

# FCC Radio Test Report

## FCC ID: 2AH4HATD600

This report concerns: Original Grant

**Project No.** : 2107C193  
**Equipment** : LTE Cat-M1 Tracker  
**Brand Name** : Mobilogix  
**Test Model** : ATD600S  
**Series Model** : N/A  
**Applicant** : Mobilogix, Inc.  
**Address** : 5500 Trabuco Rd Suite 150 Irvine, CA, USA  
**Manufacturer** : Mobilogix, Inc.  
**Address** : 5500 Trabuco Rd Suite 150 Irvine, CA, USA  
**Factory** : Suga Electronics (Dongguan) Co., Ltd.  
**Address** : No.8 Fulong Road, Qingxi Town, Dongguan City  
**Date of Receipt** : Jul. 29, 2021  
**Date of Test** : Jul. 30, 2021 ~ Sep. 10, 2021  
**Issued Date** : Sep. 18, 2021  
**Report Version** : R00  
**Test Sample** : Engineering Sample No.: DG2021081225 for radiated, DG2021081224 for conducted.  
**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.

*Vegeta Li*

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TESTING CERT #5123.02

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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.	Sep. 18, 2021

## 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)	Output Power & 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 Rd. Shixia, Dalang Town, Dongguan City, Guangdong, People's Republic of 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	CISPR	9kHz ~ 30MHz	-	2.36
		30MHz ~ 200MHz	V	4.36
		30MHz ~ 200MHz	H	3.32
		200MHz ~ 1,000MHz	V	4.08
		200MHz ~ 1,000MHz	H	3.96
		1GHz ~ 6GHz	-	3.80
		6GHz ~ 18GHz	-	4.82

#### B. Other Measurement:

Parameter	Uncertainty
Spectrum Bandwidth	±3.8 %
Maximum Output Power	±0.95 dB
Power Spectral Density	±0.86 dB
Frequency Stability	±0.16 dB
Temperature	±0.08 °C
Time	±0.58 %
Supply voltages	±0.3 %

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	23.5°C	43%	DC 3.6 V	Tate Liu
Occupied Bandwidth	23.5°C	43%	DC 3.6 V	Tate Liu
Conducted Spurious Emissions	23.5°C	43%	DC 3.6 V	Tim Yang
Radiated Spurious Emissions	26°C	52%	DC 3.6 V	Kwok Guo
Band Edge	23.5°C	43%	DC 3.6 V	Tate Liu
Peak to Average Ratio	23.5°C	43%	DC 3.6 V	Tate Liu
Frequency Stability	Normal & Extreme	43%	Normal & Extreme	Tate Liu

## 2. GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF EUT

Equipment	LTE Cat-M1 Tracker			
Brand Name	Mobilogix			
Test Model	ATD600S			
Series Model	N/A			
Model Difference(s)	N/A			
Hardware Version	1.1			
Software Version	1.1.45			
Power Source	Supplied from battery.			
Power Rating	DC 3.6V			
IEMI No.	Conducted	867730051961021		
	Radiated	867730051961708		
LTE Category	M1			
Modulation Type	GSM		GMSK	
	EDGE/GPRS		GMSK, 8PSK	
	LTE		UL: QPSK,16QAM DL: QPSK,16QAM	
Max. ERP	GSM 850 / GPRS 850		GMSK	32.54 dBm
	EDGE 850		8PSK	25.31 dBm
	LTE	Channel Bandwidth (MHz)	QPSK (dBm)	16QAM (dBm)
	Band 5	1.4	19.74	18.96
		3	19.76	18.79
		5	19.75	19.78
		10	19.88	19.53
	Band 26	1.4	19.49	18.39
		3	19.45	18.70
		5	19.92	19.34
10		19.70	19.25	
	15	19.68	19.39	

Note:

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

2. Channel List:

GSM 850				
Test Frequency ID	UARFCN	Frequency of Uplink (MHz)	UARFCN	Frequency of Downlink (MHz)
Low Range	128	824.2	137	869.2
Mid Range	190	836.6	199	881.6
High Range	251	848.8	260	893.8



LTE Band 5					
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	20407	824.7	2407	869.7
	3	20415	825.5	2415	870.5
	5	20425	826.5	2425	871.5
	10	20450	829	2450	874
Mid Range	1.4/3/5/10	20525	836.5	2525	881.5
High Range	1.4	20643	848.3	2643	893.3
	3	20635	847.5	2635	892.5
	5	20625	846.5	2625	891.5
	10	20600	844	2600	889

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	P/N	Antenna Type	Connector	Gain (dBi)	Note
Ethertronics	1004795	Chip	N/A	1.6	GSM 850
Ethertronics	1004795	Chip	N/A	1.6	LTE Band 5
Ethertronics	1004795	Chip	N/A	1.6	LTE Band 26

Note: The antenna gain is provided by the manufacturer.

## 2.2 DESCRIPTION OF TEST MODES

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

GSM MODE			
Test Item	Available Channel	Tested Channel	Mode
Output Power & ERP	128 to 251	128, 190, 251	GSM, GPRS, EDGE
Occupied Bandwidth	128 to 251	128, 190, 251	GSM, EDGE
Conducted Spurious Emissions	128 to 251	190	GSM, EDGE
Radiated Spurious Emissions	128 to 251	190	GSM
Band Edge	128 to 251	128, 251	GSM, EDGE
Peak to Average Ratio	128 to 251	128, 190, 251	GSM, EDGE
Frequency Stability	128 to 251	190	GSM

LTE BAND 5 MODE					
Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
Output Power & ERP	20407 to 20643	20407, 20525, 20643	1.4MHz	QPSK, 16QAM	1RB/6RB
	20415 to 20635	20415, 20525, 20635	3MHz	QPSK, 16QAM	1RB/6RB
	20425 to 20625	20425, 20525, 20625	5MHz	QPSK, 16QAM	1RB/6RB
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK, 16QAM	1RB/4RB
Occupied Bandwidth	20407 to 20643	20407, 20525, 20643	1.4MHz	QPSK, 16QAM	6RB
	20415 to 20635	20415, 20525, 20635	3MHz	QPSK, 16QAM	6RB
	20425 to 20625	20425, 20525, 20625	5MHz	QPSK, 16QAM	6RB
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK, 16QAM	6RB
Conducted Spurious Emissions	20407 to 20643	20525	1.4MHz	QPSK	1RB
	20425 to 20625	20525	5MHz	QPSK	1RB
	20450 to 20600	20525	10MHz	QPSK	1RB
Radiated Spurious Emissions	20407 to 20643	20525	1.4MHz	QPSK	1RB
	20425 to 20625	20525	5MHz	QPSK	1RB
	20450 to 20600	20525	10MHz	QPSK	1RB
Band Edge	20407 to 20643	20407, 20643	1.4MHz	QPSK	1RB/6RB
	20415 to 20635	20415, 20635	3MHz	QPSK	1RB/6RB
	20425 to 20625	20425, 20625	5MHz	QPSK	1RB/6RB
	20450 to 20600	20450, 20600	10MHz	QPSK	1RB/6RB
Peak To Average Ratio	20407 to 20643	20407, 20525, 20643	1.4MHz	QPSK, 16QAM	1RB
	20415 to 20635	20415, 20525, 20635	3MHz	QPSK, 16QAM	1RB
	20425 to 20625	20425, 20525, 20625	5MHz	QPSK, 16QAM	1RB
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK, 16QAM	1RB
Frequency Stability	20407 to 20643	20525	1.4MHz	QPSK	1RB
	20415 to 20635	20525	3MHz	QPSK	1RB
	20425 to 20625	20525	5MHz	QPSK	1RB
	20450 to 20600	20525	10MHz	QPSK	1RB

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/6RB
	26805 to 27025	26805, 26915, 27025	3MHz	QPSK, 16QAM	1RB/6RB
	26815 to 27015	26815, 26915, 27015	5MHz	QPSK, 16QAM	1RB/6RB
	26840 to 26990	26840, 26915, 26990	10MHz	QPSK, 16QAM	1RB/4RB
	26865 to 26965	26865, 26915, 26965	15MHz	QPSK, 16QAM	1RB/6RB
Occupied Bandwidth	26797 to 27033	26797, 26915, 27033	1.4MHz	QPSK, 16QAM	6RB
	26805 to 27025	26805, 26915, 27025	3MHz	QPSK, 16QAM	6RB
	26815 to 27015	26815, 26915, 27015	5MHz	QPSK, 16QAM	6RB
	26840 to 26990	26840, 26915, 26990	10MHz	QPSK, 16QAM	6RB
	26865 to 26965	26865, 26915, 26965	15MHz	QPSK, 16QAM	6RB
Conducted Spurious Emissions	26815 to 27015	26915	1.4MHz	QPSK	1RB
	26815 to 27015	26915	5MHz	QPSK	1RB
	26865 to 26965	26915	15MHz	QPSK	1RB
Radiated Spurious Emissions	26815 to 27015	26915	1.4MHz	QPSK	1RB
	26815 to 27015	26915	5MHz	QPSK	1RB
	26865 to 26965	26915	15MHz	QPSK	1RB
Band Edge	26797 to 27033	26797, 27033	1.4MHz	QPSK	1RB/6RB
	26805 to 27025	26805, 27025	3MHz	QPSK	1RB/6RB
	26815 to 27015	26815, 27015	5MHz	QPSK	1RB/6RB
	26840 to 26990	26840, 26990	10MHz	QPSK	1RB/6RB
	26865 to 26965	26865, 26965	15MHz	QPSK	1RB/6RB
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	26915	1.4MHz	QPSK	1RB
	26805 to 27025	26915	3MHz	QPSK	1RB
	26815 to 27015	26915	5MHz	QPSK	1RB
	26840 to 26990	26915	10MHz	QPSK	1RB
	26865 to 26965	26915	15MHz	QPSK	1RB

**2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED****2.4 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	Brand	Model No.	Series No.
-	-	-	-	-

Item	Cable Type	Shielded Type	Ferrite Core	Length
-	-	-	-	-

### 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 + Antenan gain

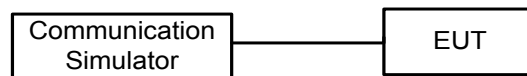
ERP = EIPR - 2.15dBi

##### Output Power:

The EUT was set up for the maximum power with GSM, GPRS, EDGE, WCDMA 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 TEST SETUP LAYOUT

##### Output Power Measurement



##### 3.1.4 TEST DEVIATION

No deviation

##### 3.1.5 TEST RESULTS

Please refer to the APPENDIX A.

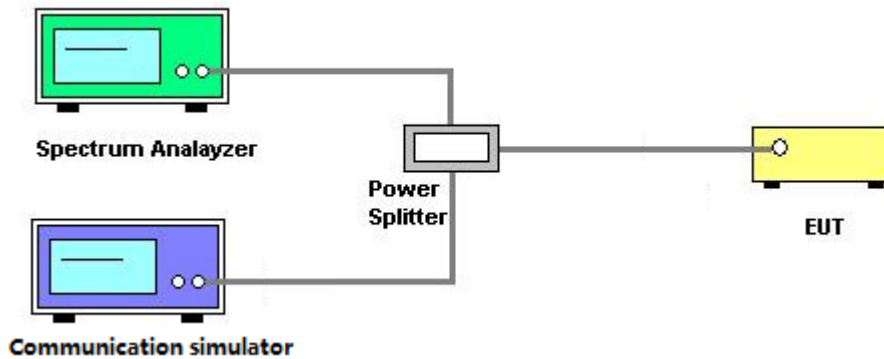
### 3.2 OCCUPIED BANDWIDTH MEASUREMENT

#### 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

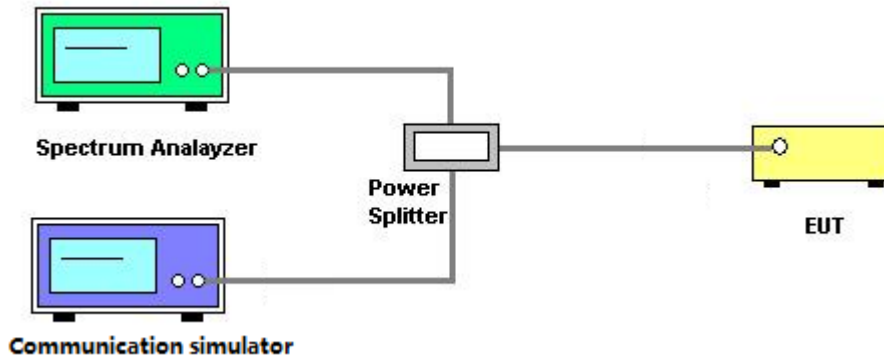
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. The emission limit equal to -13dBm.

#### 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**

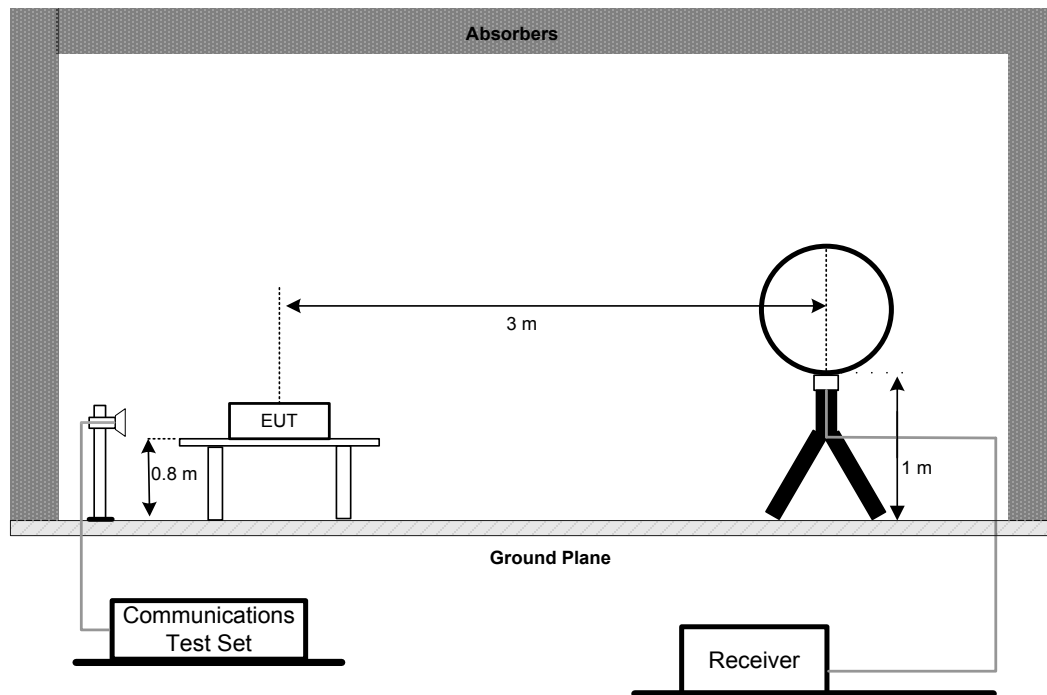
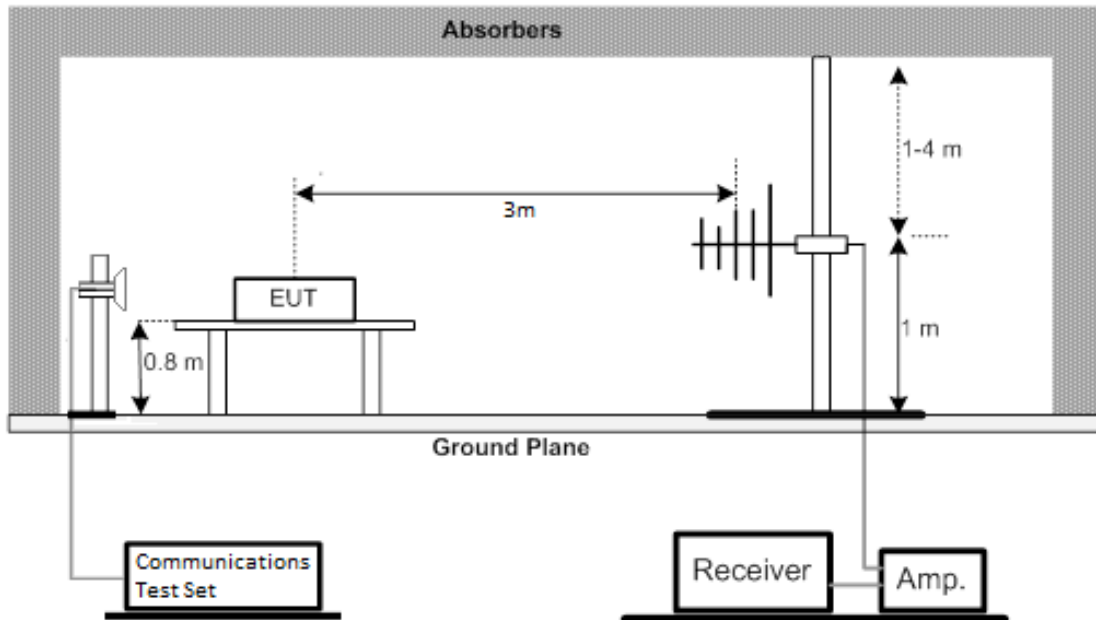
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. The emission limit equal to -13dBm.

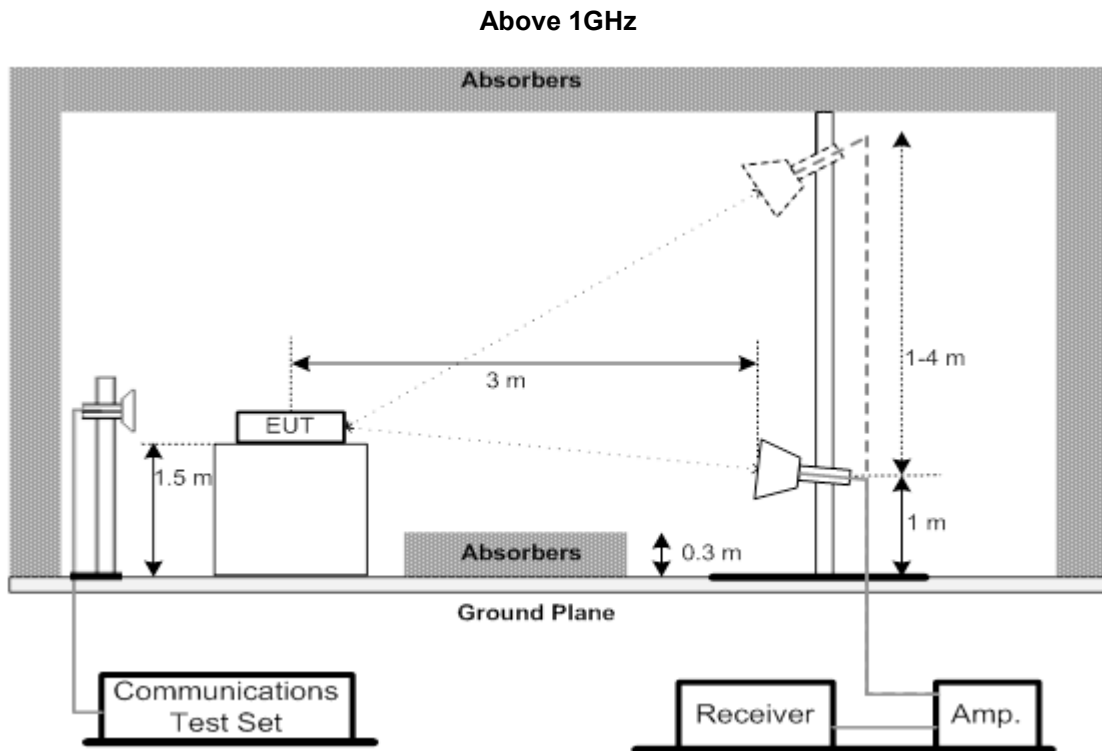
#### **3.4.2 TEST PROCEDURES**

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.  $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$ .
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 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

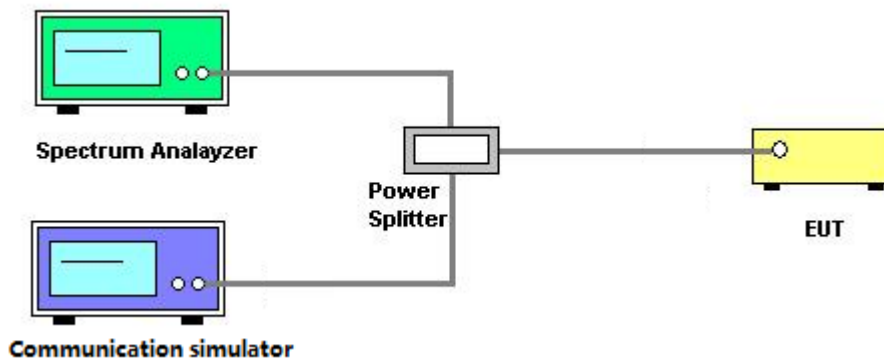
A Power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of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

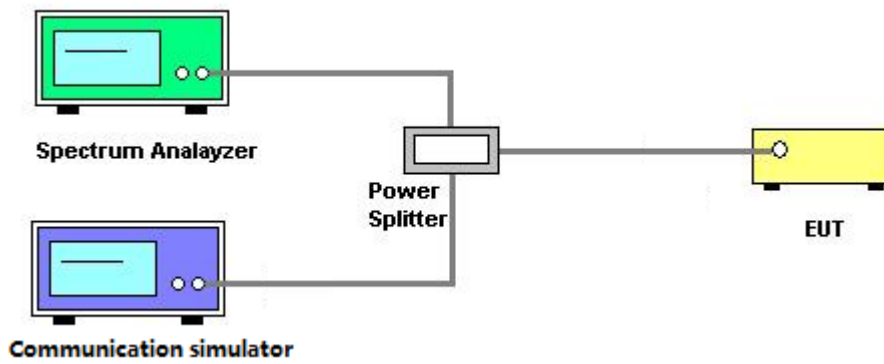
In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB.

