

# FCC Radio Test Report

## FCC ID: 2AUSF-BKW700

This report concerns: Original Grant

**Project No.** : 1909C175  
**Equipment** : Borqs Kids Smartwatch  
**Brand Name** : WatchMeGo  
**Model Name** : BKW700, ANSBKW700  
**Applicant** : BORQS INTERNATIONAL HOLDING CORP  
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**Manufacturer** : BORQS INTERNATIONAL HOLDING CORP  
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**Address** : Building B23-A,Universal Business Park, No.10 jiuxianqiao Road,Chaoyang District Beijing, 100015 China  
**Date of Receipt** : Sep. 27, 2019  
**Date of Test** : Sep. 27, 2019 ~ Dec. 12, 2019  
**Issued Date** : Dec. 17, 2019  
**Report Version** : R00  
**Test Sample** : Engineering Sample No.: DG2019092792 for conducted, DG2019112539 for radiated.  
**Standard(s)** : 47 CFR FCC Part 22 Subpart H  
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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### Declaration

**BTL** represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with standards traceable to international standard(s) and/or national standard(s).

**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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**BTL**'s laboratory quality assurance procedures are in compliance with the **ISO/IEC 17025** requirements, and accredited by the conformity assessment authorities listed in this test report.

**BTL** is not responsible for the sampling stage, so the results only apply to the sample as received.

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.	Dec. 17, 2019

## 1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC Part 22 Subpart H & Part 2			
Standard(s) Section	Test Item	Judgment	Remark
2.1046 22.913(a)(5)	Effective Radiated Power	PASS	-----
2.1049	Occupied Bandwidth	PASS	-----
2.1051 22.917(a)	Conducted Spurious Emissions	PASS	-----
2.1053 22.917(a)	Radiated Spurious Emissions	PASS	-----
22.917(a)	Band Edge Measurements	PASS	-----
-	Peak To Average Ratio	PASS	Record Only
2.1055 22.355	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	25.1°C	50.6%	DC 3.8V	Vegeta Li
Occupied Bandwidth	25.1°C	50.6%	DC 3.8V	Vegeta Li
Conducted Spurious Emissions	25.1°C	50.6%	DC 3.8V	Vegeta Li
Radiated Spurious Emissions	24°C	68%	AC 120V/60Hz	Berton Luo
Band Edge	25.1°C	50.6%	DC 3.8V	Vegeta Li
Peak to Average Ratio	25.1°C	50.6%	DC 3.8V	Vegeta Li
Frequency Stability	Normal and Extreme			Vegeta Li

## 2. GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF EUT

Equipment	Borqs Kids Smartwatch			
Brand Name	WatchMeGo			
Model Name	BKW700, ANSBKW700			
Model Difference(s)	Only differ in model name.			
Hardware Version	DVT1			
Software Version	SW_MD_034_190920_GCF_USERDEBUG			
Power Source	1# Supplied from battery. Model: ZWD512724V 2# DC Voltage supplied from AC/DC adapter. Model: A18A-050100U-US2 3# Supplied from USB port.			
Power Rating	1# DC 4.35V(Limited Charge), 400mAh 2# Input: 100-240V~, 50/60Hz, Max 0.2A, Output:5V === 1A 3# DC 5V 1A			
IEMI No.	Radiated	866027035004528		
	Conducted	866027035001201		
Modulation Type	UL: QPSK,16QAM DL: QPSK,16QAM			
Max. ERP	LTE	Channel Bandwidth (MHz)	QPSK (dBm)	16QAM (dBm)
	Band 26	1.4	21.72	20.86
		3	21.96	20.89
		5	21.76	20.78
		10	21.74	20.87
		15	21.65	20.58

## Note:

1. 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	26797	824.7	8797	869.7
	3	26805	825.5	8805	870.5
	5	26815	826.5	8815	871.5
	10	26840	829	8840	874
	15	26865	831.5	8865	876.5
Mid Range	1.4/3/5/10/15	26915	836.5	8915	881.5
High Range	1.4	27033	848.3	9033	893.3
	3	27025	847.5	9025	892.5
	5	27015	846.5	9015	891.5
	10	26990	844	8990	889
	15	26965	841.5	8965	886.5

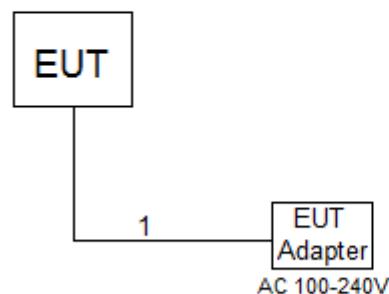
## 3. Table for Filed Antenna:

Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Note
N/A	N/A	Internal	N/A	1	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	26797 to 27033	26797, 26915, 27033	1.4MHz	QPSK, 16QAM	1RB/3RB/6RB
	26805 to 27025	26805, 26915, 27025	3MHz	QPSK, 16QAM	1RB/8RB/15RB
	26815 to 27015	26815, 26915, 27015	5MHz	QPSK, 16QAM	1RB/12RB/25RB
	26840 to 26990	26840, 26915, 26990	10MHz	QPSK, 16QAM	1RB/25RB/50RB
	26865 to 26965	26865, 26915, 26965	15MHz	QPSK, 16QAM	1RB/36RB/75RB
Occupied Bandwidth	26797 to 27033	26797, 26915, 27033	1.4MHz	QPSK, 16QAM	6RB
	26805 to 27025	26805, 26915, 27025	3MHz	QPSK, 16QAM	15RB
	26815 to 27015	26815, 26915, 27015	5MHz	QPSK, 16QAM	25RB
	26840 to 26990	26840, 26915, 26990	10MHz	QPSK, 16QAM	50RB
	26865 to 26965	26865, 26915, 26965	15MHz	QPSK, 16QAM	75RB
Conducted Spurious Emissions	26815 to 27015	226915	1.4MHz	QPSK	1RB
	26815 to 27015	226915	5MHz	QPSK	1RB
	26865 to 26965	226915	15MHz	QPSK	1RB
Radiated Spurious Emissions	26815 to 27015	226915	1.4MHz	QPSK	1RB
	26815 to 27015	226915	5MHz	QPSK	1RB
	26865 to 26965	226915	15MHz	QPSK	1RB
Band Edge	26797 to 27033	26797, 27033	1.4MHz	QPSK	1RB
	26805 to 27025	26805, 27025	3MHz	QPSK	6RB
	26815 to 27015	26815, 27015	5MHz	QPSK	15RB
	26840 to 26990	26840, 26990	10MHz	QPSK	1RB
	26865 to 26965	26865, 26965	15MHz	QPSK	50RB
Peak To Average Ratio	26797 to 27033	26797, 26915, 27033	1.4MHz	QPSK, 16QAM	1RB
	26805 to 27025	26805, 26915, 27025	3MHz	QPSK, 16QAM	1RB
	26815 to 27015	26815, 26915, 27015	5MHz	QPSK, 16QAM	1RB
	26840 to 26990	26840, 26915, 26990	10MHz	QPSK, 16QAM	1RB
	26865 to 26965	26865, 26915, 26965	15MHz	QPSK, 16QAM	1RB
Frequency Stability	26797 to 27033	226915	1.4MHz	QPSK	1RB
	26805 to 27025	226915	3MHz	QPSK	1RB
	26815 to 27015	226915	5MHz	QPSK	1RB
	26840 to 26990	226915	10MHz	QPSK	1RB
	26865 to 26965	226915	15MHz	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	0.8m

### 3. TEST RESULT

#### 3.1 OUTPUT POWER MEASUREMENT

##### 3.1.1 LIMIT

Mobile / Portable station are limited to 7 watts e.r.p.

##### 3.1.2 TEST PROCEDURE

The testing follows FCC KDB 971168 v03r01 Section 5.

###### EIRP / ERP:

EIRP = Output Power + Antennal gain

ERP = EIPR - 2.15dBi

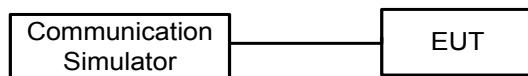
###### Output Power:

The EUT was set up for the maximum power with 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 TEST SETUP LAYOUT

###### Output Power Measurement



##### 3.1.4 TEST DEVIATION

No deviation

##### 3.1.5 TEST RESULTS

Please refer to the APPENDIX A.

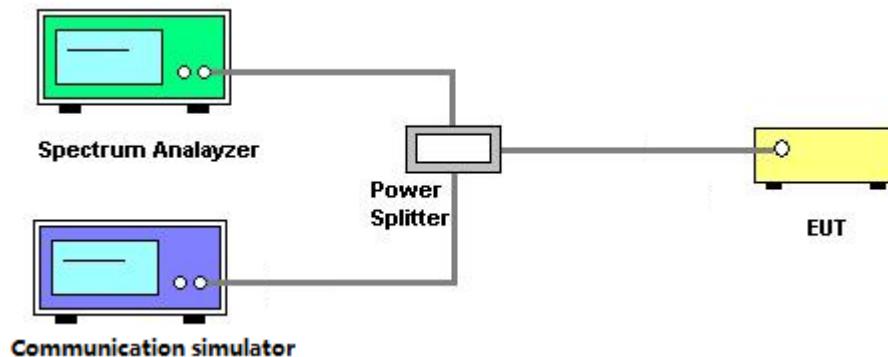
### 3.2 OCCUPIED BANDWIDTH MEASUREMENT

#### 3.2.1 TEST PROCEDURE

The testing follows FCC KDB 971168 v03r01 Section 4.

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 Peak 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

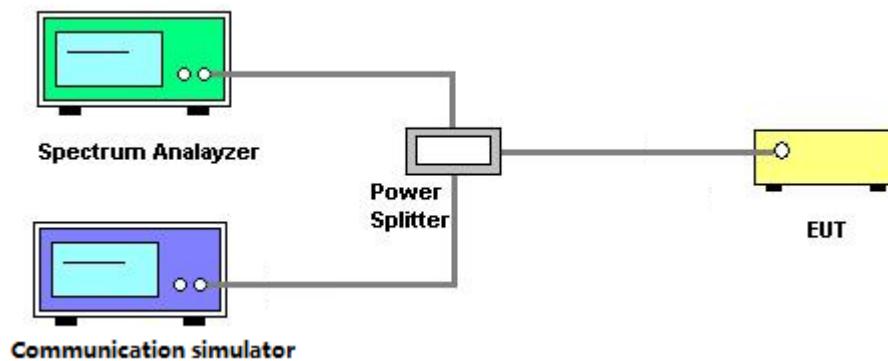
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. The emission limit equal to -13dBm.

#### 3.3.2 TEST PROCEDURES

The testing follows FCC KDB 971168 v03r01 Section 6.

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 Peak detector.
4. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

#### 3.3.3 TEST SETUP LAYOUT



#### 3.3.4 TEST DEVIATION

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.

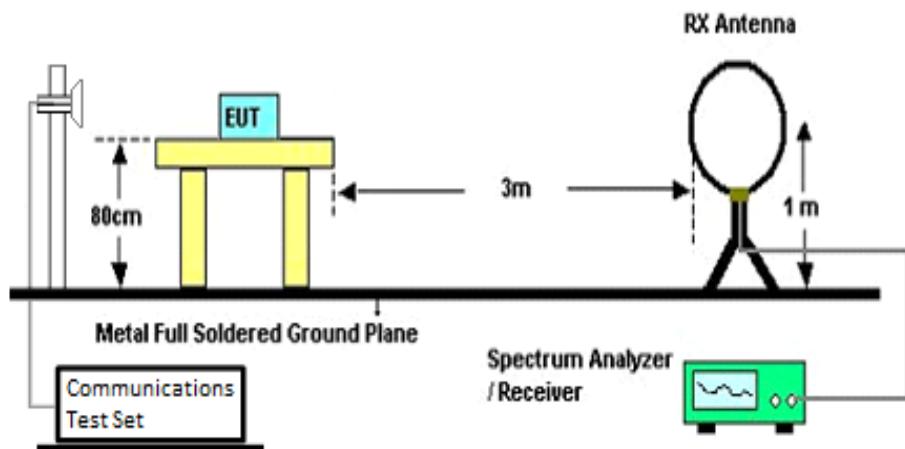
#### **3.4.2 TEST PROCEDURES**

The testing follows FCC KDB 971168 v03r01 Section 6.2.

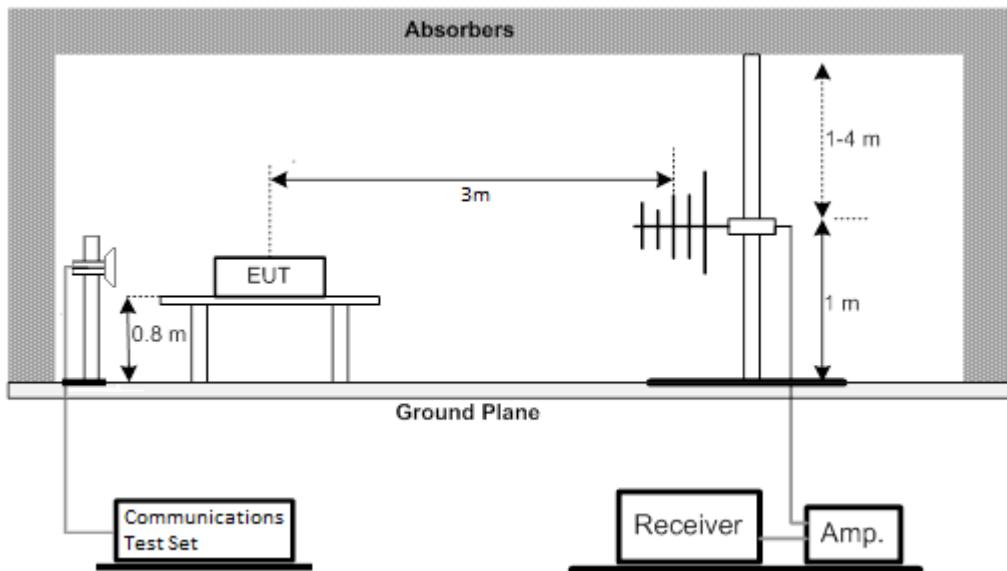
1. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 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. 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.

