26705	Channel		26775
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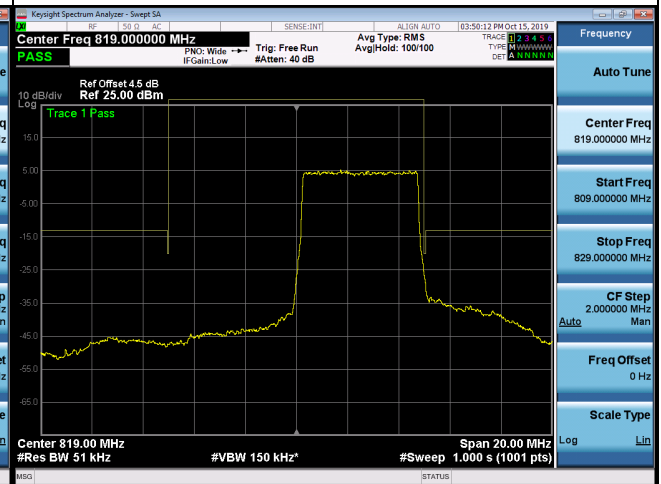
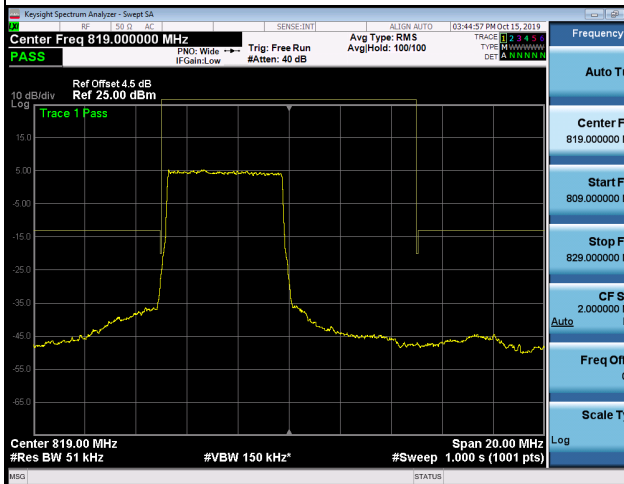
## LTE Band 26\_5M

1RB#0		1RB#24	
Channel	26715	Channel	26765



## 25RB#0

Channel		26715	Channel		26765
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## LTE Band 26\_10M

1RB#0

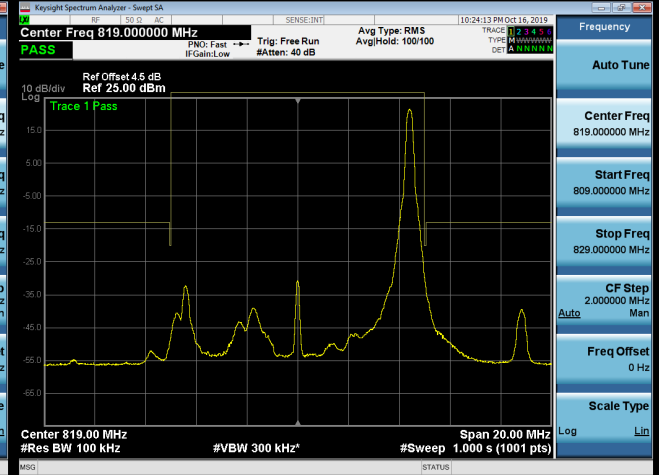
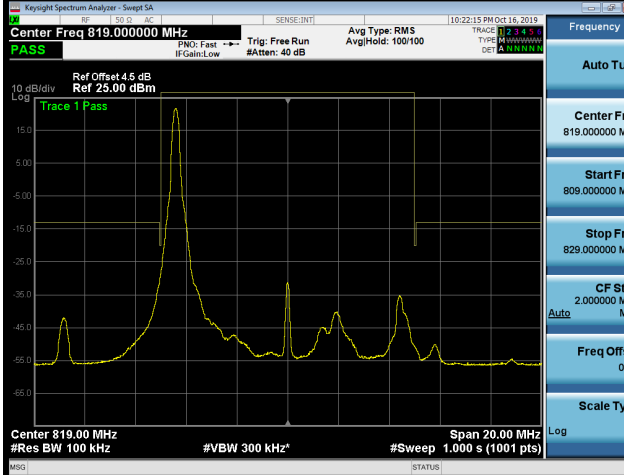
1RB#49