#### 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

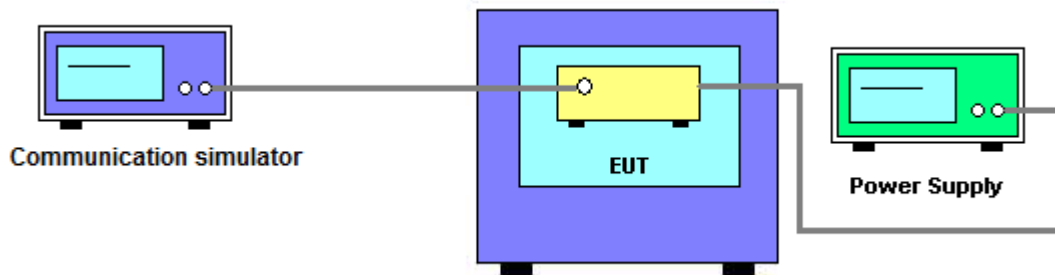
$\pm 1.5$  ppm is for base and fixed station.  $\pm 2.5$  ppm is for mobile station.

#### 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. 15, 2022
2	Amplifier	Agilent	8449B	3008A02334	Feb. 27, 2022
3	High Pass Filter	Wairwright Instruments Gmbh	WHK 1.5/15G-10ST	11	Feb. 27, 2022
4	Band Reject Filter	Wairwright Instruments Gmbh	WRCG 1710/1785-1690/1805-60/ 12SS	38	Feb. 27, 2022
5	Band Reject Filter	Wairwright Instruments Gmbh	WRCG 824/849-810/863-60/9SS	7	Feb. 27, 2022
6	Band Reject Filter	Wairwright Instruments Gmbh	WRCG 880/915-860/935-60/9SS	14	Feb. 27, 2022
7	Band Reject Filter	Wairwright Instruments Gmbh	WRCG 1850/1910-1830/1930-60/ 10SS	17	Feb. 27, 2022
8	High Pass Filter	Wairwright Instruments Gmbh	WHK3.1/18G-10SS	24	Feb. 27, 2022
9	Wireless Communication Test SET	Agilent	E5515C	MY48364183	Feb. 28, 2022
10	Microwave Preamplifier With Adaptor	EMC INSTRUMENT	EMC2654045	980039 & HA01	Feb. 28, 2022
11	Receiver	Agilent	N9038A	MY52130039	Mar. 19, 2022
12	wideband radio communication tester	R&S	CMW500	152372	Feb. 27, 2022
13	High pass filter	KANGMAIWEI	ZHPF-M3-12.75G-3869	B2015073763	Feb. 07, 2022
14	High pass filter	KANGMAIWEI	ZHPF-M1000-4000-1	B2015073762	Feb. 07, 2022
15	High pass filter	KANGMAIWEI	ZHPF-M6-186-1727	B2015073764	Feb. 07, 2022
16	Cable	emci	LMR-400(30MHz-1GHz) (8m+5m)	N/A	May 20, 2022
17	Cable	mitron	RWLP50-4.0A-KJ-SMSM- 12M	N/A	Nov. 23, 2021
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	Apr. 28, 2022
21	Double Ridged Guide Antenna	ETS	3115	75846	Mar. 17, 2022
22	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Jun. 30, 2022

Conducted Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Wireless Communication Test SET	Agilent	E5515C	MY48364183	Feb. 28, 2022
2	EXA Spectrum Analyzer	Agilent	N9010A	MY50520044	Feb. 28, 2022
3	POWER SPLITTER	Mini-Circuits	ZFRSC-123-S+	331000910-1	Feb. 27, 2022
4	wideband radio communication tester	R&S	CMW500	152372	Feb. 27, 2022

Frequency Stability Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Wireless Communication Test SET	Agilent	E5515C	MY48364183	Feb. 28, 2022
2*	Multi-output DC Power Supply	GW Instek	GPC-3030DN	EK880675	Jul. 25, 2023
3	POWER SPLITTER	Mini-Circuits	ZFRSC-123-S+	331000910-1	Feb. 27, 2022
4	wideband radio communication tester	R&S	CMW500	152372	Feb. 27, 2022
5	Const Temp, & Humidity Chamber	Bell	BTH-50C	20170306001	Feb. 27, 2022

Remark: "N/A" denotes no model name, serial no. or calibration specified.

"\*\*" calibration period of equipment list is three year.

Except \* item, all calibration period of equipment list is one year.

## APPENDIX A - OUTPUT POWER



**Output Power (dBm):**

GSM850		128CH	190CH	251CH
		824.2MHz	836.6MHz	848.8MHz
GSM (CS)		33.09	33.08	33.07
GPRS/EDGE (GMSK)	1 Tx Slot	32.92	32.94	32.97
	2 Tx Slot	32.28	32.29	32.31
	3 Tx Slot	31.09	31.07	31.04
	4 Tx Slot	29.49	29.57	29.63
EDGE (8PSK)	1 Tx Slot	25.86	25.83	25.86
	2 Tx Slot	24.78	24.83	24.81
	3 Tx Slot	22.77	23.14	23.23
	4 Tx Slot	21.88	21.79	21.98

LTE Band / BW	Channel / Frequency (MHz)	RB Size	RB Offset	Index	Conducted Power (dBm)	
					QPSK	16QAM
5 / 1.4M	20407 / 824.7	1	0	0	19.75	18.75
		6	0	0	18.20	18.10
	20525 / 836.5	1	0	0	20.29	19.19
		6	0	0	18.07	18.00
	20643 / 848.3	1	5	0	19.85	19.51
		6	0	0	18.10	18.05
5 / 3M	20415 / 825.5	1	0	0	19.67	19.34
		6	0	0	18.27	18.09
	20525 / 836.5	1	0	0	20.31	19.20
		6	0	0	18.05	18.01
	20635 / 847.5	1	5	1	19.80	18.76
		6	0	1	18.01	17.96
5 / 5M	20425 / 826.5	1	0	0	20.09	19.41
		6	0	0	19.60	18.79
	20525 / 836.5	1	0	0	20.30	20.20
		6	0	0	18.82	18.96
	20625 / 846.5	1	5	3	20.24	20.33
		6	0	3	18.87	19.02
5 / 10M	20450 / 829	1	0	3	20.10	20.01
		4	0	0	19.54	19.74
	20525 / 836.5	1	0	0	20.02	19.74
		4	0	0	19.96	19.21
	20600 / 844	1	5	7	20.43	20.08
		4	2	7	20.01	19.74

LTE Band / BW	Channel / Frequency (MHz)	RB Size	RB Offset	Index	Conducted Power (dBm)	
					QPSK	16QAM
26 / 1.4M	26797 / 824.7	1	0	0	19.58	18.94
		6	0	0	18.18	18.17
	26915 / 836.5	1	0	0	18.44	18.61
		6	0	0	18.32	18.34
	27033 / 848.3	1	5	0	20.04	18.86
		6	0	0	18.17	18.01
26 / 3M	26805 / 825.5	1	0	0	19.86	18.62
		6	0	0	18.15	18.09
	26915 / 836.5	1	0	0	20.00	18.67
		6	0	0	18.24	18.30
	27025 / 847.5	1	5	1	19.78	19.25
		6	0	1	18.02	18.02
26 / 5M	26815 / 826.5	1	0	3	20.25	19.56
		6	0	0	18.59	18.70
	26915 / 836.5	1	0	0	20.47	19.89
		6	0	0	18.70	18.81
	27015 / 846.5	1	5	0	20.33	19.89
		6	0	3	18.91	19.01
26 / 10M	26840 / 829	1	0	3	20.11	19.77
		4	0	0	19.86	19.19
	26915 / 836.5	1	0	0	20.25	19.64
		4	0	0	19.72	19.21
	26990 / 844	1	5	4	20.21	19.80
		4	2	7	19.87	19.31
26 / 15M	26865 / 831.5	1	0	3	20.23	19.49
		6	0	0	19.71	19.76
	26915 / 836.5	1	0	0	20.11	19.94
		6	0	0	19.73	19.88
	26965 / 841.5	1	5	8	20.19	19.51
		6	0	11	19.83	19.88

**ERP (dBm):**

GSM850		128CH	190CH	251CH
		824.2MHz	836.6MHz	848.8MHz
GSM (CS)		32.54	32.53	32.52
GPRS/EDGE (GMSK)	1 Tx Slot	32.37	32.39	32.42
	2 Tx Slot	31.73	31.74	31.76
	3 Tx Slot	30.54	30.52	30.49
	4 Tx Slot	28.94	29.02	29.08
EDGE (8PSK)	1 Tx Slot	25.31	25.28	25.31
	2 Tx Slot	24.23	24.28	24.26
	3 Tx Slot	22.22	22.59	22.68
	4 Tx Slot	21.33	21.24	21.43

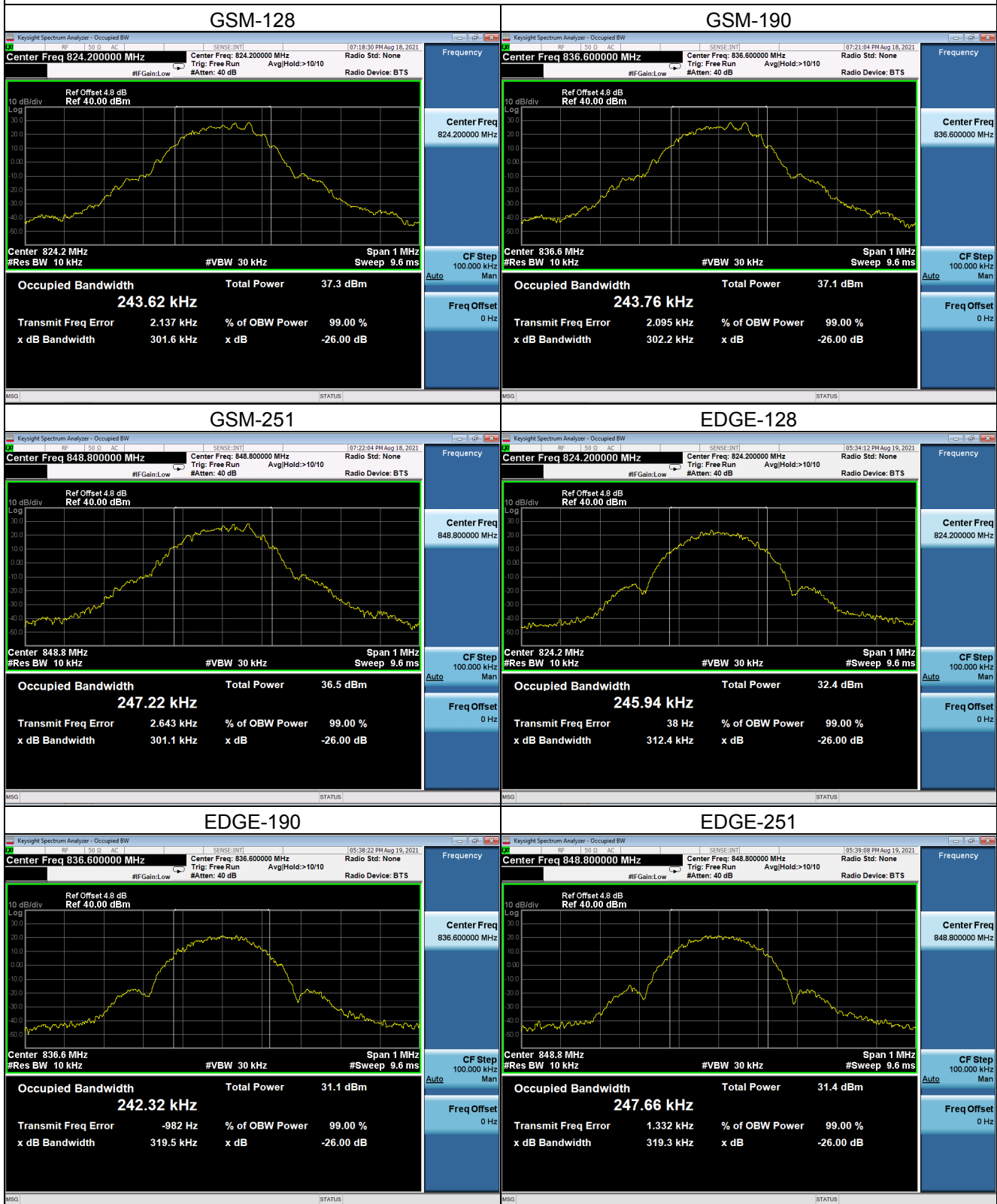
LTE Band / BW	Channel / Frequency (MHz)	RB Size	RB Offset	Index	Conducted Power (dBm)	
					QPSK	16QAM
5 / 1.4M	20407 / 824.7	1	0	0	19.20	18.20
		6	0	0	17.65	17.55
	20525 / 836.5	1	0	0	19.74	18.64
		6	0	0	17.52	17.45
	20643 / 848.3	1	5	0	19.30	18.96
		6	0	0	17.55	17.50
5 / 3M	20415 / 825.5	1	0	0	19.12	18.79
		6	0	0	17.72	17.54
	20525 / 836.5	1	0	0	19.76	18.65
		6	0	0	17.50	17.46
	20635 / 847.5	1	5	1	19.25	18.21
		6	0	1	17.46	17.41
5 / 5M	20425 / 826.5	1	0	0	19.54	18.86
		6	0	0	19.05	18.24
	20525 / 836.5	1	0	0	19.75	19.65
		6	0	0	18.27	18.41
	20625 / 846.5	1	5	3	19.69	19.78
		6	0	3	18.32	18.47
5 / 10M	20450 / 829	1	0	3	19.55	19.46
		4	0	0	18.99	19.19
	20525 / 836.5	1	0	0	19.47	19.19
		4	0	0	19.41	18.66
	20600 / 844	1	5	7	19.88	19.53
		4	2	7	19.46	19.19

LTE Band / BW	Channel / Frequency (MHz)	RB Size	RB Offset	Index	Conducted Power (dBm)	
					QPSK	16QAM
26 / 1.4M	26797 / 824.7	1	0	0	19.03	18.39
		6	0	0	17.63	17.62
	26915 / 836.5	1	0	0	17.89	18.06
		6	0	0	17.77	17.79
	27033 / 848.3	1	5	0	19.49	18.31
		6	0	0	17.62	17.46
26 / 3M	26805 / 825.5	1	0	0	19.31	18.07
		6	0	0	17.60	17.54
	26915 / 836.5	1	0	0	19.45	18.12
		6	0	0	17.69	17.75
	27025 / 847.5	1	5	1	19.23	18.70
		6	0	1	17.47	17.47
26 / 5M	26815 / 826.5	1	0	3	19.70	19.01
		6	0	0	18.04	18.15
	26915 / 836.5	1	0	0	19.92	19.34
		6	0	0	18.15	18.26
	27015 / 846.5	1	5	0	19.78	19.34
		6	0	3	18.36	18.46
26 / 10M	26840 / 829	1	0	3	19.56	19.22
		4	0	0	19.31	18.64
	26915 / 836.5	1	0	0	19.70	19.09
		4	0	0	19.17	18.66
	26990 / 844	1	5	4	19.66	19.25
		4	2	7	19.32	18.76
26 / 15M	26865 / 831.5	1	0	3	19.68	18.94
		6	0	0	19.16	19.21
	26915 / 836.5	1	0	0	19.56	19.39
		6	0	0	19.18	19.33
	26965 / 841.5	1	5	8	19.64	18.96
		6	0	11	19.28	19.33

## **APPENDIX B - OCCUPIED BANDWIDTH**

GSM850					
GSM			EDGE		
CS			8PSK		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
128	824.2	0.2436	128	824.2	0.2459
190	836.6	0.2438	190	836.6	0.2423
251	848.8	0.2472	251	848.8	0.2477
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
128	824.2	0.3016	128	824.2	0.3124
190	836.6	0.3022	190	836.6	0.3195
251	848.8	0.3011	251	848.8	0.3193

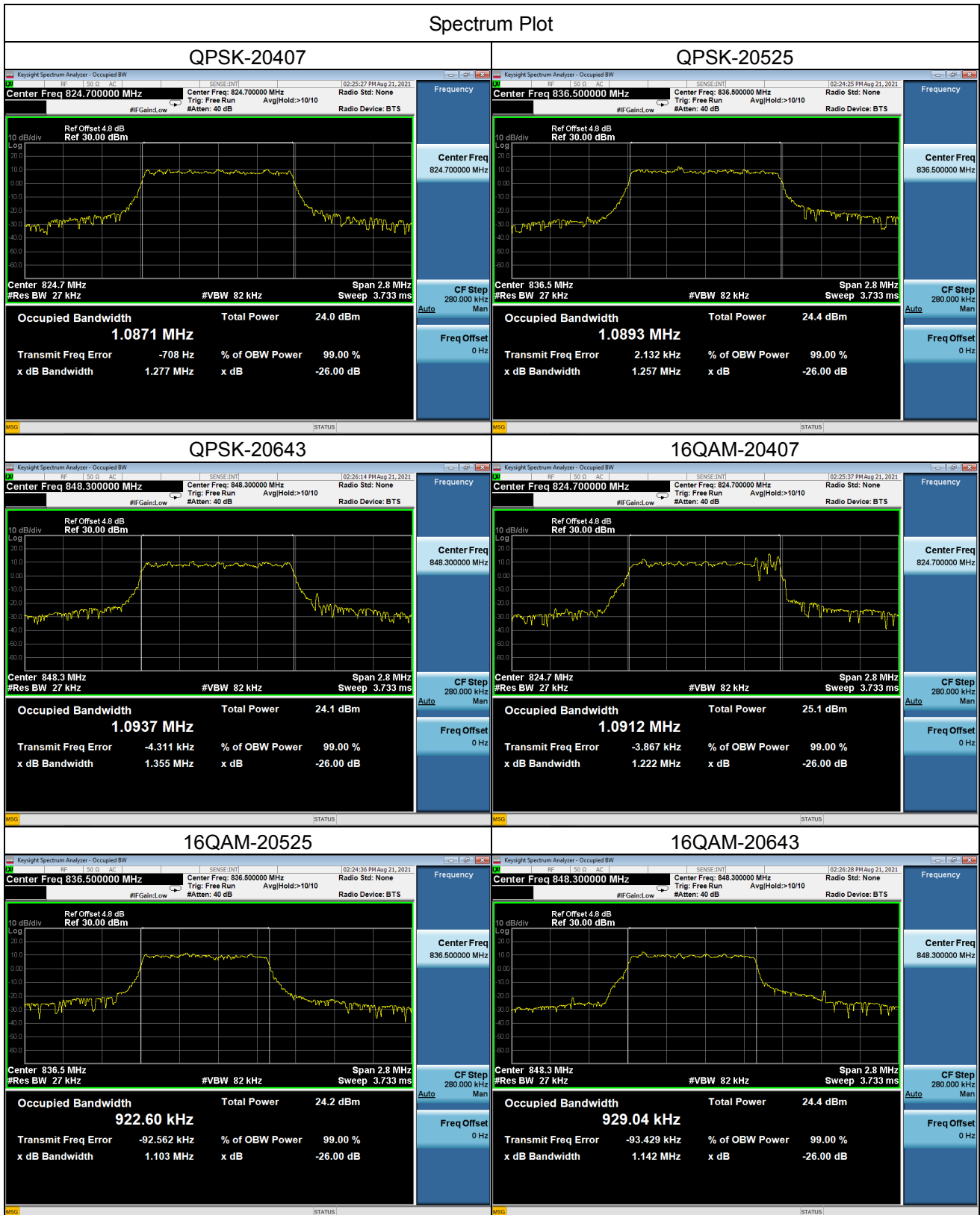
## Spectrum Plot



LTE Band 5_1.4M					
QPSK					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20407	824.7	1.0871	20407	824.7	1.277
20525	836.5	1.0893	20525	836.5	1.257
20643	848.3	1.0937	20643	848.3	1.355
16QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20407	824.7	1.0912	20407	824.7	1.222
20525	836.5	0.9226	20525	836.5	1.103
20643	848.3	0.9290	20643	848.3	1.142

