



**FCC 47 CFR PART 22 SUBPART H AND PART 24 SUBPART E  
&  
INDUSTRY CANADA RSS-132 & RSS-133**

**TEST REPORT**

**For**

**Module**

**Trade Name: AirPrime**

**Model: HL7548**

*Issued to*

**Sierra Wireless Inc.  
13811 Wireless Way  
Richmond, BC, V6V 3A4  
Canada**

*Issued by*

**Compliance Certification Services Inc.  
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Issued Date: January 22, 2015**



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**Revision History**

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	January 22, 2015	Initial Issue	ALL	Doris Chu



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# 1. TEST RESULT CERTIFICATION

**Applicant:** Sierra Wireless Inc.  
 13811 Wireless Way  
 Richmond, BC, V6V 3A4  
 Canada

**Manufacturer:** Sierra Wireless Inc.  
 13811 Wireless Way  
 Richmond, BC, V6V 3A4  
 Canada

**Equipment Under Test:** Module

**Trade Name:** AirPrime

**Model Number:** HL7548

**Date of Test:** January 15 ~ 16, 2015

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
FCC 47 CFR PART 22 SUBPART H AND PART 24 SUBPART E & IC RSS-132 Issue 3: January, 2013 and IC RSS-133 Issue 6: January 2013	No non-compliance noted

### We hereby certify that:

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in TIA/EIA-603-C and the energy emitted by the sample EUT tested as described in this report is in compliance with radiated emission limits of FCC Rule FCC PART 22 Subpart H, PART 24 Subpart E, IC RSS-132 Issue 2 and IC RSS-133 Issue 4.

The test results of this report relate only to the tested sample identified in this report.

Approved by:

Reviewed by:

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Miller Lee  
 Section Manager  
 Compliance Certification Services Inc.

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Angel Cheng  
 Section Manager  
 Compliance Certification Services Inc.



## 2. EUT DESCRIPTION

<b>Product</b>	Module	
<b>Trade Name</b>	AirPrime	
<b>Model Number</b>	HL7548	
<b>Model Discrepancy</b>	N/A	
<b>Received Date</b>	January 12, 2015	
<b>Power Supply</b>	DC 3.7V powered from Host device.	
<b>Frequency Range</b>	LTE Band 2 Channel Bandwidth: 5MHz	1852.5MHz ~1907.5MHz
	LTE Band 2 Channel Bandwidth: 10MHz	1855MHz ~1905MHz
	LTE Band 2 Channel Bandwidth: 20MHz	1860MHz ~1900MHz
	LTE Band 5 Channel Bandwidth: 5MHz	826.5MHz ~846.5MHz
	LTE Band 5 Channel Bandwidth: 10MHz	829MHz ~844MHz
<b>Modulation Technique</b>	LTE Band 2	QPSK, 16QAM
	LTE Band 5	QPSK, 16QAM
<b>Maximum EIRP Power</b>	LTE Band 2 Channel Bandwidth: 5MHz	QPSK: 33.00dBm 16QAM: 28.12dBm
	LTE Band 2 Channel Bandwidth: 10MHz	QPSK: 27.05dBm 16QAM: 27.72dBm
	LTE Band 2 Channel Bandwidth: 20MHz	QPSK: 26.19dBm 16QAM: 25.83dBm
<b>Maximum ERP Power</b>	LTE Band 5 Channel Bandwidth: 5MHz	QPSK: 24.01dBm 16QAM: 25.39dBm
	LTE Band 5 Channel Bandwidth: 10MHz	QPSK: 23.64dBm 16QAM: 24.30dBm
<b>Category</b>	LTE: 3	
<b>Antenna Specification</b>	LTE Dipole Antenna / Gain: 2 dBi	

*Remark: The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.*



### **3. TEST METHODOLOGY**

Both conducted and radiated testing were performed according to the procedures document on chapter 13 of ANSI C63.4: 2009, TIA/EIA-603-C: 2004 and FCC CFR 47, Part 2 and Part 22 Subpart H & Part 24 Subpart E.

The tests documented in this report were performed in accordance with IC RSS-132, SPSR503, RSS-133, SPSR510 and ANSI C63.4 and TIA/EIA-603-C.

#### **3.1 EUT CONFIGURATION**

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

#### **3.2 EUT EXERCISE**

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

#### **3.3 GENERAL TEST PROCEDURES**

##### **Conducted Emissions**

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4: 2009. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

##### **Radiated Emissions**

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4: 2009.



### 3.4 DESCRIPTION OF TEST MODES

The EUT (model: HL7548) had been tested under operating condition.

Software used to control the EUT for staying in continuous transmitting mode was programmed.

#### LTE Band 2: 1850MHz ~ 1910MHz

Three channels had been tested for each channel bandwidth.

Channel Bandwidth	5MHz		10MHz		20MHz	
	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
Low channel (L)	18625	1852.5	18650	1855	18700	1860
Middle channel (M)	18900	1880	18900	1880	18900	1880
High channel (H)	19175	1907.5	19150	1905	19100	1900

#### LTE Band 5: 824MHz ~ 849MHz

Three channels had been tested for each channel bandwidth.

Channel Bandwidth	5MHz		10MHz	
	Channel	Frequency(MHz)	Channel	Frequency(MHz)
Low channel (L)	20425	826.5	20450	829
Middle channel (M)	20520	836	20520	836
High channel (H)	20625	846.5	20600	844

The field strength of spurious emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in stand-up position (Z axis) and the worst case was recorded.



## **4. INSTRUMENT CALIBRATION**

### **4.1 MEASURING INSTRUMENT CALIBRATION**

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.





### 4.2 MEASUREMENT EQUIPMENT USED

#### Equipment Used for Emissions Measurement

*Remark: Each piece of equipment is scheduled for calibration once a year and Loop Antenna is scheduled for calibration once three years.*

Conducted Emissions Test Site				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	US42510252	11/23/2015
Thermostatic/Hrgrosatic Chamber	TAICHY	MHG-150LF	930619	10/07/2015
AC Power Source	EXTECH	6205	1140845	N.C.R
DC Power Supply	ABM	8301HD	D011531	N.C.R
Power Meter	Anritsu	ML2495A	1012009	06/03/2015
Power Sensor	Anritsu	MA2411A	0917072	06/03/2015
Spectrum Analyzer	ROHDE&SCHWARZ	FSV40	101073	07/09/2015

3M Semi Anechoic Chamber				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	US42510268	01/24/2015
EMI Test Receiver	R&S	ESCI	100064	05/30/2015
Bilog Antenna	Sunol Sciences	JB3	A030105	08/19/2015
Horn Antenna	EMCO	3117	00055165	02/04/2015
Turn Table	CCS	CC-T-1F	N/A	N.C.R
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R
Test S/W	EZ-EMC (CCS-3A1RE)			



### 4.3 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
3M Semi Anechoic Chamber / 30M~200M	+/- 4.0138
3M Semi Anechoic Chamber / 200M~1000M	+/- 3.9483
3M Semi Anechoic Chamber / 1G~8G	+/- 2.5975
3M Semi Anechoic Chamber / 8G~18G	+/- 2.6112
3M Semi Anechoic Chamber / 18G~26G	+/- 2.7389
3M Semi Anechoic Chamber / 26G~40G	+/- 2.9683

**Remark:** This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=2$ .



## 5. FACILITIES AND ACCREDITATIONS

### 5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

No.199, Chunghsen Road, Hsintien City, Taipei Hsien, Taiwan, R.O.C.  
Tel: 886-2-2217-0894 / Fax: 886-2-2217-1029

No.11, Wugong 6th Rd., Wugu Dist., New Taipei City 24891, Taiwan. (R.O.C.)  
Tel: 886-2-2299-9720 / Fax: 886-2-2298-4045

No.81-1, Lane 210, Bade 2nd Rd., Lujhu Township, Taoyuan County 33841, TAIWAN,  
R.O.C.  
Tel: 886-3-324-0332 / Fax: 886-3-324-5235

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4: 2009 and CISPR Publication 22.

### 5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.




All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

### 5.3 LABORATORY ACCREDITATIONS AND LISTING

The test facilities used to perform radiated and conducted emissions tests are accredited by American Association for Laboratory Accreditation Program for the specific scope accreditation under Lab Code: 0824-01 to perform Electromagnetic Interference tests according to FCC Part 15 and CISPR 22 requirements. In addition, the test facilities are listed with Industry Canada, Certification and Engineering Bureau, IC 2324G-1 for 3M Semi Anechoic Chamber A, 2324G-2 for 3M Semi Anechoic Chamber B.



### 5.4 TABLE OF ACCREDITATIONS AND LISTINGS

Country	Agency	Scope of Accreditation	Logo
USA	FCC	3M Semi Anechoic Chamber (FCC MRA: TW1039) to perform FCC Part 15 measurements	 FCC MRA: TW1039
Taiwan	TAF	LP0002, RTTE01, FCC Method-47 CFR Part 15 Subpart C, D, E, RSS-210, RSS-310 IDA TS SRD, AS/NZS 4268, AS/NZS 4771, TS 12.1 & 12.2, ETSI EN 300 440-1, ETSI EN 300 440-2, ETSI EN 300 328, ETSI EN 300 220-1, ETSI EN 300 220-2, ETSI EN 301 893, ETSI EN 301 489-1/3/7/17 FCC OET Bulletin 65 + Supplement C, EN 50360, EN 50361, EN 50371, RSS 102, EN 50383, EN 50385, EN 50392, IEC 62209, CNS 14958-1, CNS 14959 FCC Method -47 CFR Part 15 Subpart B IEC / EN 61000-3-2, IEC / EN 61000-3-3, IEC / EN 61000-4-2/3/4/5/6/8/11	
Canada	Industry Canada	3M Semi Anechoic Chamber (IC 2324G-1 / IC 2324G-2) to perform	 IC 2324G-1 IC 2324G-2

*\* No part of this report may be used to claim or imply product endorsement by A2LA or any agency of the US Government.*



## 6. SETUP OF EQUIPMENT UNDER TEST

### 6.1 SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix II for the actual connections between EUT and support equipment.

### 6.2 SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	Series No.	FCC ID	Data Cable	Power Cord
1.	Universal Radio Communication Tester (Remote)	R&S	CMU200	101245	N/A	N/A	Unshielded, 1.8m

**Remark:**

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.



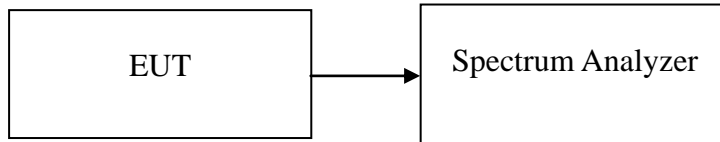
## 7. FCC PART 22 & 24 REQUIREMENTS & INDUSTRY CANADA RSS-132 & RSS-133

### 7.199% BANDWIDTH

#### LIMIT

None; for reporting purposes only.

#### Test Configuration



#### TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled.

#### TEST RESULTS

*No non-compliance noted.*



**Test Data For FCC**

**LTE Band 5**

**CHANNEL BANDWIDTH: 5MHz / QPSK**

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
Low	826.5	4.5084
Mid	836	4.5162
High	846.5	4.5291

**CHANNEL BANDWIDTH: 5MHz / 16QAM**

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
Low	826.5	4.5139
Mid	836	4.5236
High	846.5	4.5214

**CHANNEL BANDWIDTH: 10MHz / QPSK**

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
Low	829	8.9494
Mid	836	8.9550
High	844	8.9680

**CHANNEL BANDWIDTH: 10MHz / 16QAM**

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
Low	829	8.9364
Mid	836	8.9354
High	844	8.9793



**LTE Band 2**

**CHANNEL BANDWIDTH: 5MHz / QPSK**

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
Low	1852.5	4.5135
Mid	1880	4.5166
High	1907.5	4.5350

**CHANNEL BANDWIDTH: 5MHz / 16QAM**

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
Low	1852.5	4.5141
Mid	1880	4.5321
High	1907.5	4.5243

**CHANNEL BANDWIDTH: 10MHz / QPSK**

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
Low	1855	8.9690
Mid	1880	8.9454
High	1905	8.9413

**CHANNEL BANDWIDTH: 10MHz / 16QAM**

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
Low	1855	8.9461
Mid	1880	8.9652
High	1905	8.9582





**CHANNEL BANDWIDTH: 20MHz / QPSK**

<b>Channel</b>	<b>FREQUENCY (MHz)</b>	<b>Occupied bandwidth (MHz)</b>
Low	1860	17.8188
Mid	1880	17.8692
High	1900	17.8623

**CHANNEL BANDWIDTH: 20MHz / 16QAM**

<b>Channel</b>	<b>FREQUENCY (MHz)</b>	<b>Occupied bandwidth (MHz)</b>
Low	1860	17.8453
Mid	1880	17.8866
High	1900	17.8297