Channel

26740

Channel

26740



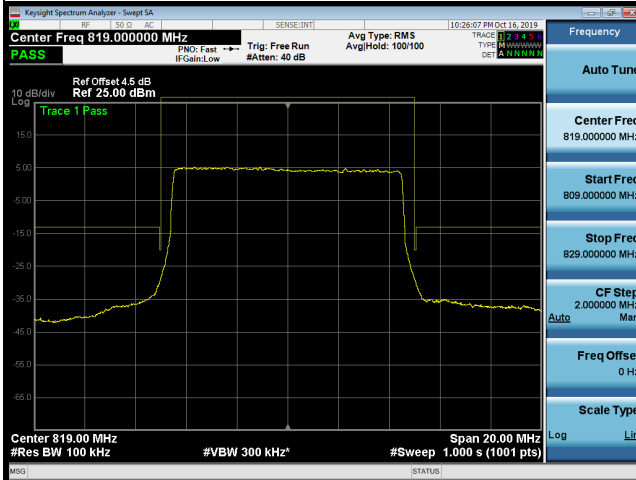
25RB#0

-

Channel

26740

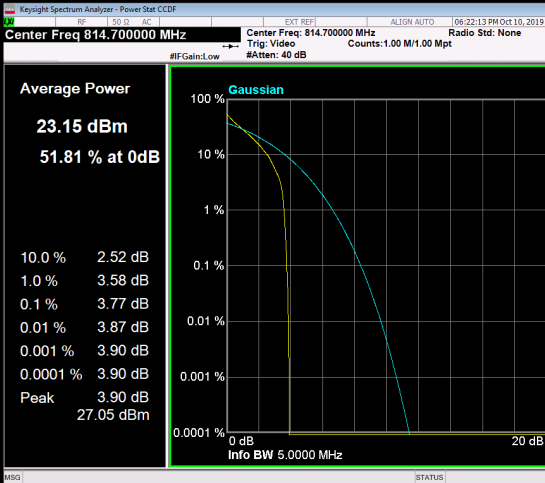
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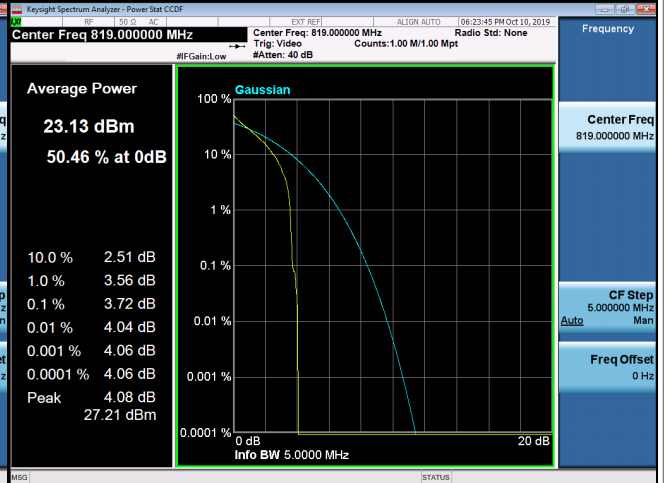
## APPENDIX H - PEAK TO AVERAGE RATIO