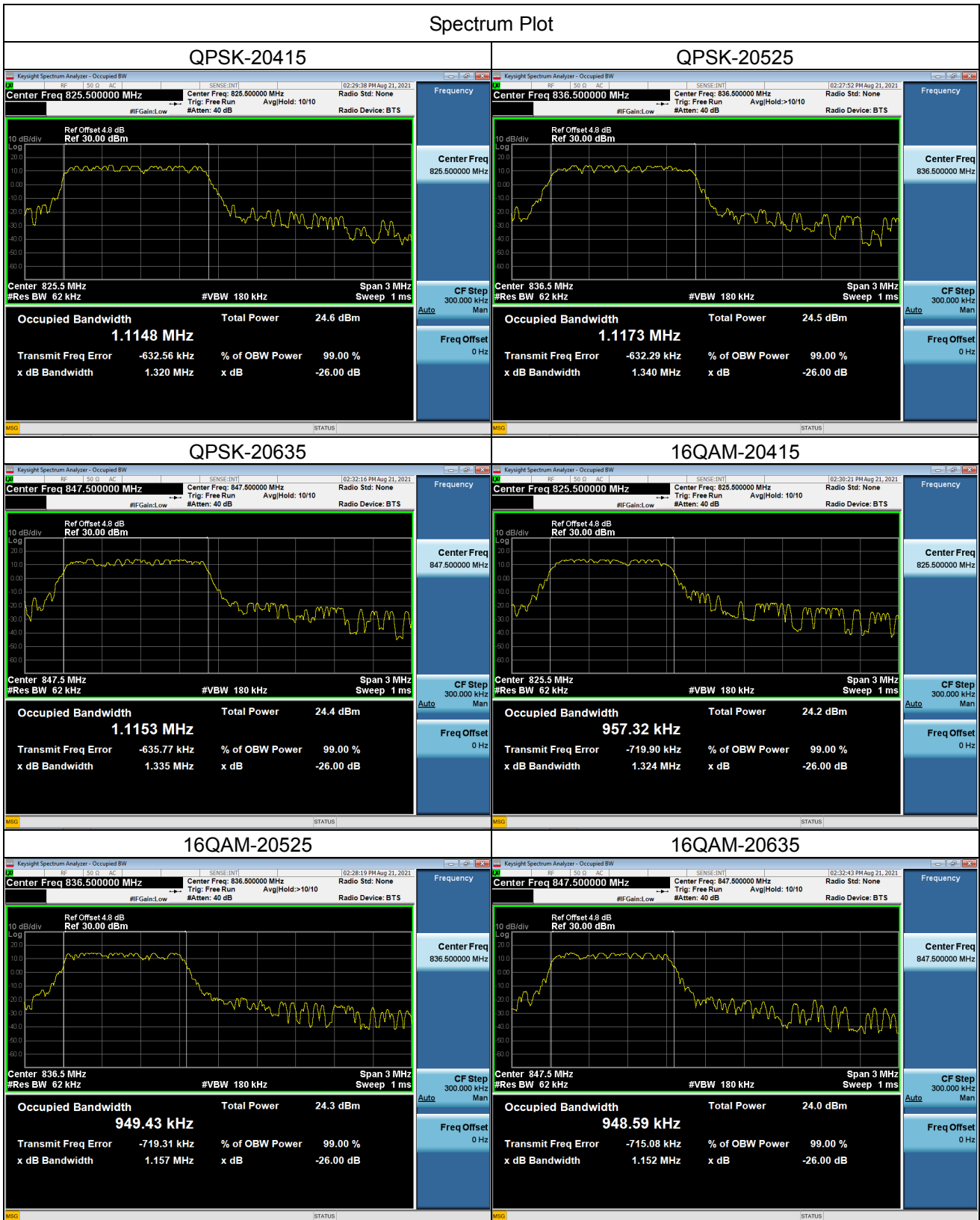


## Spectrum Plot



LTE Band 5_3M					
QPSK					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20415	825.5	1.1148	20415	825.5	1.320
20525	836.5	1.1173	20525	836.5	1.340
20635	847.5	1.1153	20635	847.5	1.335
16QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20415	825.5	0.9573	20415	825.5	1.324
20525	836.5	0.9494	20525	836.5	1.157
20635	847.5	0.9486	20635	847.5	1.152

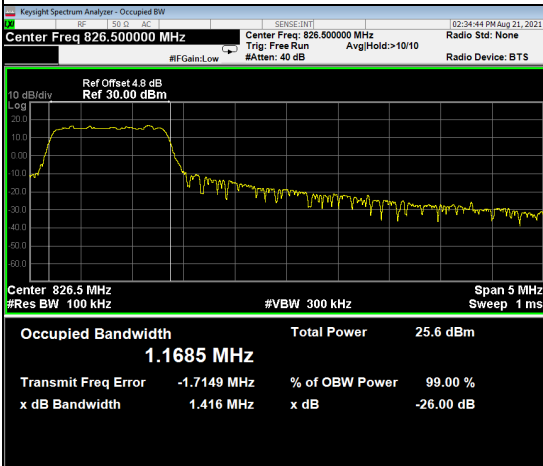
## Spectrum Plot



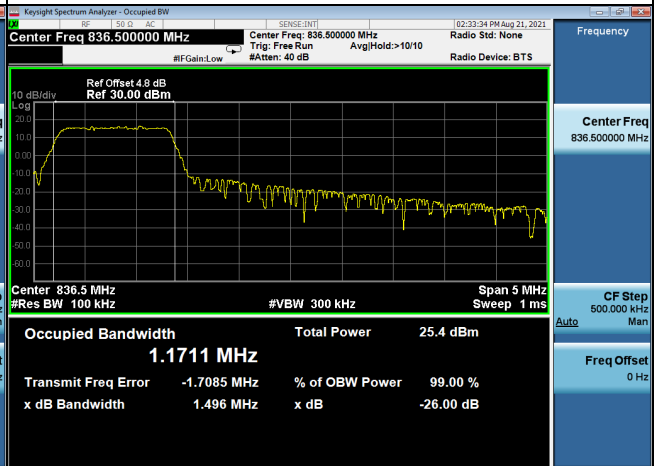
LTE Band 5_5M					
QPSK					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20425	826.5	1.1685	20425	826.5	1.416
20525	836.5	1.1711	20525	836.5	1.496
20625	846.5	1.1801	20625	846.5	1.498
16QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20425	826.5	1.0634	20425	826.5	1.519
20525	836.5	1.0233	20525	836.5	1.276
20625	846.5	1.0224	20625	846.5	1.301

## Spectrum Plot

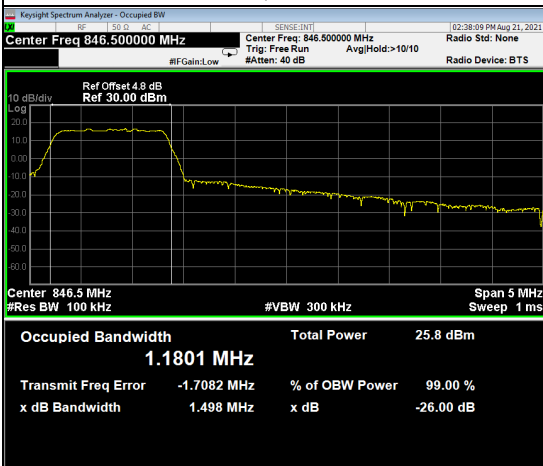
### QPSK-20425



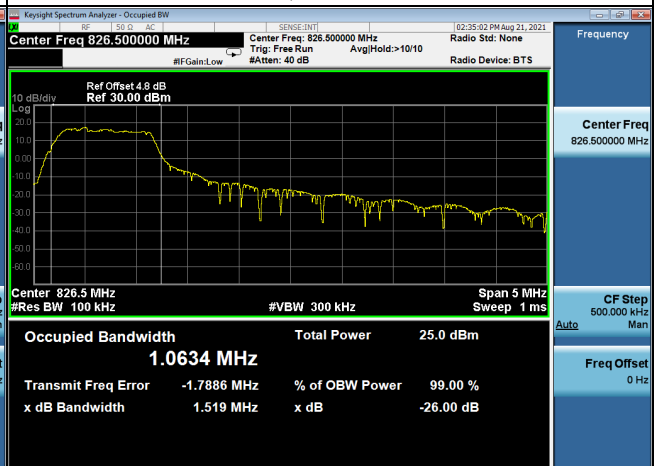
### QPSK-20525



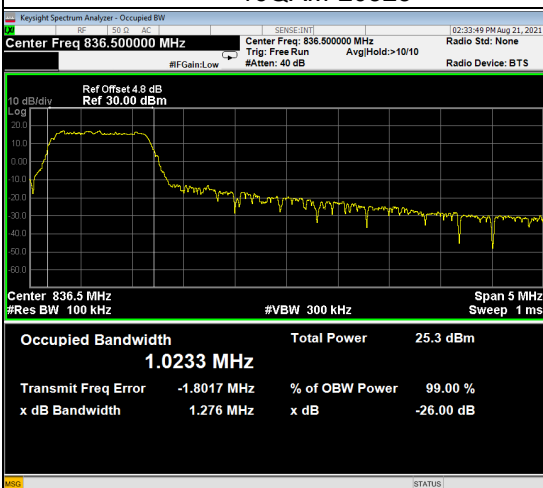
### QPSK-20625



### 16QAM-20425



### 16QAM-20525

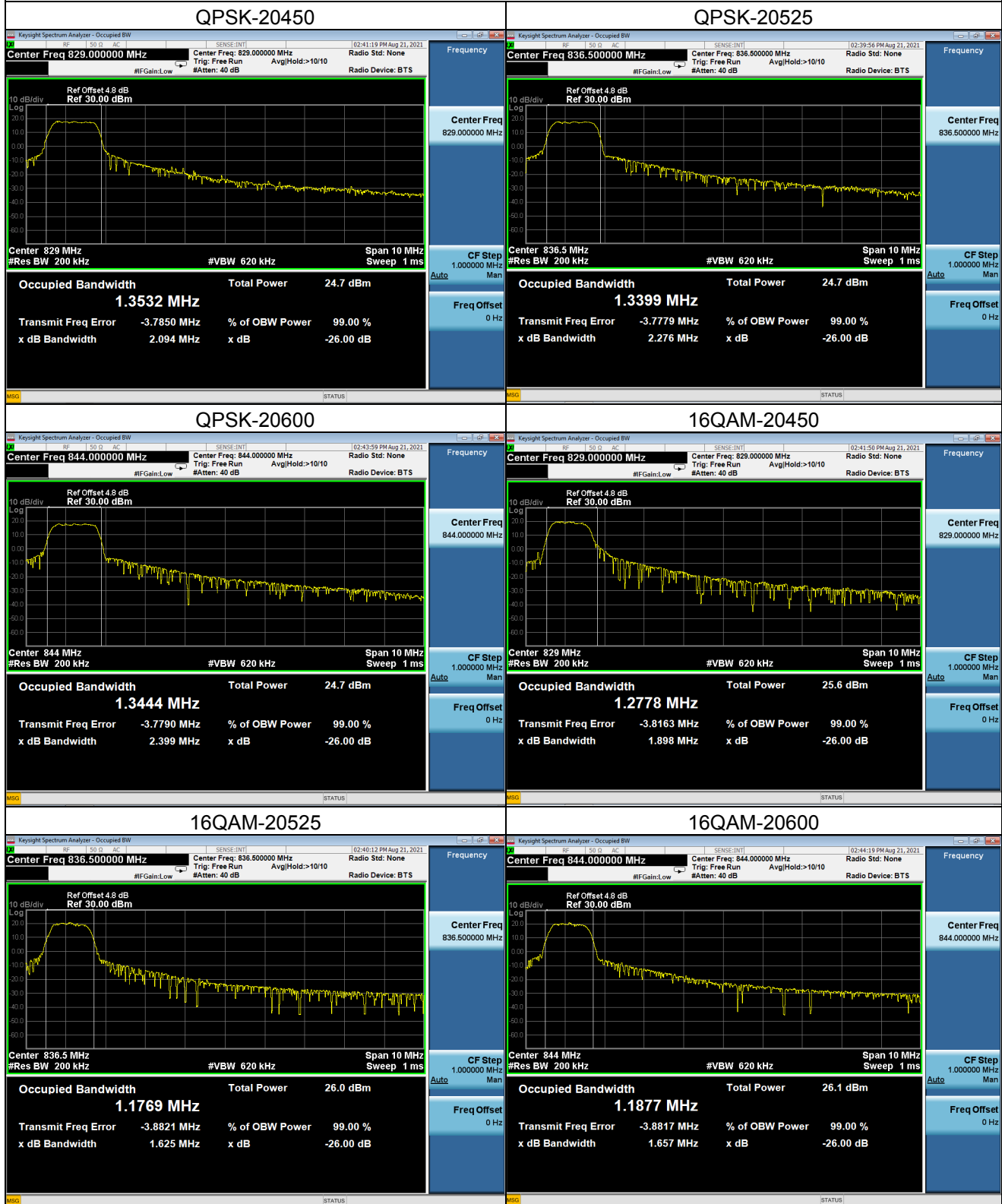


### 16QAM-20625



LTE Band 5_10M					
QPSK					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20450	829.0	1.3532	20450	829.0	2.094
20525	836.5	1.3399	20525	836.5	2.276
20600	844.0	1.3444	20600	844.0	2.399
16QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20450	829.0	1.2778	20450	829.0	1.898
20525	836.5	1.1769	20525	836.5	1.625
20600	844.0	1.1877	20600	844.0	1.657

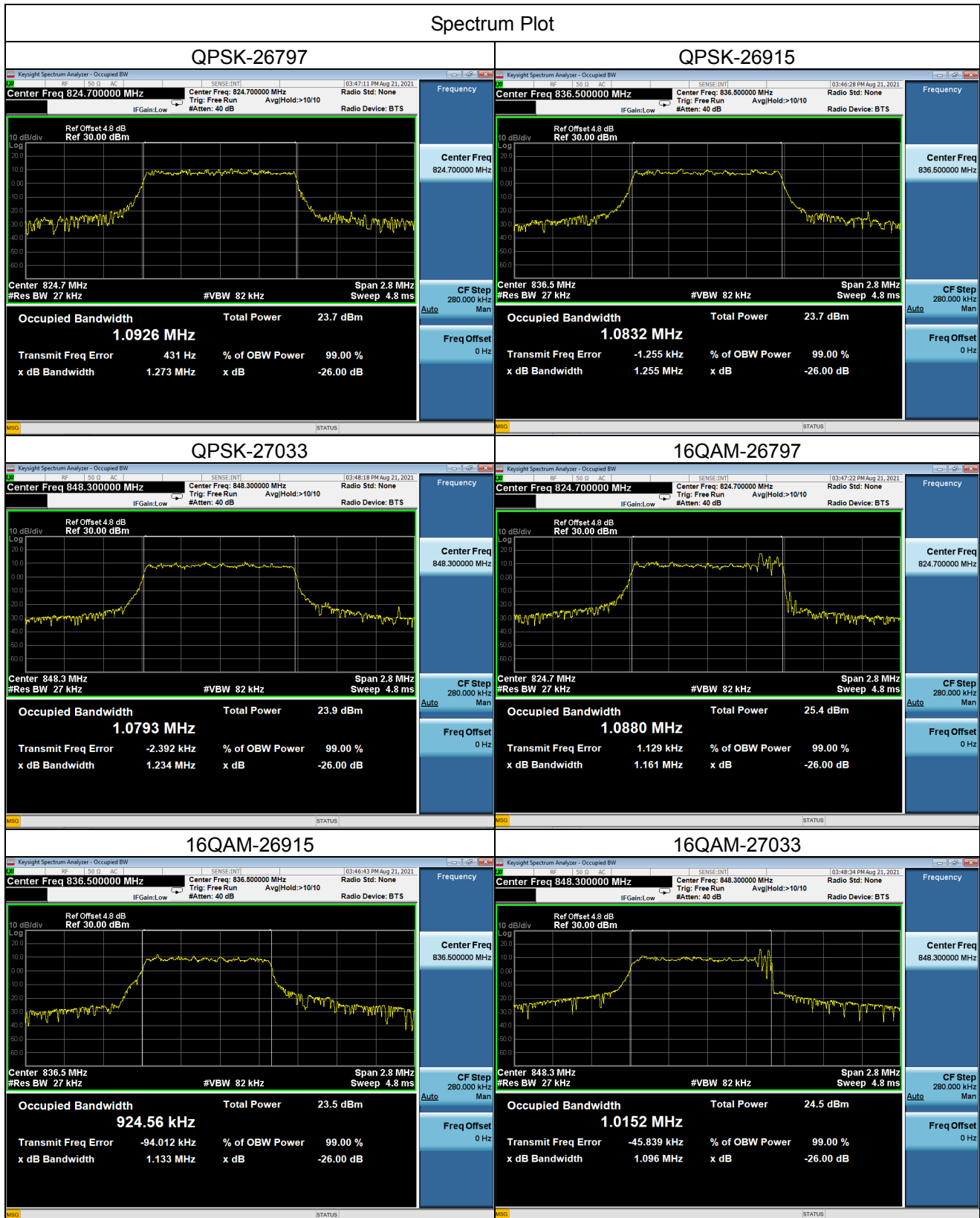
## Spectrum Plot



LTE Band 26_1.4M					
QPSK					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
26797	824.7	1.0926	26797	824.7	1.273
26915	836.5	1.0832	26915	836.5	1.255
27033	848.3	1.0793	27033	848.3	1.234
16QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
26797	824.7	1.0880	26797	824.7	1.161
26915	836.5	0.9246	26915	836.5	1.133
27033	848.3	1.0152	27033	848.3	1.096

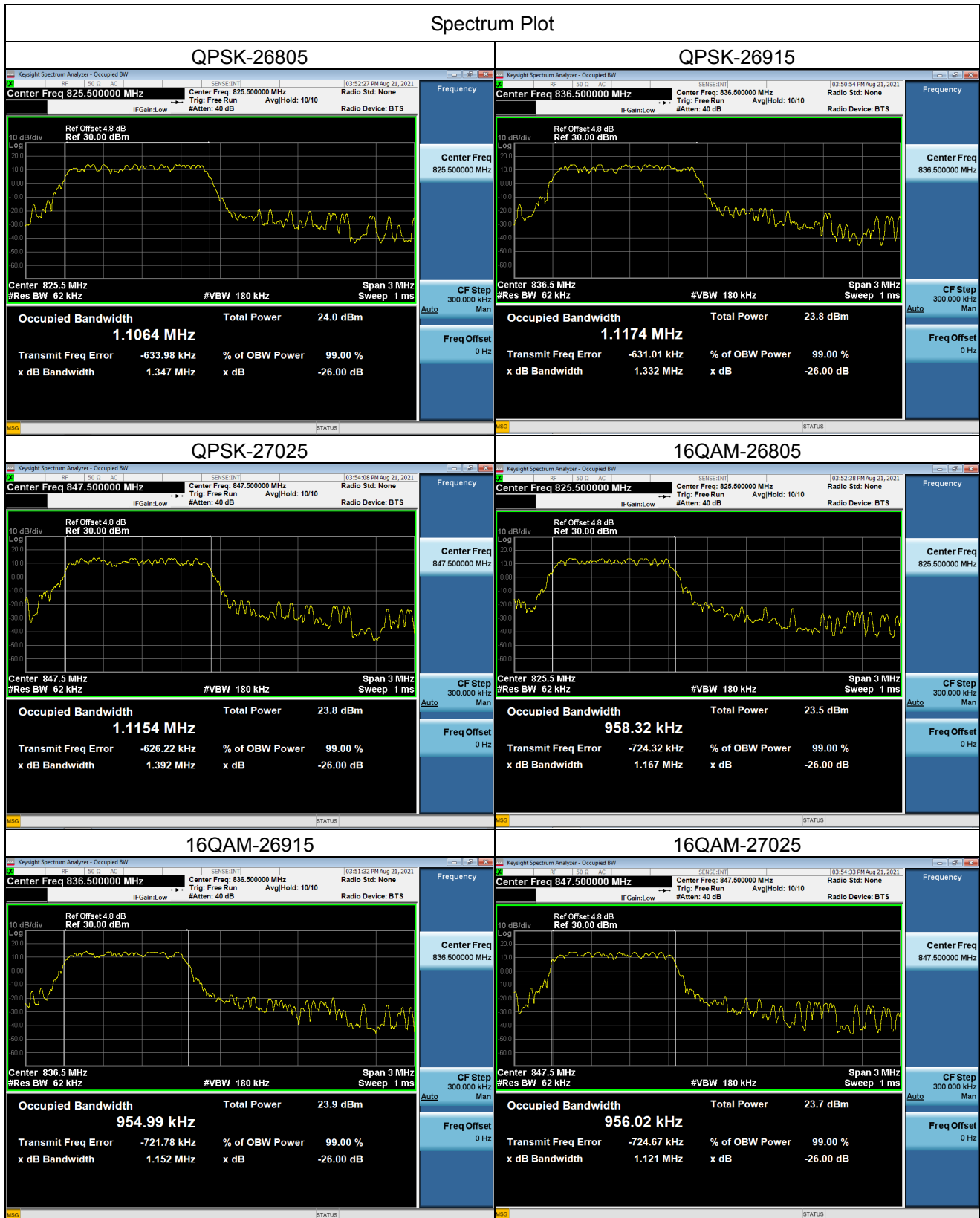


## Spectrum Plot



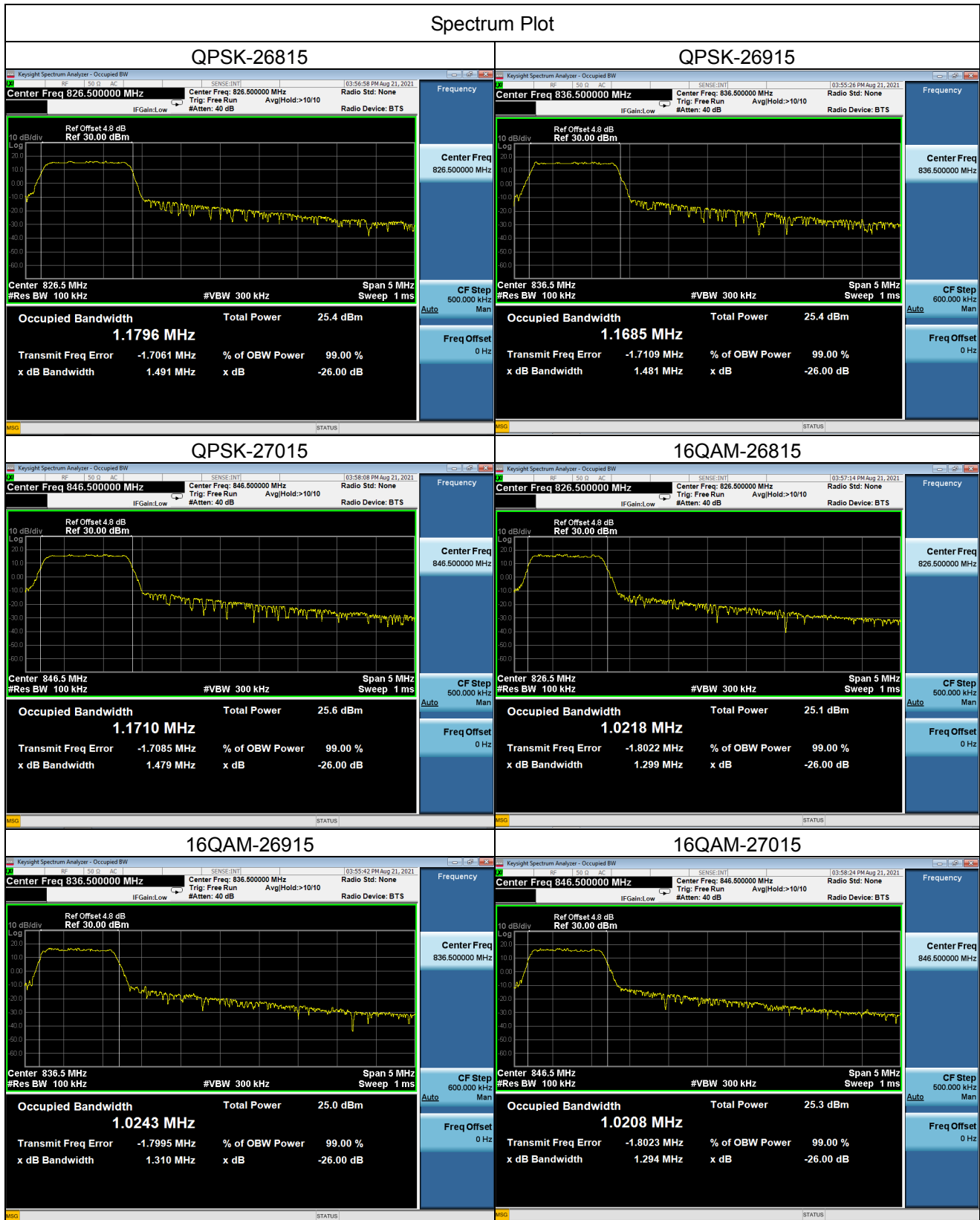
LTE Band 26_3M					
QPSK					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
26805	825.5	1.1064	26805	825.5	1.347
26915	836.5	1.1174	26915	836.5	1.332
27025	847.5	1.1154	27025	847.5	1.392
16QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
26805	825.5	0.9583	26805	825.5	1.167
26915	836.5	0.9550	26915	836.5	1.152
27025	847.5	0.9560	27025	847.5	1.121