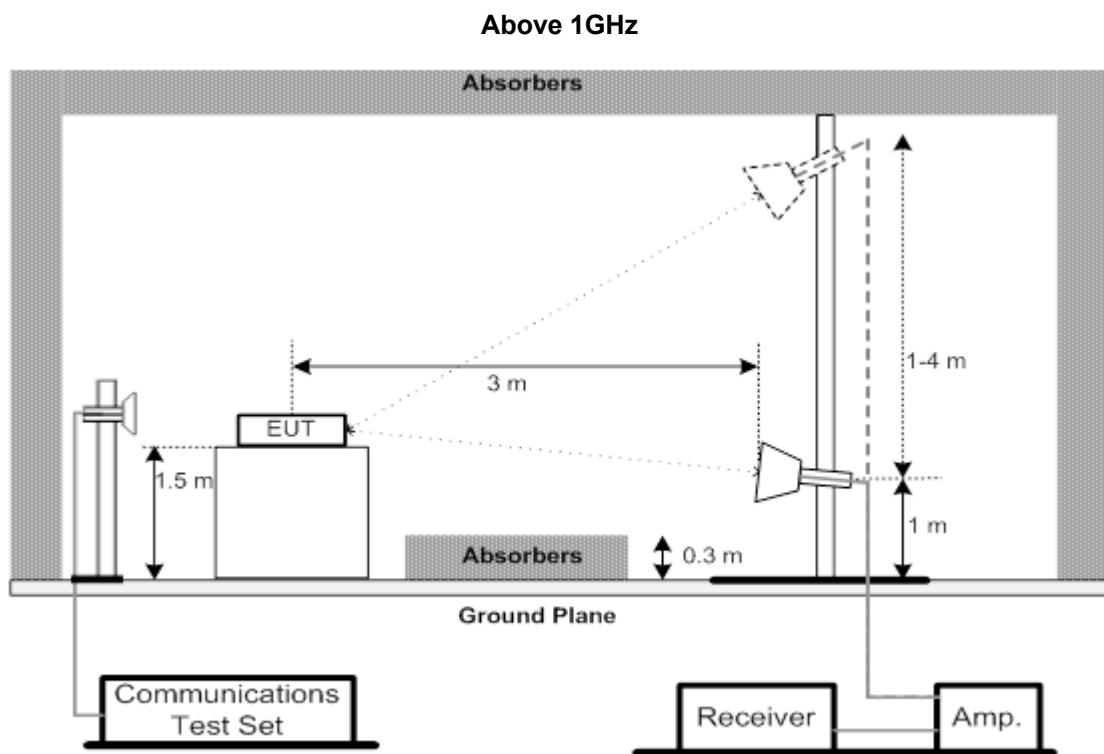
### 3.4.3 TEST SETUP LAYOUT

Below 30MHz



30MHz to 1000MHz





#### 3.4.4 TEST DEVIATION

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 BAND EDGE MEASUREMENT

#### 3.5.1 LIMIT

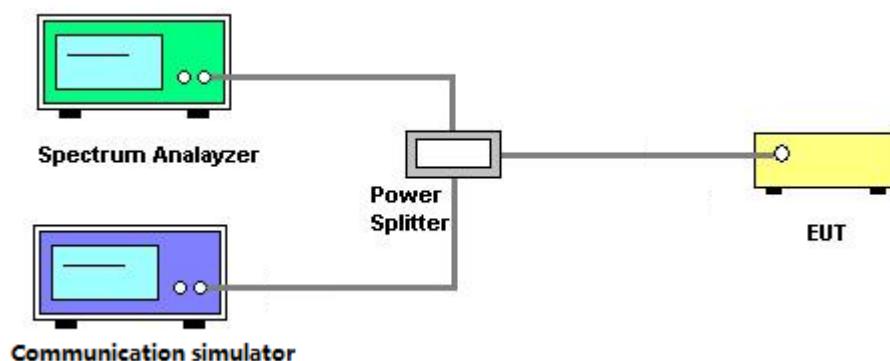
A Power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of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

#### 3.5.2 TEST PROCEDURES

The testing follows FCC KDB 971168 v03r01 Section 6.

1. All measurements were done at low and high operational frequency range.
2. Record the max trace plot into the test report.

#### 3.5.3 TEST SETUP LAYOUT



#### 3.5.4 TEST DEVIATION

No deviation

#### 3.5.5 TEST RESULTS

Please refer to the APPENDIX G.

### 3.6 PEAK TO AVERAGE RATIO MEASUREMENT

#### 3.6.1 LIMIT

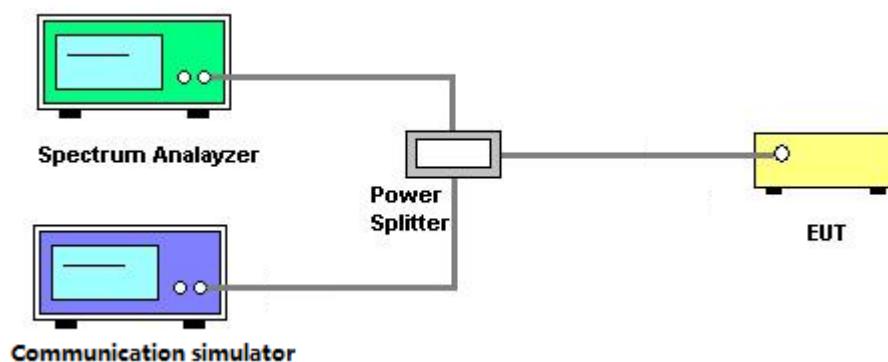
In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB.

#### 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

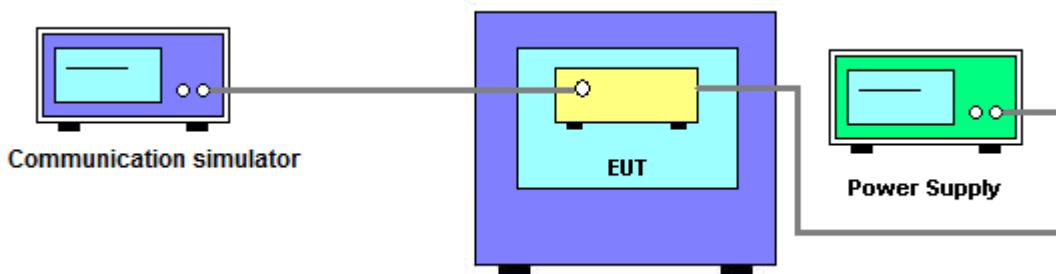
$\pm 1.5$  ppm is for base and fixed station.  $\pm 2.5$  ppm is for mobile station.

#### 3.7.2 TEST PROCEDURES

The testing follows FCC KDB 971168 v03r01 Section 9.

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 TEST SETUP LAYOUT



#### 3.7.4 TEST DEVIATION

No deviation

#### 3.7.5 TEST RESULTS

Please refer to the APPENDIX I.

**4. 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	Wairrwright Instruments Gmbh	WHK 1.5/15G-10ST	11	Mar. 10, 2020
4	Band Reject Filter	Wairrwright Instruments Gmbh	WRCG 1710/1785-1690/1805-60/12SS	38	Mar. 10, 2020
5	Band Reject Filter	Wairrwright Instruments Gmbh	WRCG 824/849-810/863-60/9 SS	7	Mar. 10, 2020
6	Band Reject Filter	Wairrwright Instruments Gmbh	WRCG 880/915-860/935-60/9 SS	14	Mar. 10, 2020
7	Band Reject Filter	Wairrwright Instruments Gmbh	WRCG 1850/1910-1830/1930-60/10SS	17	Mar. 10, 2020
8	HighPass Filter	Wairrwright 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-386 9	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

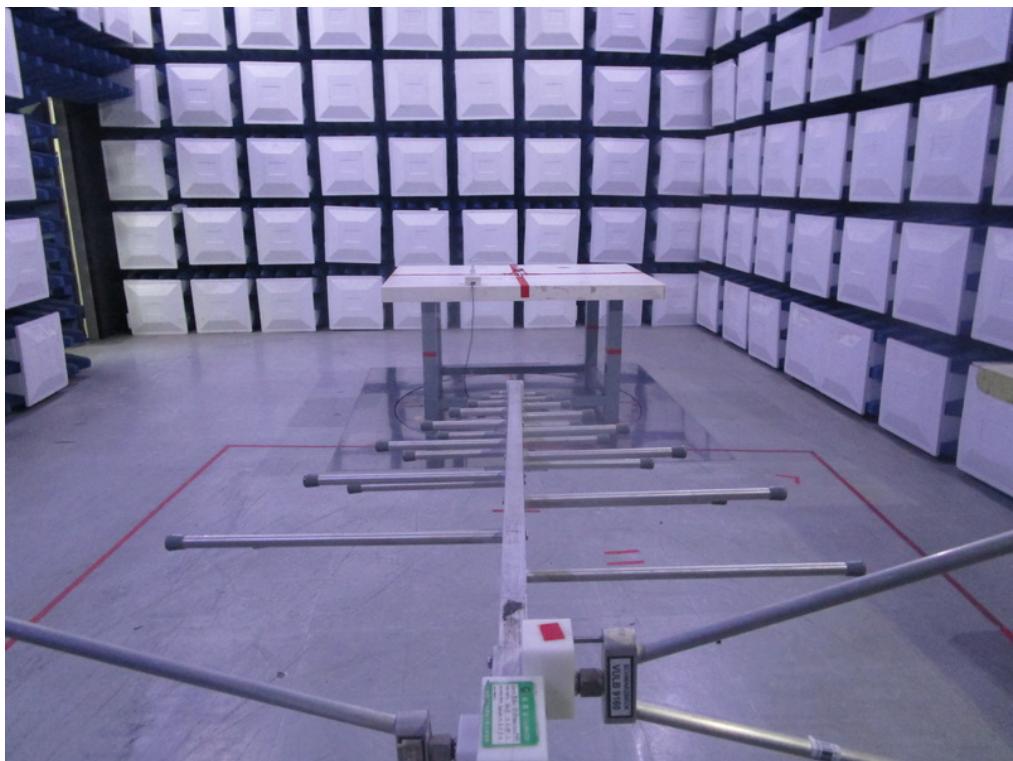
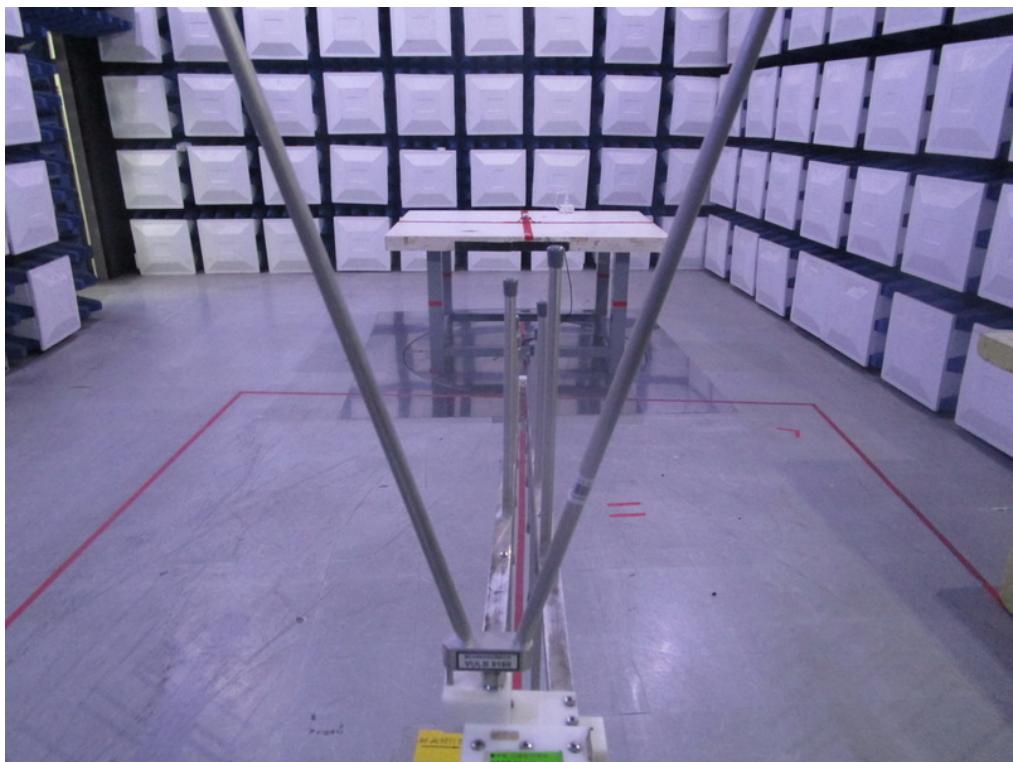
<b>Conducted Measurement</b>					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Wireless Communication Test SET	Agilent	E5515C	MY48364183	Mar. 10, 2020
2	EXA Spectrum Analyzer	Agilent	N9010A	MY50520044	Mar. 10, 2020
3	POWER SPLITTER	Mini-Circuits	ZFRSC-123-S+	331000910-1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

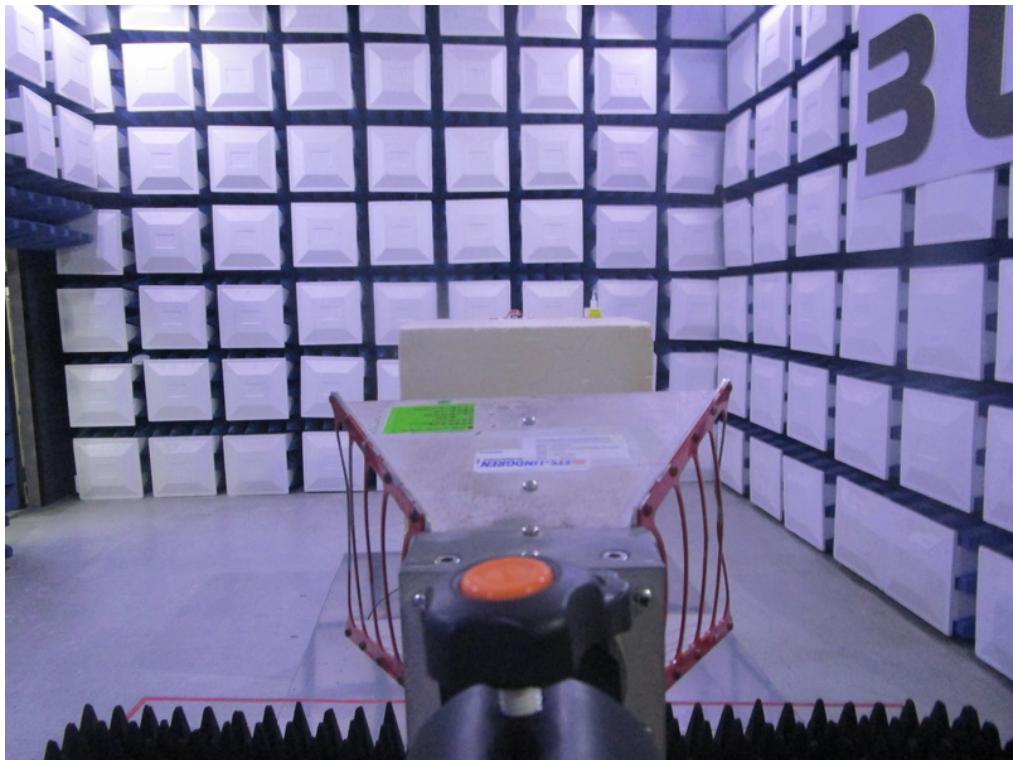
<b>Frequency Stability Measurement</b>					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Wireless Communication Test SET	Agilent	E5515C	MY48364183	Mar. 10, 2020
2	Multi-output DC Power Supply	GW Insteck	GPC-3030DN	EK880675	Sep. 26, 2020
3	POWER SPLITTER	Mini-Circuits	ZFRSC-123-S+	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.