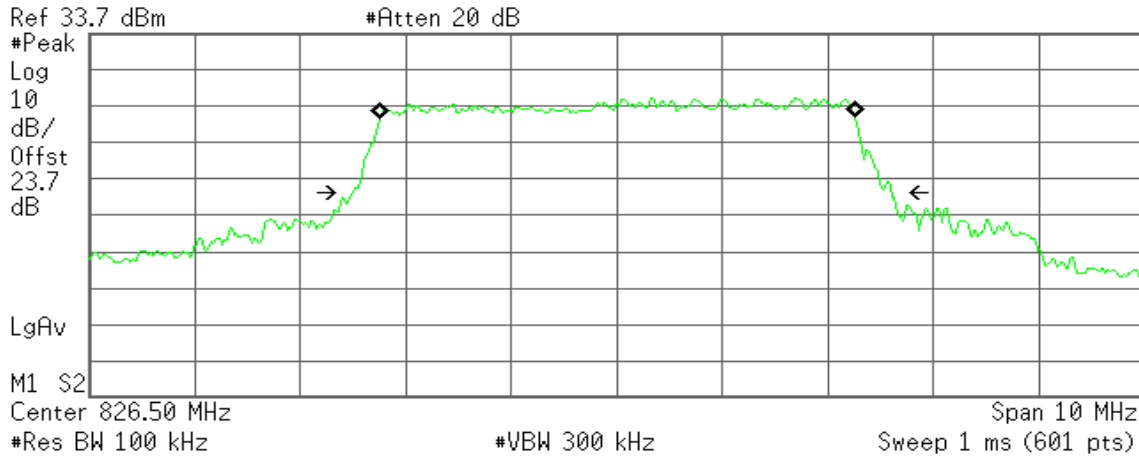
**LTE Band 5**

**CHANNEL BANDWIDTH: 5MHz / QPSK**

**CH Low**

Agilent

R T



**Occupied Bandwidth**  
4.5084 MHz

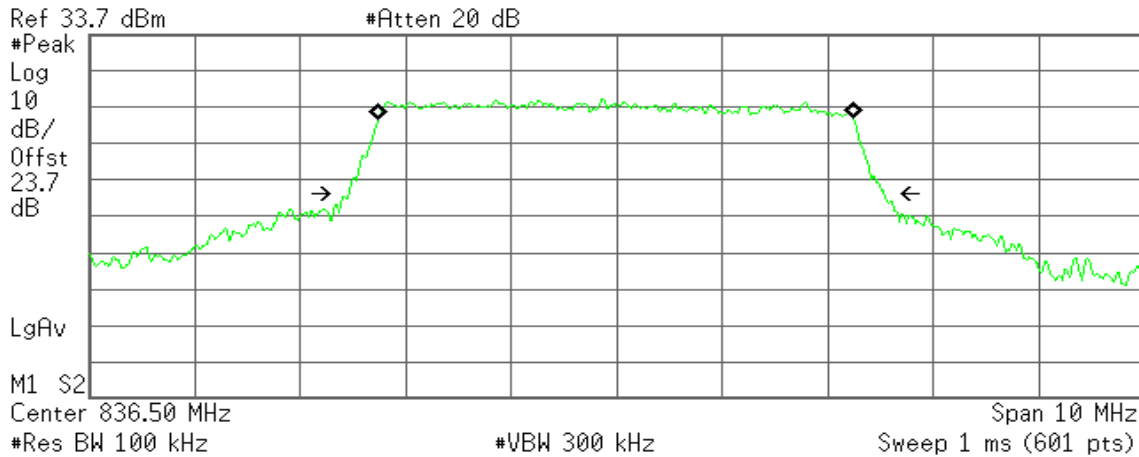
**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 9.904 kHz  
**x dB Bandwidth** 5.115 MHz

**CH Mid**

Agilent

R T



**Occupied Bandwidth**  
4.5162 MHz

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

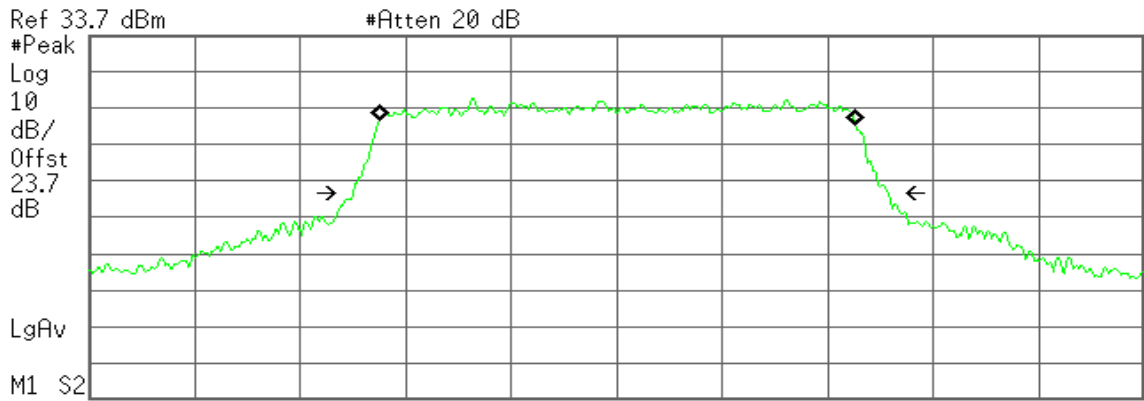
**Transmit Freq Error** -8.605 kHz  
**x dB Bandwidth** 5.083 MHz



**CH High**

Agilent

R T



Center 846.50 MHz Span 10 MHz  
#Res BW 100 kHz #VBW 300 kHz Sweep 1 ms (601 pts)

**Occupied Bandwidth**  
4.5291 MHz

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 9.334 kHz  
**x dB Bandwidth** 5.083 MHz

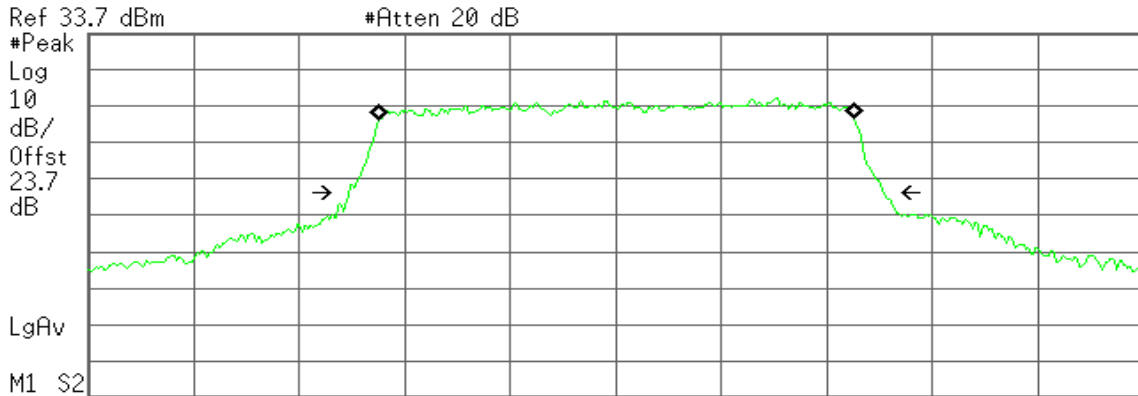


**CHANNEL BANDWIDTH: 5MHz / 16QAM**

**CH Low**

Agilent

R T



Center 829.00 MHz Span 10 MHz  
 #Res BW 100 kHz #VBW 300 kHz Sweep 1 ms (601 pts)

**Occupied Bandwidth**  
**4.5139 MHz**

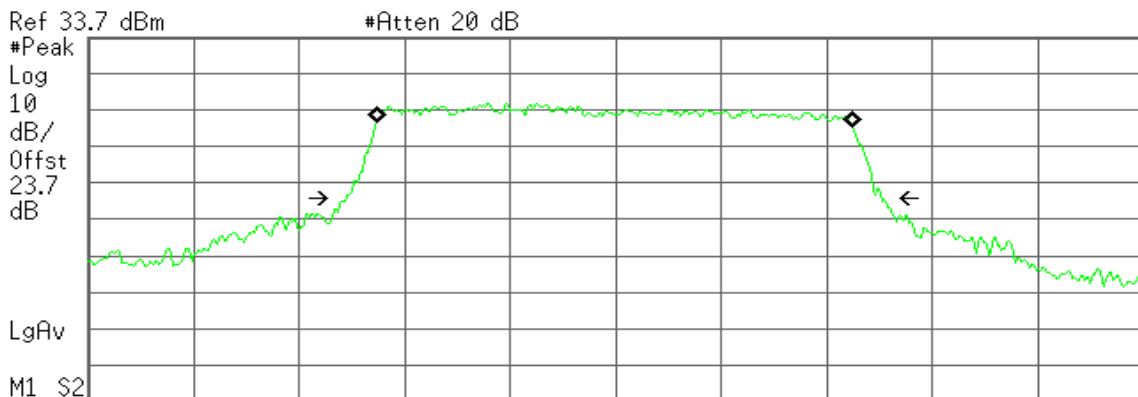
**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 13.478 kHz  
**x dB Bandwidth** 5.076 MHz

**CH Mid**

Agilent

R T



Center 836.50 MHz Span 10 MHz  
 #Res BW 100 kHz #VBW 300 kHz Sweep 1 ms (601 pts)

**Occupied Bandwidth**  
**4.5236 MHz**

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

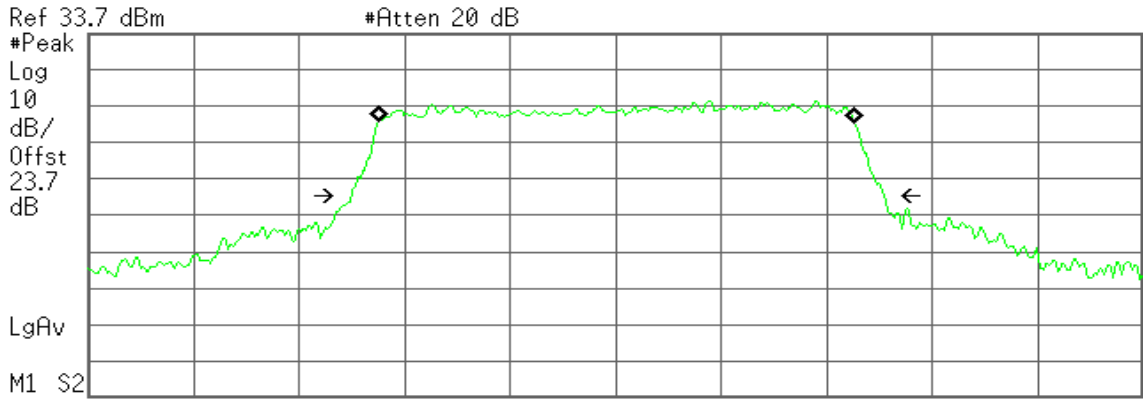
**Transmit Freq Error** -8.921 kHz  
**x dB Bandwidth** 5.087 MHz



**CH High**

Agilent

R T



Center 846.50 MHz Span 10 MHz  
 #Res BW 100 kHz #VBW 300 kHz Sweep 1 ms (601 pts)

**Occupied Bandwidth**  
**4.5214 MHz**

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 10.857 kHz  
**x dB Bandwidth** 5.064 MHz

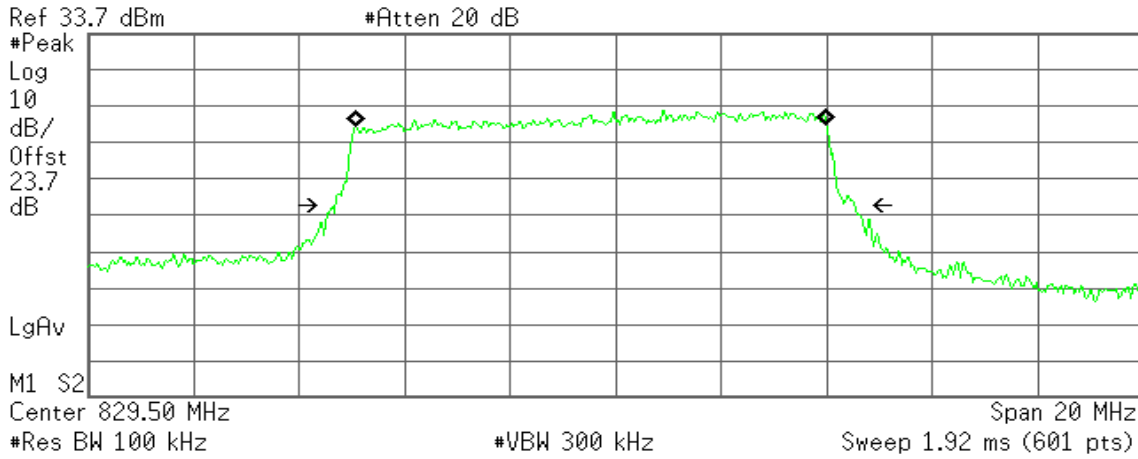


**CHANNEL BANDWIDTH: 10MHz / QPSK**

**CH Low**

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R T



**Occupied Bandwidth**  
**8.9494 MHz**

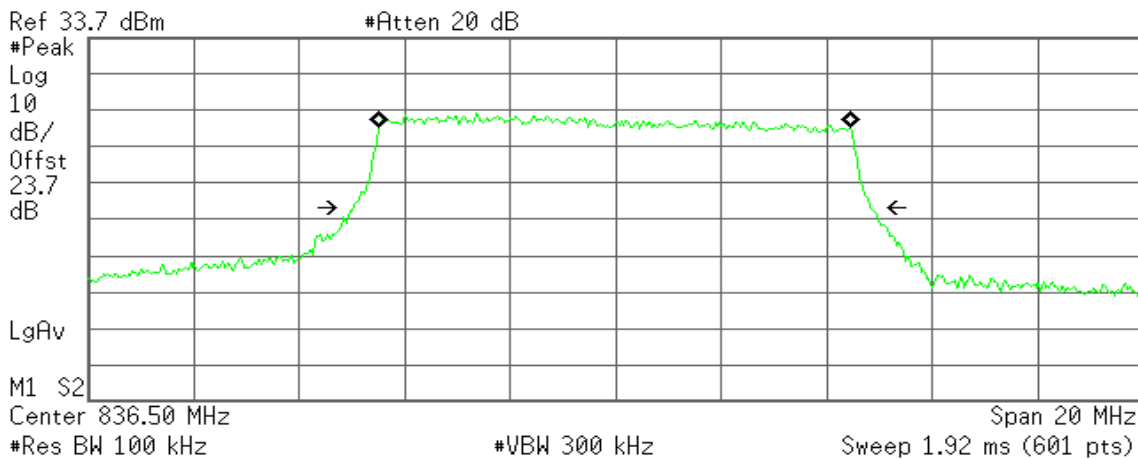
**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** -469.435 kHz  
**x dB Bandwidth** 9.875 MHz

**CH Mid**

Agilent

R T



**Occupied Bandwidth**  
**8.9550 MHz**

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

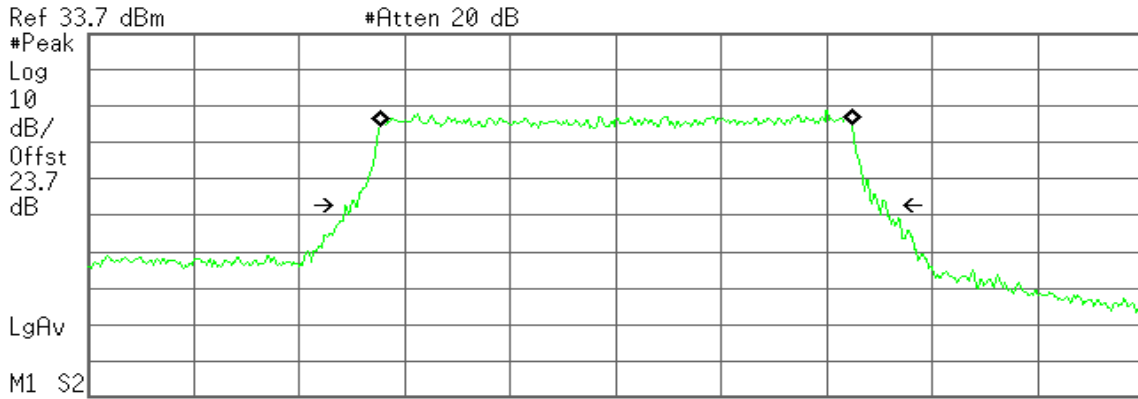
**Transmit Freq Error** -11.729 kHz  
**x dB Bandwidth** 9.816 MHz