## LTE Band 26\_1.4M Spectrum Plot

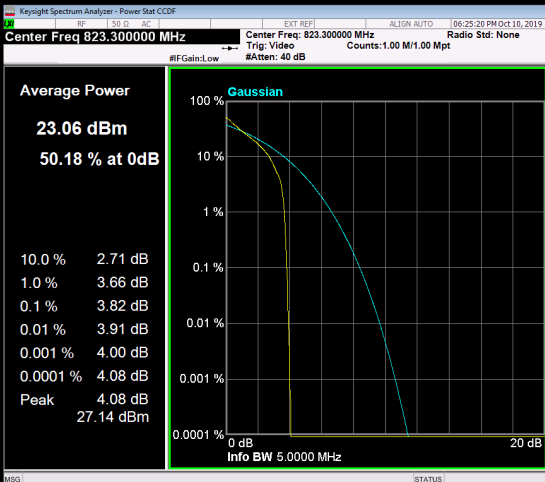
### QPSK-26697



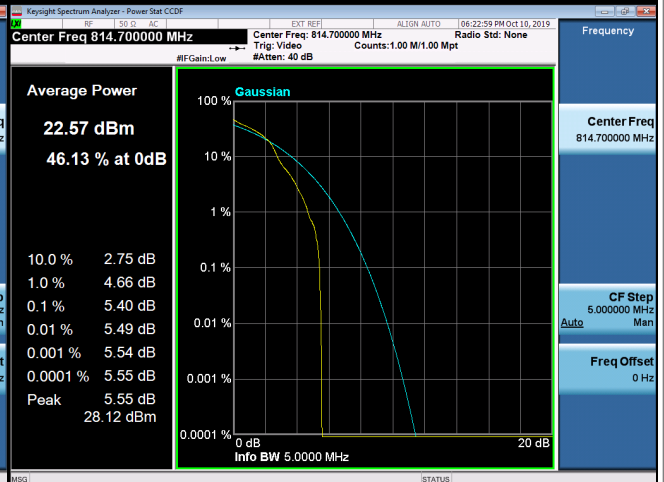
### QPSK-26740



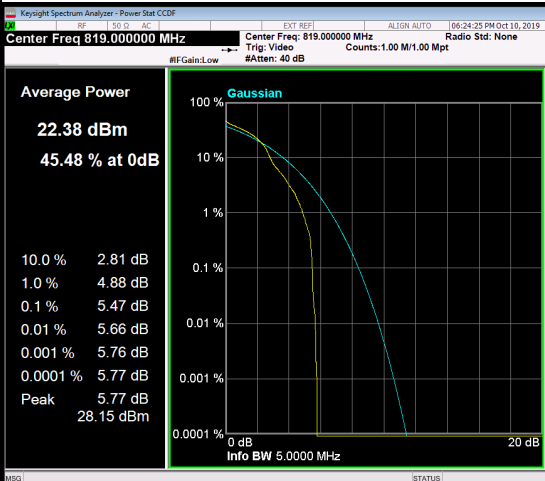
### QPSK-26783



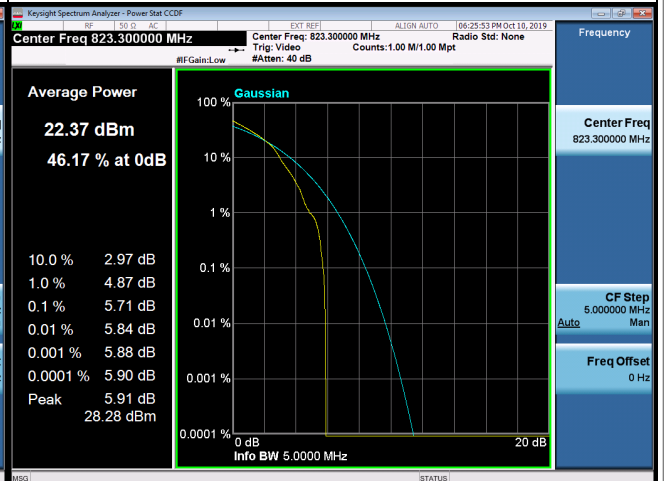
### 16QAM-26697



### 16QAM-26740



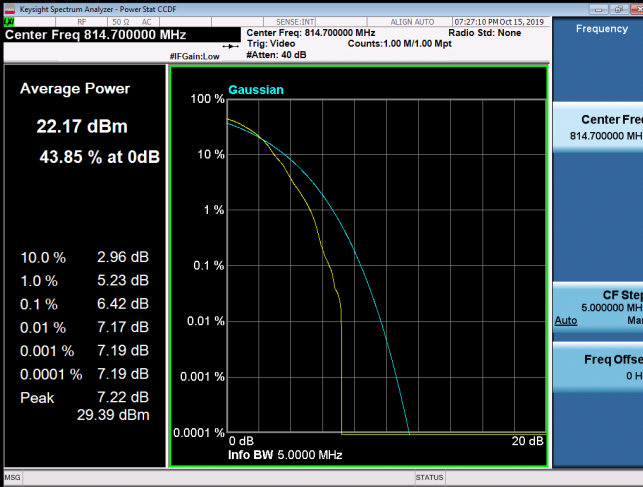
### 16QAM-26783



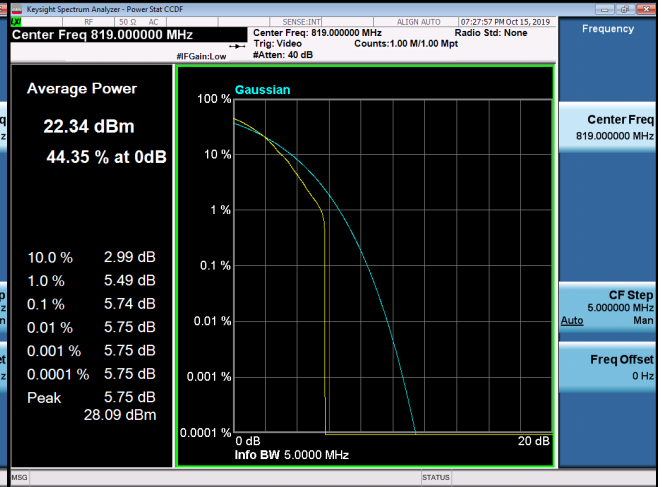


## LTE Band 26\_1.4M Spectrum Plot

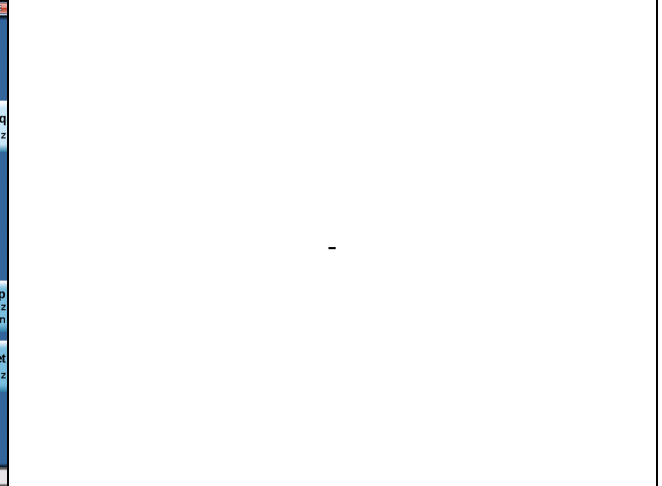
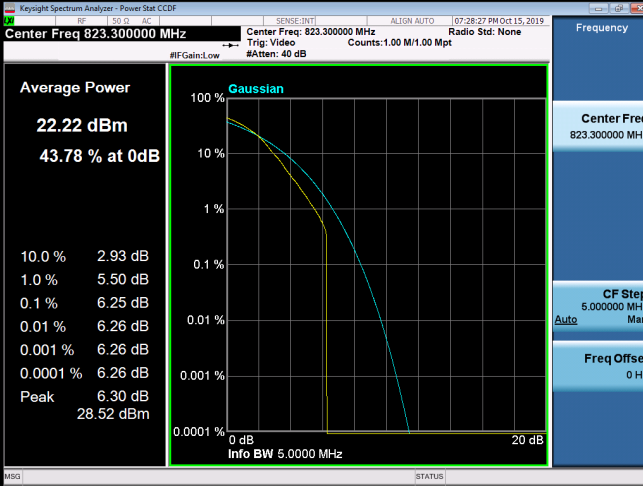
### 64QAM-26697