**5. EUT TEST PHOTO****Radiated Emissions Test Photos****9 kHz to 30 MHz**

**Radiated Emissions Test Photos****30 MHz to 1 GHz**

**Radiated Emissions Test Photos****Above 1 GHz**

**APPENDIX A - OUTPUT POWER**

**Output Power (dBm):**

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				26797CH	26915CH	27033CH
				824.7MHz	836.5MHz	848.3MHz
26 / 1.4M	QPSK	1	0	22.63	22.76	22.87
		1	2	22.75	22.82	22.76
		1	5	22.67	22.74	22.68
		3	0	22.72	22.82	22.65
		3	1	22.70	22.81	22.64
		3	2	22.79	22.69	22.64
		6	0	21.73	21.74	21.69
	16QAM	1	0	21.50	21.87	21.82
		1	2	21.65	22.01	21.80
		1	5	21.50	21.73	21.63
		3	0	21.67	21.74	21.63
		3	1	21.70	21.71	21.72
		3	2	21.81	21.82	21.74
		6	0	20.67	20.72	20.67

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				26805CH	26915CH	27025CH
				825.5MHz	836.5MHz	847.5MHz
26 / 3M	QPSK	1	0	23.02	22.86	22.85
		1	7	22.98	22.79	22.81
		1	14	23.11	22.75	22.68
		8	0	21.87	21.68	21.71
		8	4	21.93	21.65	21.70
		8	7	21.79	21.69	21.65
		15	0	21.79	21.70	21.69
	16QAM	1	0	21.88	21.87	21.87
		1	7	22.04	21.61	21.86
		1	14	21.88	21.50	21.53
		8	0	20.88	20.75	20.68
		8	4	20.93	20.75	20.71
		8	7	20.89	20.86	20.67
		15	0	20.72	20.76	20.65

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				26815CH	26915CH	27015CH
				826.5MHz	836.5MHz	846.5MHz
26 / 5M	QPSK	1	0	22.77	22.65	22.59
		1	13	22.91	22.66	22.72
		1	24	22.83	22.55	22.70
		12	0	21.76	21.83	21.71
		12	6	21.76	21.83	21.69
		12	11	21.73	21.83	21.68
		25	0	21.82	21.62	21.69
	16QAM	1	0	21.89	21.68	21.74
		1	13	21.93	21.73	21.88
		1	24	21.83	21.66	21.76
		12	0	20.81	20.80	20.65
		12	6	20.81	20.86	20.70
		12	11	20.76	20.88	20.67
		25	0	20.74	20.72	20.72

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				26840CH	26915CH	26990CH
				829MHz	836.5MHz	844MHz
26 / 10M	QPSK	1	0	22.62	22.85	22.40
		1	25	22.67	22.89	22.83
		1	49	22.86	22.68	22.69
		25	0	21.63	21.72	21.60
		25	13	21.60	21.70	21.60
		25	25	21.64	21.52	21.67
		50	0	21.59	21.63	21.52
	16QAM	1	0	21.74	21.69	21.64
		1	25	21.78	21.81	22.02
		1	49	21.86	21.81	21.36
		25	0	20.73	20.81	20.61
		25	13	20.70	20.90	20.66
		25	25	20.46	20.74	20.64
		50	0	20.59	20.65	20.58

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				26865CH	26915CH	26965CH
				831.5MHz	836.5MHz	841.5MHz
26 / 15M	QPSK	1	0	22.80	22.53	22.72
		1	38	22.73	22.74	22.71
		1	74	22.66	22.48	22.64
		36	0	21.59	21.68	21.70
		36	18	21.63	21.67	21.54
		36	39	21.67	21.68	21.59
		75	0	21.59	21.63	21.66
	16QAM	1	0	21.73	21.53	21.65
		1	38	21.44	21.68	21.51
		1	74	21.22	21.60	21.61
		36	0	20.54	20.61	20.60
		36	18	20.59	20.67	20.59
		36	39	20.63	20.65	20.55
		75	0	20.60	20.64	20.67

**ERP (dBm):**

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				26797CH	26915CH	27033CH
				824.7MHz	836.5MHz	848.3MHz
26 / 1.4M	QPSK	1	0	21.48	21.61	21.72
		1	2	21.60	21.67	21.61
		1	5	21.52	21.59	21.53
		3	0	21.57	21.67	21.50
		3	1	21.55	21.66	21.49
		3	2	21.64	21.54	21.49
		6	0	20.58	20.59	20.54
	16QAM	1	0	20.35	20.72	20.67
		1	2	20.50	20.86	20.65
		1	5	20.35	20.58	20.48
		3	0	20.52	20.59	20.48
		3	1	20.55	20.56	20.57
		3	2	20.66	20.67	20.59
		6	0	19.52	19.57	19.52

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				26805CH	26915CH	27025CH
				825.5MHz	836.5MHz	847.5MHz
26 / 3M	QPSK	1	0	21.87	21.71	21.70
		1	7	21.83	21.64	21.66
		1	14	21.96	21.60	21.53
		8	0	20.72	20.53	20.56
		8	4	20.78	20.50	20.55
		8	7	20.64	20.54	20.50
		15	0	20.64	20.55	20.54
	16QAM	1	0	20.73	20.72	20.72
		1	7	20.89	20.46	20.71
		1	14	20.73	20.35	20.38
		8	0	19.73	19.60	19.53
		8	4	19.78	19.60	19.56
		8	7	19.74	19.71	19.52
		15	0	19.57	19.61	19.50

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				26815CH	26915CH	27015CH
				826.5MHz	836.5MHz	846.5MHz
26 / 5M	QPSK	1	0	21.62	21.50	21.44
		1	13	21.76	21.51	21.57
		1	24	21.68	21.40	21.55
		12	0	20.61	20.68	20.56
		12	6	20.61	20.68	20.54
		12	11	20.58	20.68	20.53
		25	0	20.67	20.47	20.54
	16QAM	1	0	20.74	20.53	20.59
		1	13	20.78	20.58	20.73
		1	24	20.68	20.51	20.61
		12	0	19.66	19.65	19.50
		12	6	19.66	19.71	19.55
		12	11	19.61	19.73	19.52
		25	0	19.59	19.57	19.57

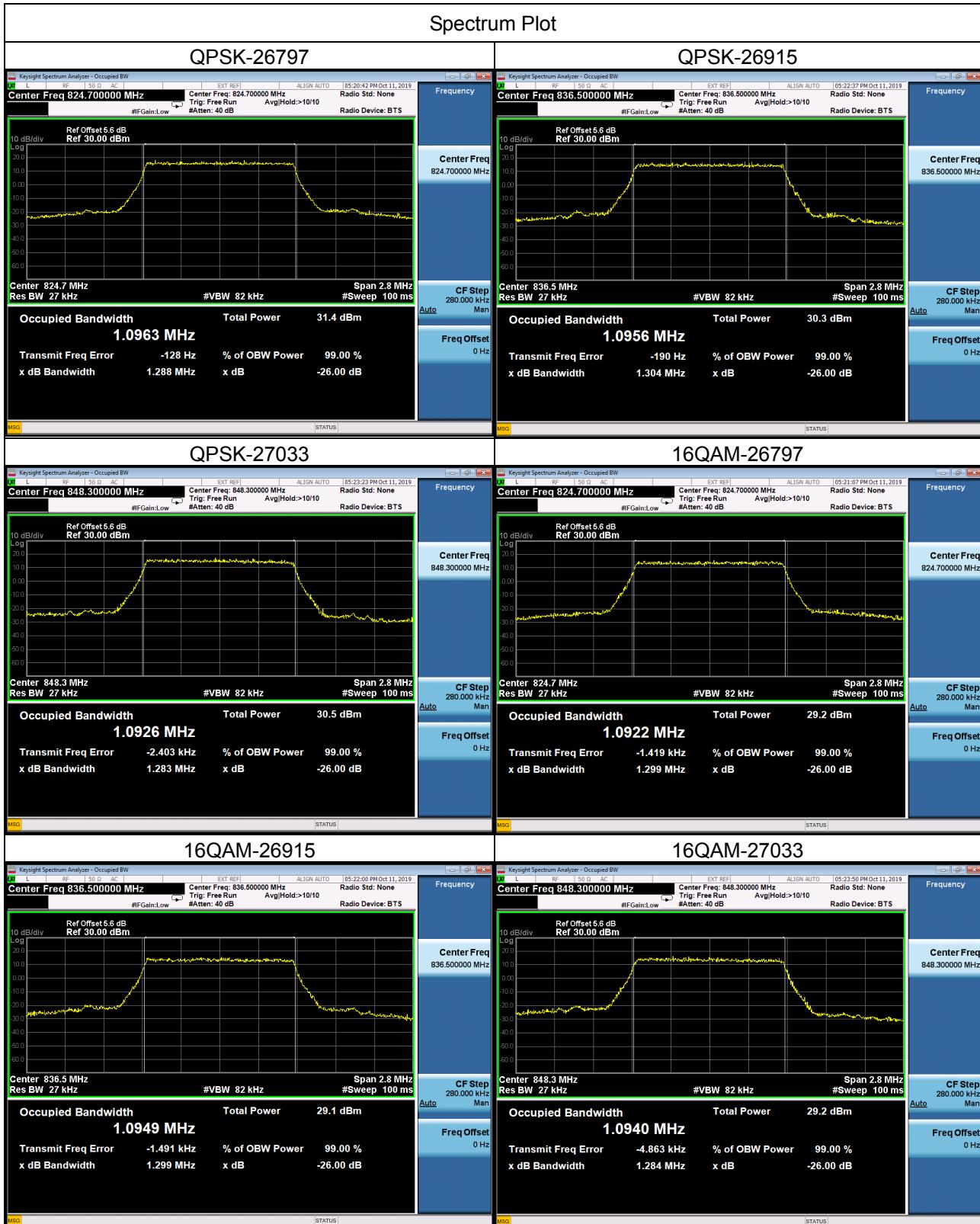
LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				26840CH	26915CH	26990CH
				829MHz	836.5MHz	844MHz
26 / 10M	QPSK	1	0	21.47	21.70	21.25
		1	25	21.52	21.74	21.68
		1	49	21.71	21.53	21.54
		25	0	20.48	20.57	20.45
		25	13	20.45	20.55	20.45
		25	25	20.49	20.37	20.52
		50	0	20.44	20.48	20.37
	16QAM	1	0	20.59	20.54	20.49
		1	25	20.63	20.66	20.87
		1	49	20.71	20.66	20.21
		25	0	19.58	19.66	19.46
		25	13	19.55	19.75	19.51
		25	25	19.31	19.59	19.49
		50	0	19.44	19.50	19.43

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				26865CH	26915CH	26965CH
				831.5MHz	836.5MHz	841.5MHz
26 / 15M	QPSK	1	0	21.65	21.38	21.57
		1	38	21.58	21.59	21.56
		1	74	21.51	21.33	21.49
		36	0	20.44	20.53	20.55
		36	18	20.48	20.52	20.39
		36	39	20.52	20.53	20.44
		75	0	20.44	20.48	20.51
	16QAM	1	0	20.58	20.38	20.50
		1	38	20.29	20.53	20.36
		1	74	20.07	20.45	20.46
		36	0	19.39	19.46	19.45
		36	18	19.44	19.52	19.44
		36	39	19.48	19.50	19.40
		75	0	19.45	19.49	19.52

## **APPENDIX B - OCCUPIED BANDWIDTH**

LTE Band 26_1.4M					
QPSK					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
26797	824.7	1.0963	26797	824.7	1.288
26915	836.5	1.0956	26915	836.5	1.304
27033	848.3	1.0926	27033	848.3	1.283

16QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
26797	824.7	1.0922	26797	824.7	1.299
26915	836.5	1.0949	26915	836.5	1.299
27033	848.3	1.0940	27033	848.3	1.284



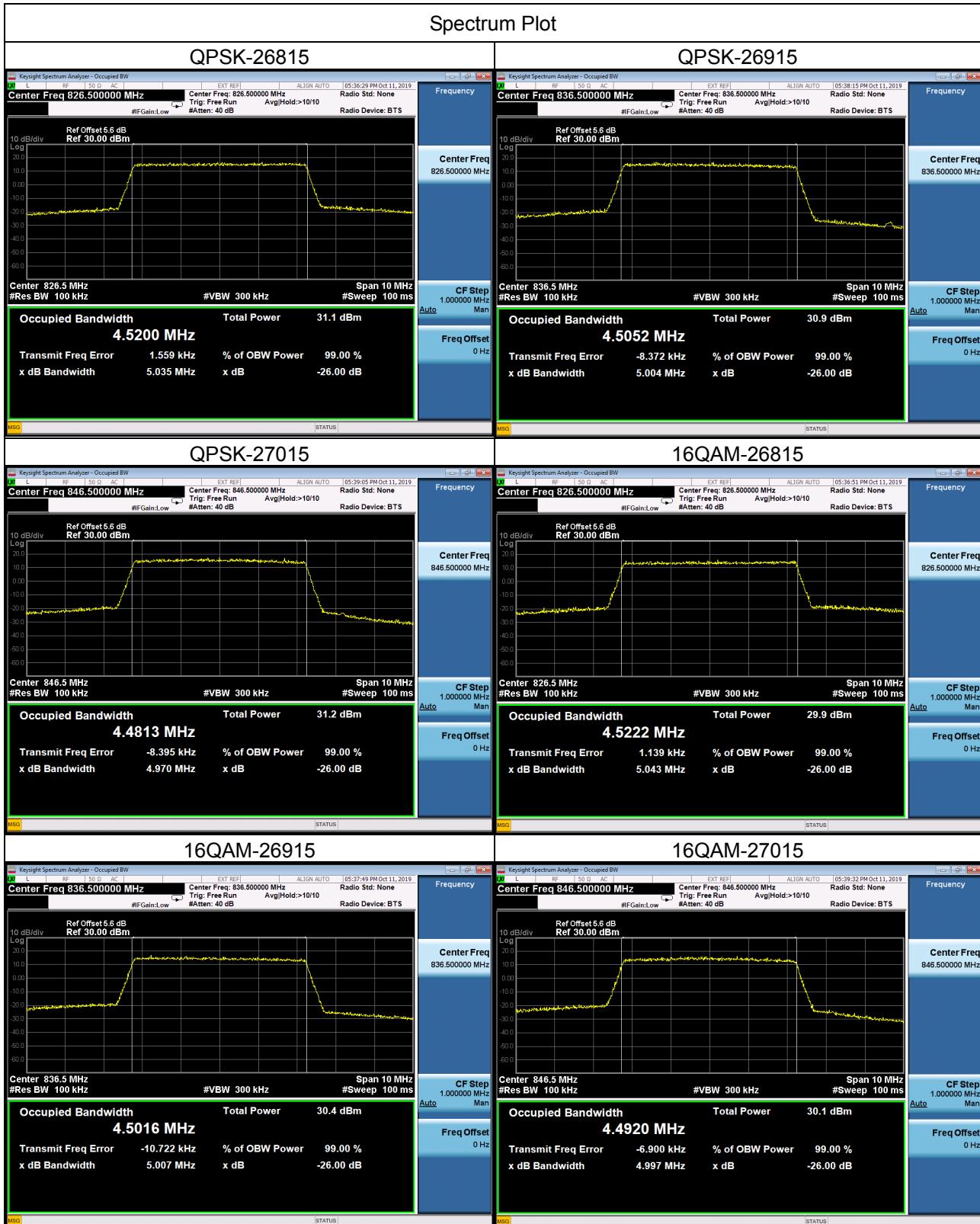
LTE Band 26_3M					
QPSK					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
26805	825.5	2.7111	26805	825.5	2.995
26915	836.5	2.7092	26915	836.5	2.992
27025	847.5	2.7059	27025	847.5	2.992

16QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
26805	825.5	2.7142	26805	825.5	3.007
26915	836.5	2.7133	26915	836.5	2.999
27025	847.5	2.6976	27025	847.5	2.992



LTE Band 26_5M					
QPSK					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
26815	826.5	4.5200	26815	826.5	5.035
26915	836.5	4.5052	26915	836.5	5.004
27015	846.5	4.4813	27015	846.5	4.970

16QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
26815	826.5	4.5222	26815	826.5	5.043
26915	836.5	4.5016	26915	836.5	5.007
27015	846.5	4.4920	27015	846.5	4.997



LTE Band 26_10M					
QPSK					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
26840	829	8.9834	26840	829	9.892
26915	836.5	8.9441	26915	836.5	9.870
26990	844	8.9670	26990	844	9.864

16QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
26840	829	8.9861	26840	829	9.889
26915	836.5	8.9362	26915	836.5	9.886
26990	844	8.9631	26990	844	9.914

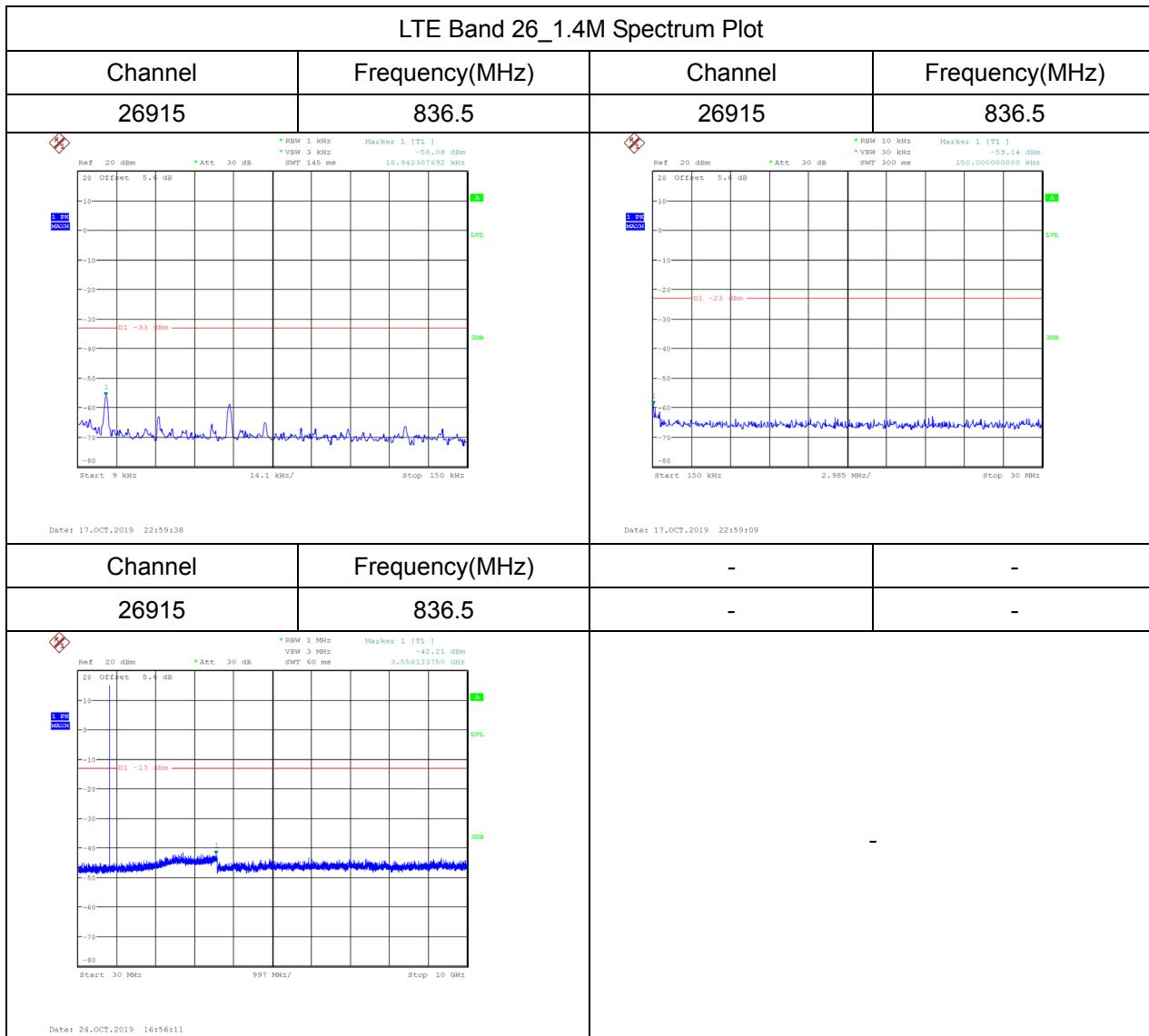


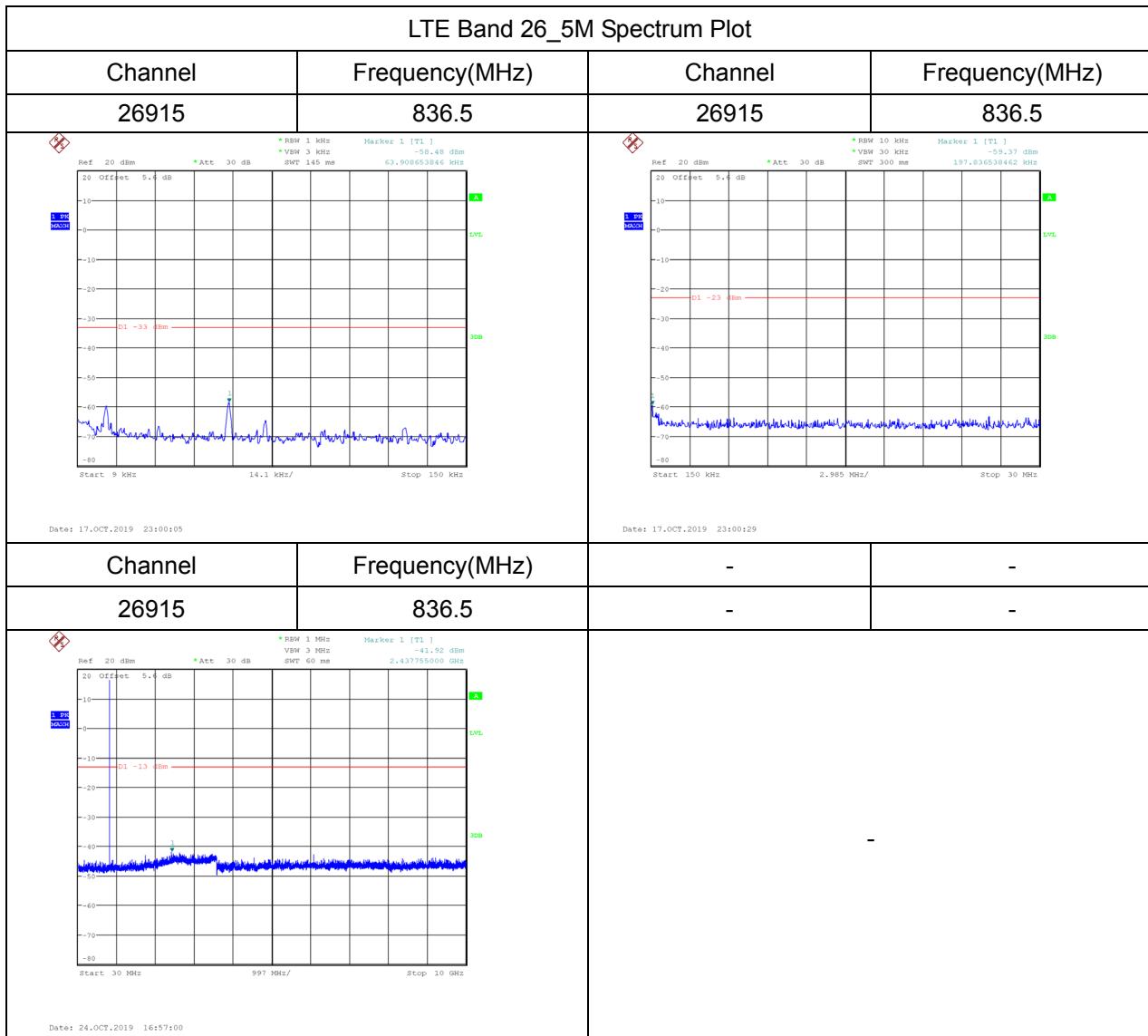
LTE Band 26_15M					
QPSK					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
26865	831.5	13.399	26865	831.5	14.66
26915	836.5	13.399	26915	836.5	14.66
26965	841.5	13.481	26965	841.5	14.76

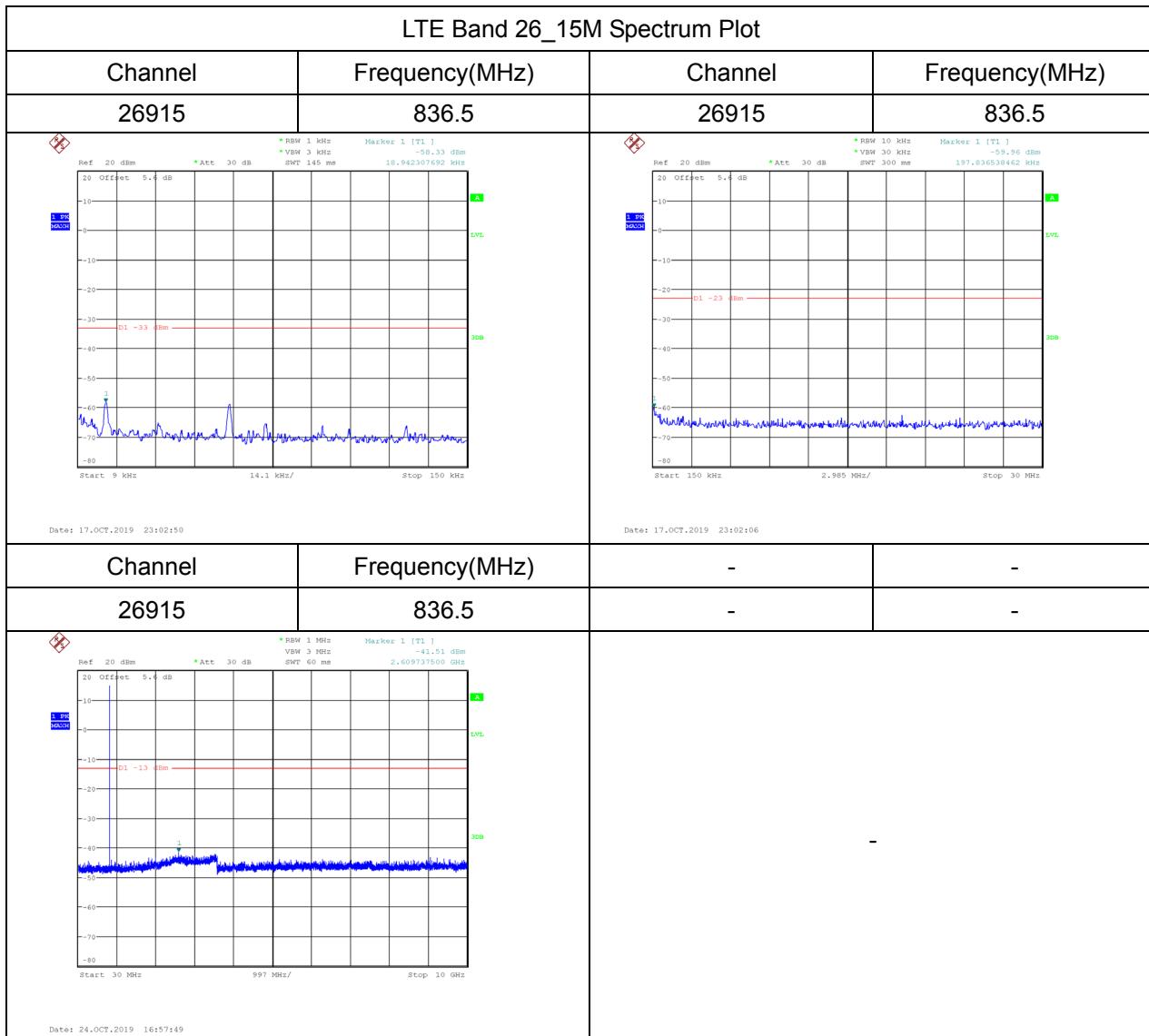
16QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
26865	831.5	13.412	26865	831.5	14.61
26915	836.5	13.405	26915	836.5	14.65
26965	841.5	13.492	26965	841.5	14.75