## Spectrum Plot



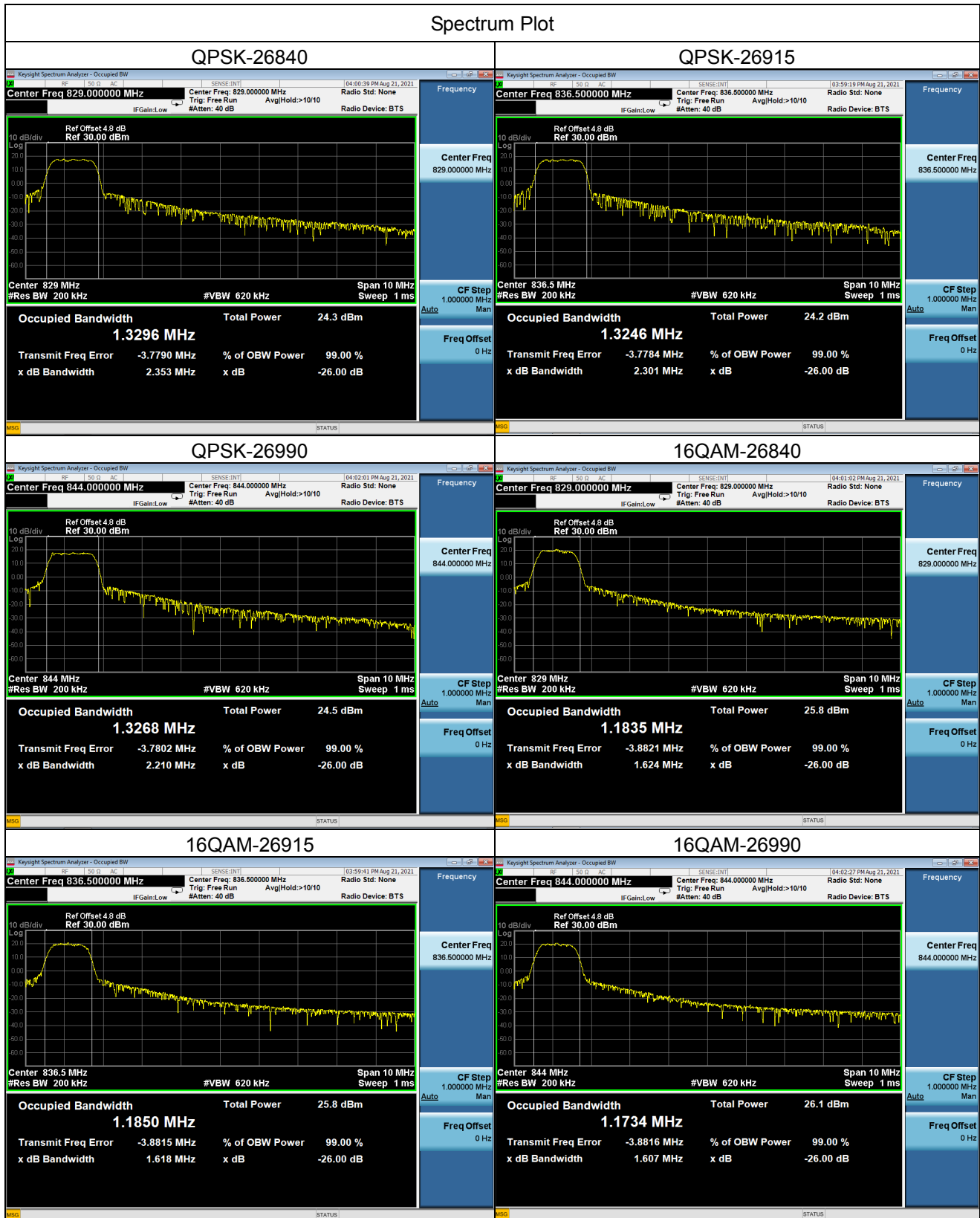
LTE Band 26_5M					
QPSK					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
26815	826.5	1.1796	26815	826.5	1.491
26915	836.5	1.1685	26915	836.5	1.481
27015	846.5	1.1710	27015	846.5	1.479
16QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
26815	826.5	1.0218	26815	826.5	1.299
26915	836.5	1.0243	26915	836.5	1.310
27015	846.5	1.0208	27015	846.5	1.294

## Spectrum Plot



LTE Band 26_10M					
QPSK					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
26840	829	1.3296	26840	829	2.353
26915	836.5	1.3246	26915	836.5	2.301
26990	844	1.3268	26990	844	2.210
16QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
26840	829	1.1835	26840	829	1.624
26915	836.5	1.1850	26915	836.5	1.618
26990	844	1.1734	26990	844	1.607

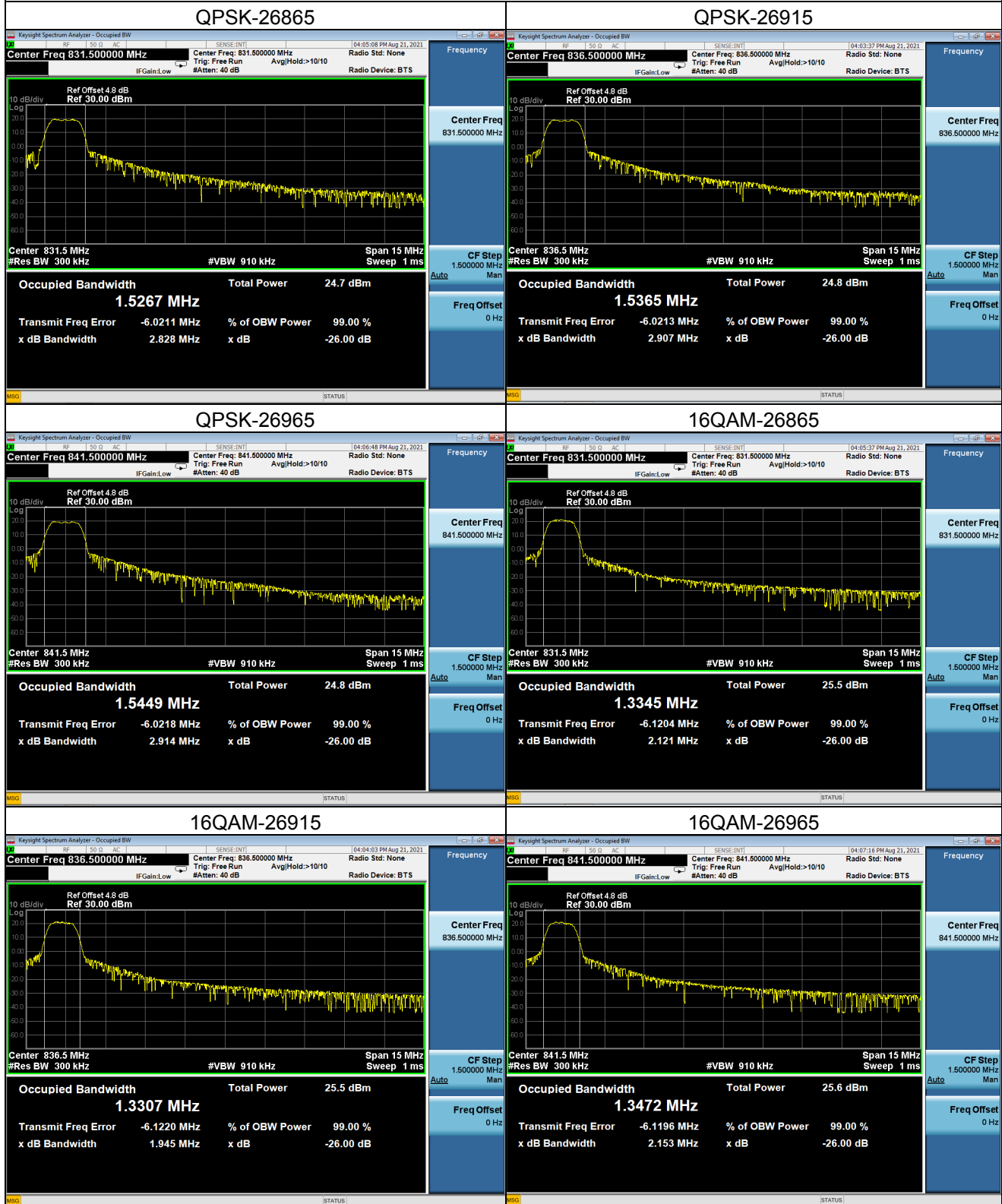
## Spectrum Plot



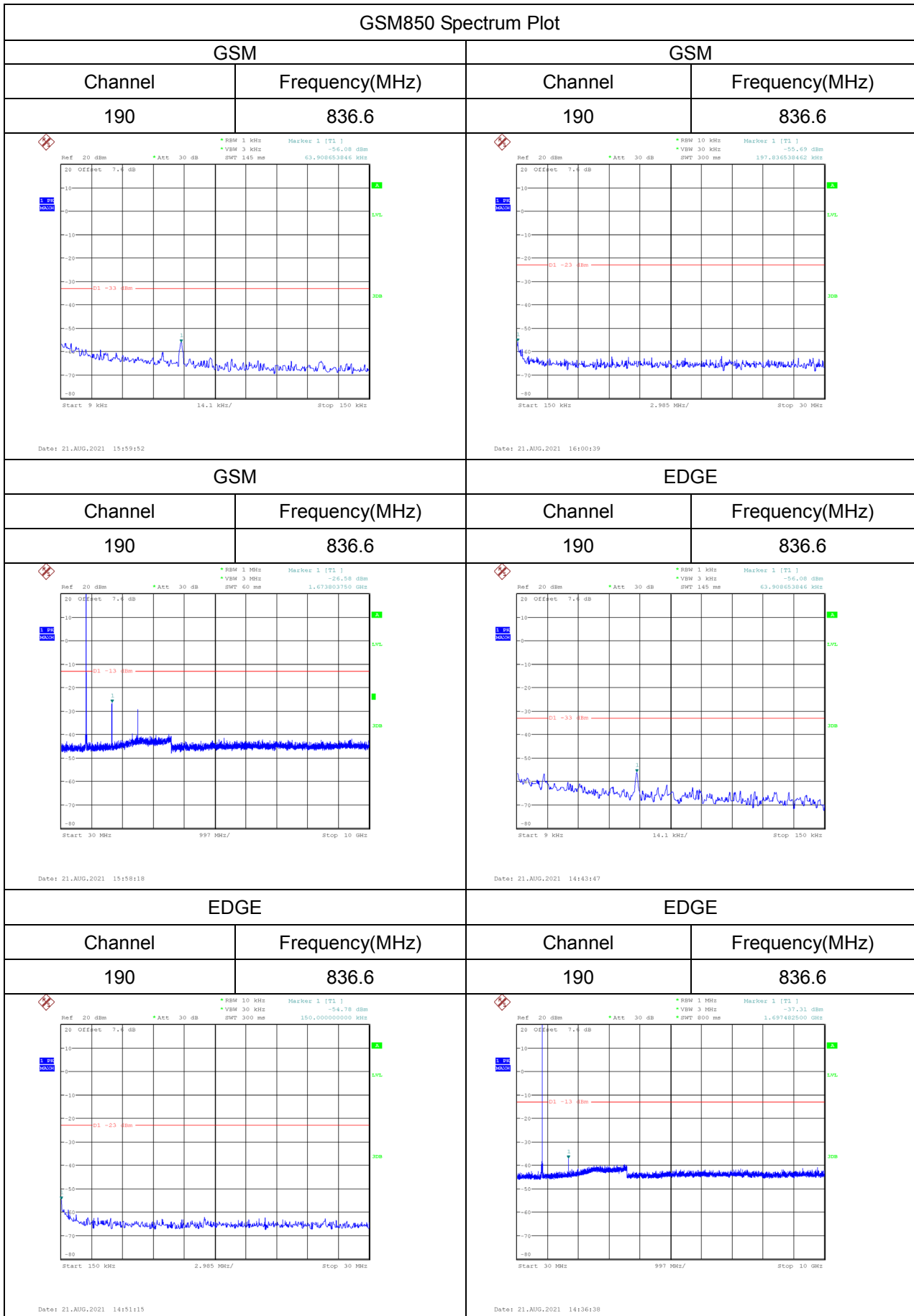
LTE Band 26_15M					
QPSK					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
26865	831.5	1.5267	26865	831.5	2.828
26915	836.5	1.5365	26915	836.5	2.907
26965	841.5	1.5449	26965	841.5	2.914
16QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
26865	831.5	1.3345	26865	831.5	2.121
26915	836.5	1.3307	26915	836.5	1.945
26965	841.5	1.3472	26965	841.5	2.153



## Spectrum Plot



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



LTE Band 5_1.4M Spectrum Plot			
Channel	Frequency(MHz)	Channel	Frequency(MHz)
20525	836.5	20525	836.5
<p>Ref: 20 dBm, Offset: 7.4 dB, Att: 30 dB            RBW 1 MHz, VBW 3 kHz, SWT 145 ms            Marker 1 (T1) -34.41 dBm            Start: 9 kHz, Stop: 150 kHz</p>		<p>Ref: 20 dBm, Offset: 7.4 dB, Att: 30 dB            RBW 10 kHz, VBW 30 kHz, SWT 300 ms            Marker 1 (T1) -34.61 dBm            Start: 150 kHz, Stop: 30 MHz</p>	
Channel	Frequency(MHz)	-	-
20525	836.5	-	-
<p>Ref: 20 dBm, Offset: 7.4 dB, Att: 30 dB            RBW 1 MHz, VBW 3 MHz, SWT 100 ms            Marker 1 (T1) -24.56 dBm            Start: 30 MHz, Stop: 10 GHz</p>			

LTE Band 5_5M Spectrum Plot			
Channel	Frequency(MHz)	Channel	Frequency(MHz)
20525	836.5	20525	836.5
Date: 26.AUG.2021 11:45:32		Date: 26.AUG.2021 11:43:26	
Channel	Frequency(MHz)	-	-
20525	836.5	-	-
Date: 26.AUG.2021 11:50:29			

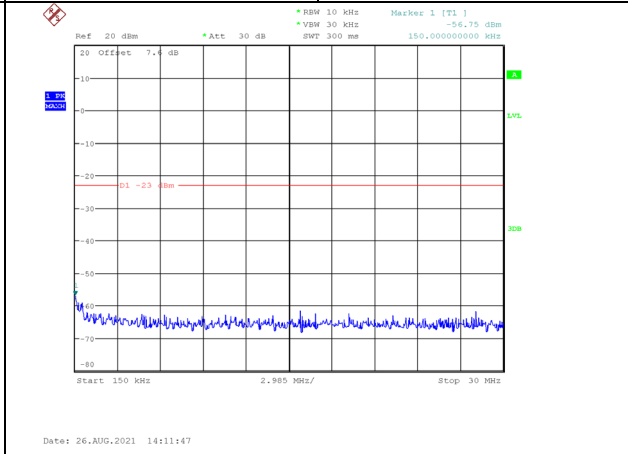
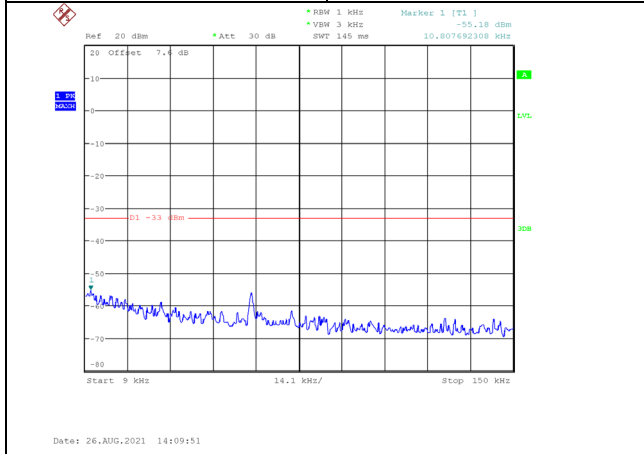
LTE Band 5_10M Spectrum Plot			
Channel	Frequency(MHz)	Channel	Frequency(MHz)
20525	836.5	20525	836.5
Date: 26.AUG.2021 11:45:20		Date: 26.AUG.2021 11:44:50	
Channel	Frequency(MHz)	-	-
20525	836.5	-	-
		-	
Date: 26.AUG.2021 11:50:02			

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

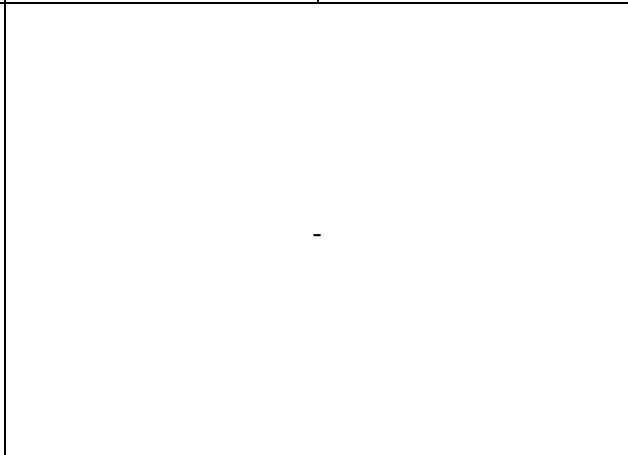
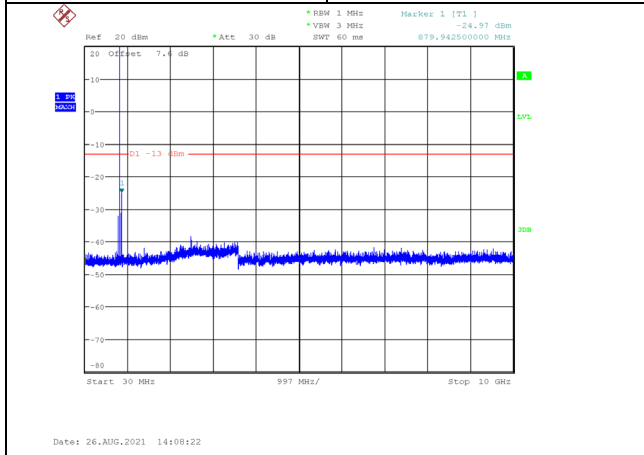
Channel	Frequency(MHz)	Channel	Frequency(MHz)
26915	836.5	26915	836.5
Channel	Frequency(MHz)	-	-
26915	836.5	-	-

## LTE Band 26\_5M Spectrum Plot

Channel	Frequency(MHz)	Channel	Frequency(MHz)
26915	836.5	26915	836.5



Channel	Frequency(MHz)	-	-
26915	836.5	-	-





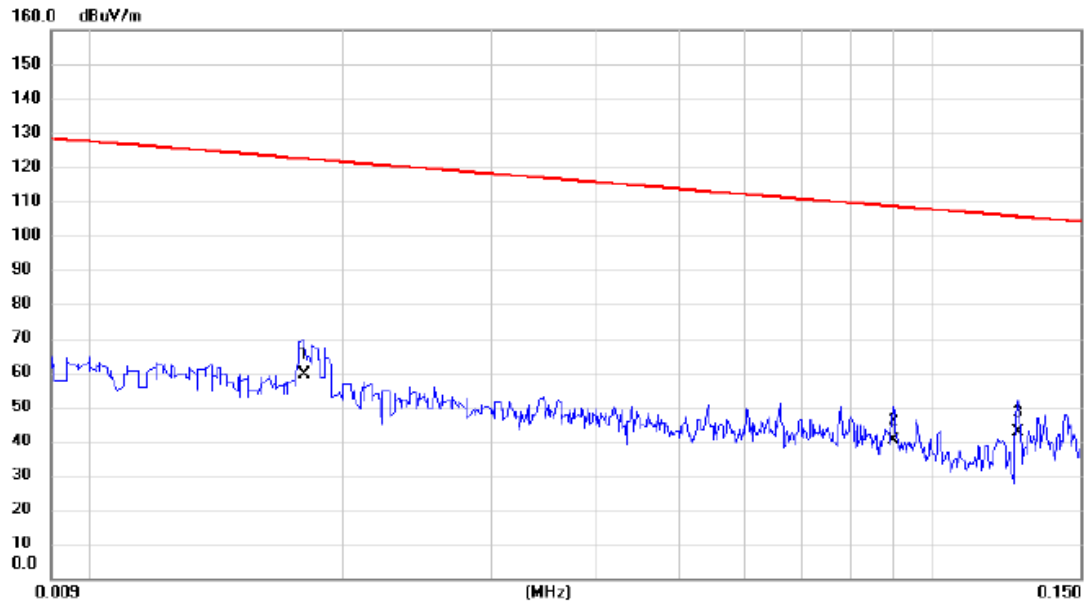
## LTE Band 26\_15M Spectrum Plot

Channel	Frequency(MHz)	Channel	Frequency(MHz)
26915	836.5	26915	836.5
Channel	Frequency(MHz)	-	-
26915	836.5	-	-