**CH High**

Agilent

R T



Center 844.00 MHz Span 20 MHz  
 #Res BW 100 kHz #VBW 300 kHz Sweep 1.92 ms (601 pts)

**Occupied Bandwidth**  
**8.9680 MHz**

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 6.685 kHz  
**x dB Bandwidth** 10.167 MHz

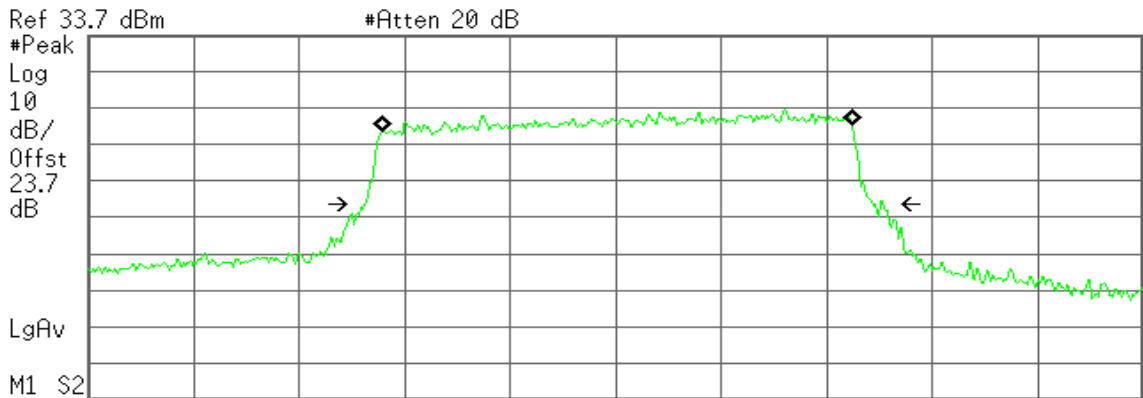


**CHANNEL BANDWIDTH: 10MHz / 16QAM**

**CH Low**

Agilent

R T



**Occupied Bandwidth**  
**8.9364 MHz**

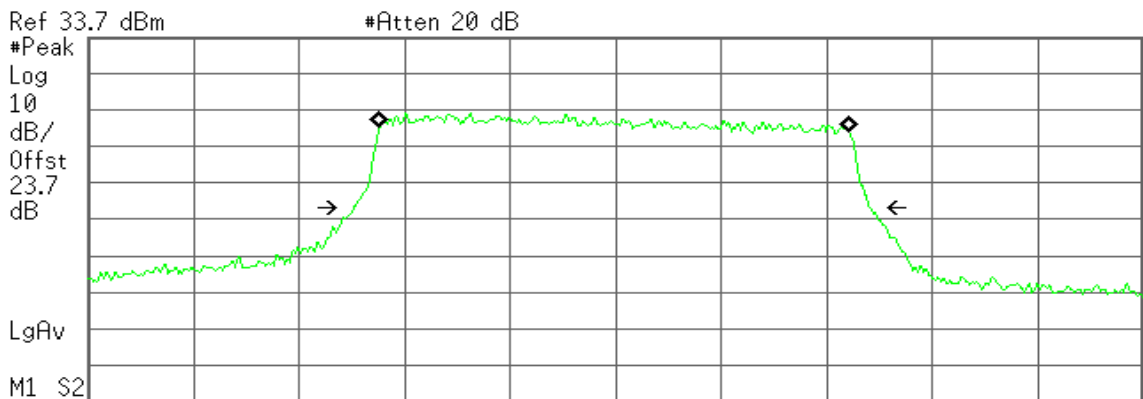
**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 21.255 kHz  
**x dB Bandwidth** 9.853 MHz

**CH Mid**

Agilent

R T



**Occupied Bandwidth**  
**8.9354 MHz**

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** -19.562 kHz  
**x dB Bandwidth** 9.789 MHz

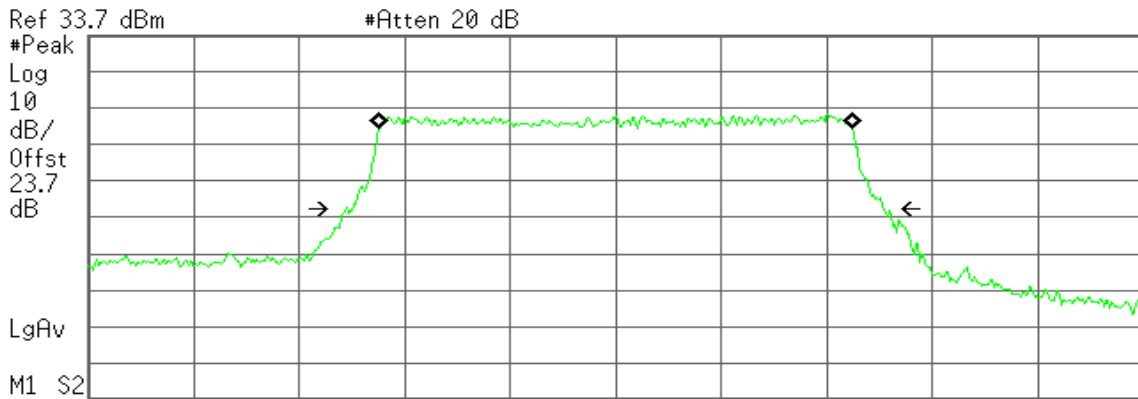




**CH High**

Agilent

R T



**Occupied Bandwidth**  
8.9793 MHz

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 6.264 kHz  
**x dB Bandwidth** 10.203 MHz



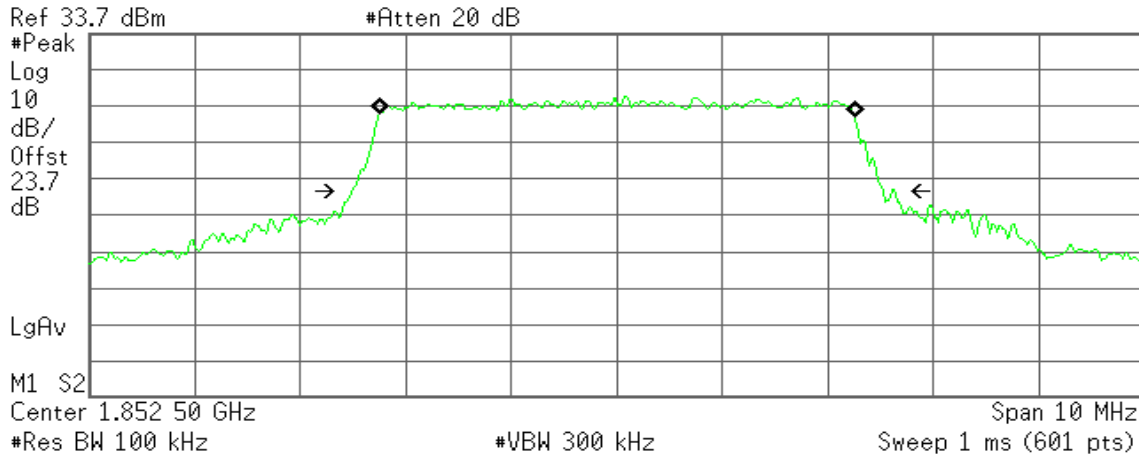
**LTE Band 2**

**CHANNEL BANDWIDTH: 5MHz / QPSK**

**CH Low**

Agilent

R T



**Occupied Bandwidth**  
4.5135 MHz

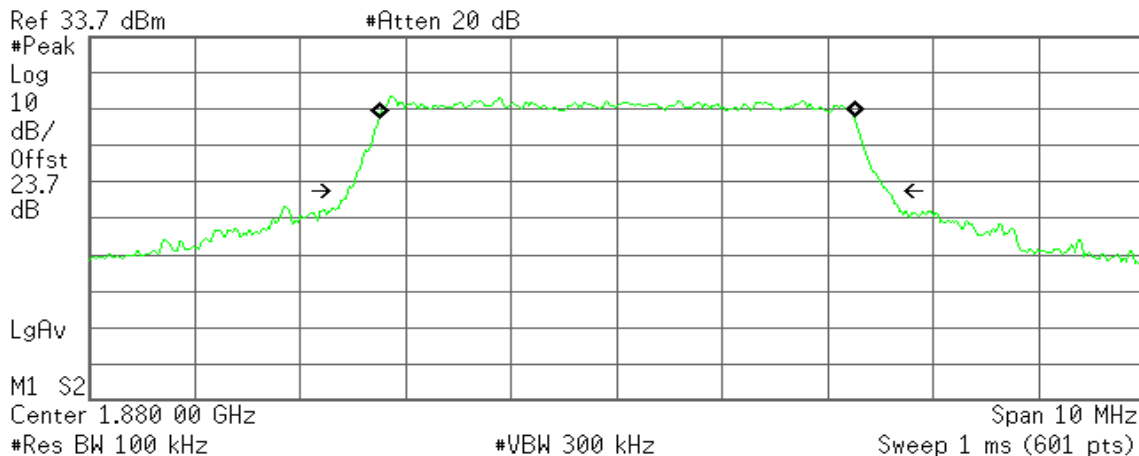
**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 2.724 kHz  
**x dB Bandwidth** 5.153 MHz

**CH Mid**

Agilent

R T



**Occupied Bandwidth**  
4.5166 MHz

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

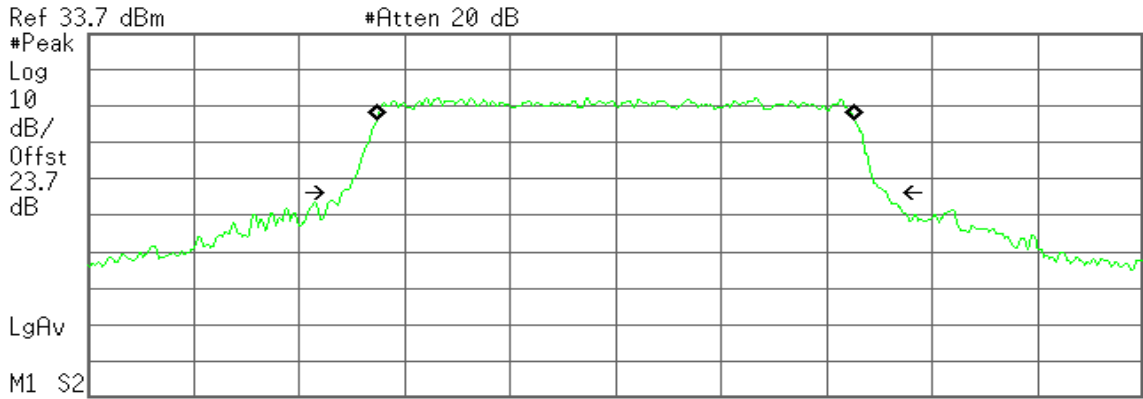
**Transmit Freq Error** 120.039 Hz  
**x dB Bandwidth** 5.116 MHz



**CH High**

Agilent

R T



**Occupied Bandwidth**  
4.5350 MHz

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** -212.126 Hz  
**x dB Bandwidth** 5.161 MHz

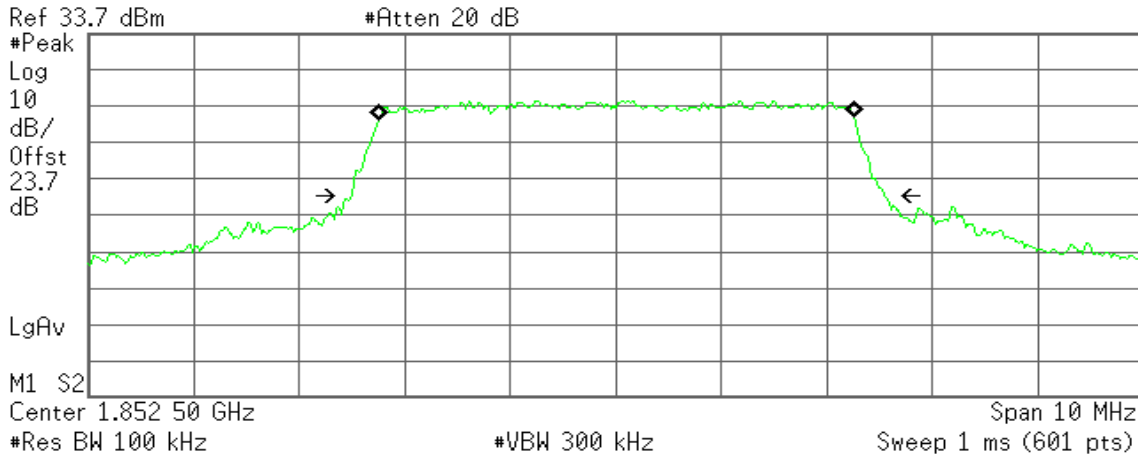


**CHANNEL BANDWIDTH: 5MHz / 16QAM**

**CH Low**

Agilent

R T



**Occupied Bandwidth**  
4.5141 MHz

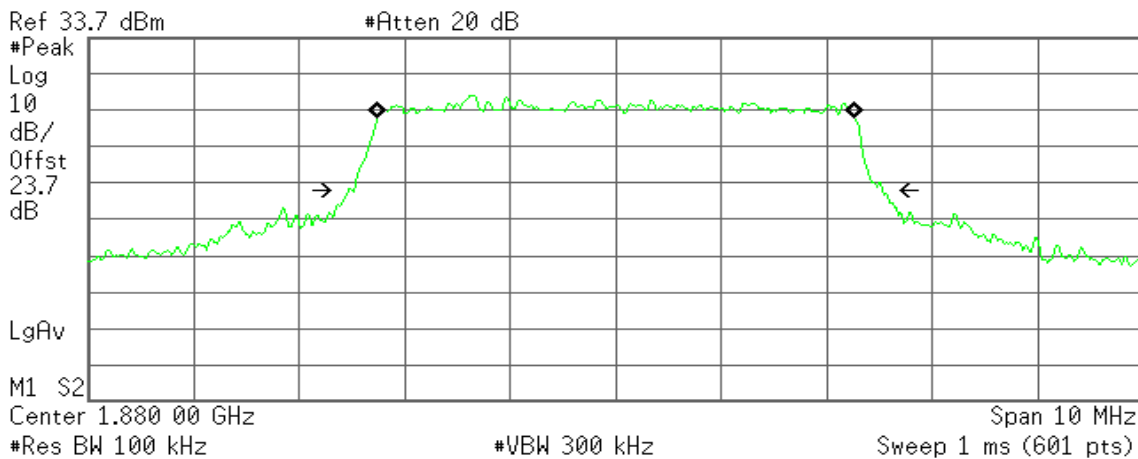
**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 5.901 kHz  
**x dB Bandwidth** 5.047 MHz