**APPENDIX C - CONDUCTED SPURIOUS EMISSIONS**

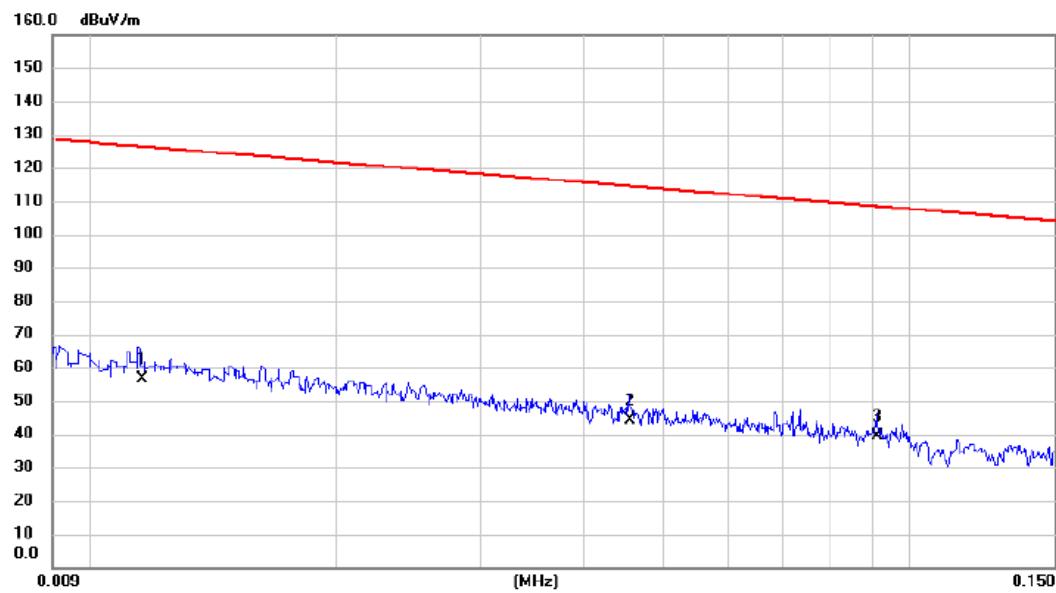






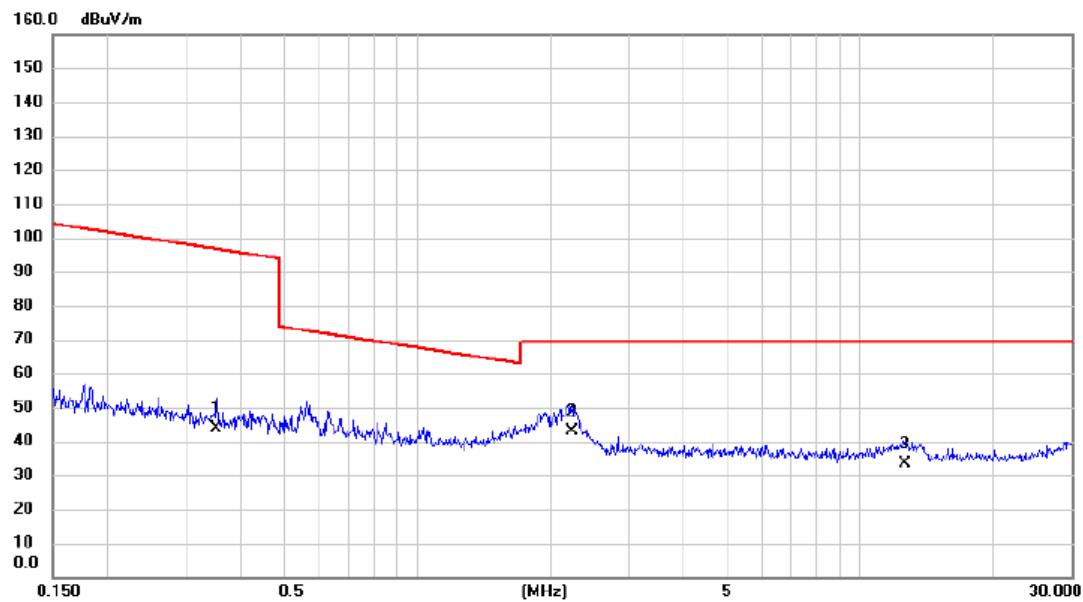
**APPENDIX D - RADIATED SPURIOUS EMISSIONS (9KHZ TO 30MHZ)**

Test Mode TX Mode

**Ant 0°**

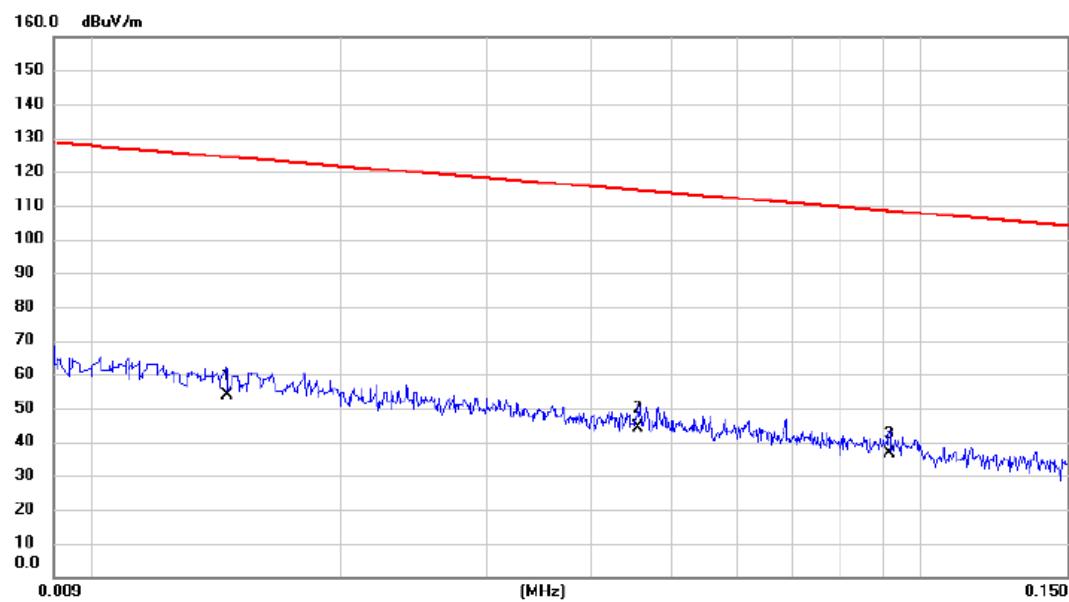
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Margin	Detector	Comment
			Level	Factor	ment				
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1		0.0116	40.20	16.34	56.54	126.32	-69.78	AVG	
2		0.0456	30.12	13.92	44.04	114.43	-70.39	AVG	
3	*	0.0912	25.69	13.54	39.23	108.41	-69.18	QP	

Test Mode TX Mode

**Ant 0°**

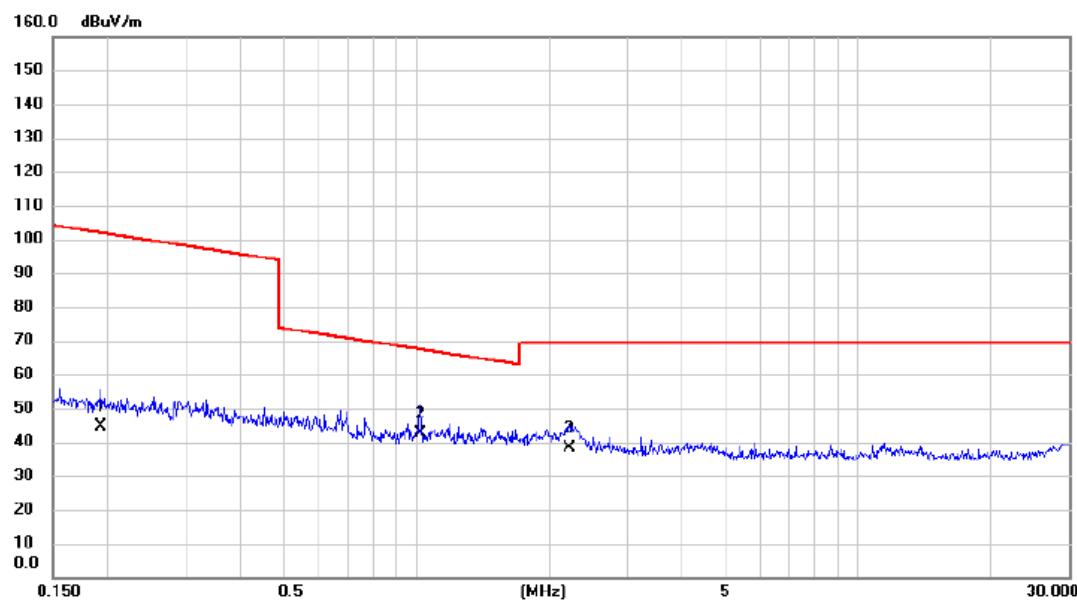
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Margin	Detector	Comment
			Level	Factor	ment				
		MHz	dBuV	dB	dBuV/m	dB			
1		0.3520	30.25	13.42	43.67	96.67	-53.00	AVG	
2	*	2.2367	31.45	11.68	43.13	69.54	-26.41	QP	
3		12.5821	21.84	11.60	33.44	69.54	-36.10	QP	

Test Mode TX Mode

**Ant 90°**

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin	
		MHz	dB <sub>UV</sub>	dB	dB <sub>UV</sub> /m	dB	Detector	Comment
1		0.0146	38.45	15.44	53.89	124.32	-70.43	AVG
2	*	0.0456	30.47	13.92	44.39	114.43	-70.04	AVG
3		0.0916	22.90	13.54	36.44	108.37	-71.93	QP

Test Mode TX Mode

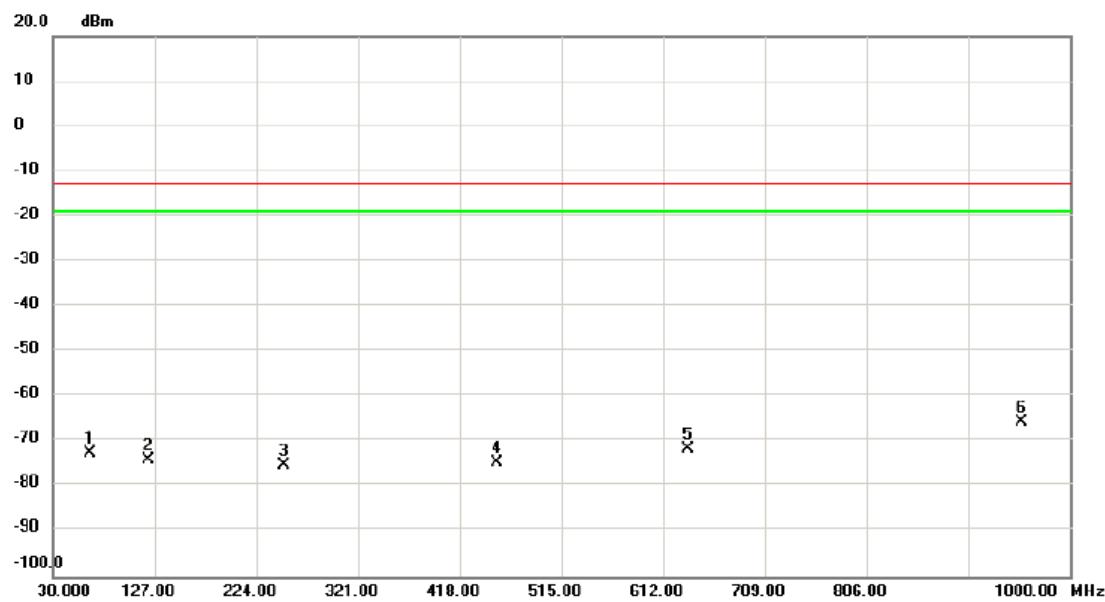
**Ant 90°**

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Margin	Detector	Comment
			Level	Factor	ment				
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1		0.1934	31.15	13.60	44.75	101.88	-57.13	AVG	
2	*	1.0211	30.25	12.49	42.74	67.42	-24.68	QP	
3		2.2250	26.49	11.68	38.17	69.54	-31.37	QP	

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

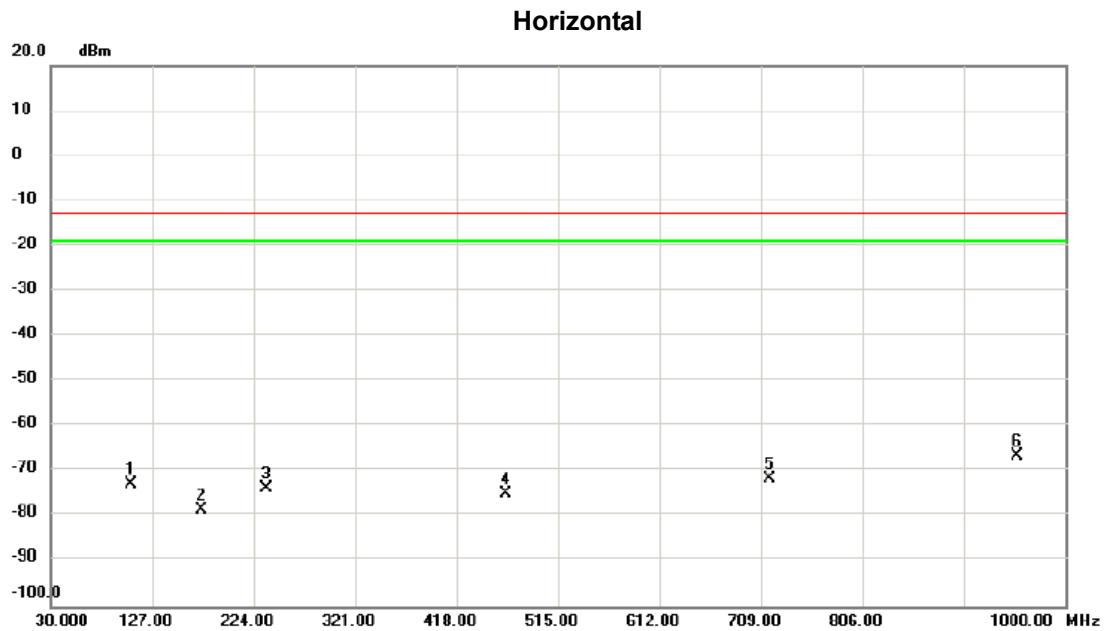
Test Mode

LTE Band 26\_TX CH26915\_1.4M

**Vertical**

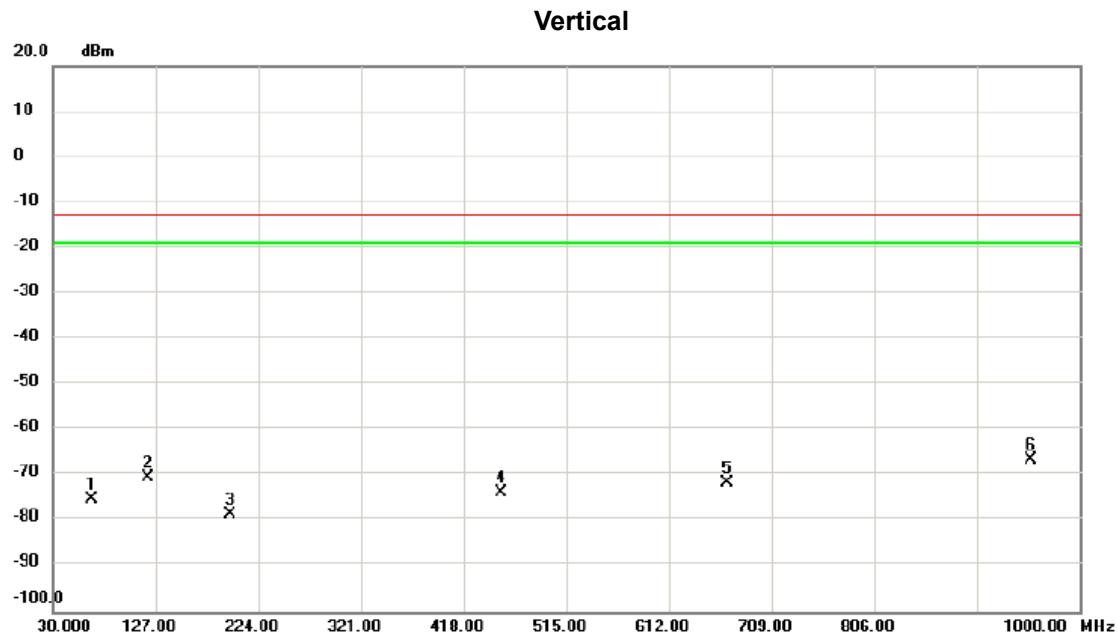
No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		64.920	-57.42	-15.19	-72.61	-13.00	-59.61	peak	
2		121.180	-60.93	-13.10	-74.03	-13.00	-61.03	peak	
3		250.190	-61.58	-13.77	-75.35	-13.00	-62.35	peak	
4		452.920	-66.55	-8.12	-74.67	-13.00	-61.67	peak	
5		635.280	-66.62	-5.03	-71.65	-13.00	-58.65	peak	
6	*	953.440	-64.96	-0.65	-65.61	-13.00	-52.61	peak	