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

Test Mode	TX Mode
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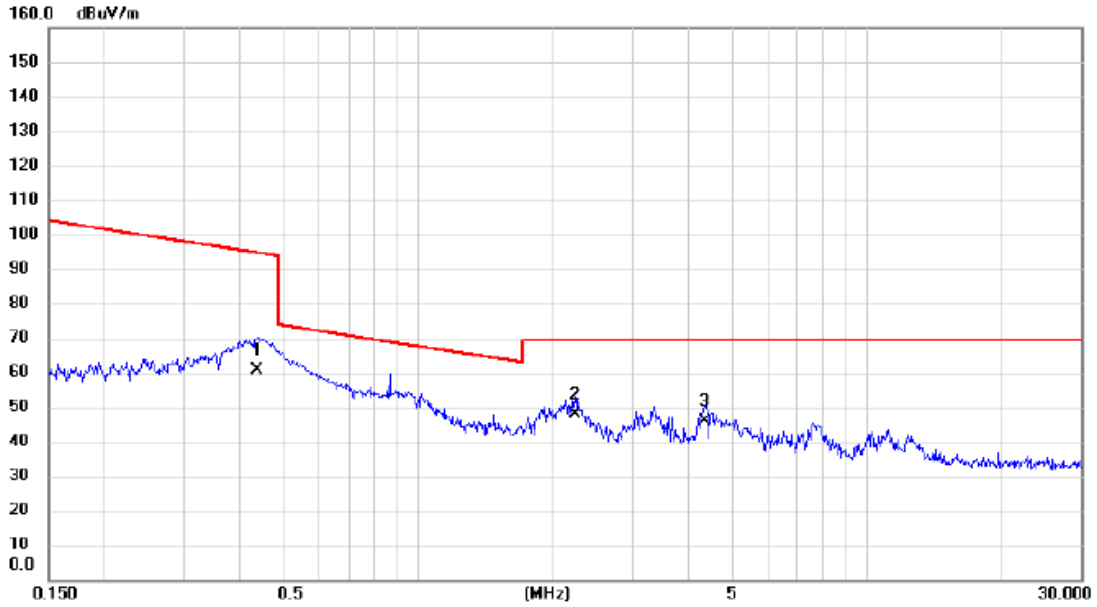
**Ant 0°**



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	*	0.0180	45.65	13.84	59.49	122.50	-63.01	AVG		
2		0.0900	27.48	12.66	40.14	108.52	-68.38	AVG		
3		0.1263	29.68	12.73	42.41	105.58	-63.17	AVG		

Test Mode TX Mode

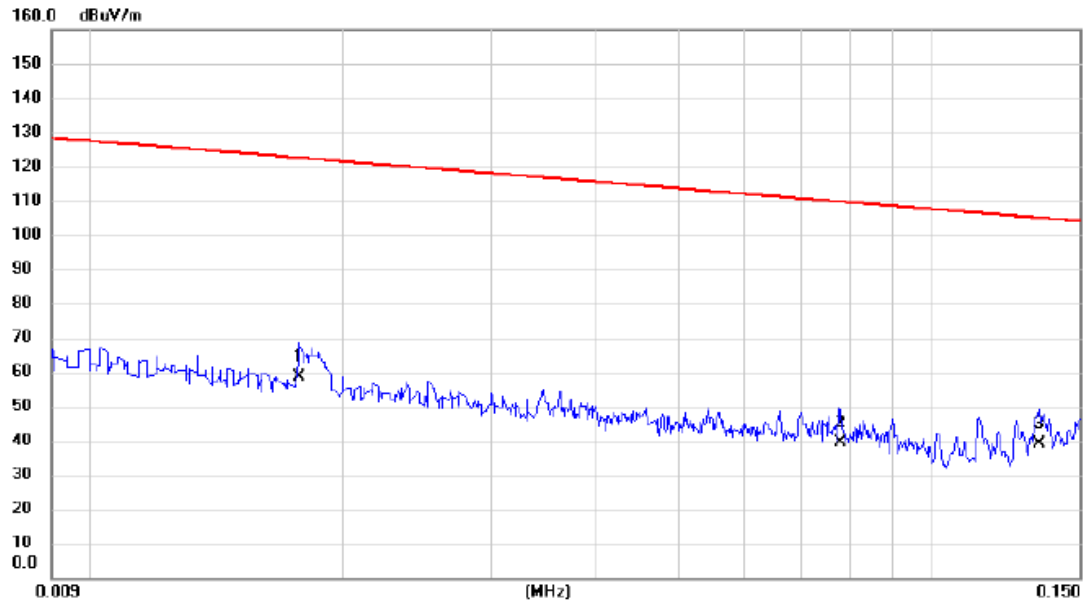
Ant 0°



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		0.4374	48.25	12.17	60.42	94.79	-34.37			AVG
2	*	2.2367	36.79	11.19	47.98	69.54	-21.56			QP
3		4.3606	34.85	11.00	45.85	69.54	-23.69			QP

Test Mode TX Mode

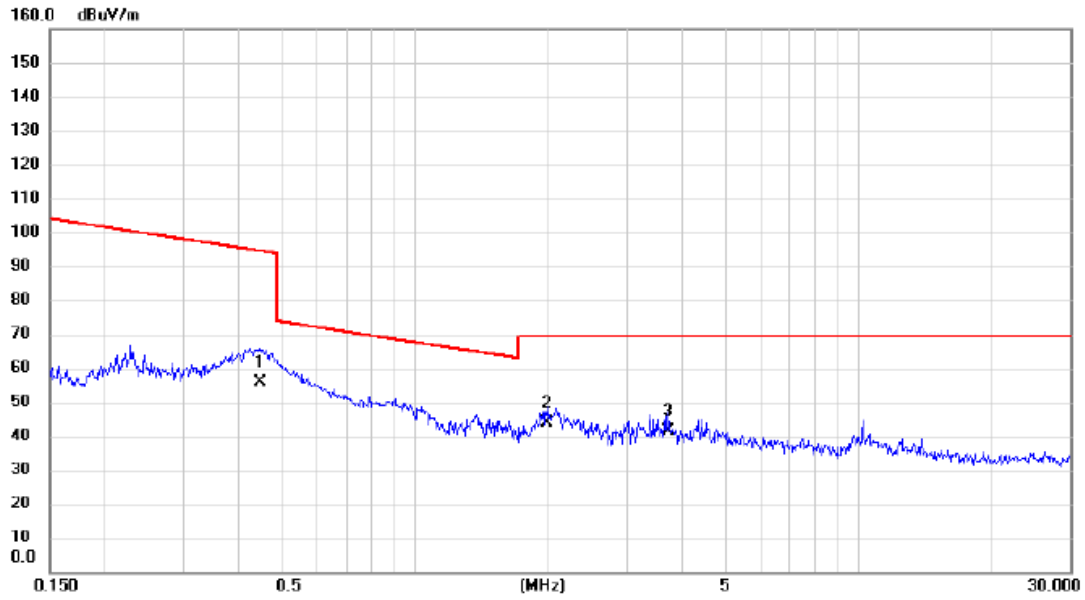
Ant 90°



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	*	0.0177	44.51	13.93	58.44	122.65	-64.21	AVG		
2		0.0780	26.89	12.59	39.48	109.76	-70.28	AVG		
3		0.1344	26.43	12.73	39.16	105.04	-65.88	AVG		

Test Mode TX Mode

Ant 90°

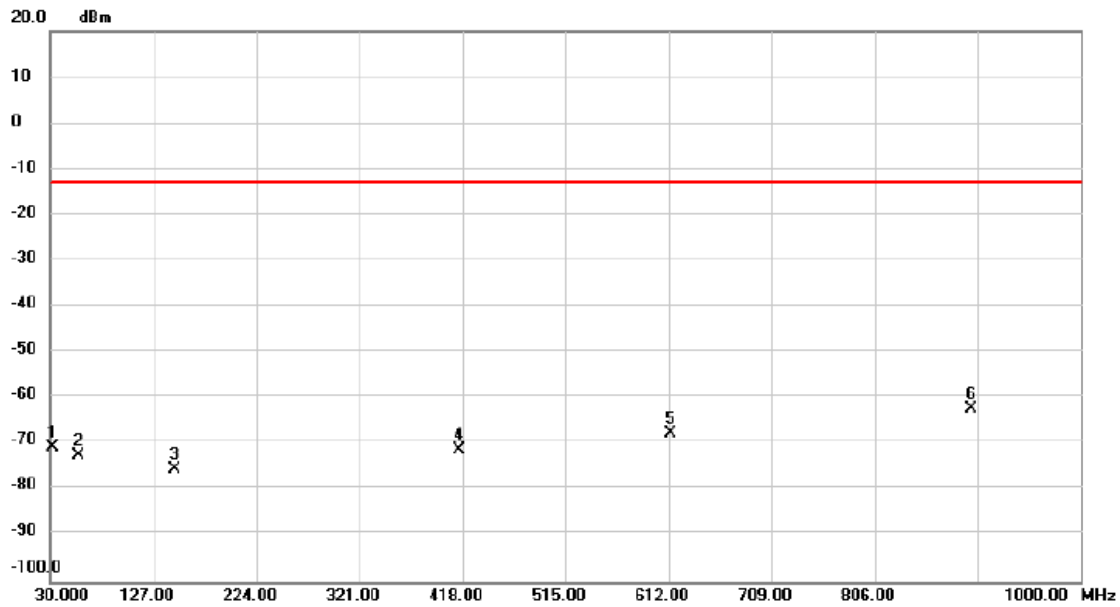


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		0.4468	43.83	12.14	55.97	94.60	-38.63			AVG
2	*	1.9906	32.57	11.31	43.88	69.54	-25.66			QP
3		3.7198	30.49	10.91	41.40	69.54	-28.14			QP

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

Test Mode	GSM850_TX CH190_GSM
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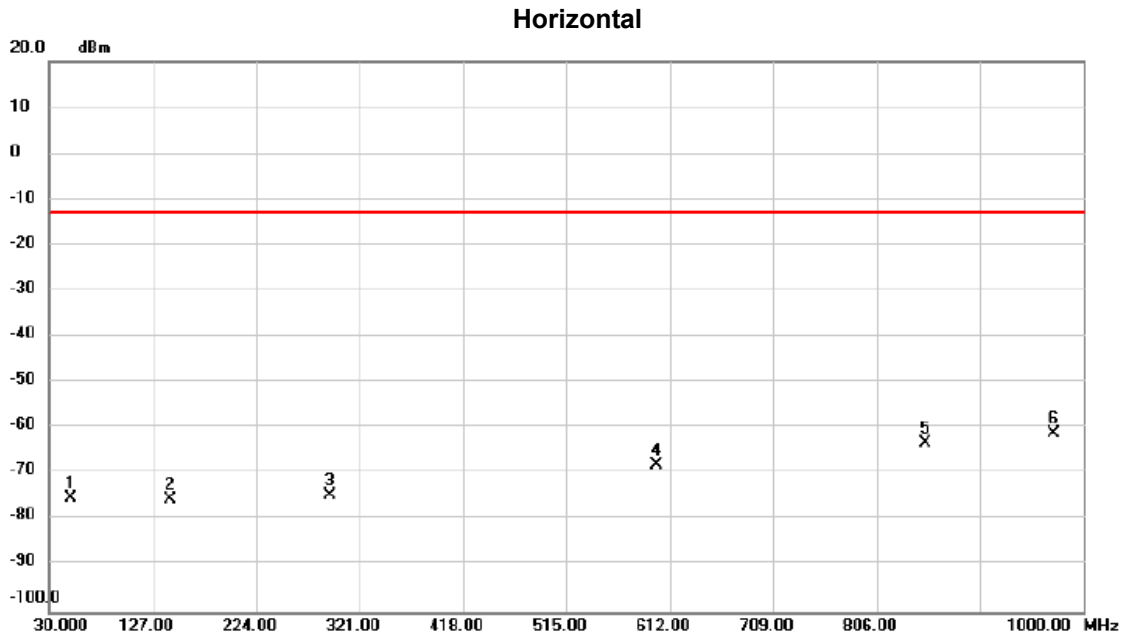
### Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		32.264	-55.50	-15.31	-70.81	-13.00	-57.81	peak	
2		56.199	-58.50	-14.17	-72.67	-13.00	-59.67	peak	
3		146.762	-62.79	-12.77	-75.56	-13.00	-62.56	peak	
4		414.572	-62.89	-8.56	-71.45	-13.00	-58.45	peak	
5		614.135	-63.02	-4.61	-67.63	-13.00	-54.63	peak	
6	*	897.146	-62.51	0.10	-62.41	-13.00	-49.41	peak	



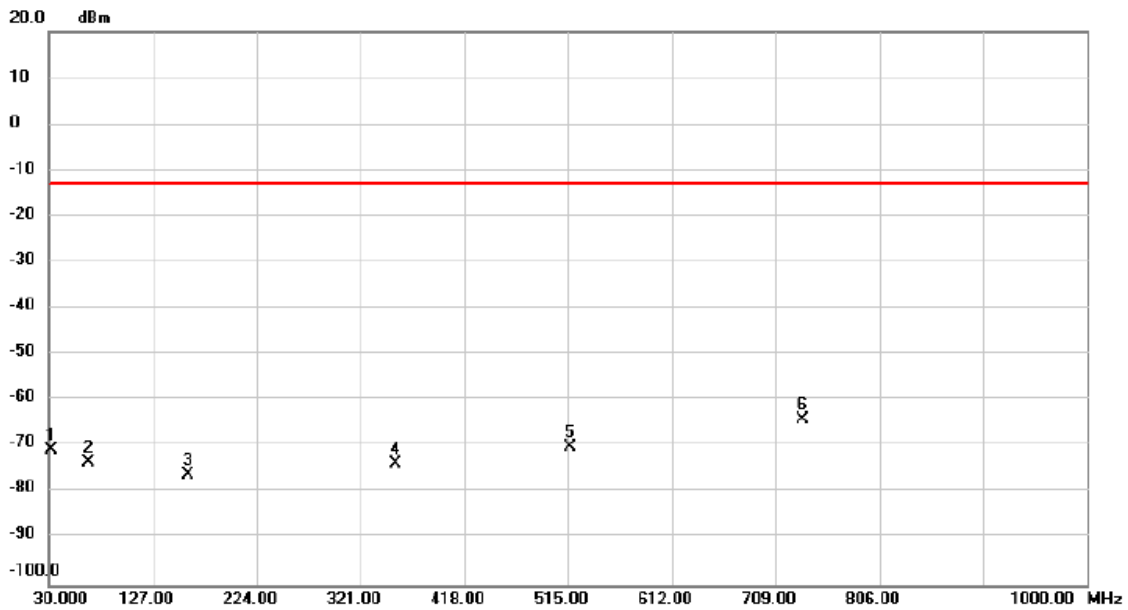
Test Mode GSM850\_TX CH190\_GSM



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		49.730	-61.58	-13.69	-75.27	-13.00	-62.27	peak	
2		142.558	-62.81	-12.88	-75.69	-13.00	-62.69	peak	
3		293.281	-63.28	-11.22	-74.50	-13.00	-61.50	peak	
4		600.227	-63.31	-4.85	-68.16	-13.00	-55.16	peak	
5		851.540	-62.45	-0.75	-63.20	-13.00	-50.20	peak	
6	*	971.861	-62.98	1.73	-61.25	-13.00	-48.25	peak	

Test Mode LTE Band 5\_TX CH20525\_1.4M

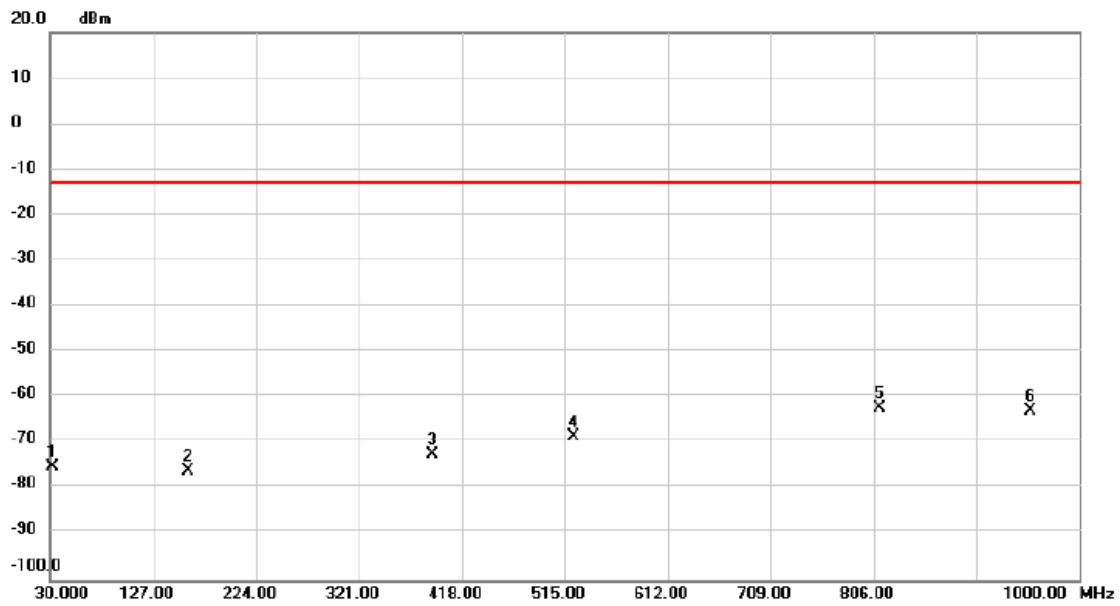
### Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		31.941	-65.13	-5.76	-70.89	-13.00	-57.89	peak	
2		67.196	-67.53	-6.07	-73.60	-13.00	-60.60	peak	
3		159.376	-73.19	-2.87	-76.06	-13.00	-63.06	peak	
4		353.765	-73.41	-0.43	-73.84	-13.00	-60.84	peak	
5		516.456	-73.11	3.01	-70.10	-13.00	-57.10	peak	
6	*	734.778	-71.38	7.10	-64.28	-13.00	-51.28	peak	

Test Mode LTE Band 5\_TX CH20525\_1.4M

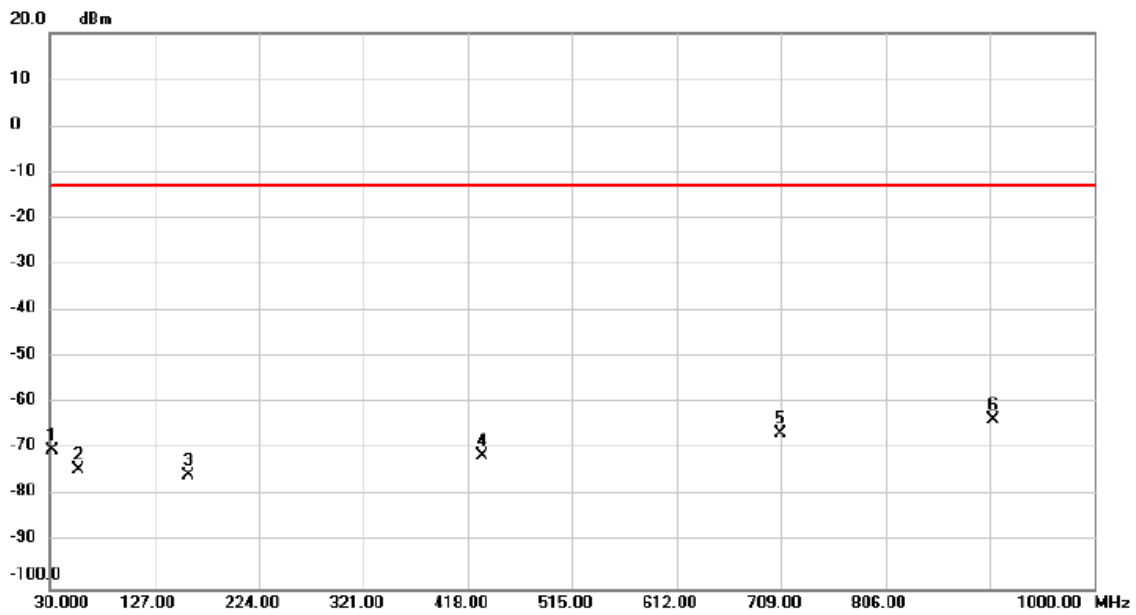
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		31.941	-69.39	-5.76	-75.15	-13.00	-62.15	peak	
2		160.023	-73.19	-2.84	-76.03	-13.00	-63.03	peak	
3		390.637	-73.09	0.43	-72.66	-13.00	-59.66	peak	
4		523.571	-71.85	3.11	-68.74	-13.00	-55.74	peak	
5	*	811.757	-71.21	8.78	-62.43	-13.00	-49.43	peak	
6		954.718	-74.18	11.30	-62.88	-13.00	-49.88	peak	