**CH Mid**

Agilent

R T



**Occupied Bandwidth**  
4.5321 MHz

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

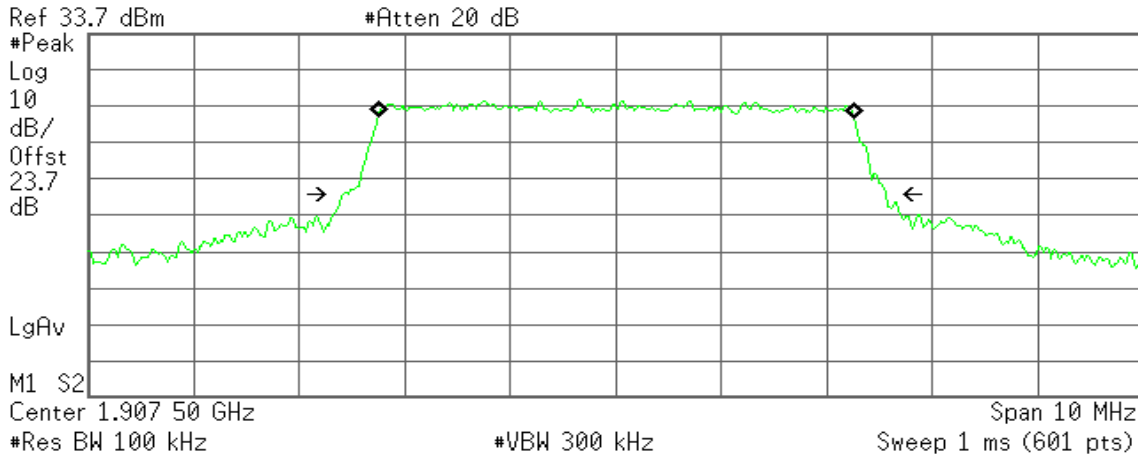
**Transmit Freq Error** 5.161 kHz  
**x dB Bandwidth** 5.069 MHz



**CH High**

Agilent

R T



**Occupied Bandwidth**  
4.5243 MHz

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 5.207 kHz  
**x dB Bandwidth** 5.152 MHz

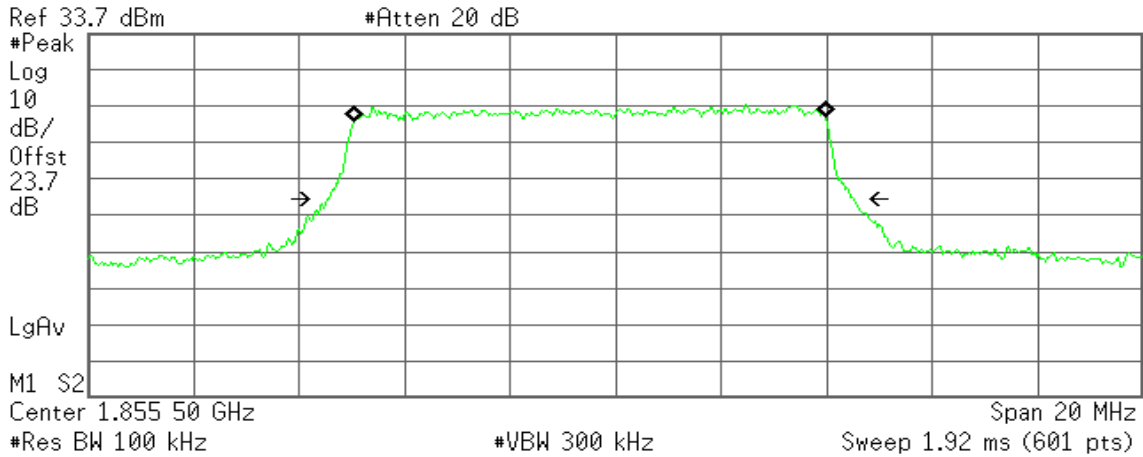


**CHANNEL BANDWIDTH: 10MHz / QPSK**

**CH Low**

Agilent

R T



**Occupied Bandwidth**  
**8.9690 MHz**

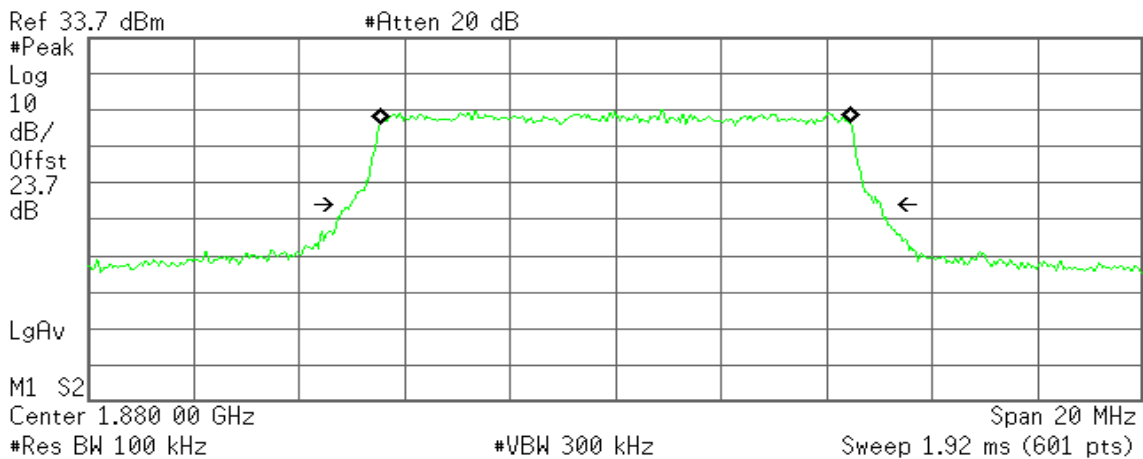
**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** -485.276 kHz  
**x dB Bandwidth** 9.979 MHz

**CH Mid**

Agilent

R T



**Occupied Bandwidth**  
**8.9454 MHz**

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

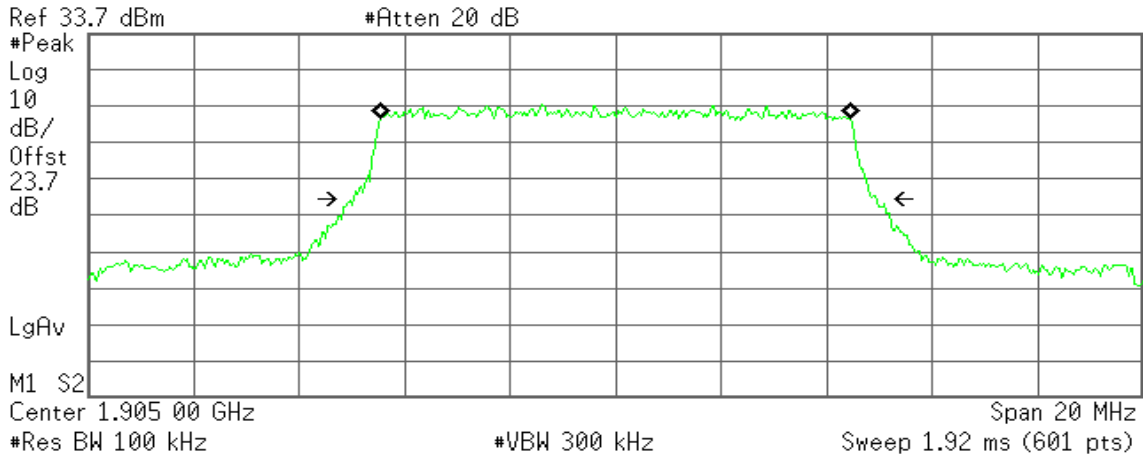
**Transmit Freq Error** -6.082 kHz  
**x dB Bandwidth** 10.071 MHz



**CH High**

Agilent

R T



**Occupied Bandwidth**  
8.9413 MHz

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** -1.048 kHz  
**x dB Bandwidth** 9.927 MHz

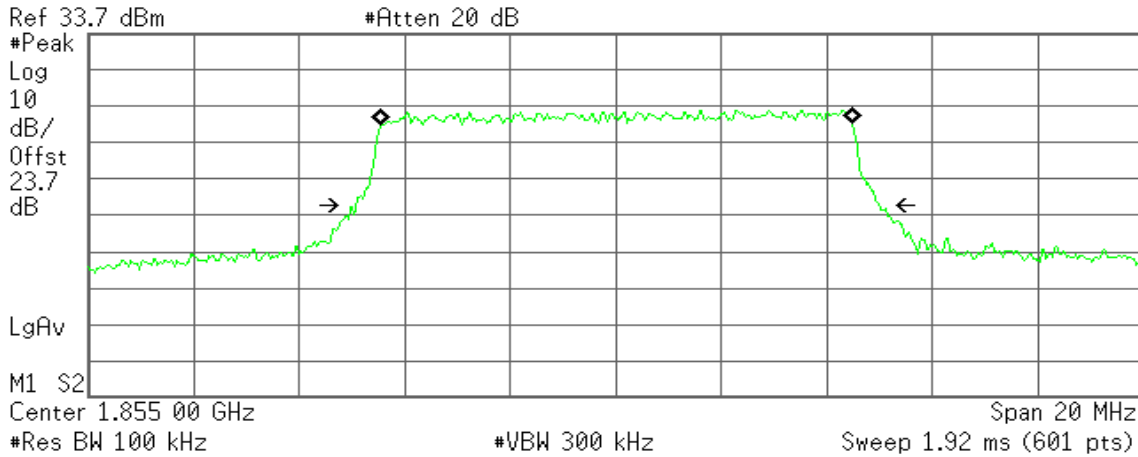


**CHANNEL BANDWIDTH: 10MHz / 16QAM**

**CH Low**

Agilent

R T



**Occupied Bandwidth**  
**8.9461 MHz**

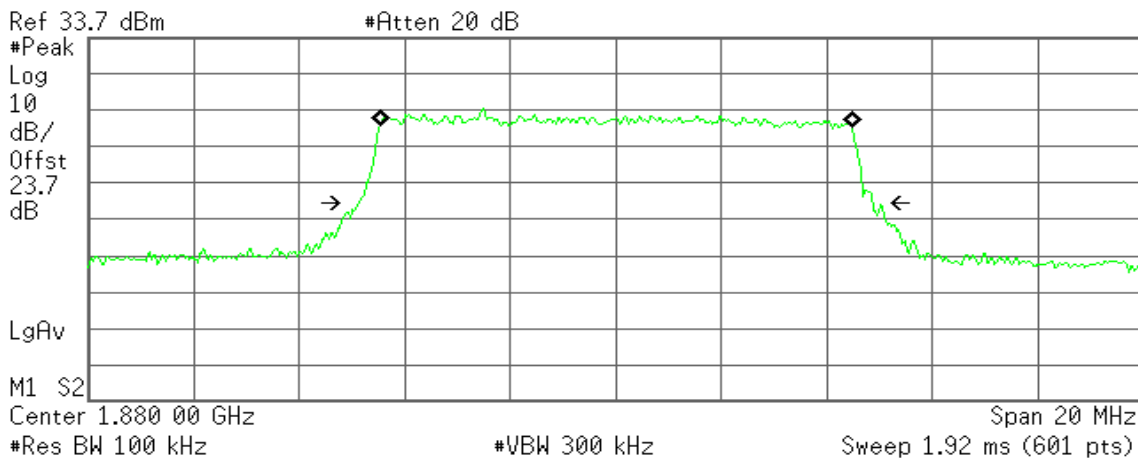
**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 16.845 kHz  
**x dB Bandwidth** 9.935 MHz

**CH Mid**

Agilent

R T



**Occupied Bandwidth**  
**8.9652 MHz**

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 757.830 Hz  
**x dB Bandwidth** 9.781 MHz

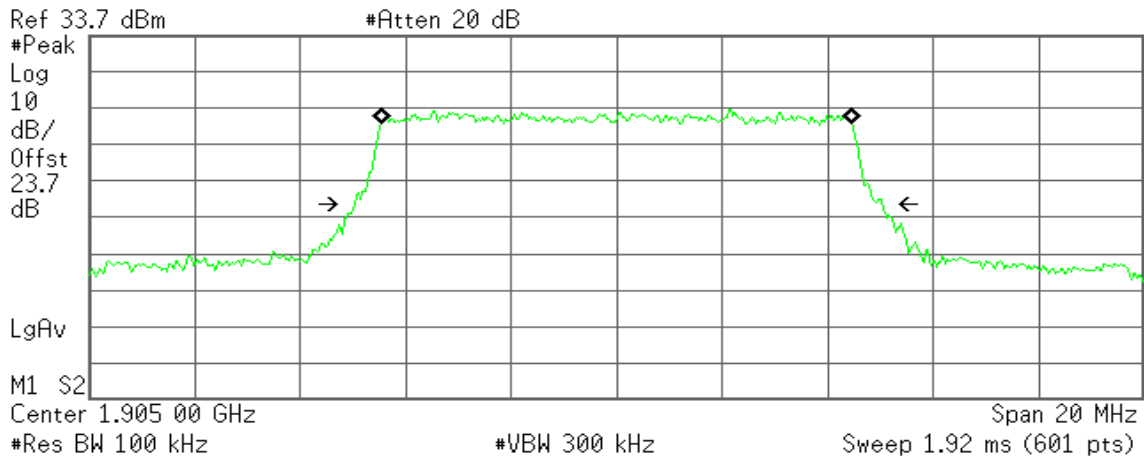




**CH High**

Agilent

R T



**Occupied Bandwidth**  
8.9582 MHz

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** -3.864 kHz  
**x dB Bandwidth** 10.010 MHz