Test Mode | LTE Band 26\_TX CH26915\_1.4M



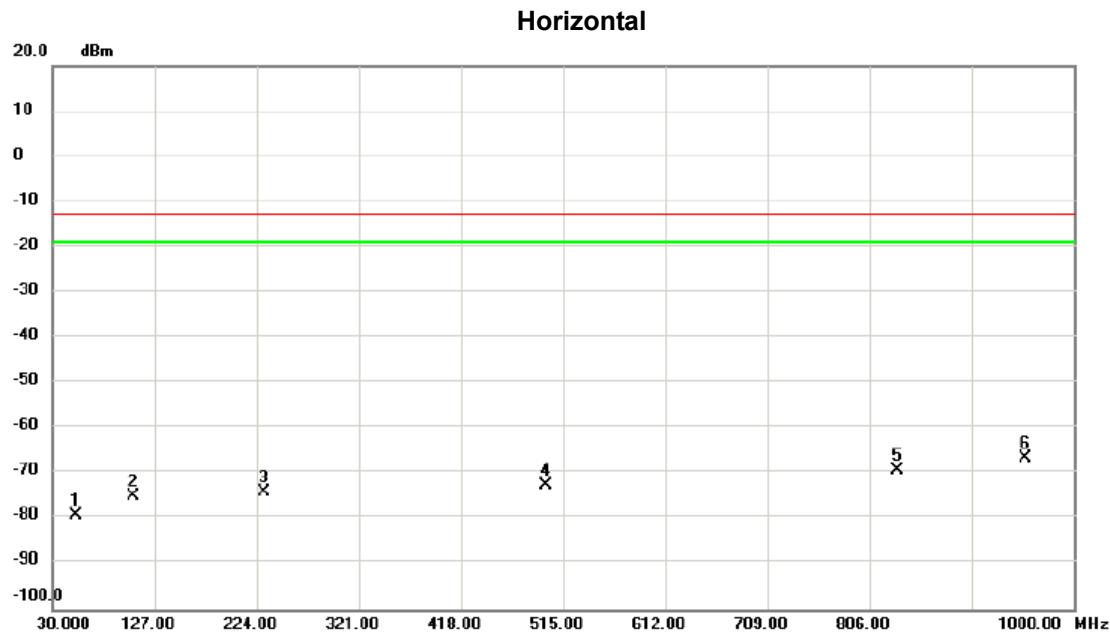
No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		106.630	-58.03	-14.81	-72.84	-13.00	-59.84	peak	
2		174.530	-65.67	-12.81	-78.48	-13.00	-65.48	peak	
3		236.610	-59.47	-14.16	-73.63	-13.00	-60.63	peak	
4		465.530	-66.81	-8.03	-74.84	-13.00	-61.84	peak	
5		716.760	-67.62	-3.91	-71.53	-13.00	-58.53	peak	
6	*	953.440	-66.02	-0.65	-66.67	-13.00	-53.67	peak	

Test Mode | LTE Band 26\_TX CH26915\_5M



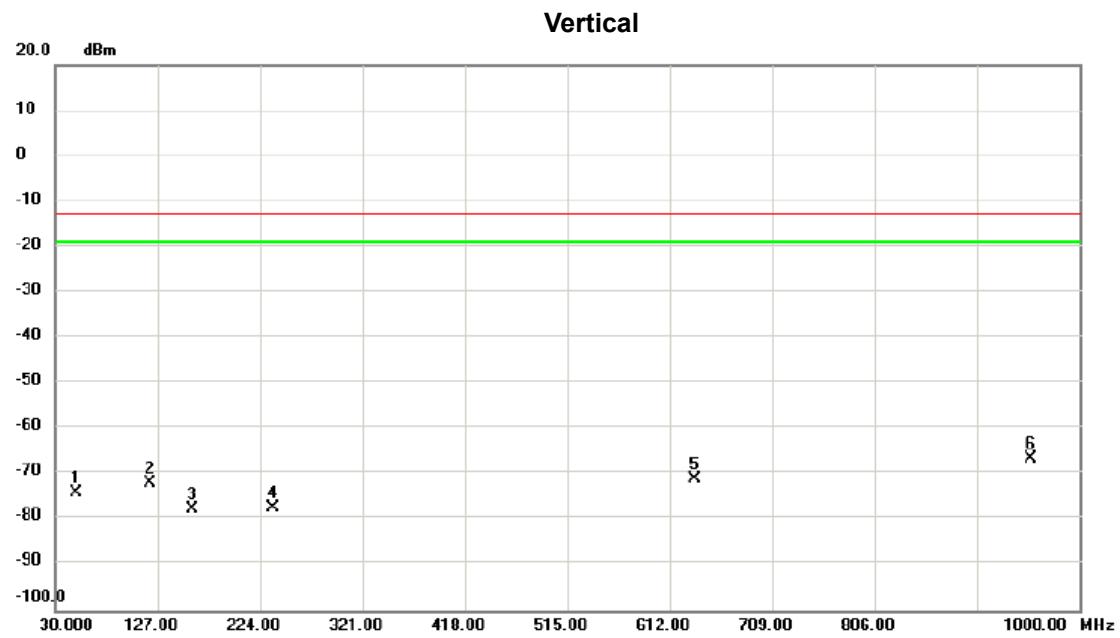
No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		66.860	-59.52	-15.59	-75.11	-13.00	-62.11	peak	
2		119.240	-57.15	-13.21	-70.36	-13.00	-57.36	peak	
3		197.810	-63.34	-15.07	-78.41	-13.00	-65.41	peak	
4		452.920	-65.55	-8.12	-73.67	-13.00	-60.67	peak	
5		667.290	-67.16	-4.48	-71.64	-13.00	-58.64	peak	
6	*	953.440	-65.96	-0.65	-66.61	-13.00	-53.61	peak	

Test Mode | LTE Band 26\_TX CH26915\_5M



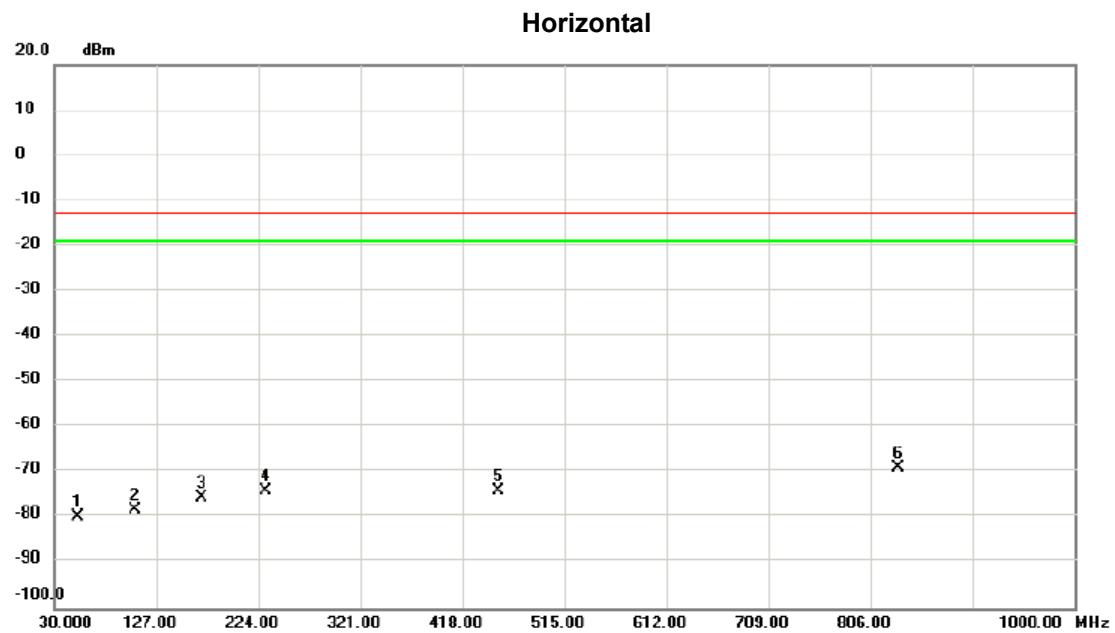
No.	Mk.	Reading		Correct Factor	Measure- ment	Limit	Margin	Detector	Comment
		Freq.	Level						
		MHz	dBm	dB	dBm	dB			
1		52.310	-65.10	-14.01	-79.11	-13.00	-66.11	peak	
2		106.630	-60.03	-14.81	-74.84	-13.00	-61.84	peak	
3		230.790	-59.64	-14.30	-73.94	-13.00	-60.94	peak	
4		498.510	-64.82	-7.77	-72.59	-13.00	-59.59	peak	
5		832.190	-66.76	-2.58	-69.34	-13.00	-56.34	peak	
6 *		953.440	-66.02	-0.65	-66.67	-13.00	-53.67	peak	

Test Mode | LTE Band 26\_TX CH26915\_15M



No.	Mk.	Freq. MHz	Reading	Correct	Measure-	Limit	Margin	Detector	Comment
			Level dBm	Factor dB	ment dBm				
1		49.400	-60.11	-13.99	-74.10	-13.00	-61.10	peak	
2		119.240	-58.65	-13.21	-71.86	-13.00	-58.86	peak	
3		159.980	-66.73	-11.07	-77.80	-13.00	-64.80	peak	
4		236.610	-63.18	-14.16	-77.34	-13.00	-64.34	peak	
5		635.280	-66.12	-5.03	-71.15	-13.00	-58.15	peak	
6 *		953.440	-65.96	-0.65	-66.61	-13.00	-53.61	peak	

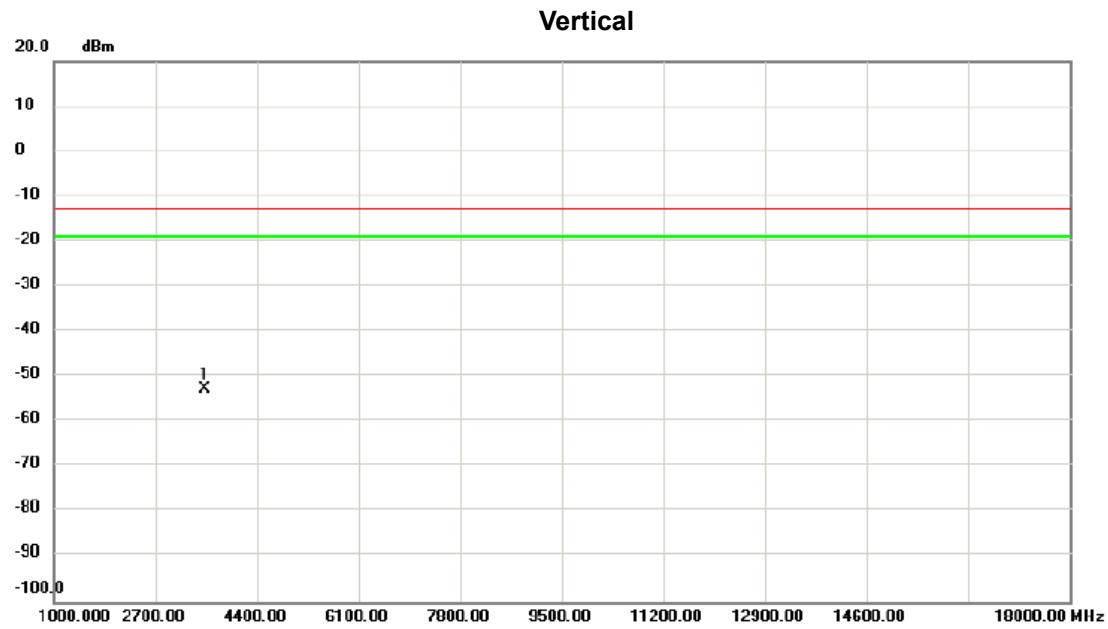
Test Mode | LTE Band 26\_TX CH26915\_15M



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Margin	Detector	Comment
			Level	Factor	ment				
		MHz	dBm	dB	dBm	dBm	dB		
1		52.310	-65.60	-14.01	-79.61	-13.00	-66.61	peak	
2		106.630	-63.53	-14.81	-78.34	-13.00	-65.34	peak	
3		169.680	-63.07	-12.44	-75.51	-13.00	-62.51	peak	
4		230.790	-59.64	-14.30	-73.94	-13.00	-60.94	peak	
5		451.950	-65.98	-8.13	-74.11	-13.00	-61.11	peak	
6 *		832.190	-66.26	-2.58	-68.84	-13.00	-55.84	peak	

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

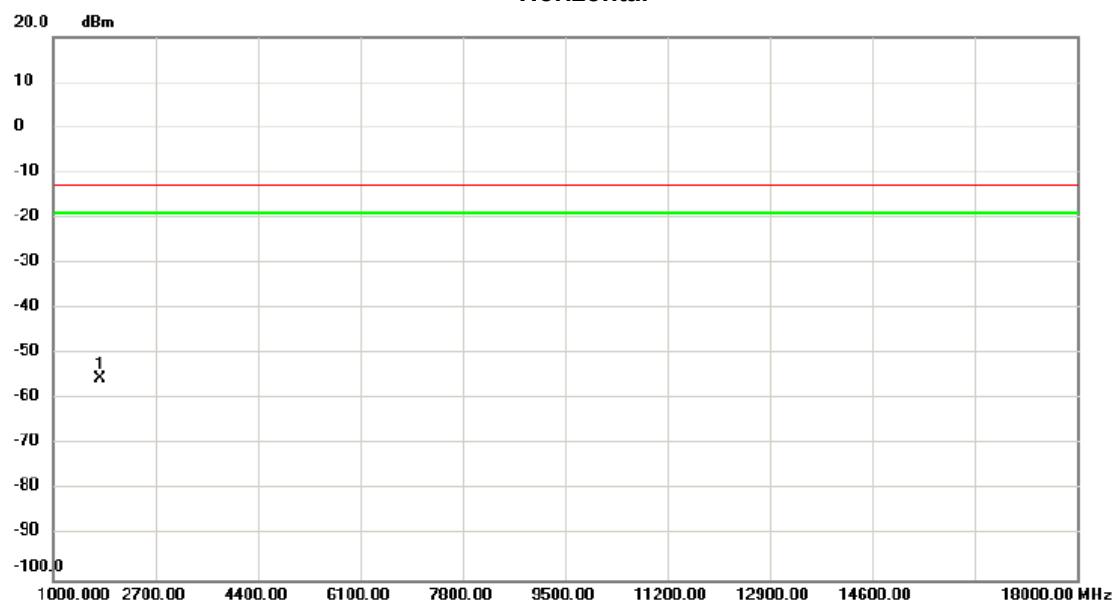
Test Mode	LTE Band 26_TX CH26915_1.4M
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No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin
		MHz	dBm	dB	dBm	dB	Detector Comment
1	*	3516.000	-57.46	4.61	-52.85	-13.00	-39.85 peak