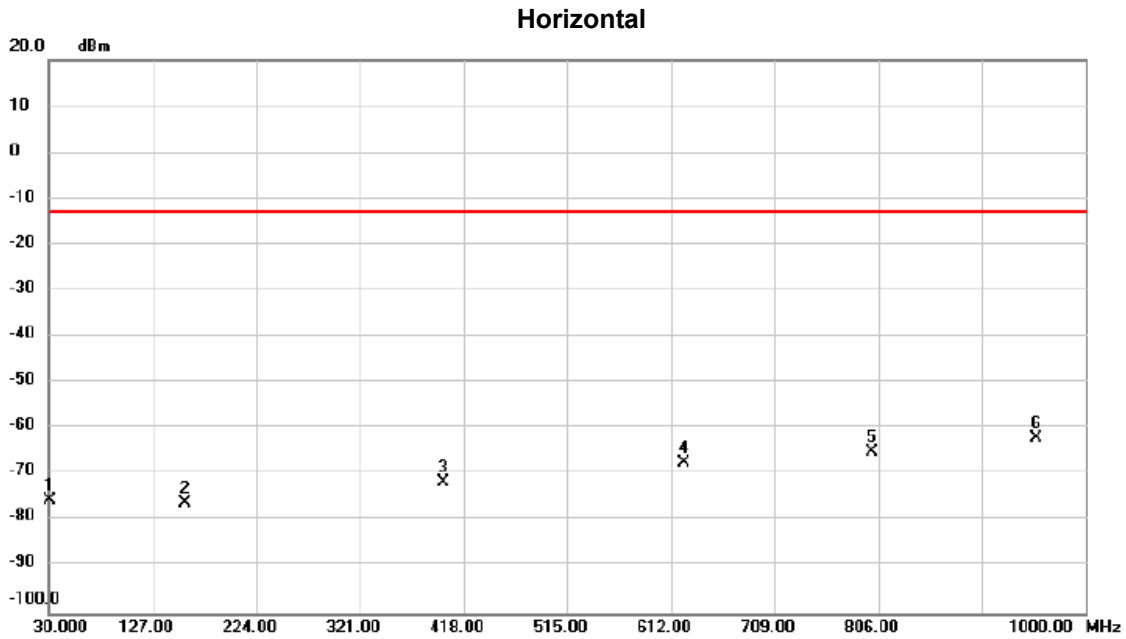
Test Mode LTE Band 5\_TX CH20525\_5M

### Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		31.941	-64.42	-5.76	-70.18	-13.00	-57.18	peak	
2		56.199	-69.73	-4.58	-74.31	-13.00	-61.31	peak	
3		158.083	-72.78	-2.90	-75.68	-13.00	-62.68	peak	
4		431.714	-72.85	1.50	-71.35	-13.00	-58.35	peak	
5		708.256	-73.12	6.49	-66.63	-13.00	-53.63	peak	
6 *		906.202	-73.40	9.94	-63.46	-13.00	-50.46	peak	

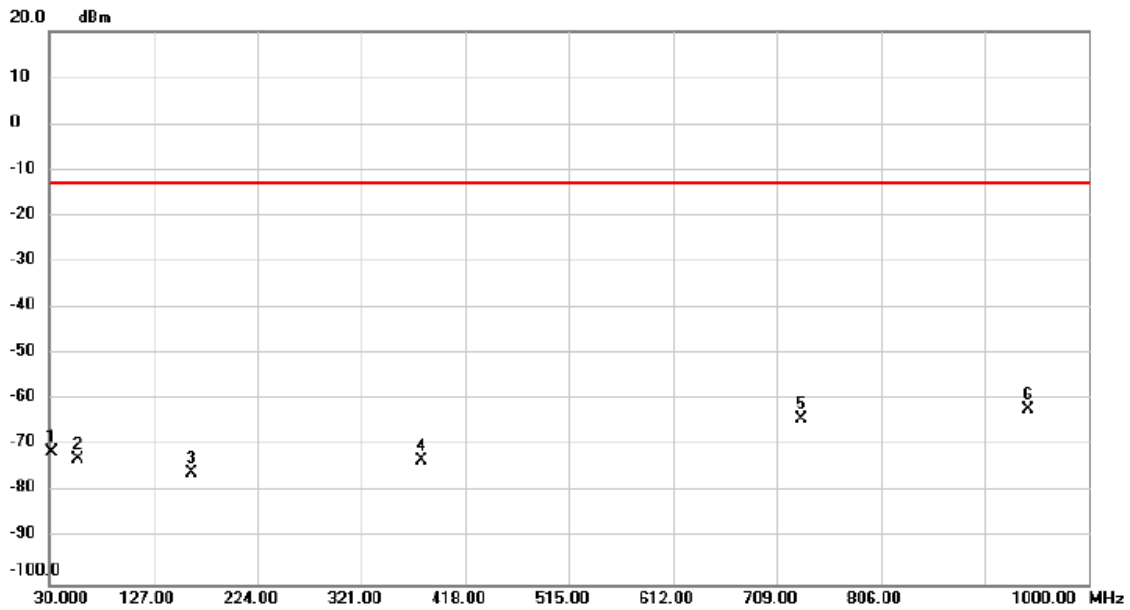
Test Mode LTE Band 5\_TX CH20525\_5M



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		30.970	-69.63	-5.78	-75.41	-13.00	-62.41	peak	
2		157.112	-73.21	-2.92	-76.13	-13.00	-63.13	peak	
3		398.723	-72.35	0.61	-71.74	-13.00	-58.74	peak	
4		624.808	-72.72	5.16	-67.56	-13.00	-54.56	peak	
5		799.790	-73.80	8.76	-65.04	-13.00	-52.04	peak	
6	*	954.718	-73.29	11.30	-61.99	-13.00	-48.99	peak	

Test Mode LTE Band 5\_TX CH20525\_10M

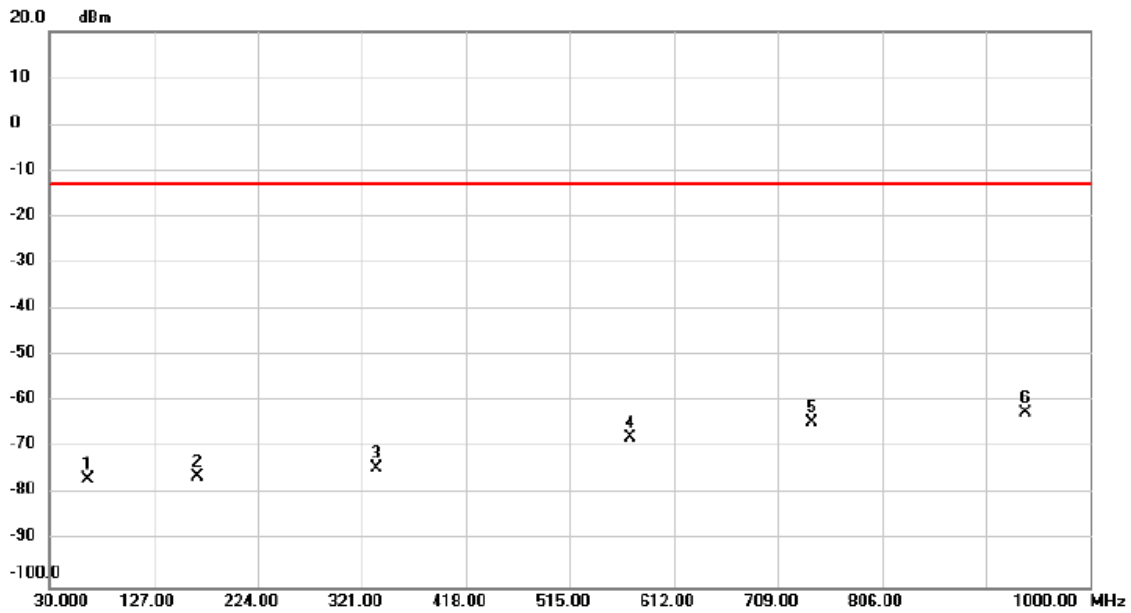
### Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		31.941	-65.72	-5.76	-71.48	-13.00	-58.48	peak	
2		56.199	-68.41	-4.58	-72.99	-13.00	-59.99	peak	
3		162.287	-72.88	-2.90	-75.78	-13.00	-62.78	peak	
4		377.699	-73.13	0.13	-73.00	-13.00	-60.00	peak	
5		731.867	-71.27	7.04	-64.23	-13.00	-51.23	peak	
6	*	944.368	-73.18	11.12	-62.06	-13.00	-49.06	peak	

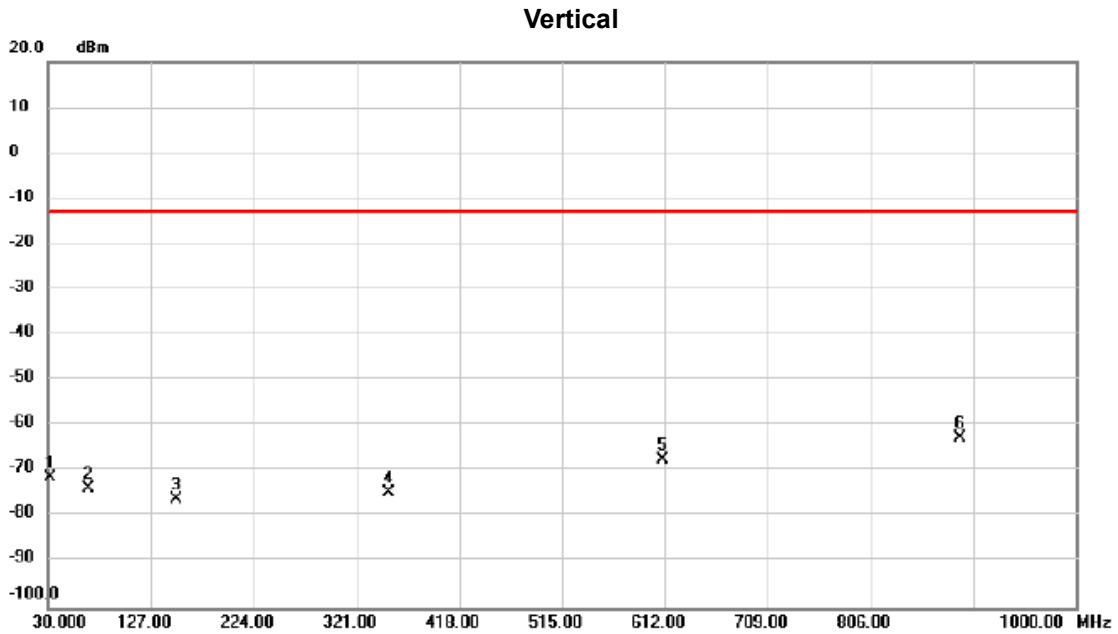
Test Mode LTE Band 5\_TX CH20525\_10M

### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		65.579	-71.02	-5.74	-76.76	-13.00	-63.76	peak	
2		167.463	-73.04	-3.00	-76.04	-13.00	-63.04	peak	
3		334.035	-73.43	-0.81	-74.24	-13.00	-61.24	peak	
4		571.764	-71.82	4.01	-67.81	-13.00	-54.81	peak	
5		740.600	-71.64	7.24	-64.40	-13.00	-51.40	peak	
6	*	940.163	-73.48	10.99	-62.49	-13.00	-49.49	peak	

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

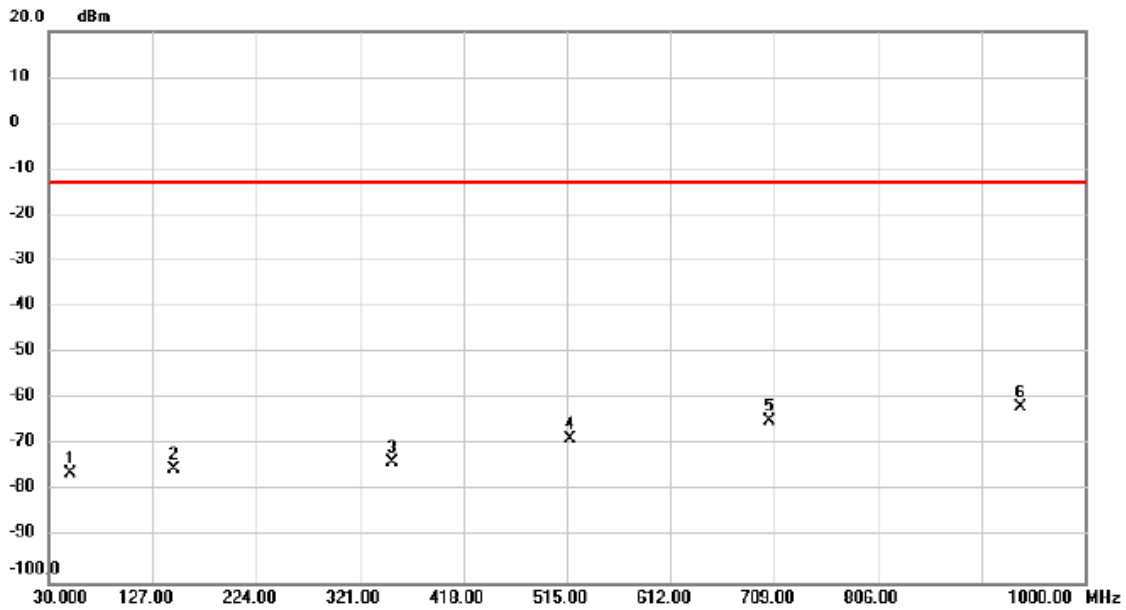


No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		32.264	-65.67	-5.72	-71.39	-13.00	-58.39	peak	
2		67.843	-67.65	-6.20	-73.85	-13.00	-60.85	peak	
3		150.967	-72.95	-3.07	-76.02	-13.00	-63.02	peak	
4		351.177	-74.17	-0.49	-74.66	-13.00	-61.66	peak	
5		609.606	-72.36	4.90	-67.46	-13.00	-54.46	peak	
6	*	891.324	-72.16	9.58	-62.58	-13.00	-49.58	peak	



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

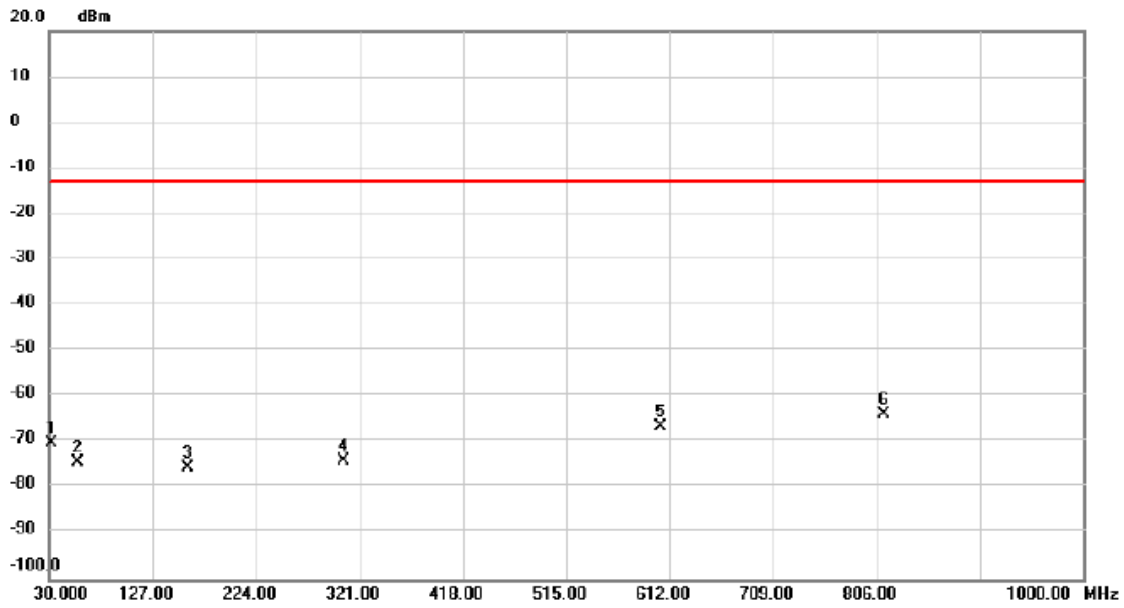
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		50.053	-72.04	-4.09	-76.13	-13.00	-63.13	peak	
2		146.762	-72.18	-3.18	-75.36	-13.00	-62.36	peak	
3		351.500	-73.28	-0.48	-73.76	-13.00	-60.76	peak	
4		518.720	-71.81	3.04	-68.77	-13.00	-55.77	peak	
5		704.375	-71.02	6.39	-64.63	-13.00	-51.63	peak	
6	*	940.163	-72.63	10.99	-61.64	-13.00	-48.64	peak	

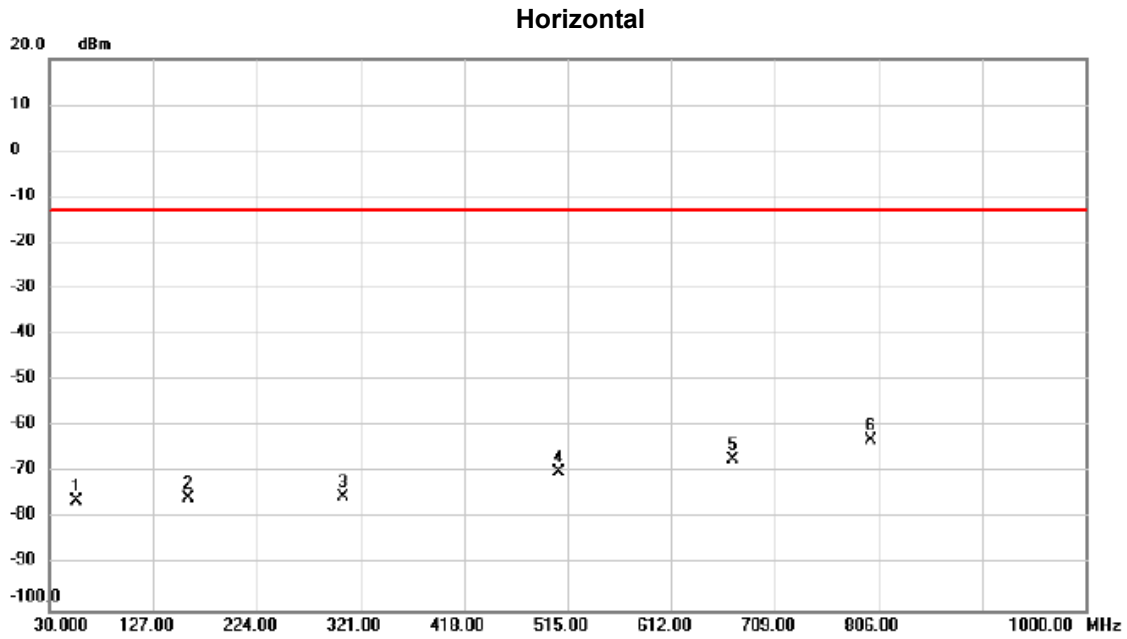
Test Mode LTE Band 26\_TX CH26915\_5M

### Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		31.941	-64.48	-5.76	-70.24	-13.00	-57.24	peak	
2		56.199	-69.78	-4.58	-74.36	-13.00	-61.36	peak	
3		160.023	-72.69	-2.84	-75.53	-13.00	-62.53	peak	
4		306.542	-72.88	-1.29	-74.17	-13.00	-61.17	peak	
5		603.785	-71.28	4.80	-66.48	-13.00	-53.48	peak	
6	*	812.728	-72.64	8.78	-63.86	-13.00	-50.86	peak	

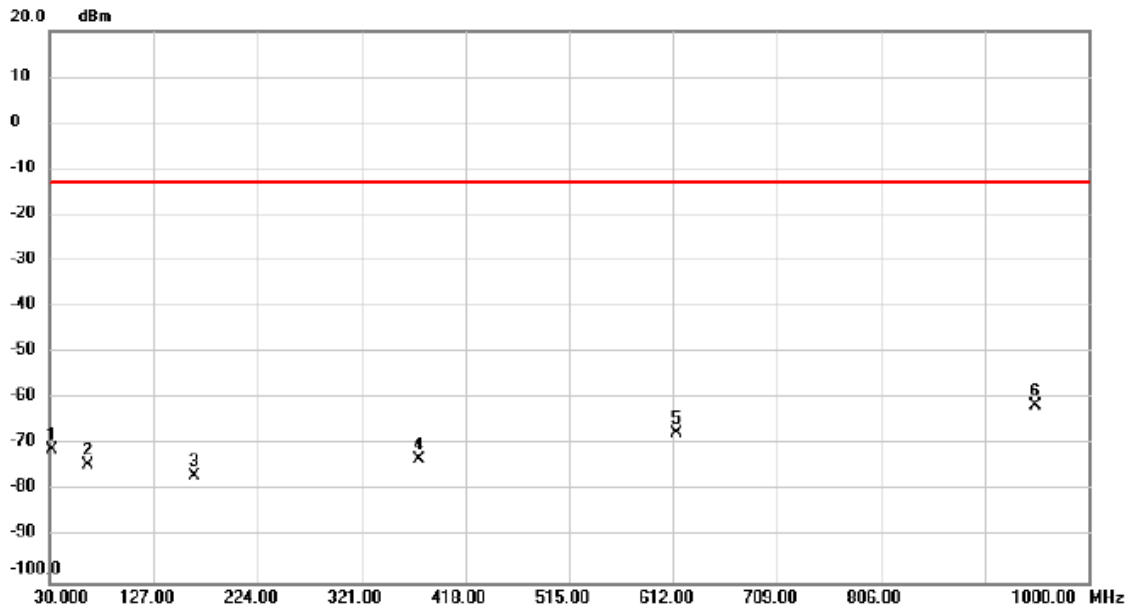
Test Mode LTE Band 26\_TX CH26915\_5M



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		54.581	-71.70	-4.51	-76.21	-13.00	-63.21	peak	
2		160.023	-72.60	-2.84	-75.44	-13.00	-62.44	peak	
3		305.248	-73.94	-1.32	-75.26	-13.00	-62.26	peak	
4		506.752	-72.87	2.88	-69.99	-13.00	-56.99	peak	
5		669.443	-73.10	5.87	-67.23	-13.00	-54.23	peak	
6	*	799.143	-71.63	8.74	-62.89	-13.00	-49.89	peak	