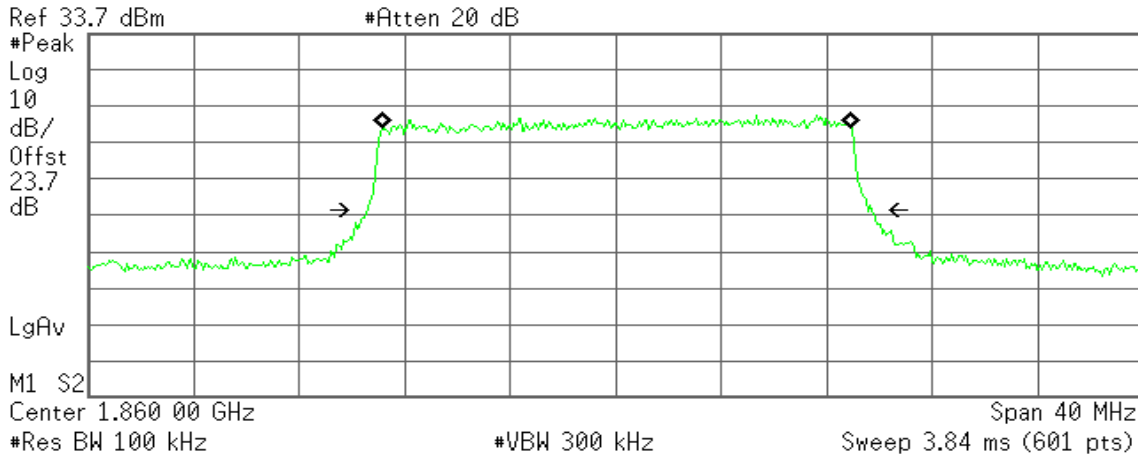


**CHANNEL BANDWIDTH: 20MHz / QPSK**

**CH Low**

Agilent

R T



**Occupied Bandwidth**  
**17.8188 MHz**

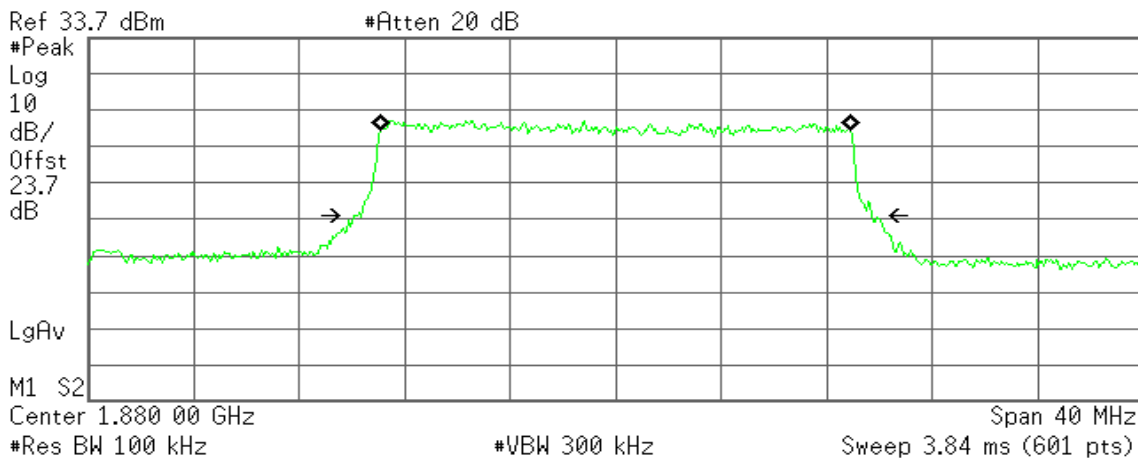
**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 35.032 kHz  
**x dB Bandwidth** 19.163 MHz

**CH Mid**

Agilent

R T



**Occupied Bandwidth**  
**17.8692 MHz**

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

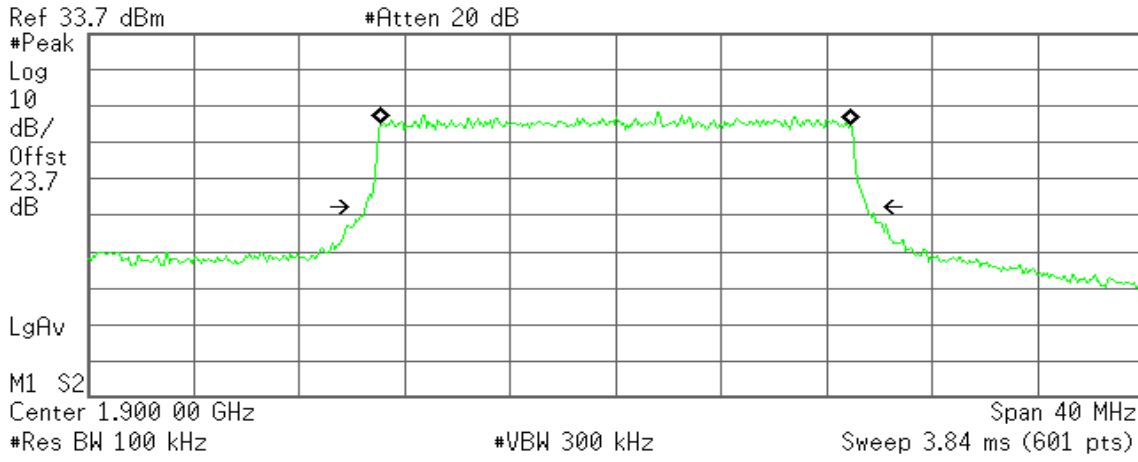
**Transmit Freq Error** -7.755 kHz  
**x dB Bandwidth** 19.529 MHz



**CH High**

Agilent

R T



**Occupied Bandwidth**  
17.8623 MHz

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 7.010 kHz  
**x dB Bandwidth** 19.044 MHz

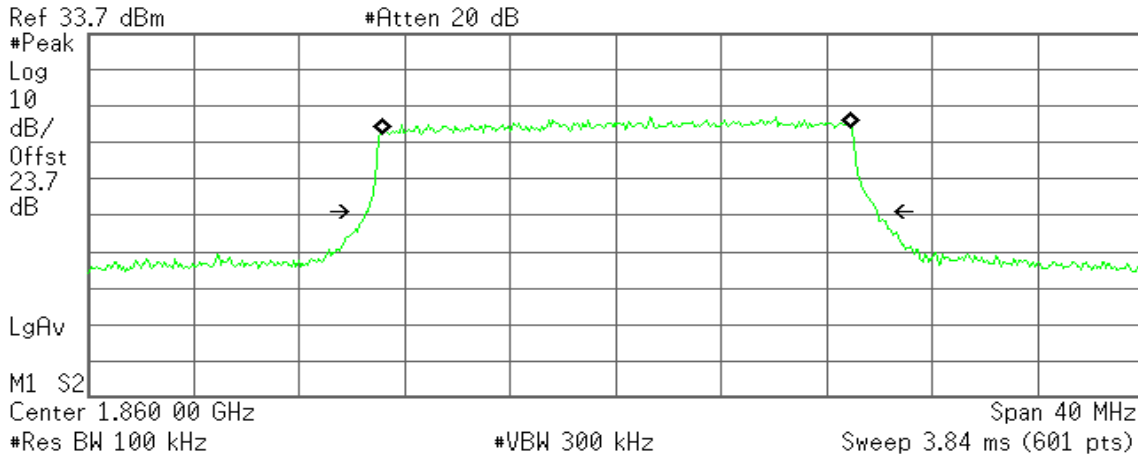


**CHANNEL BANDWIDTH: 20MHz / 16QAM**

**CH Low**

Agilent

R T



**Occupied Bandwidth**  
**17.8453 MHz**

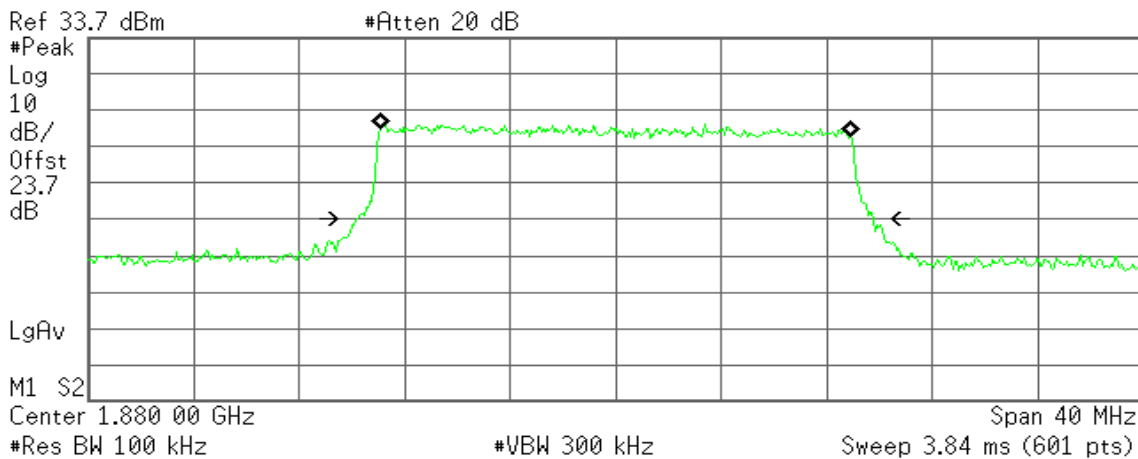
**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 40.246 kHz  
**x dB Bandwidth** 19.408 MHz

**CH Mid**

Agilent

R T



**Occupied Bandwidth**  
**17.8866 MHz**

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

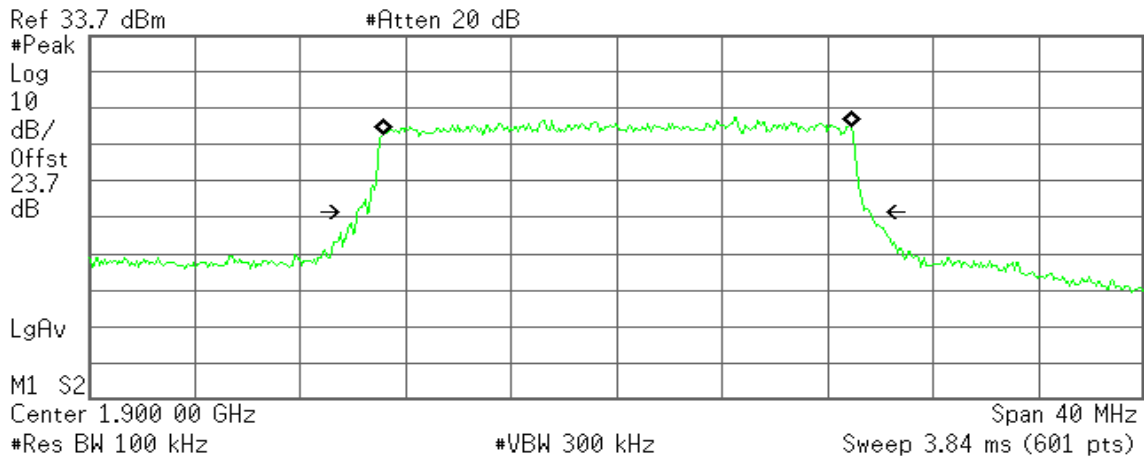
**Transmit Freq Error** -13.312 kHz  
**x dB Bandwidth** 19.639 MHz



**CH High**

Agilent

R T



**Occupied Bandwidth**  
**17.8297 MHz**

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 17.952 kHz  
**x dB Bandwidth** 19.449 MHz



**Test Data For IC**

**LTE Band 5**

**CHANNEL BANDWIDTH: 5MHz / QPSK**

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
Low	826.5	4.5120
Mid	836	4.4982
High	846.5	4.5061

**CHANNEL BANDWIDTH: 5MHz / 16QAM**

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
Low	826.5	4.5038
Mid	836	4.4936
High	846.5	4.4947

**CHANNEL BANDWIDTH: 10MHz / QPSK**

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
Low	829	8.9200
Mid	836	8.9117
High	844	8.9286

**CHANNEL BANDWIDTH: 10MHz / 16QAM**

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
Low	829	8.9133
Mid	836	8.8991
High	844	8.9431



**LTE Band 2**

**CHANNEL BANDWIDTH: 5MHz / QPSK**

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
Low	1852.5	4.5032
Mid	1880	4.4949
High	1907.5	4.5066

**CHANNEL BANDWIDTH: 5MHz / 16QAM**

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
Low	1852.5	4.4980
Mid	1880	4.4984
High	1907.5	4.4930

**CHANNEL BANDWIDTH: 10MHz / QPSK**

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
Low	1855	8.9291
Mid	1880	8.9298
High	1905	8.9257

**CHANNEL BANDWIDTH: 10MHz / 16QAM**

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
Low	1855	8.9195
Mid	1880	8.9130
High	1905	8.9214



**CHANNEL BANDWIDTH: 20MHz / QPSK**

<b>Channel</b>	<b>FREQUENCY (MHz)</b>	<b>Occupied bandwidth (MHz)</b>
Low	1860	17.8037
Mid	1880	17.8517
High	1900	17.8106

**CHANNEL BANDWIDTH: 20MHz / 16QAM**

<b>Channel</b>	<b>FREQUENCY (MHz)</b>	<b>Occupied bandwidth (MHz)</b>
Low	1860	17.7902
Mid	1880	17.8494
High	1900	17.8192