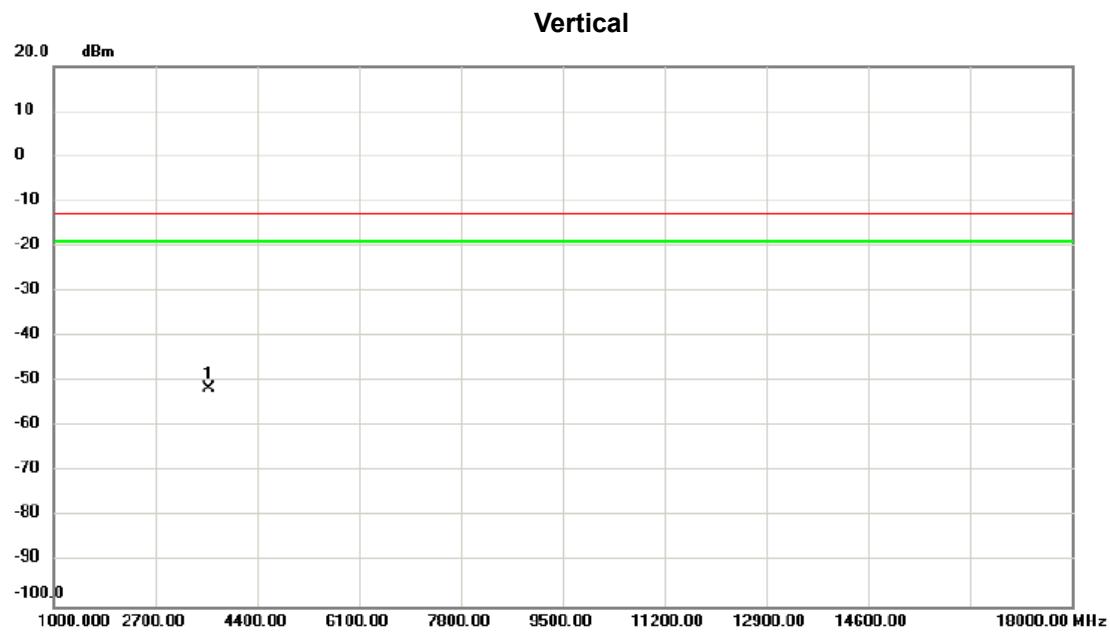
Test Mode

LTE Band 26\_TX CH26915\_1.4M

**Horizontal**

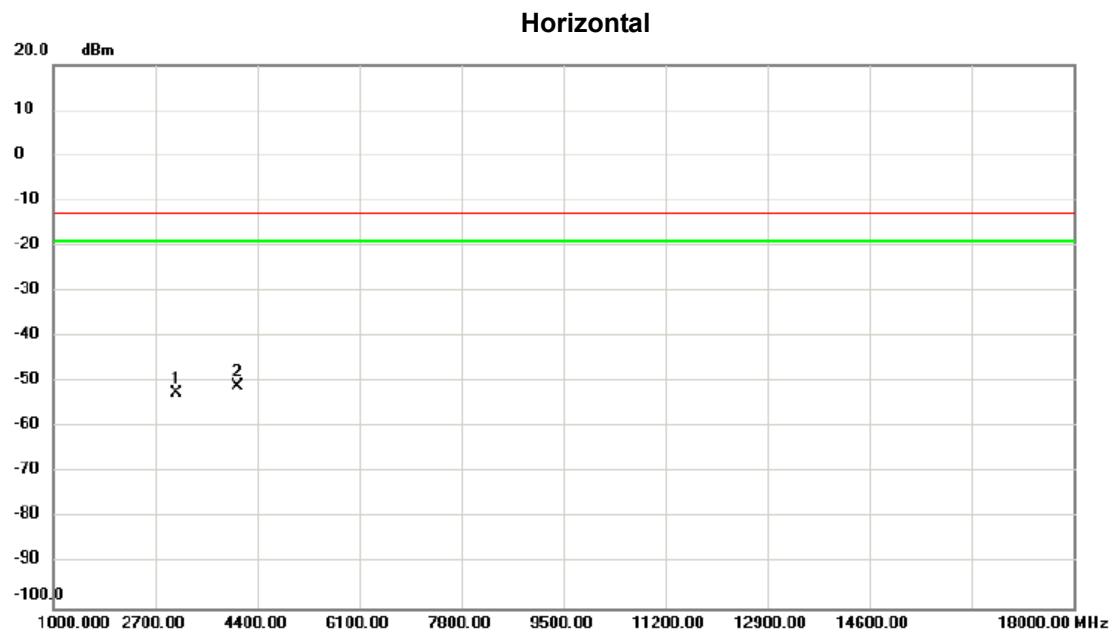
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin	
		MHz	dBm	dB	dBm	dB	Detector	Comment
1	*	1782.000	-53.21	-2.19	-55.40	-13.00	-42.40	peak

Test Mode | LTE Band 26\_TX CH26915\_5M



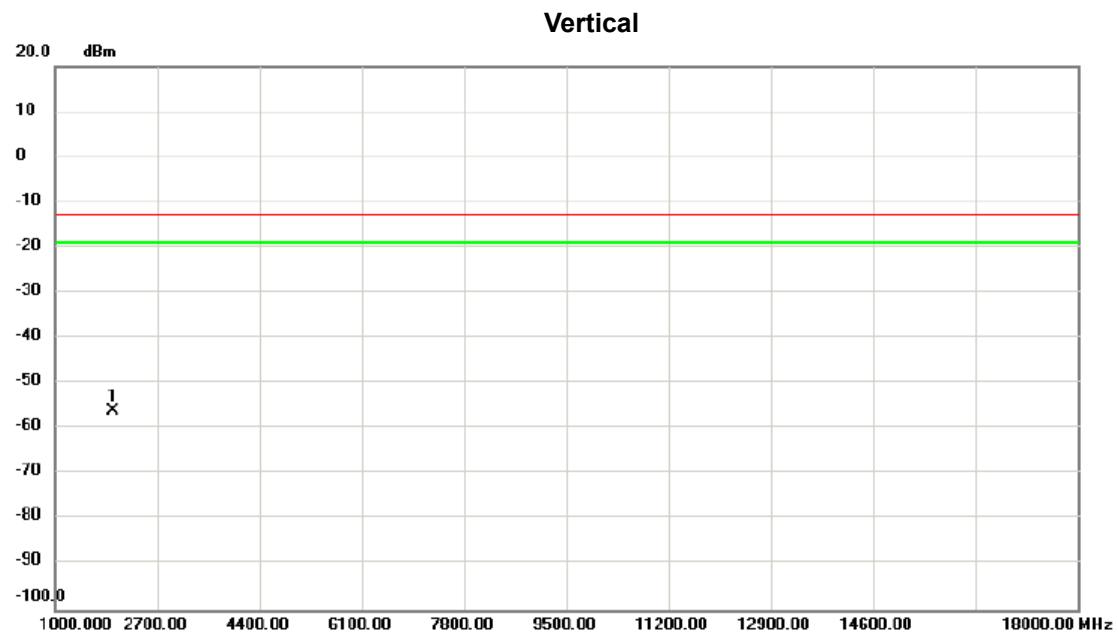
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin
		MHz	dBm	dB	dBm	dB	Detector Comment
1	*	3601.000	-56.51	4.93	-51.58	-13.00	-38.58 peak

Test Mode | LTE Band 26\_TX CH26915\_5M



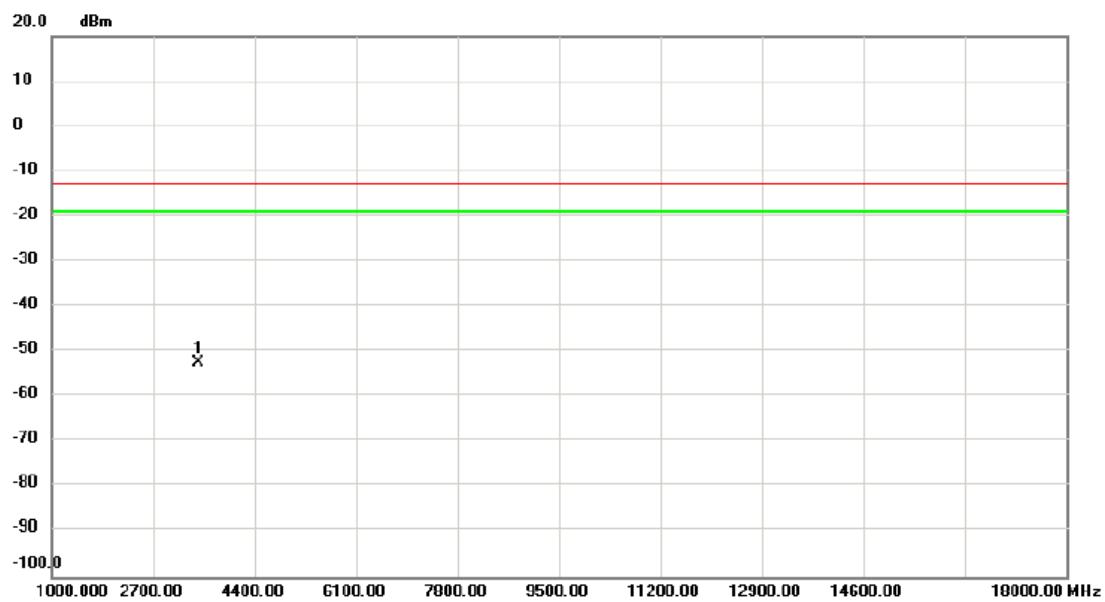
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin
		MHz	dBm	dB	dBm	dB	Detector Comment
1		3040.000	-54.69	2.32	-52.37	-13.00	-39.37 peak
2 *		4060.000	-57.38	6.48	-50.90	-13.00	-37.90 peak

Test Mode | LTE Band 26\_TX CH26915\_15M



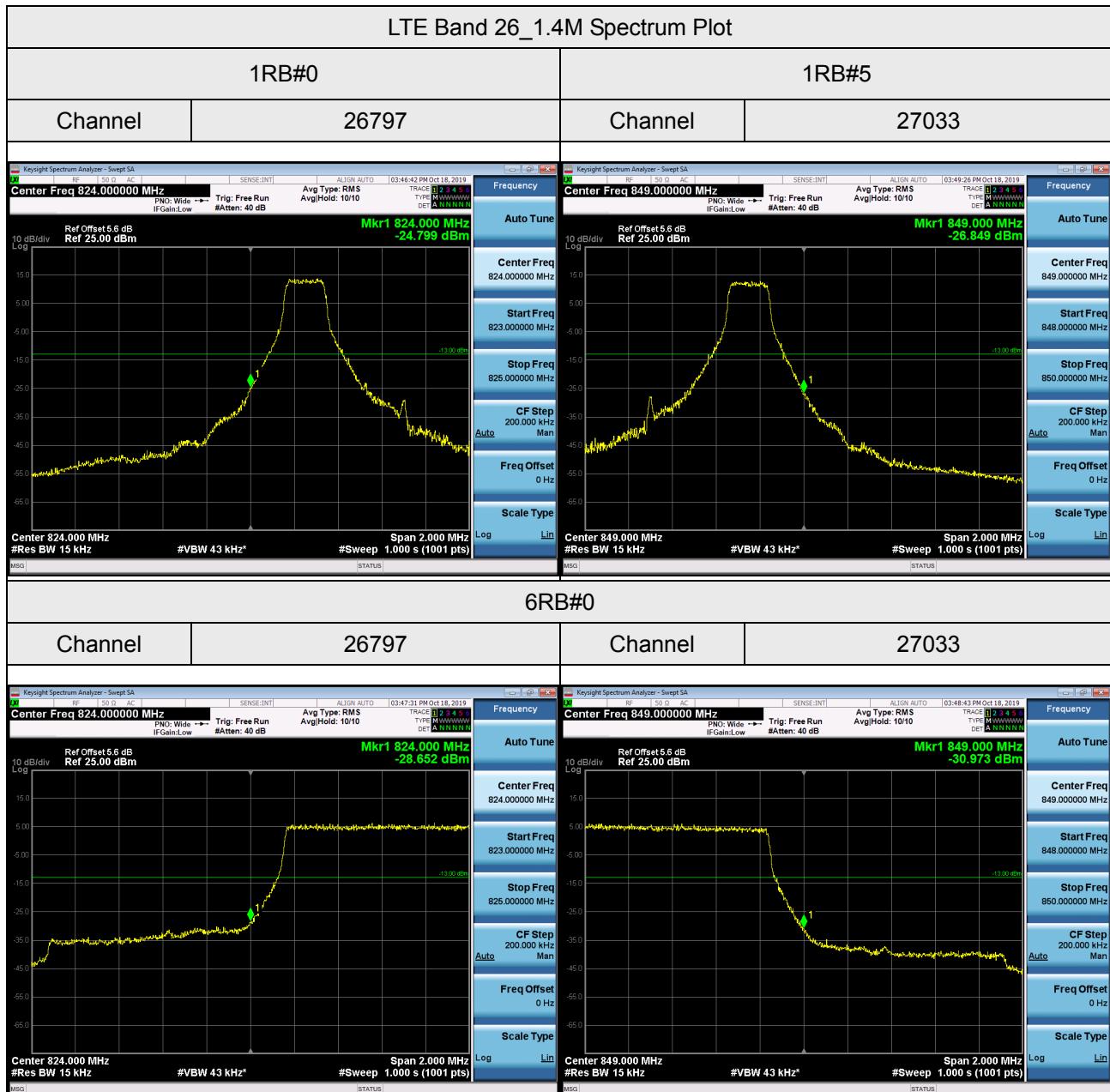
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin	
		MHz	dBm	dB	dBm	dBm	dB	Detector Comment
1	*	1952.000	-54.92	-1.03	-55.95	-13.00	-42.95	peak