### 64QAM-26740

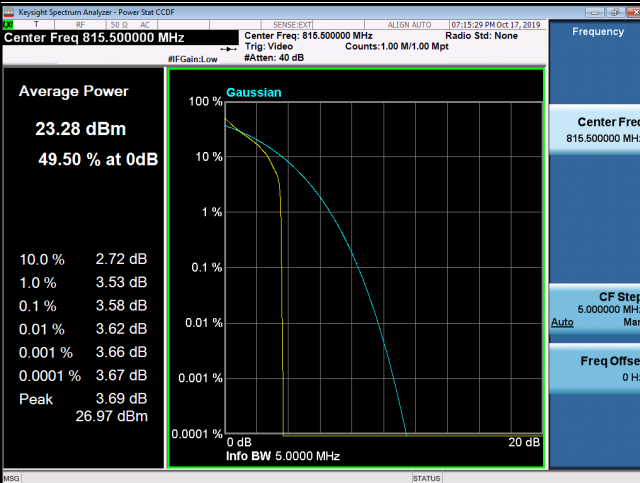


### 64QAM-26783

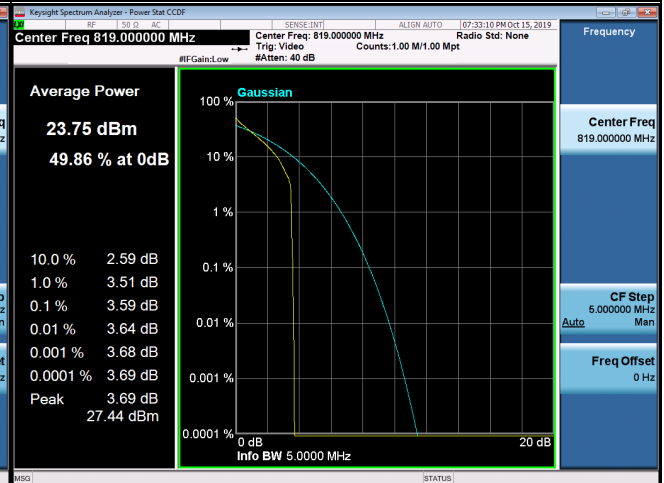


## LTE Band 26\_3M Spectrum Plot

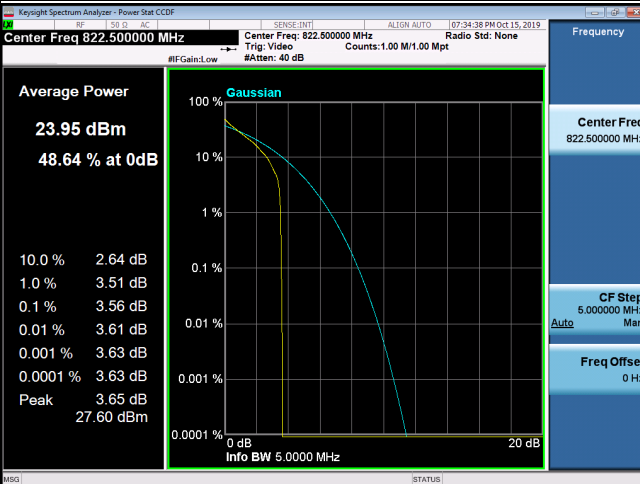
### QPSK-26705



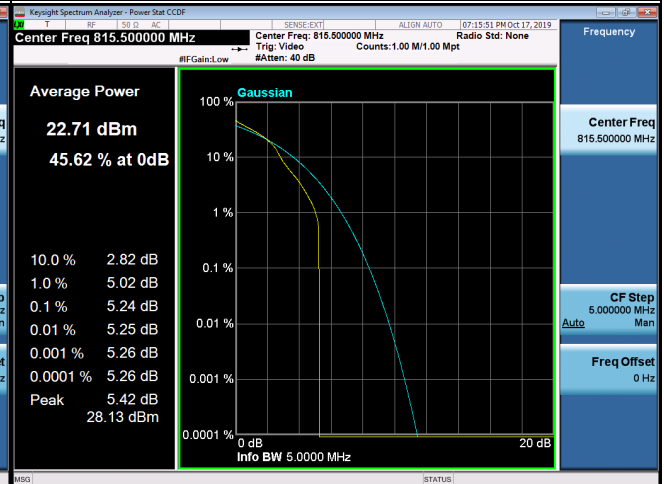
### QPSK-26740



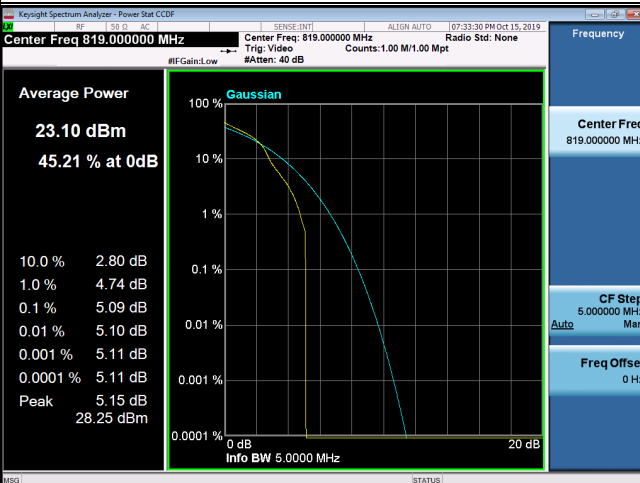