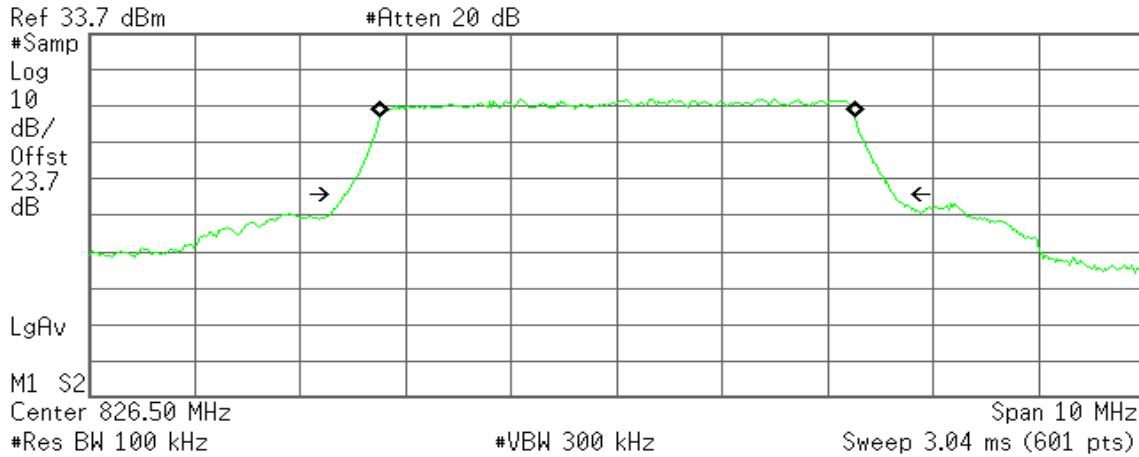
**LTE Band 5**

**CHANNEL BANDWIDTH: 5MHz / QPSK**

**CH Low**

Agilent

R T



**Occupied Bandwidth**  
4.5120 MHz

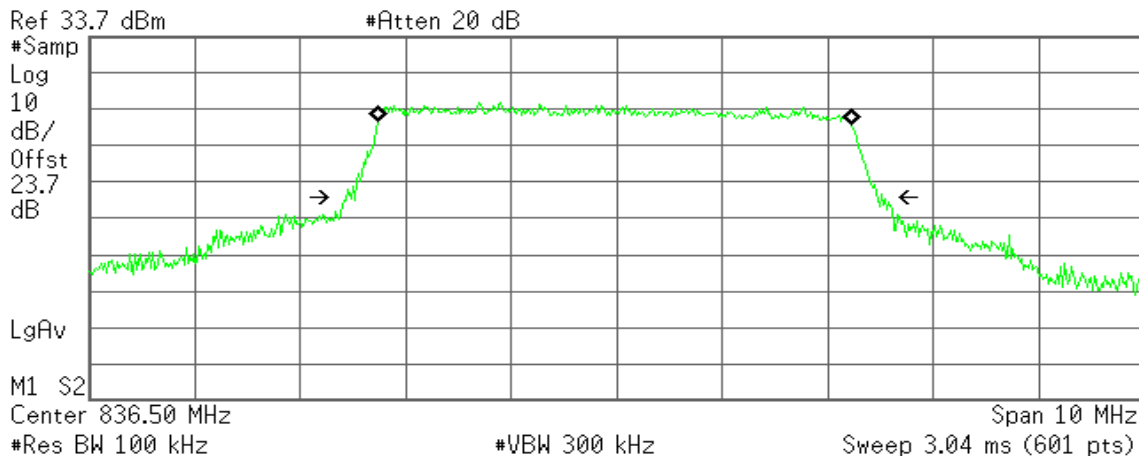
**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 11.355 kHz  
**x dB Bandwidth** 5.195 MHz\*

**CH Mid**

Agilent

R T



**Occupied Bandwidth**  
4.4982 MHz

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

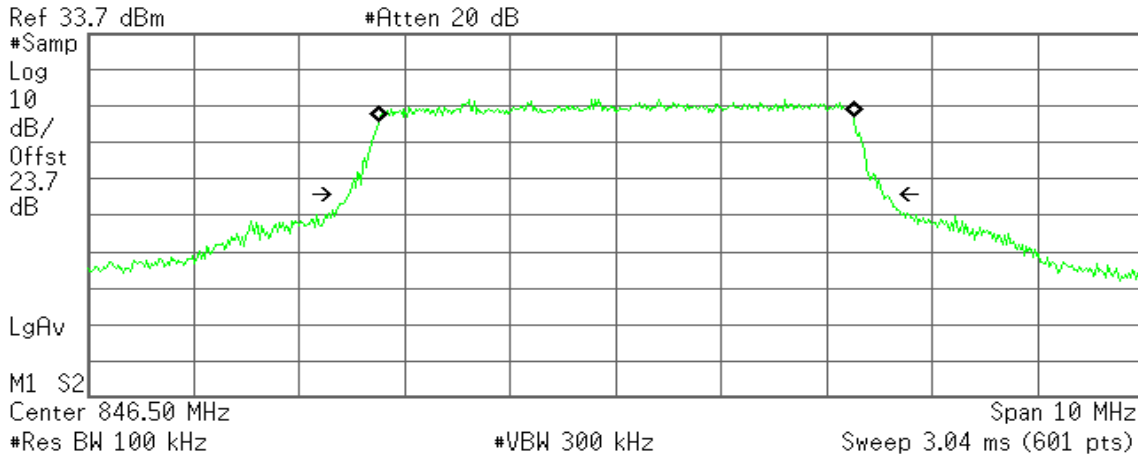
**Transmit Freq Error** -14.056 kHz  
**x dB Bandwidth** 5.083 MHz\*



**CH High**

Agilent

R T



**Occupied Bandwidth**  
4.5061 MHz

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 6.600 kHz  
**x dB Bandwidth** 5.075 MHz\*

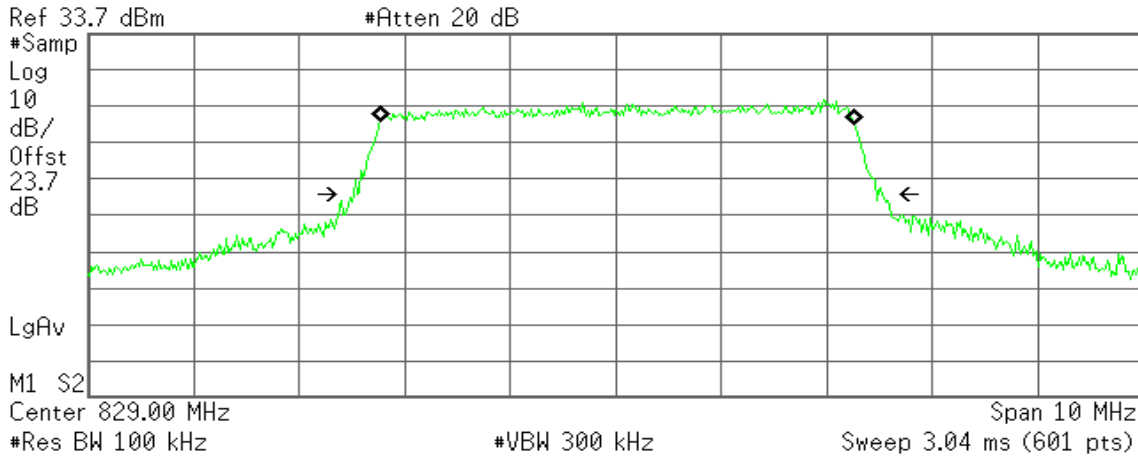


**CHANNEL BANDWIDTH: 5MHz / 16QAM**

**CH Low**

Agilent

R T



**Occupied Bandwidth**  
4.5038 MHz

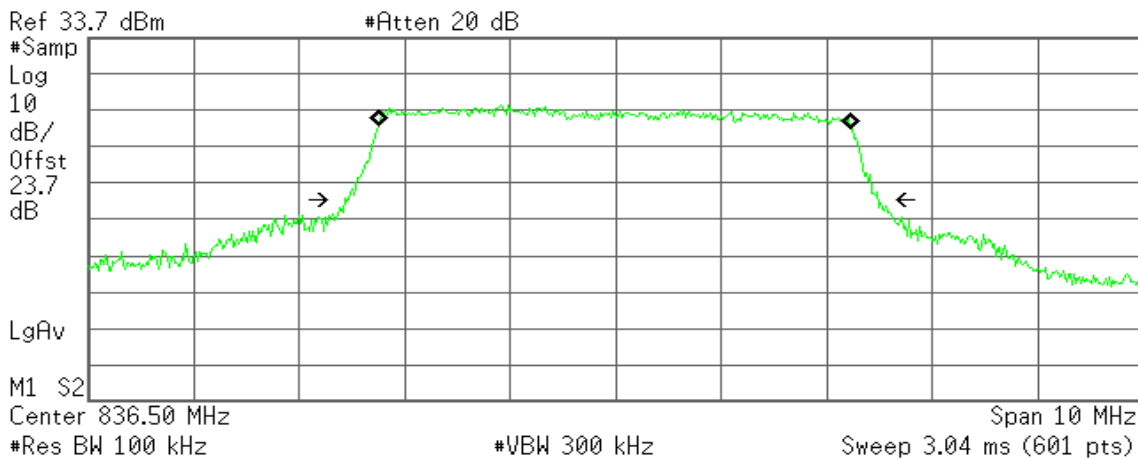
**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 12.447 kHz  
**x dB Bandwidth** 5.019 MHz\*

**CH Mid**

Agilent

R T



**Occupied Bandwidth**  
4.4936 MHz

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

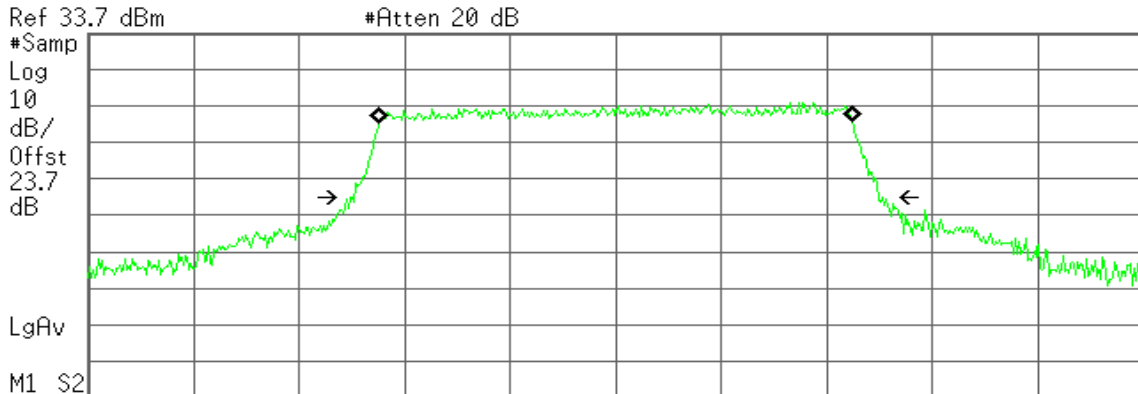
**Transmit Freq Error** -7.109 kHz  
**x dB Bandwidth** 5.062 MHz\*



**CH High**

\* Agilent

R T



Ref 33.7 dBm

#Atten 20 dB

#Samp  
Log  
10  
dB/  
Offst  
23.7  
dB

LgAv

M1 S2

Center 846.50 MHz

Span 10 MHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 3.04 ms (601 pts)

**Occupied Bandwidth**  
**4.4947 MHz**

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 5.453 kHz  
**x dB Bandwidth** 5.014 MHz\*

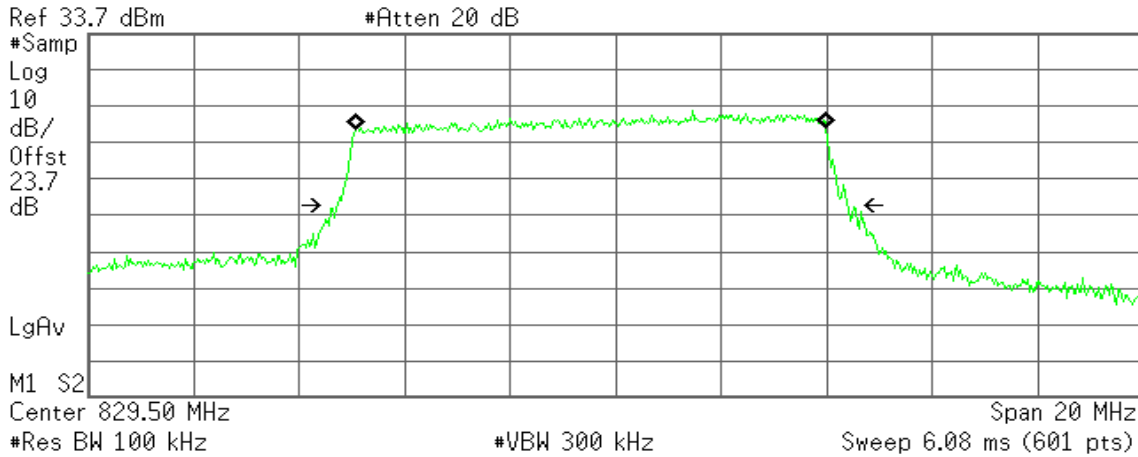


**CHANNEL BANDWIDTH: 10MHz / QPSK**

**CH Low**

Agilent

R T



**Occupied Bandwidth**  
**8.9200 MHz**

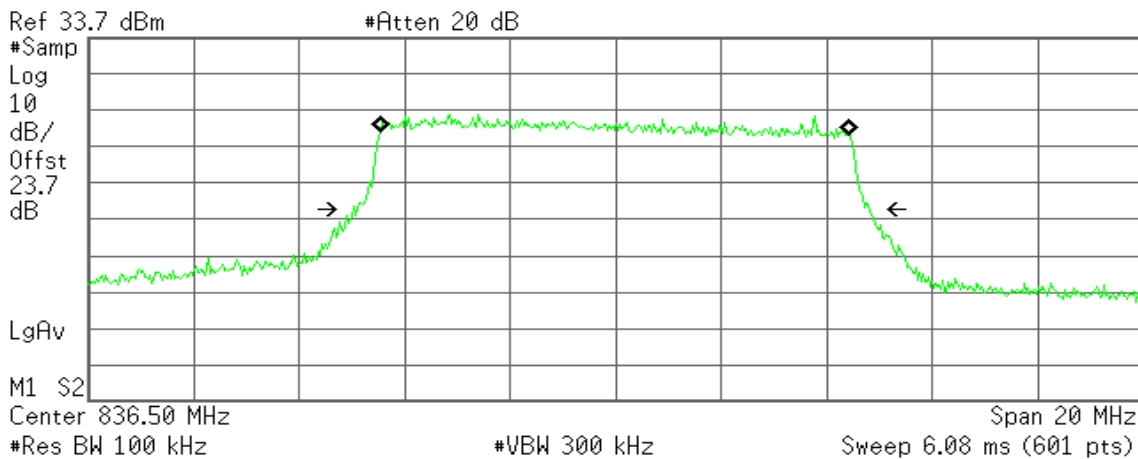
**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** -476.687 kHz  
**x dB Bandwidth** 9.671 MHz\*