Test Mode LTE Band 26\_TX CH26915\_15M

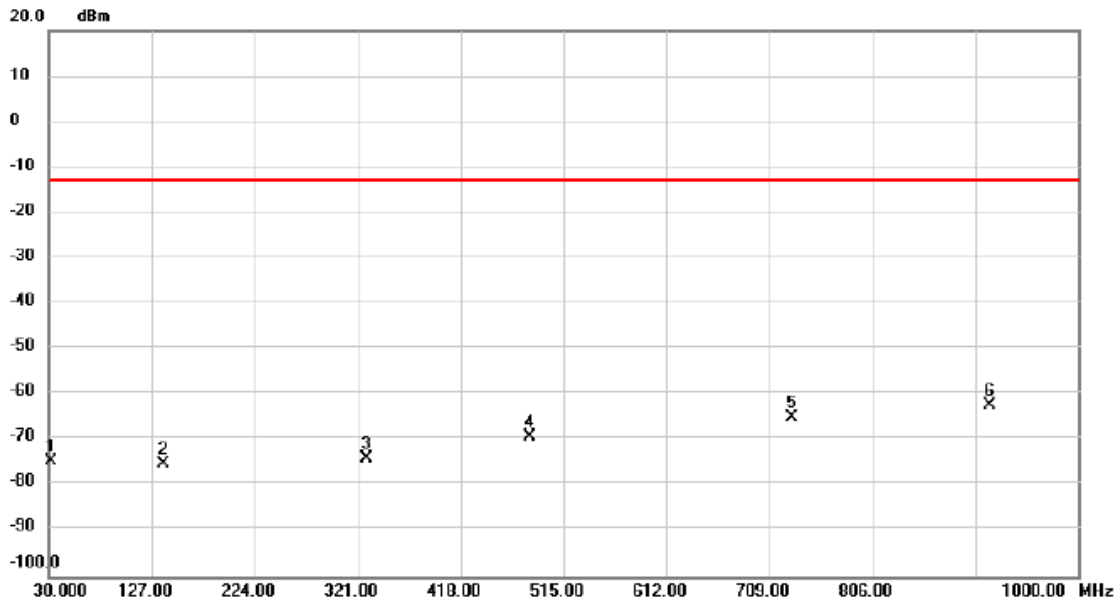
### Vertical



No. Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	31.617	-65.25	-5.77	-71.02	-13.00	-58.02	peak	
2	65.255	-68.76	-5.68	-74.44	-13.00	-61.44	peak	
3	165.522	-73.67	-2.97	-76.64	-13.00	-63.64	peak	
4	374.465	-73.16	0.05	-73.11	-13.00	-60.11	peak	
5	614.782	-72.33	4.99	-67.34	-13.00	-54.34	peak	
6 *	950.837	-72.83	11.30	-61.53	-13.00	-48.53	peak	

Test Mode LTE Band 26\_TX CH26915\_15M

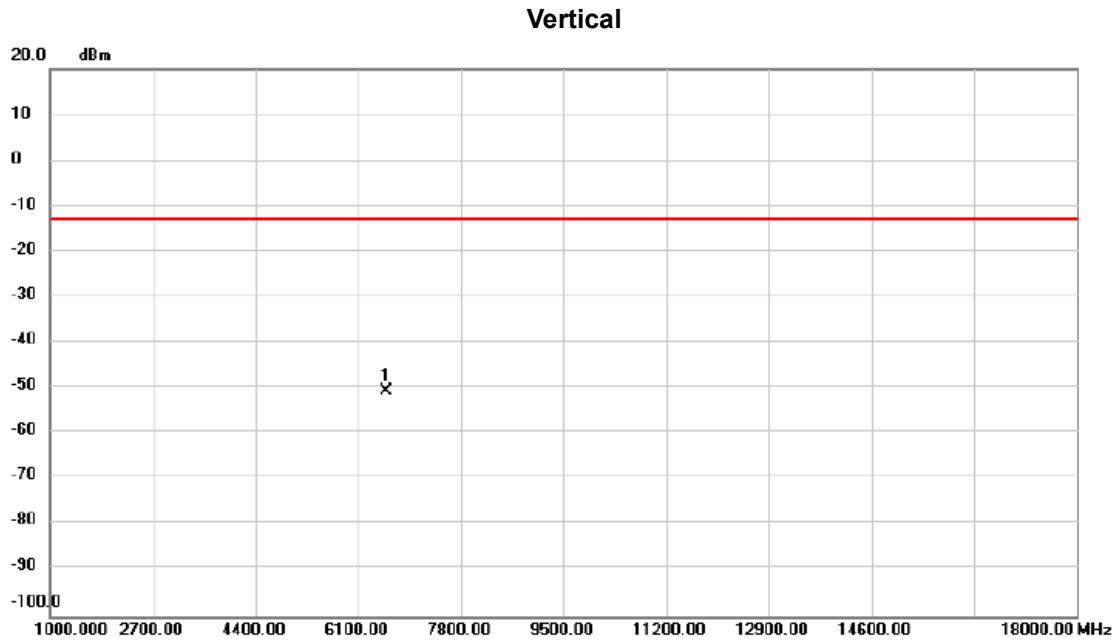
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		31.294	-68.90	-5.77	-74.67	-13.00	-61.67	peak	
2		138.029	-71.72	-3.46	-75.18	-13.00	-62.18	peak	
3		329.183	-73.07	-0.89	-73.96	-13.00	-60.96	peak	
4		483.141	-71.78	2.53	-69.25	-13.00	-56.25	peak	
5		730.573	-71.95	7.00	-64.95	-13.00	-51.95	peak	
6	*	916.876	-72.72	10.27	-62.45	-13.00	-49.45	peak	

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

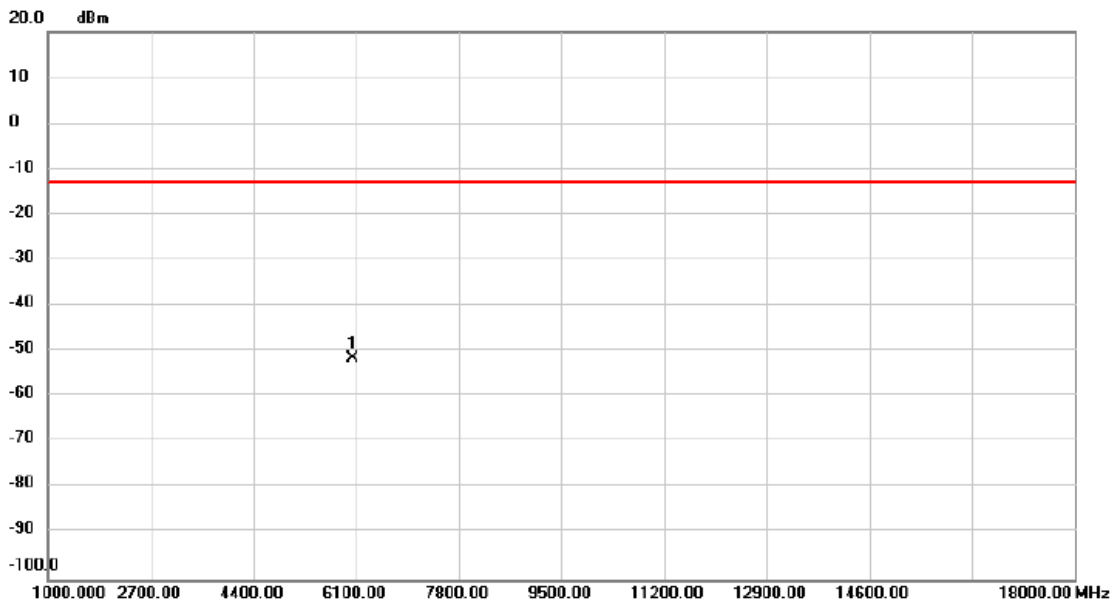
Test Mode GSM850\_TX CH190\_GSM



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	6559.000	-58.92	8.18	-50.74	-13.00	-37.74	peak	

Test Mode GSM850\_TX CH190\_GSM

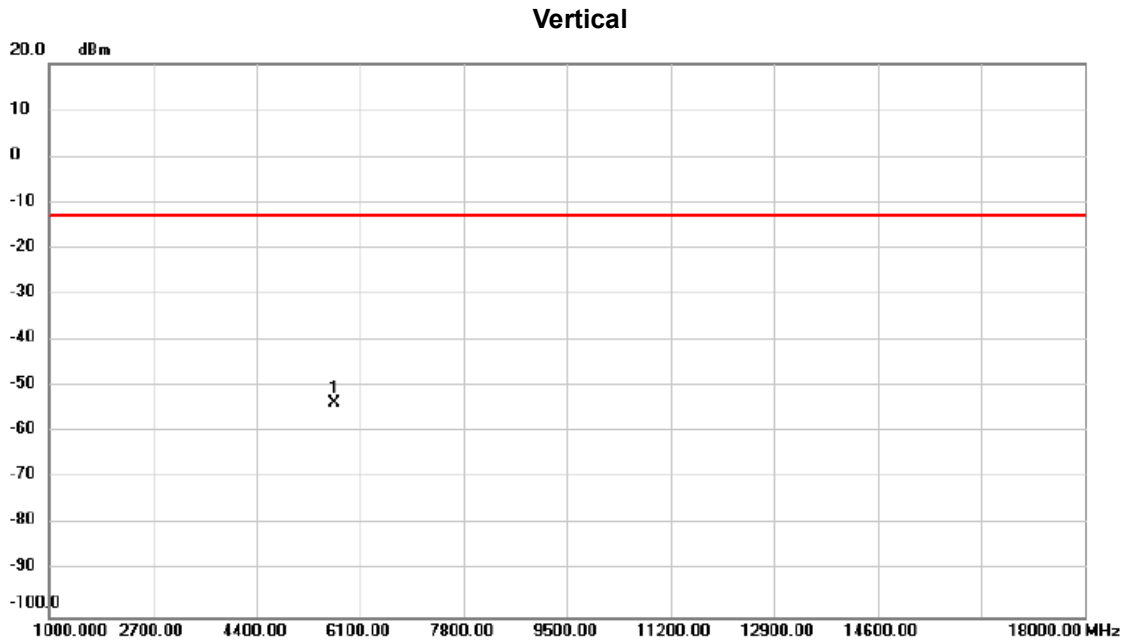
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	6049.000	-58.64	7.05	-51.59	-13.00	-38.59	peak	



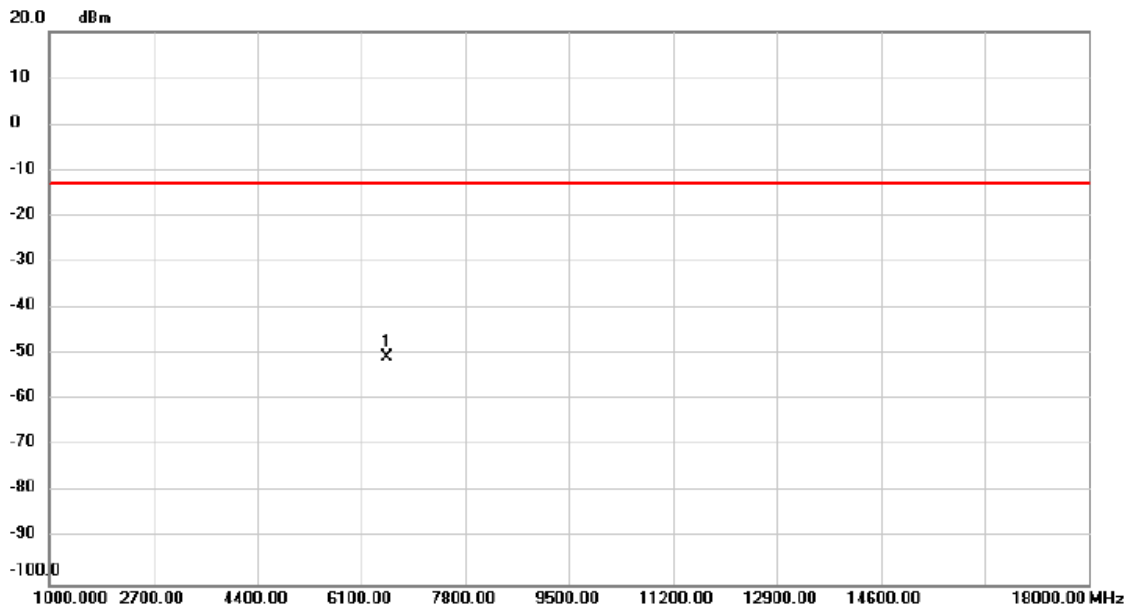
Test Mode LTE Band 5\_TX CH20525\_1.4M



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	5675.000	-72.23	18.51	-53.72	-13.00	-40.72	peak	

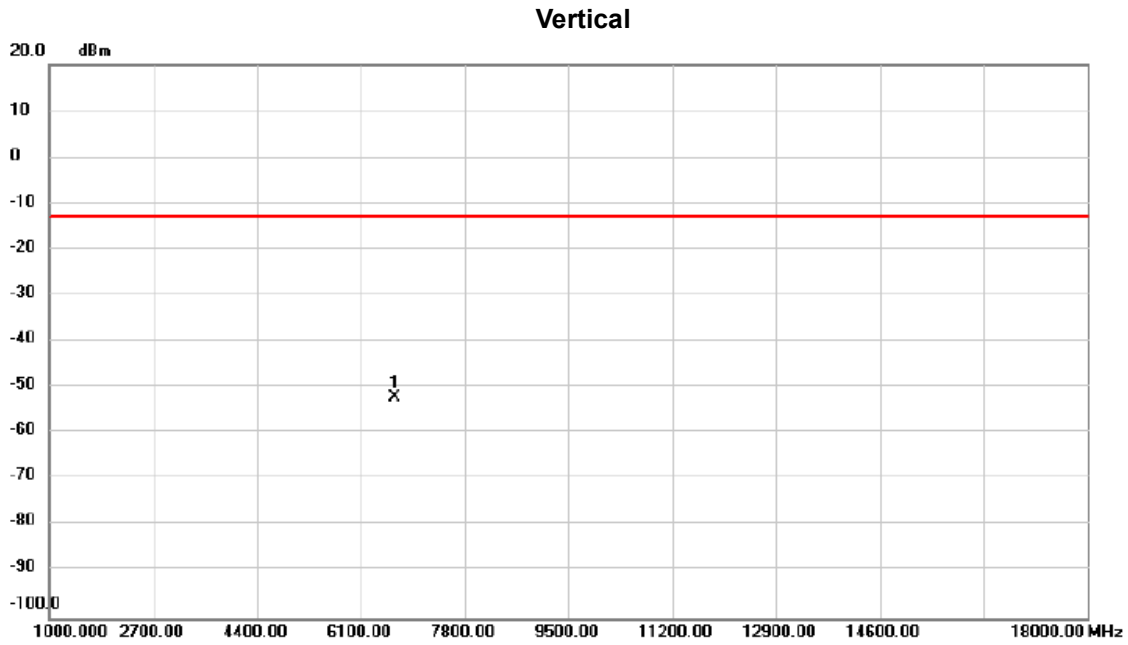
Test Mode LTE Band 5\_TX CH20525\_1.4M

### Horizontal



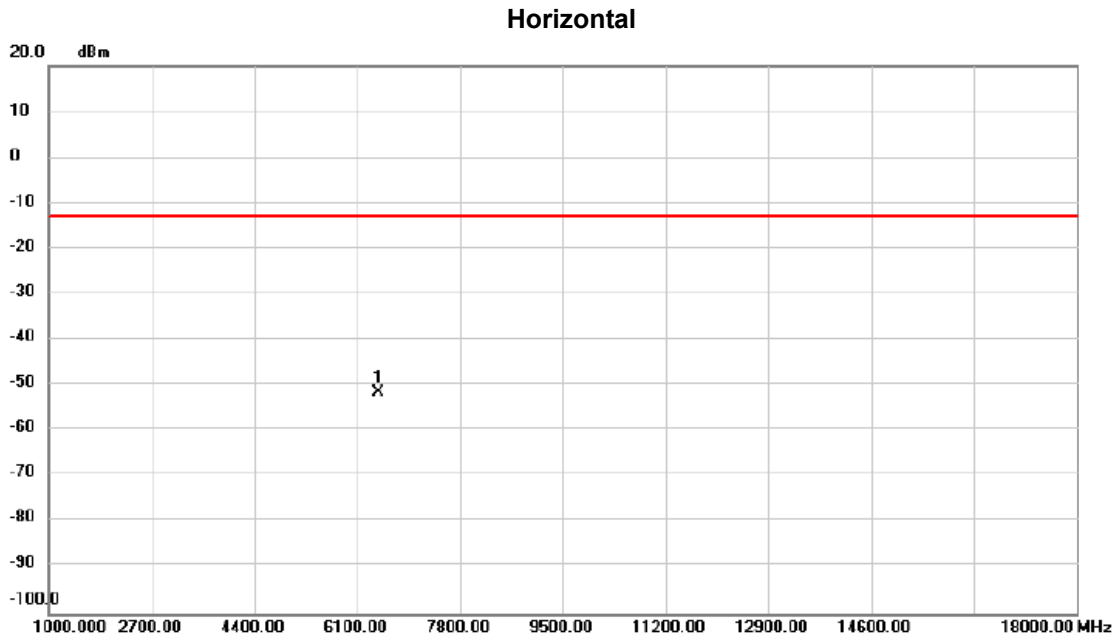
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		
1	*	6508.000	-70.38	19.68	-50.70	-13.00	-37.70	peak	

Test Mode LTE Band 5\_TX CH20525\_5M



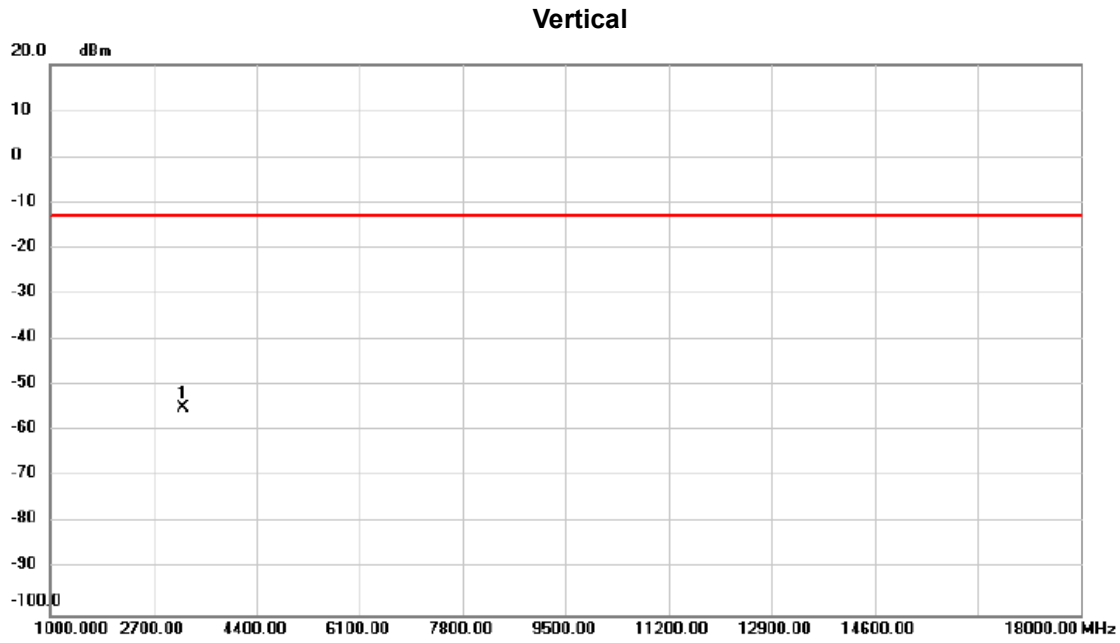
No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	6644.000	-72.40	20.33	-52.07	-13.00	-39.07	peak	

Test Mode LTE Band 5\_TX CH20525\_5M



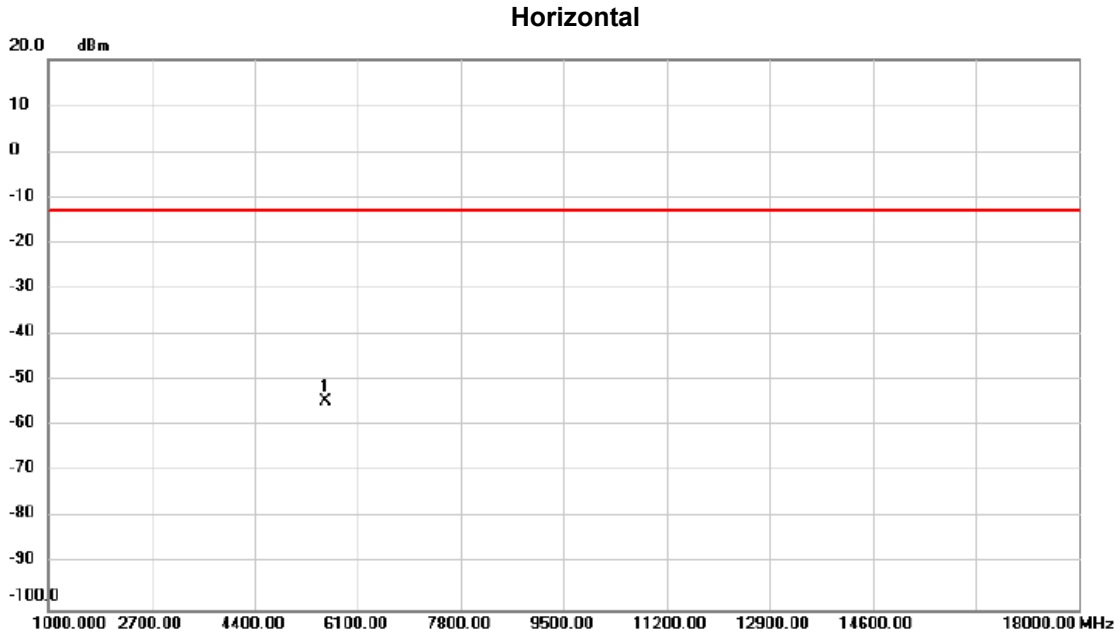
No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	6440.000	-71.04	19.52	-51.52	-13.00	-38.52	peak	