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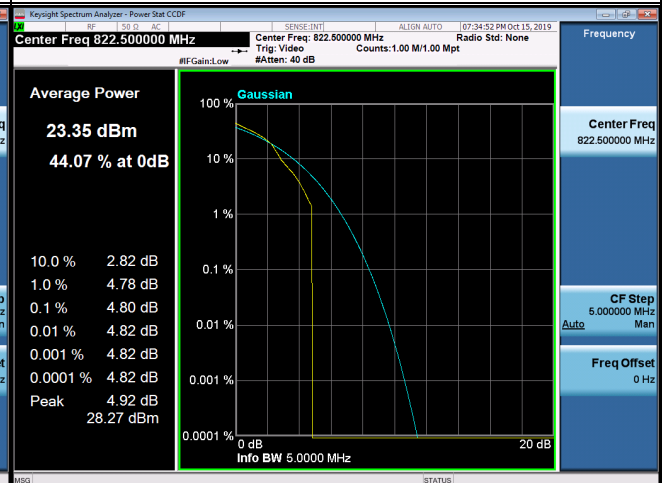
### 16QAM-26705



### 16QAM-26740

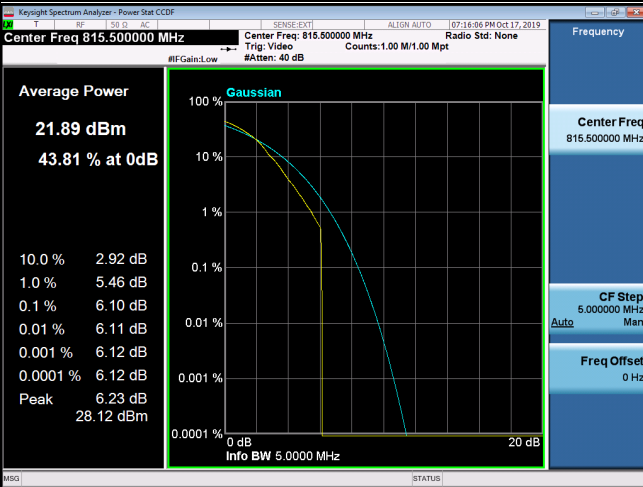


### 16QAM-26775

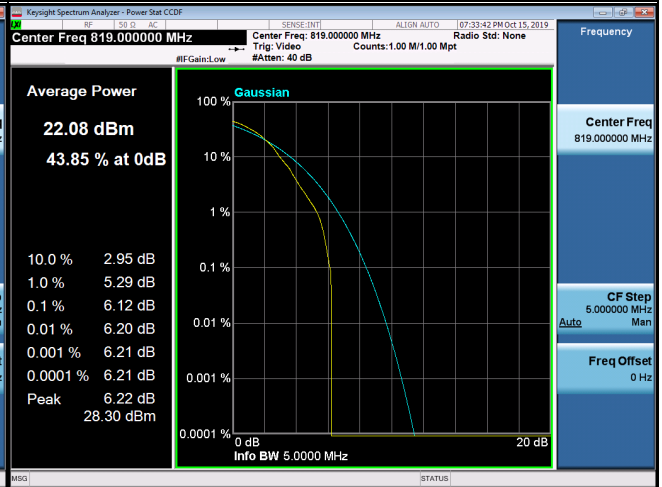


## LTE Band 26\_3M Spectrum Plot

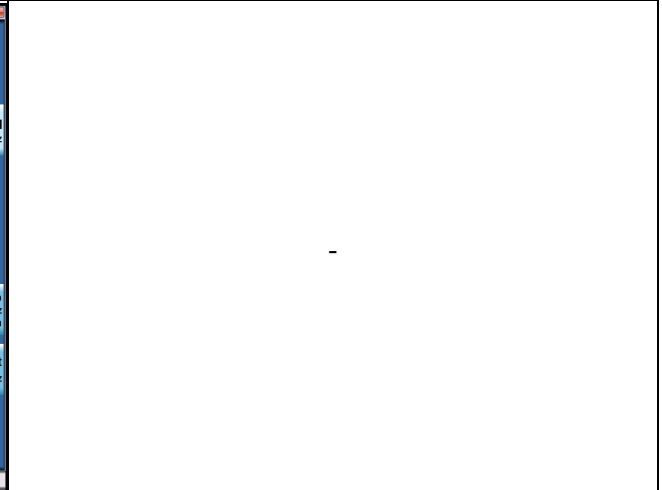
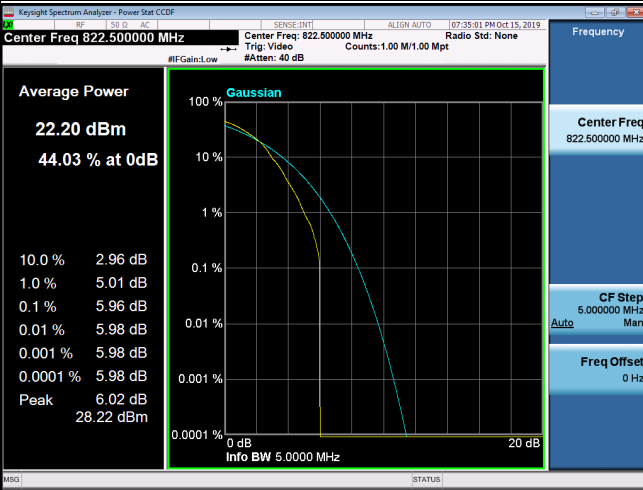
64QAM-26705