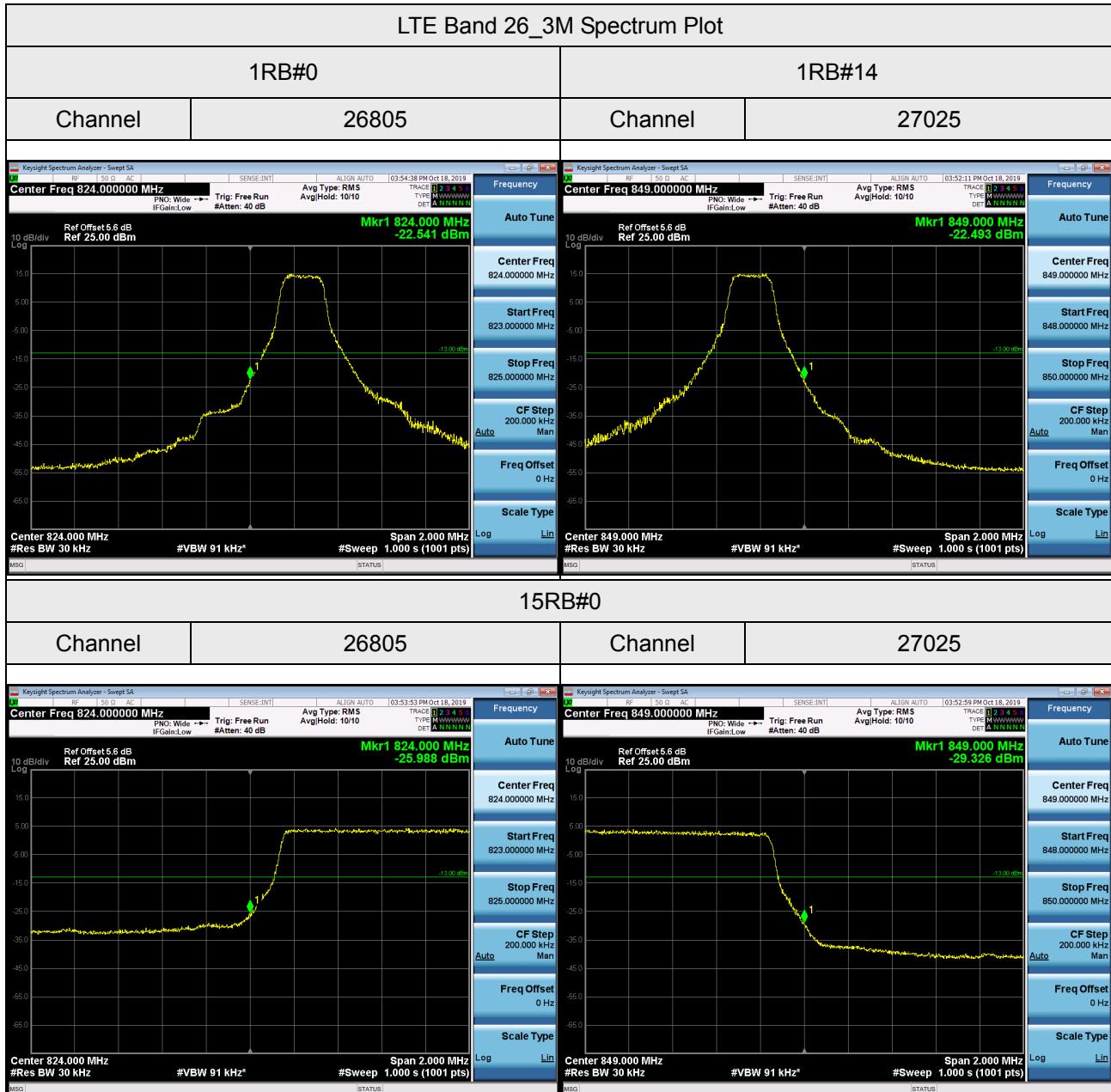
Test Mode | LTE Band 26\_TX CH26915\_15M

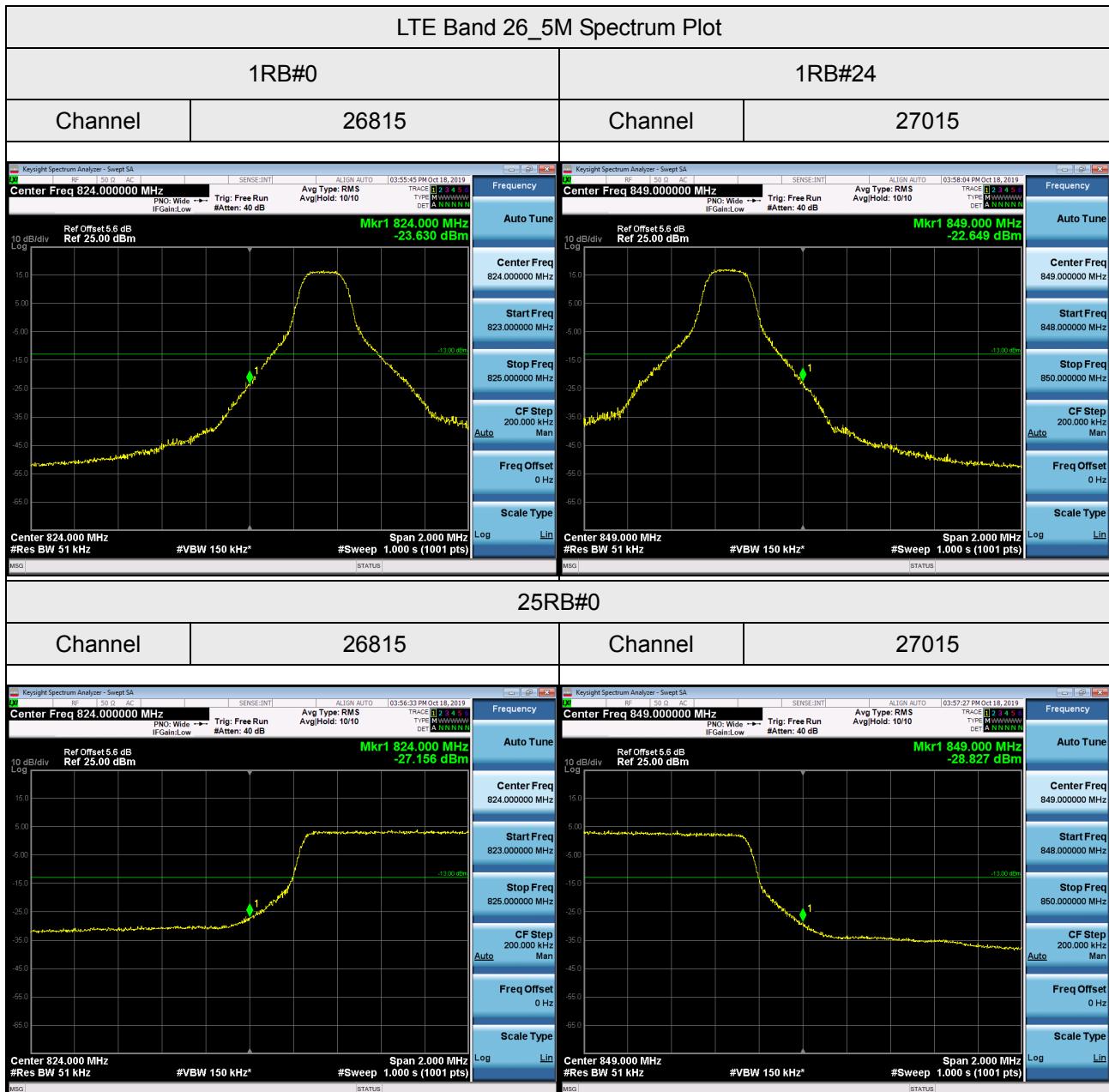
**Horizontal**

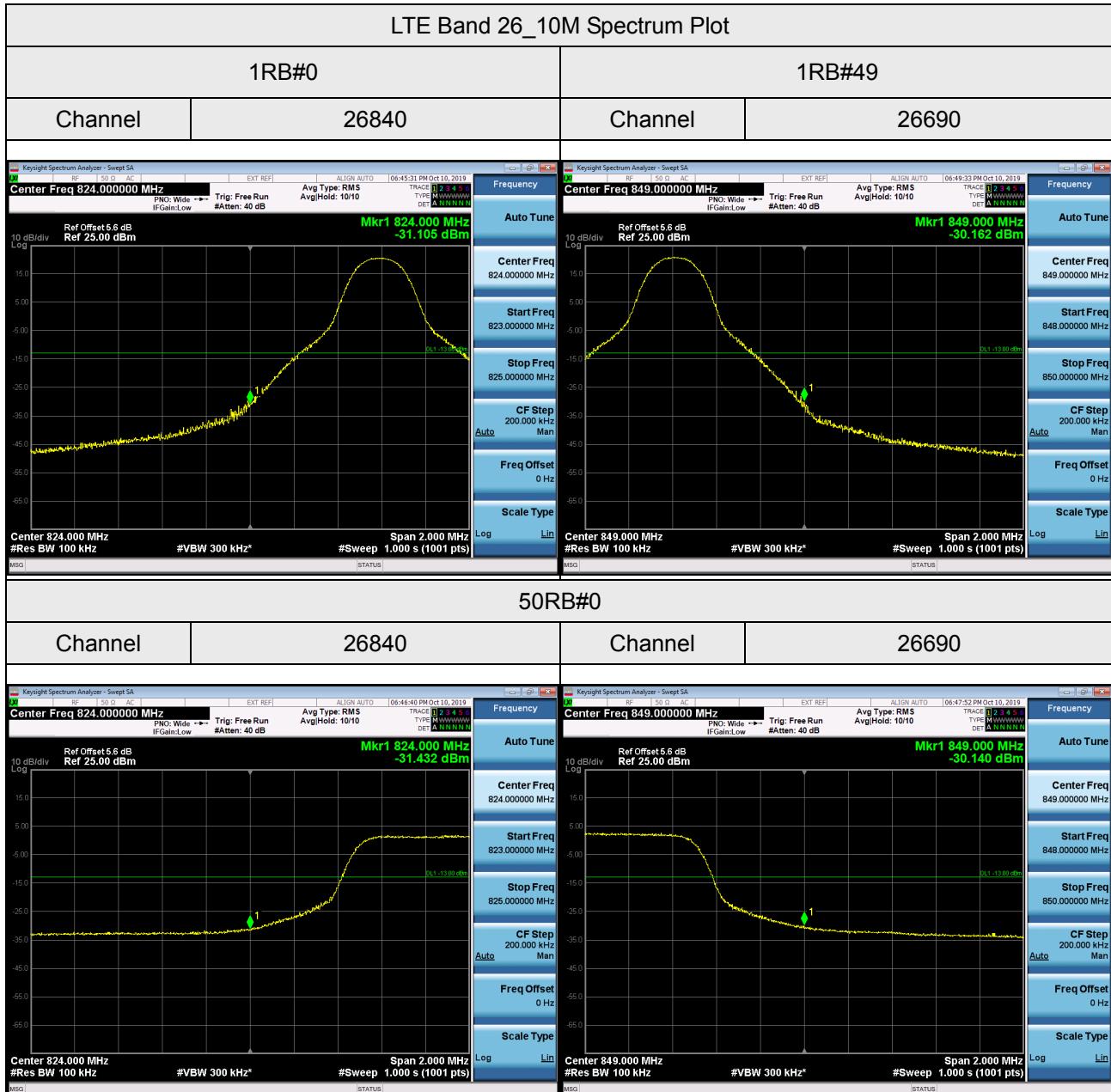
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin	
		MHz	dBm	dB	dBm	dBm	dB	Detector Comment
1	*	3465.000	-56.90	4.38	-52.52	-13.00	-39.52	peak

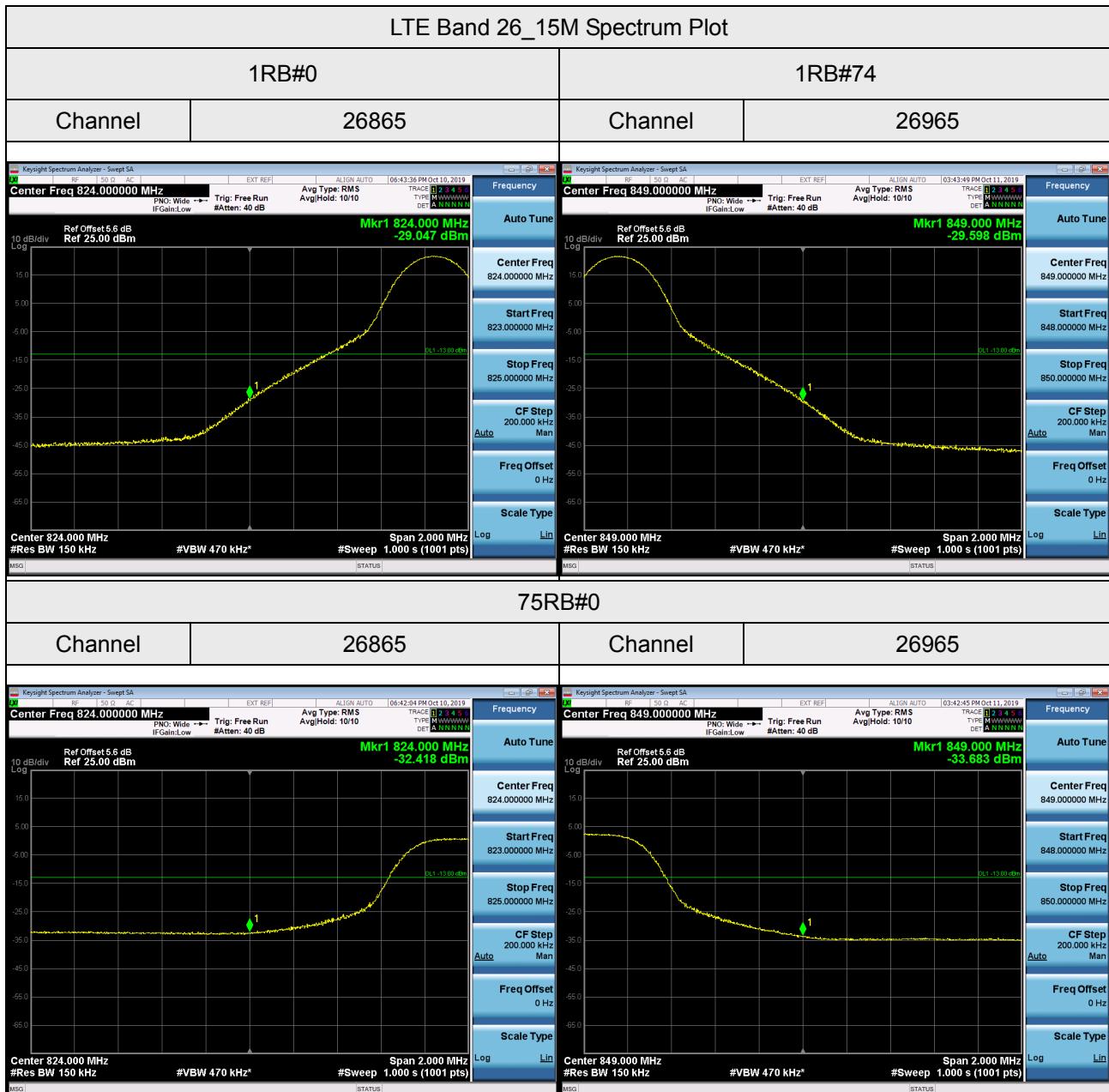
**APPENDIX G - BAND EDGE**











**APPENDIX H - PEAK TO AVERAGE RATIO**