Test Mode LTE Band 5\_TX CH20525\_10M



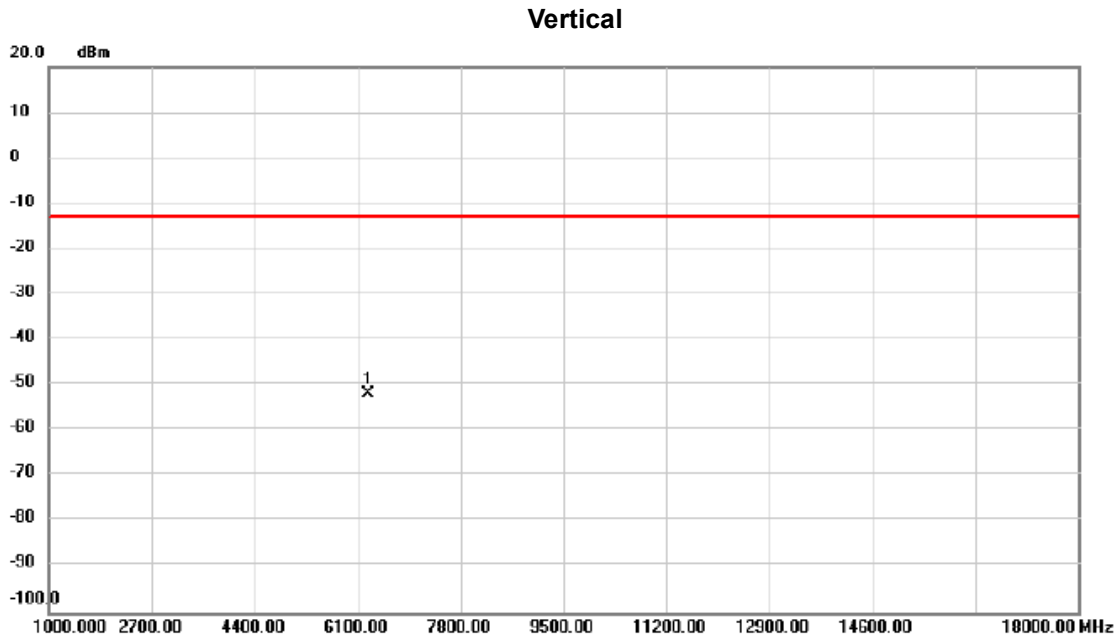
No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	3193.000	-67.21	12.43	-54.78	-13.00	-41.78	peak	

Test Mode      LTE Band 5\_TX CH20525\_10M



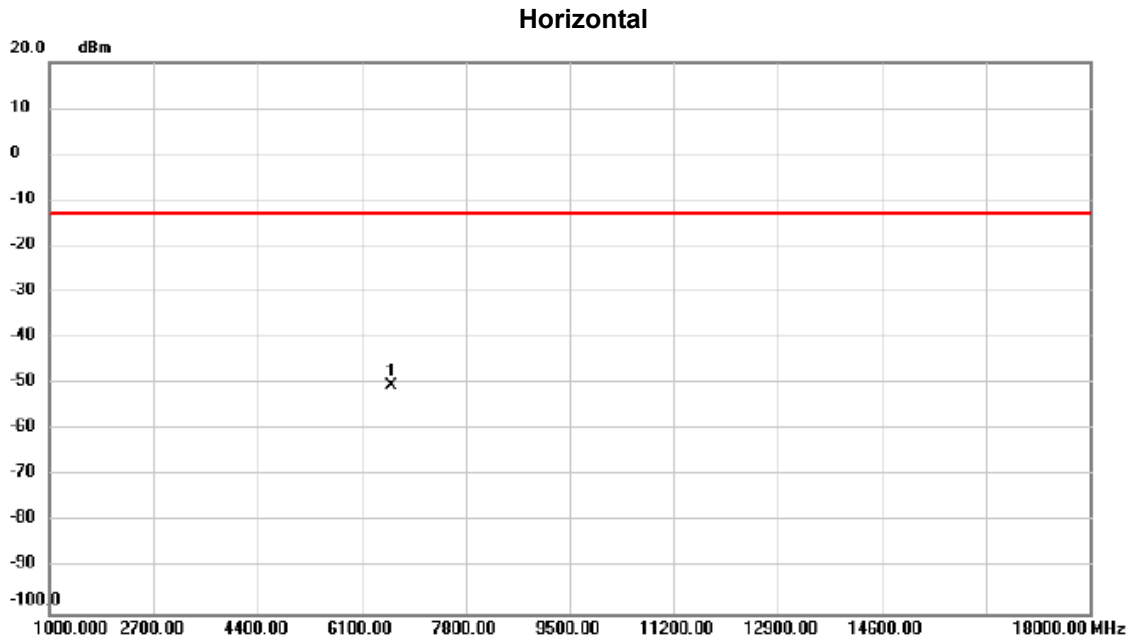
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		
1	*	5564.500	-72.86	18.44	-54.42	-13.00	-41.42	peak	

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	*	6270.000	-71.08	19.21	-51.87	-13.00	-38.87	peak	

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

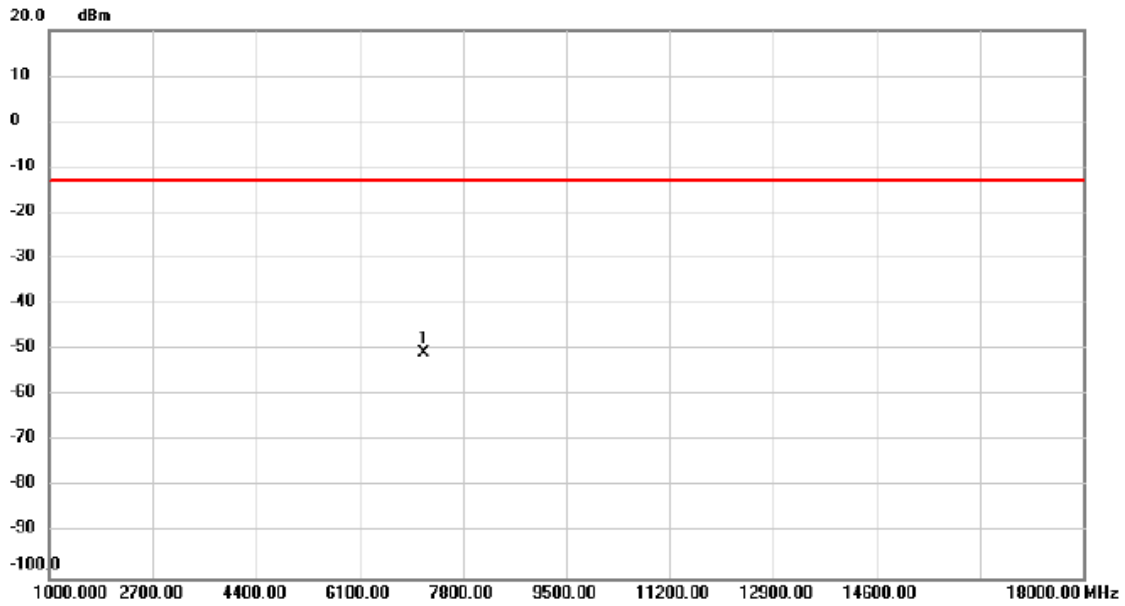


No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	6576.000	-70.44	20.00	-50.44	-13.00	-37.44	peak	



Test Mode LTE Band 26\_TX CH26915\_5M

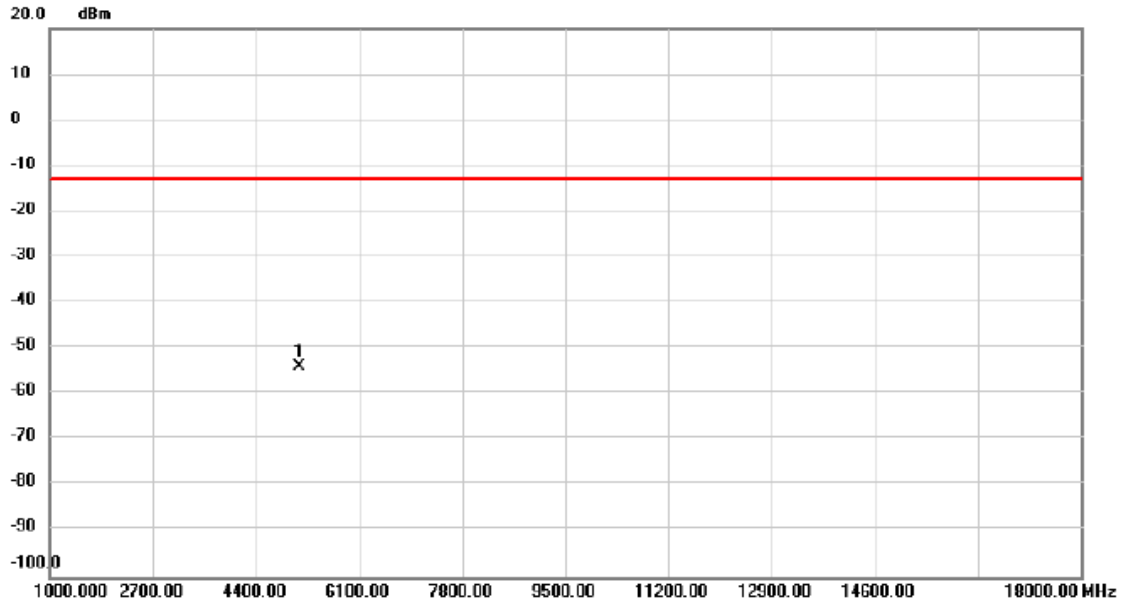
### Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	7162.500	-72.77	22.24	-50.53	-13.00	-37.53	peak	

Test Mode      LTE Band 26\_TX CH26915\_5M

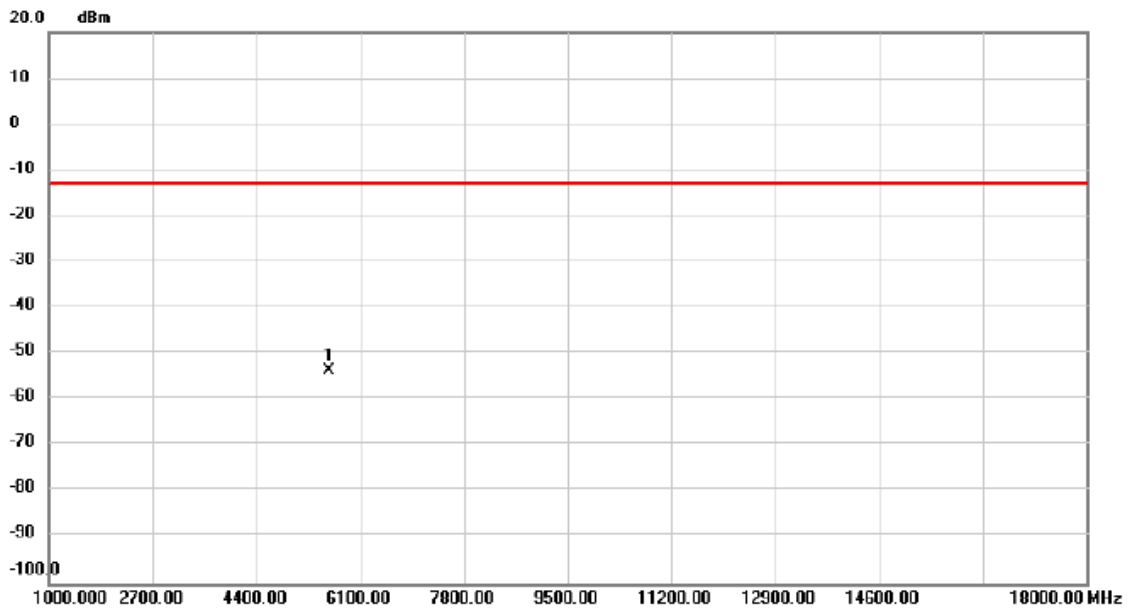
### Horizontal



No. Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1 *	5105.500	-71.82	17.97	-53.85	-13.00	-40.85	peak	

Test Mode LTE Band 26\_TX CH26915\_15M

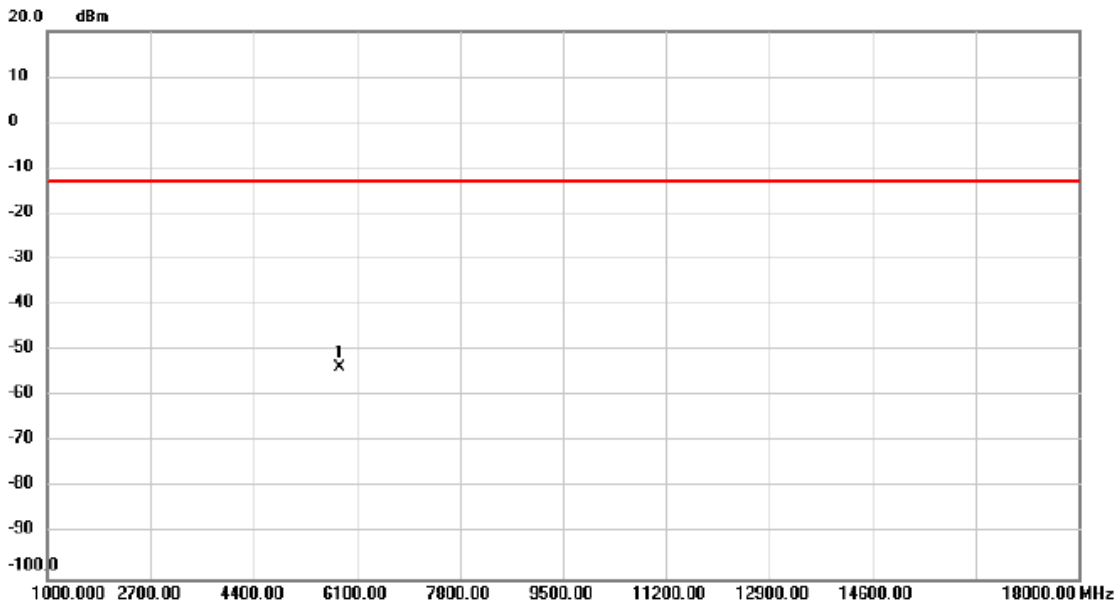
### Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	5590.000	-72.13	18.46	-53.67	-13.00	-40.67	peak	

Test Mode      LTE Band 26\_TX CH26915\_15M

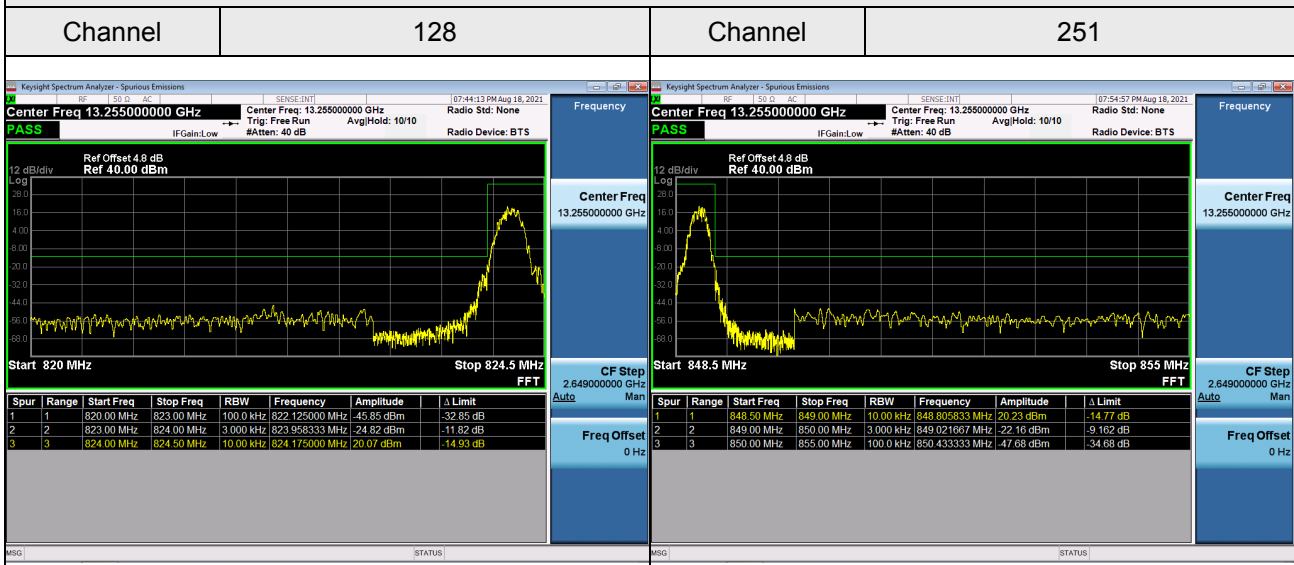
### Horizontal



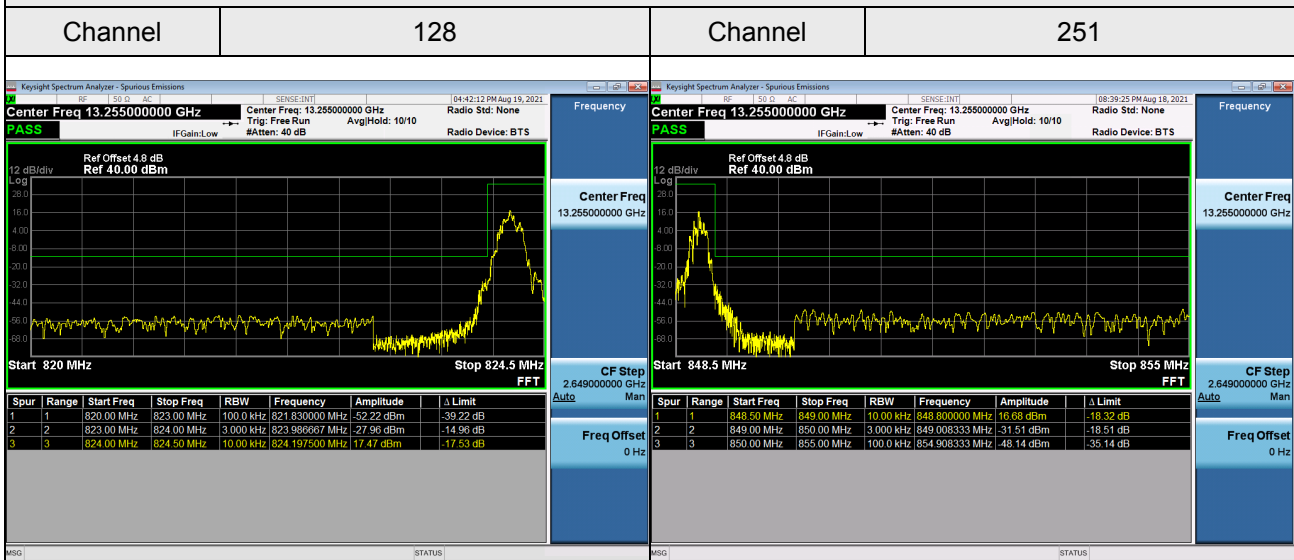
No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	5819.500	-72.34	18.59	-53.75	-13.00	-40.75	peak	

## APPENDIX G - BAND EDGE

## GSM850\_GSM Spectrum Plot



## GSM850\_EDGE Spectrum Plot



## LTE Band 5\_1.4M Spectrum Plot

1RB#0

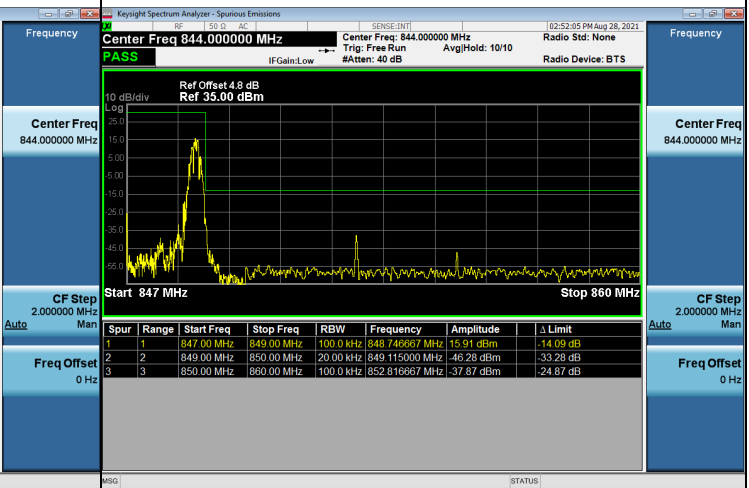
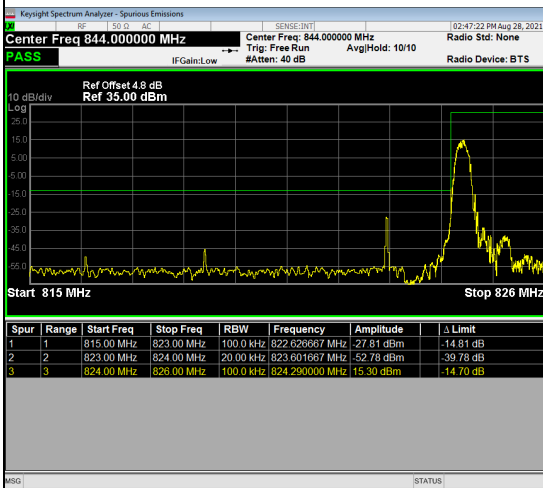
1RB#5

Channel

20407

Channel

20643



## 6RB#0

Channel

20407

Channel

20643