64QAM-26740

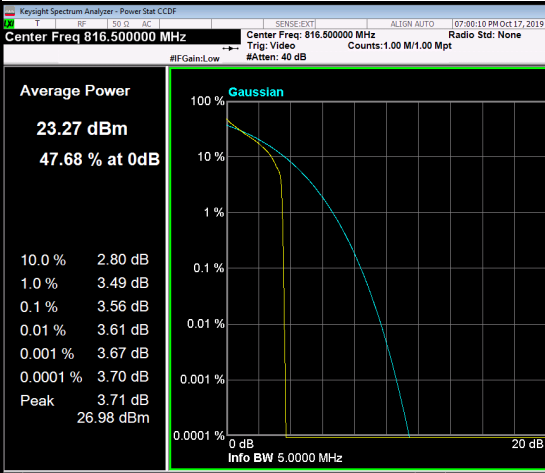


64QAM-26775

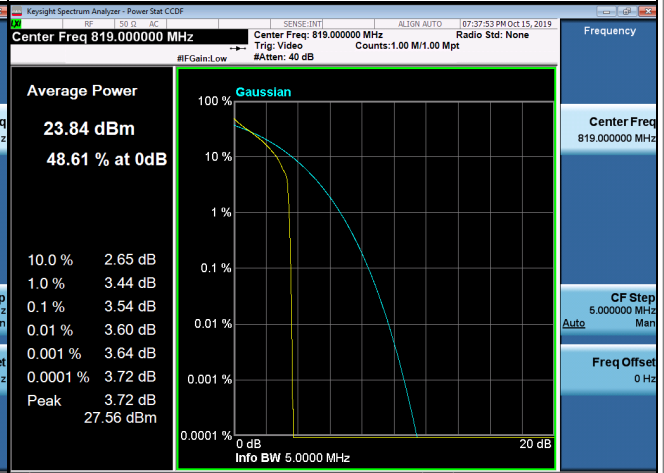


## LTE Band 26\_5M Spectrum Plot

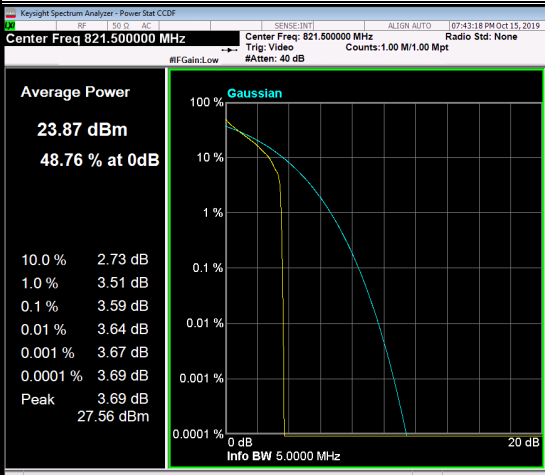
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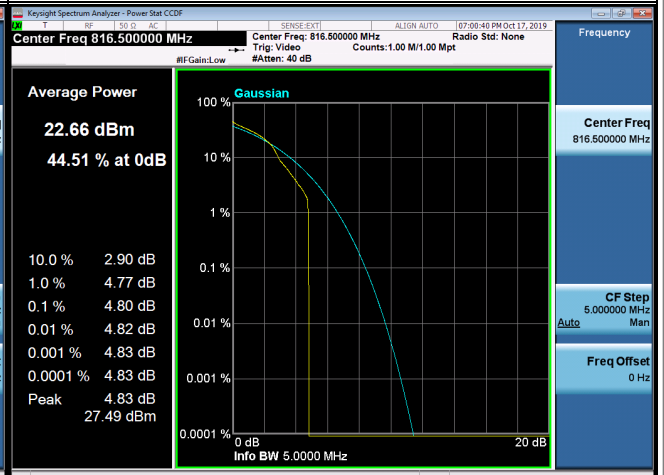
### QPSK-26740