**CH Mid**

Agilent

R T



**Occupied Bandwidth**  
**8.9117 MHz**

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

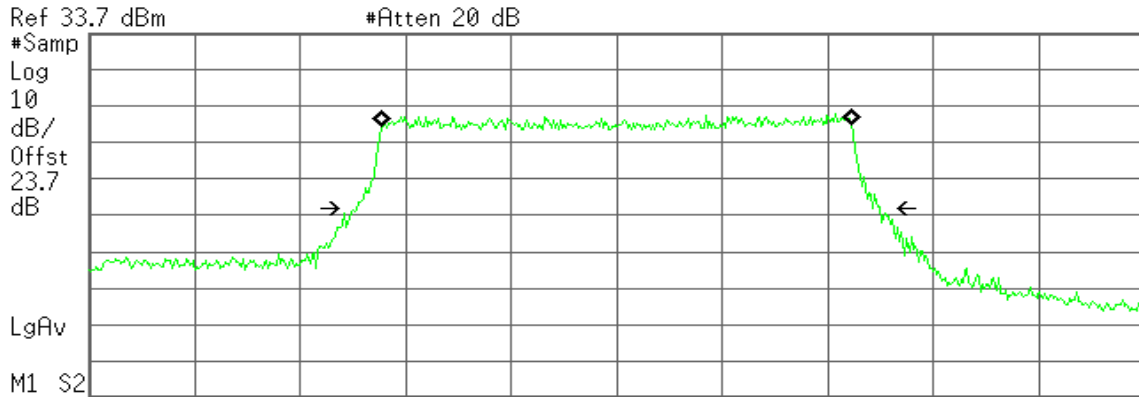
**Transmit Freq Error** -16.606 kHz  
**x dB Bandwidth** 9.802 MHz\*



**CH High**

Agilent

R T



**Occupied Bandwidth**  
8.9286 MHz

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 644.342 Hz  
**x dB Bandwidth** 9.933 MHz\*

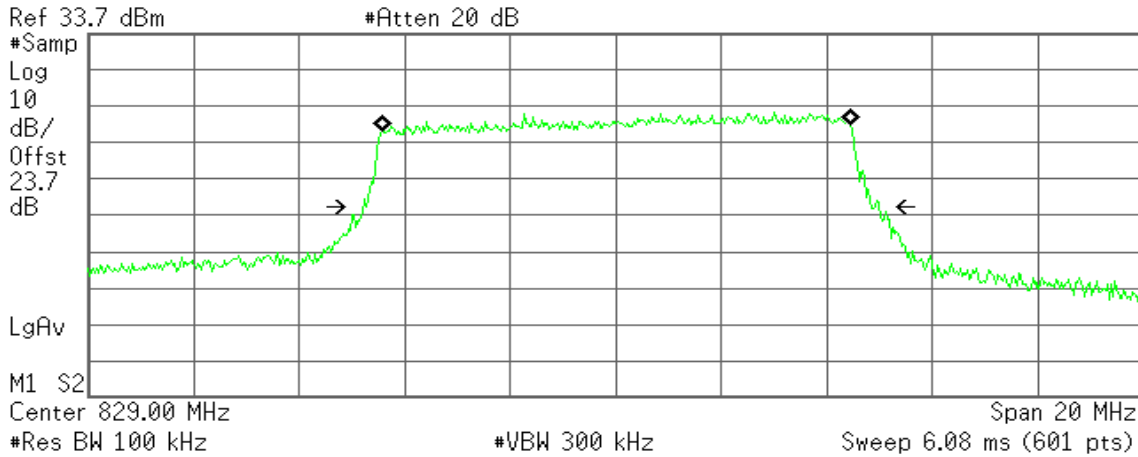


**CHANNEL BANDWIDTH: 10MHz / 16QAM**

**CH Low**

Agilent

R T



**Occupied Bandwidth**  
**8.9133 MHz**

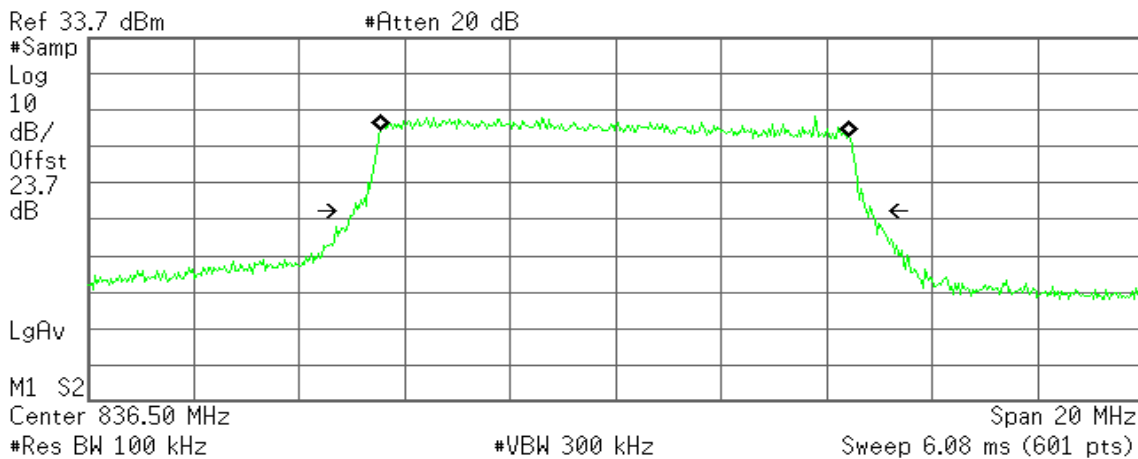
**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 17.619 kHz  
**x dB Bandwidth** 9.801 MHz\*

**CH Mid**

Agilent

R T



**Occupied Bandwidth**  
**8.8991 MHz**

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

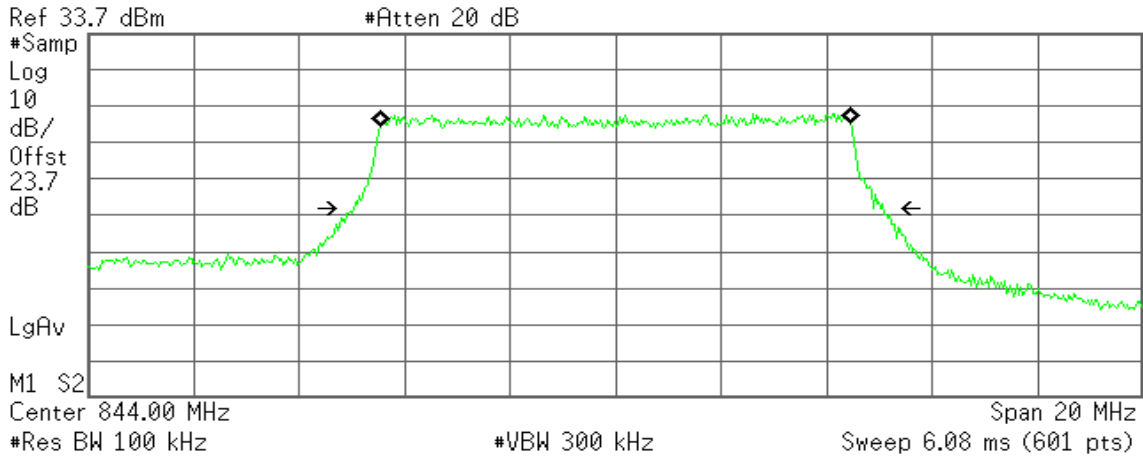
**Transmit Freq Error** -19.881 kHz  
**x dB Bandwidth** 9.813 MHz\*



**CH High**

Agilent

R T



**Occupied Bandwidth**  
8.9431 MHz

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 1.234 kHz  
**x dB Bandwidth** 10.053 MHz\*





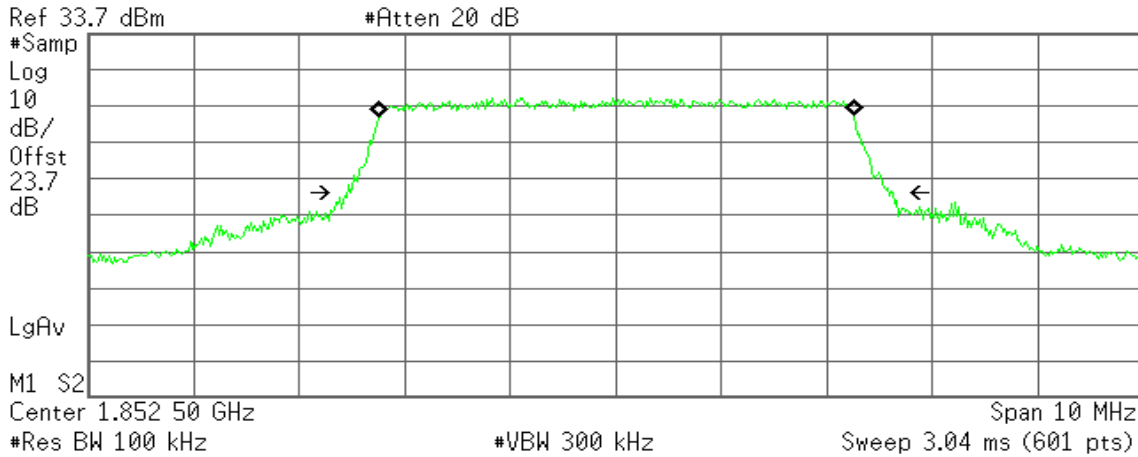
**LTE Band 2**

**CHANNEL BANDWIDTH: 5MHz / QPSK**

**CH Low**

Agilent

R T



**Occupied Bandwidth**  
4.5032 MHz

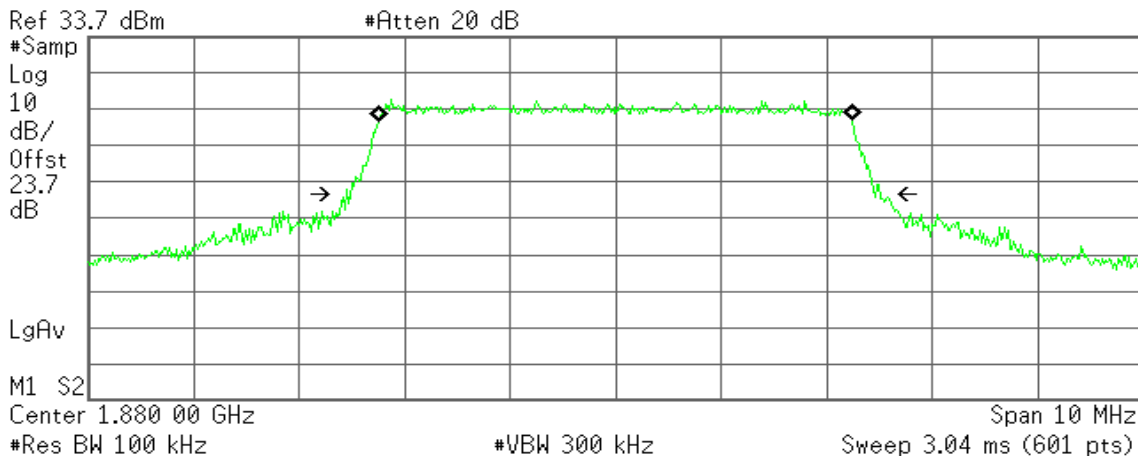
**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 8.470 kHz  
**x dB Bandwidth** 5.179 MHz\*

**CH Mid**

Agilent

R T



**Occupied Bandwidth**  
4.4949 MHz

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

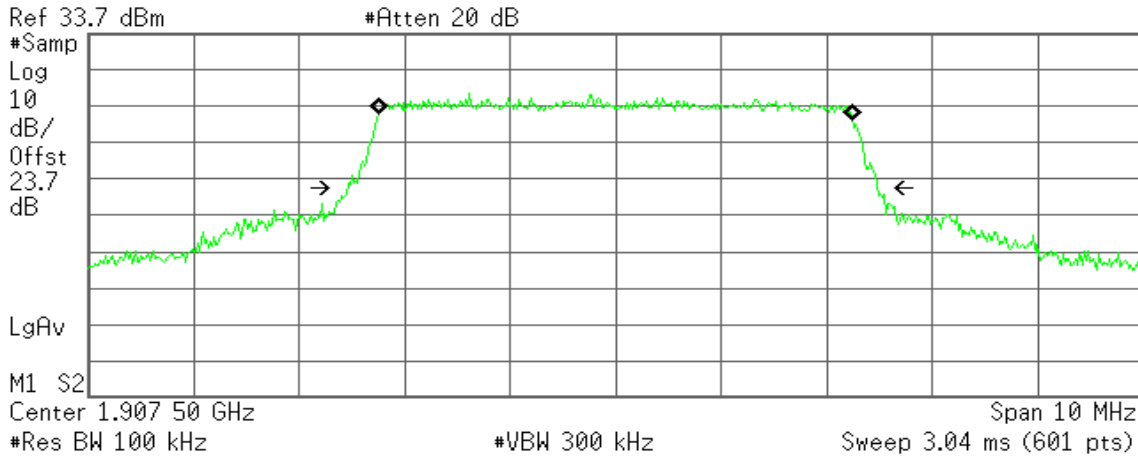
**Transmit Freq Error** -5.197 kHz  
**x dB Bandwidth** 5.068 MHz\*



**CH High**

Agilent

R T



**Occupied Bandwidth**  
4.5066 MHz

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** -1.196 kHz  
**x dB Bandwidth** 5.033 MHz\*