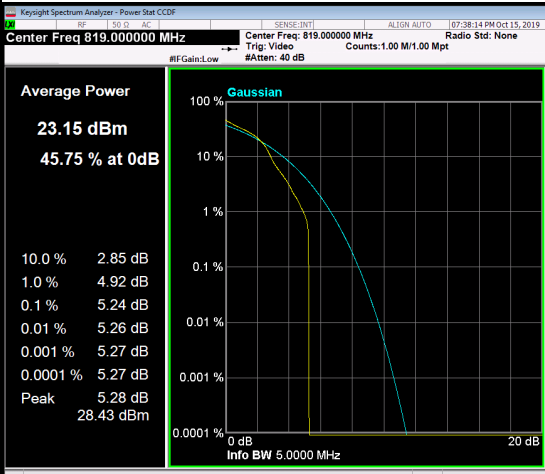
### QPSK-26765



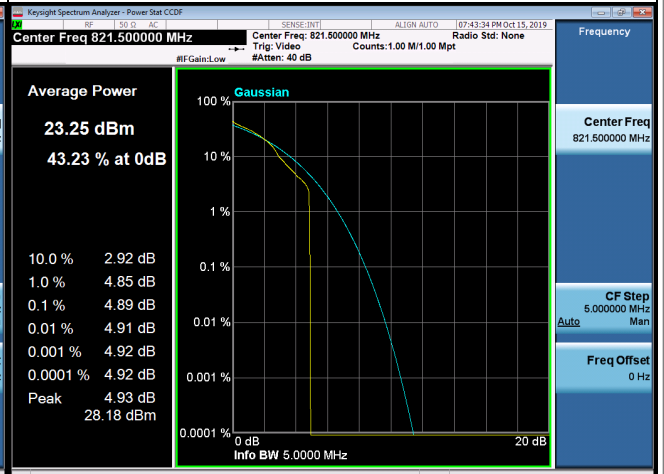
### 16QAM-26715



### 16QAM-26740

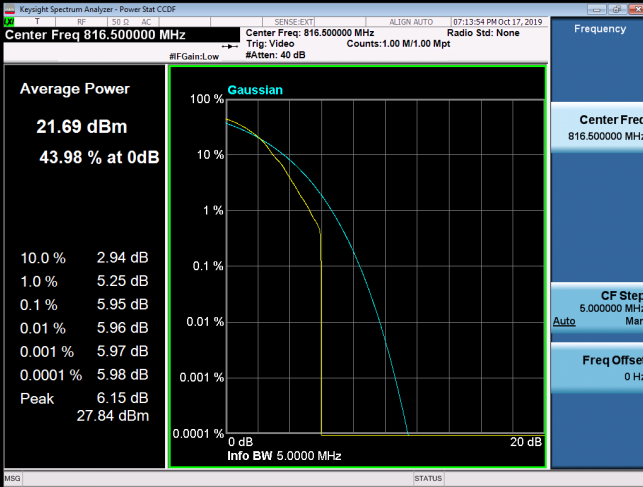


### 16QAM-26765

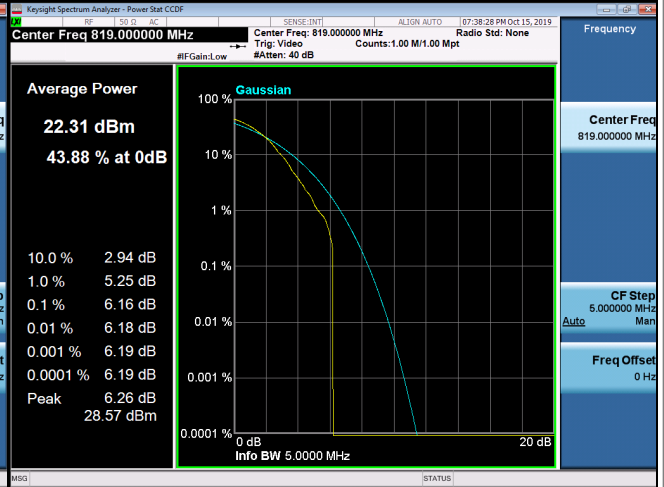


## LTE Band 26\_5M Spectrum Plot

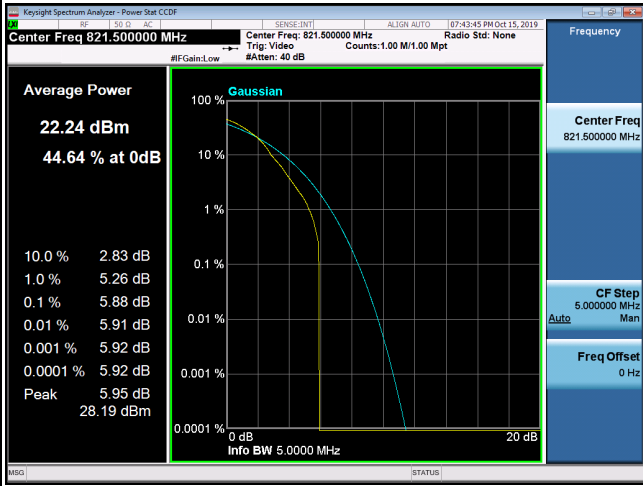
### 64QAM-26715



### 64QAM-26740

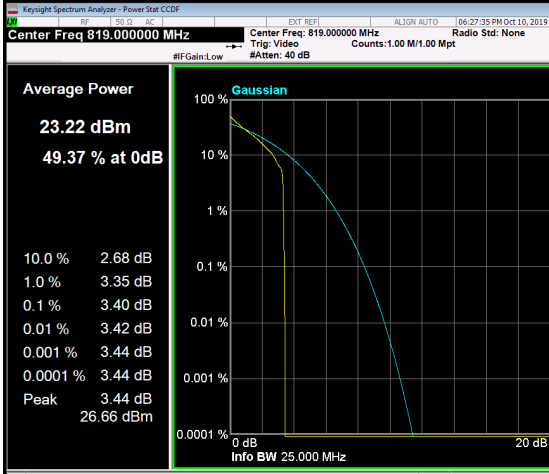


### 64QAM-26765

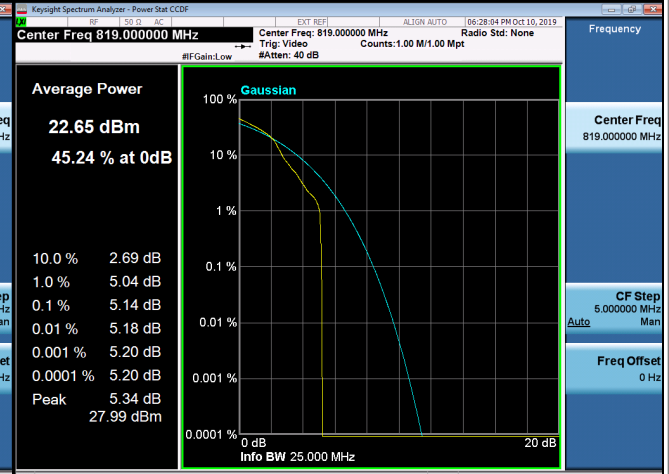


## LTE Band 26\_10M Spectrum Plot

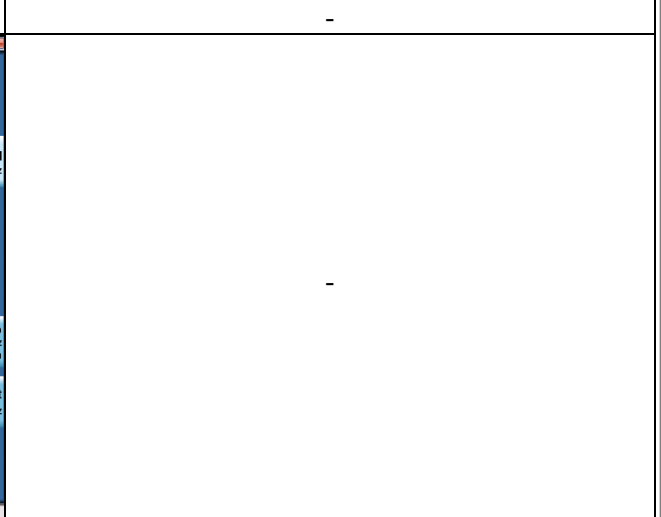
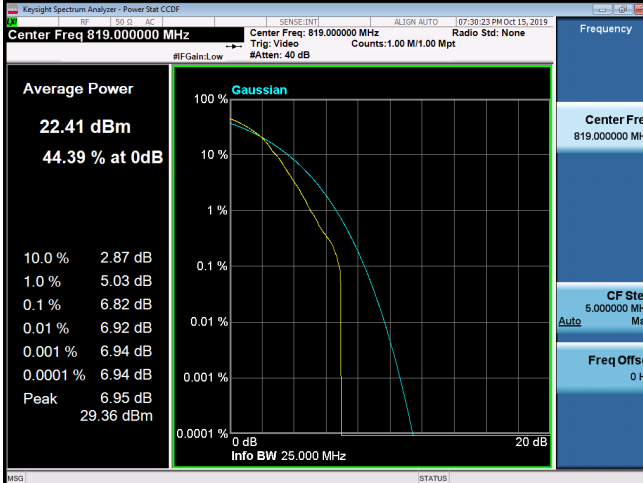
### QPSK-26740



### 16QAM-26740



### 64QAM-26740



## APPENDIX I - FREQUENCY STABILITY

Test Mode	LTE Band 26_CH26740_1.4M
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**Temperature vs. Frequency Stability**

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	-4.58	-0.005592186	±2.5
5	-7.08	-0.008644689	
15	7.83	0.00956044	
25	-4.43	-0.005409035	
35	-5.01	-0.006117216	
Max. Deviation (ppm)	7.83	0.00956044	

**Voltage vs. Frequency Stability**

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.45	1.26	0.001538462	±2.5
3.87	3.90	0.004761905	
3.60	-2.84	-0.003467643	
Max. Deviation (ppm)	3.9	0.004761905	



Test Mode	LTE Band 26_CH26740_3M
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**Temperature vs. Frequency Stability**

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	-1.18	-0.001440781	±2.5
5	4.34	0.005299145	
15	-2.91	-0.003553114	
25	-5.19	-0.006336996	
35	1.30	0.001587302	
Max. Deviation (ppm)	-5.19	-0.006336996	

**Voltage vs. Frequency Stability**

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.45	-3.42	-0.004175824	±2.5
3.87	-3.35	-0.004090354	
3.60	-4.71	-0.005750916	
Max. Deviation (ppm)	-4.71	-0.005750916	

Test Mode	LTE Band 26_CH26740_5M
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**Temperature vs. Frequency Stability**

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	-3.97	-0.004847375	±2.5
5	3.93	0.004798535	
15	-2.76	-0.003369963	
25	1.04	0.001269841	
35	-5.98	-0.007301587	
Max. Deviation (ppm)	-5.98	-0.007301587	

**Voltage vs. Frequency Stability**

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.45	-5.30	-0.006471306	±2.5
3.87	-4.38	-0.005347985	
3.60	2.00	0.002442002	
Max. Deviation (ppm)	-5.3	-0.006471306	

Test Mode	LTE Band 26_CH26740_10M
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**Temperature vs. Frequency Stability**

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	-1.48	-0.001807082	±2.5
5	-2.05	-0.002503053	
15	3.54	0.004322344	
25	3.49	0.004261294	
35	-7.35	-0.008974359	
Max. Deviation (ppm)	-7.35	-0.008974359	

**Voltage vs. Frequency Stability**

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.45	-3.24	-0.003956044	±2.5
3.87	3.54	0.004322344	
3.60	-4.42	-0.005396825	
Max. Deviation (ppm)	-4.42	-0.005396825	

**End of Test Report**