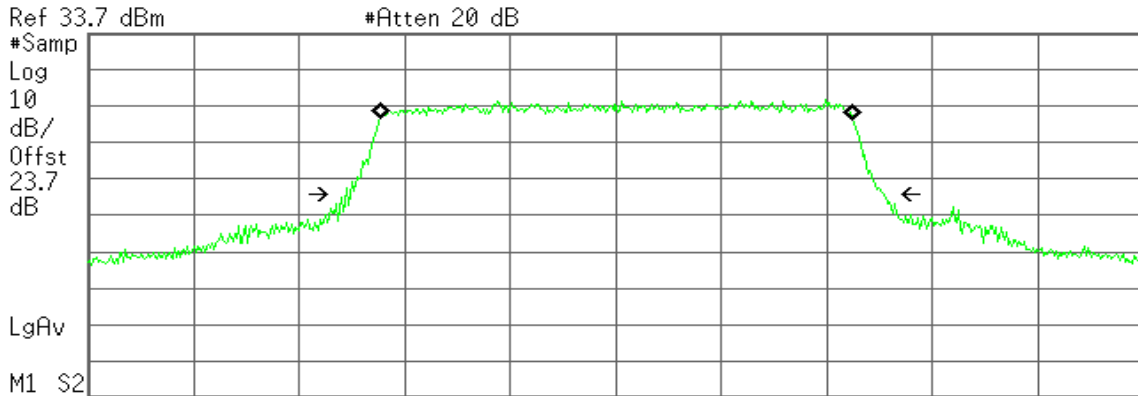


**CHANNEL BANDWIDTH: 5MHz / 16QAM**

**CH Low**

Agilent

R T



**Occupied Bandwidth**  
4.4980 MHz

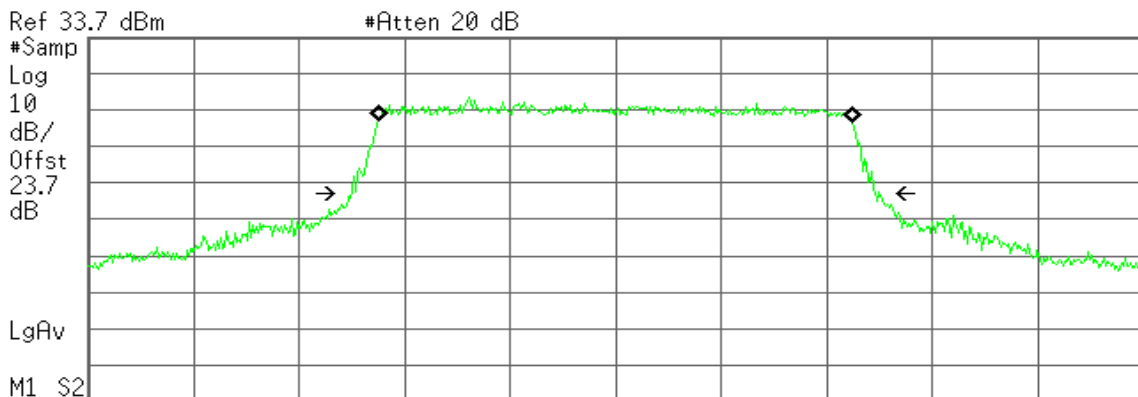
**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 7.608 kHz  
**x dB Bandwidth** 5.102 MHz\*

**CH Mid**

Agilent

R T



**Occupied Bandwidth**  
4.4984 MHz

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

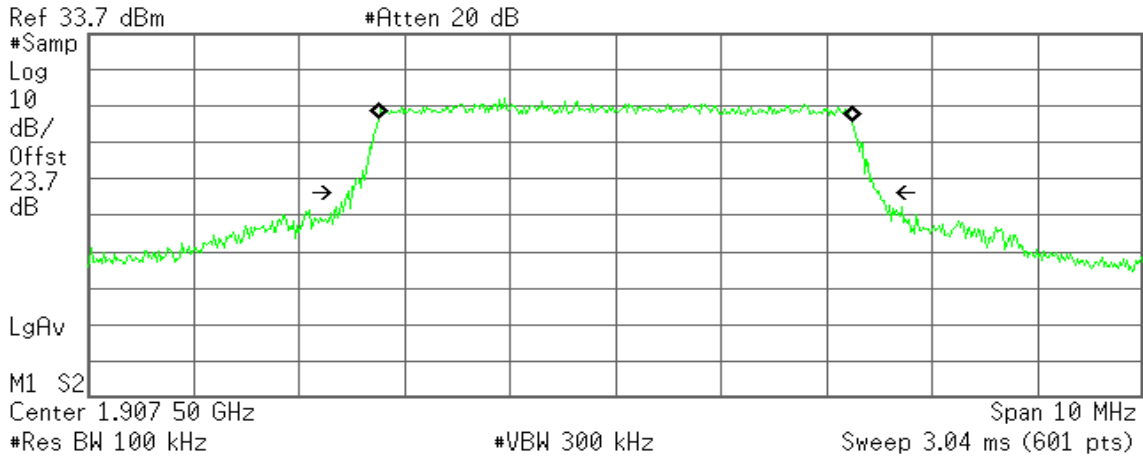
**Transmit Freq Error** -5.616 kHz  
**x dB Bandwidth** 5.013 MHz\*



**CH High**

Agilent

R T



**Occupied Bandwidth**  
4.4930 MHz

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** -2.703 kHz  
**x dB Bandwidth** 5.045 MHz\*

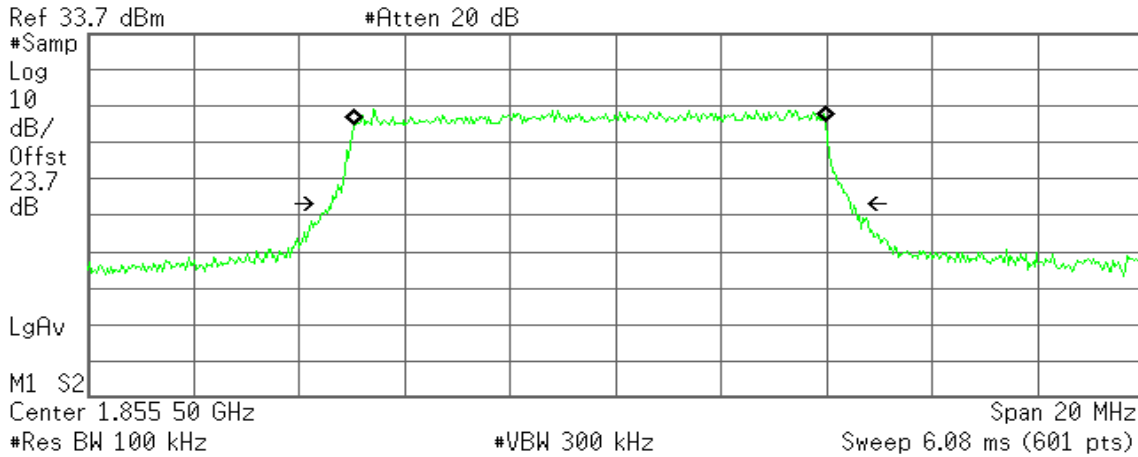


**CHANNEL BANDWIDTH: 10MHz / QPSK**

**CH Low**

Agilent

R T



**Occupied Bandwidth**  
**8.9291 MHz**

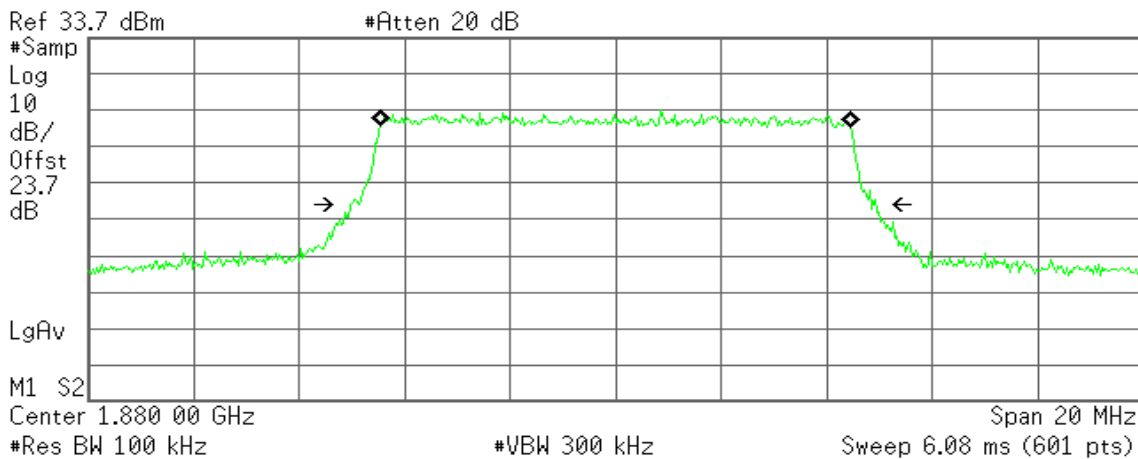
**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** -486.967 kHz  
**x dB Bandwidth** 9.845 MHz\*

**CH Mid**

Agilent

R T



**Occupied Bandwidth**  
**8.9298 MHz**

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

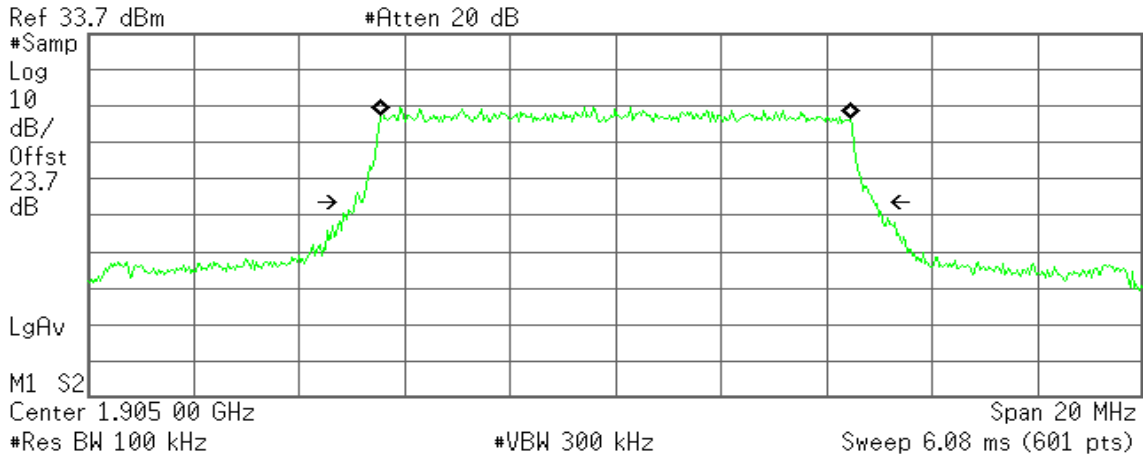
**Transmit Freq Error** -9.852 kHz  
**x dB Bandwidth** 9.983 MHz\*



**CH High**

Agilent

R T



**Occupied Bandwidth**  
8.9257 MHz

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** -4.103 kHz  
**x dB Bandwidth** 9.848 MHz\*

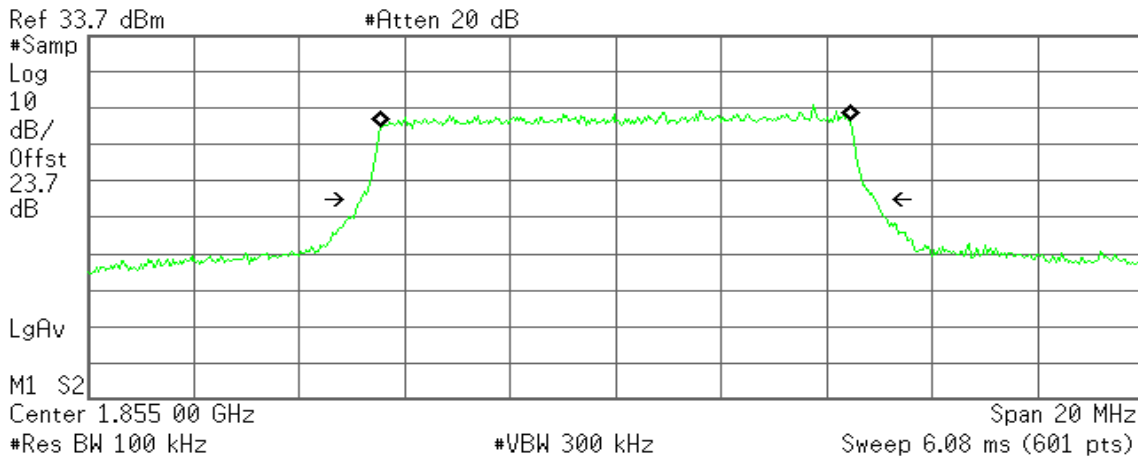


**CHANNEL BANDWIDTH: 10MHz / 16QAM**

**CH Low**

Agilent

R T



**Occupied Bandwidth**  
**8.9195 MHz**

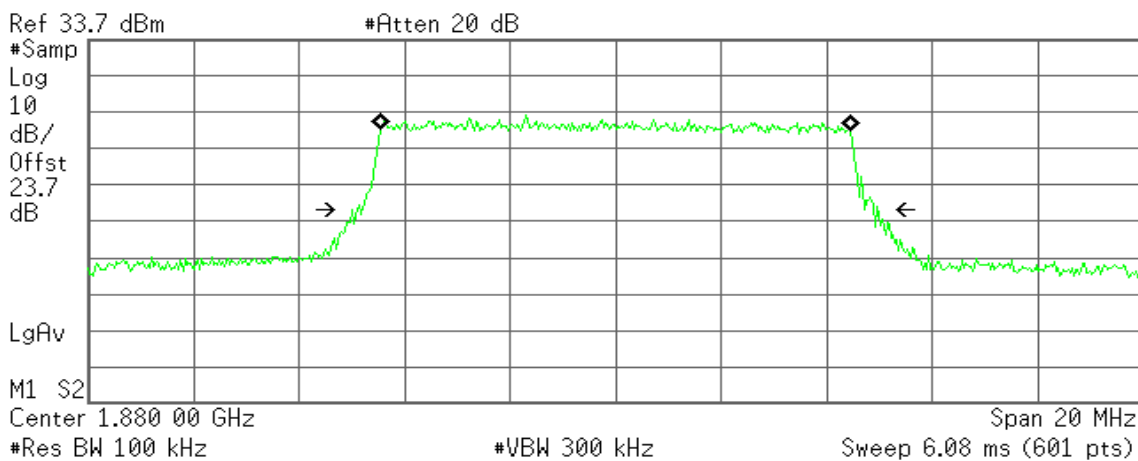
**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 9.472 kHz  
**x dB Bandwidth** 9.755 MHz\*

**CH Mid**

Agilent

R T



**Occupied Bandwidth**  
**8.9130 MHz**

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

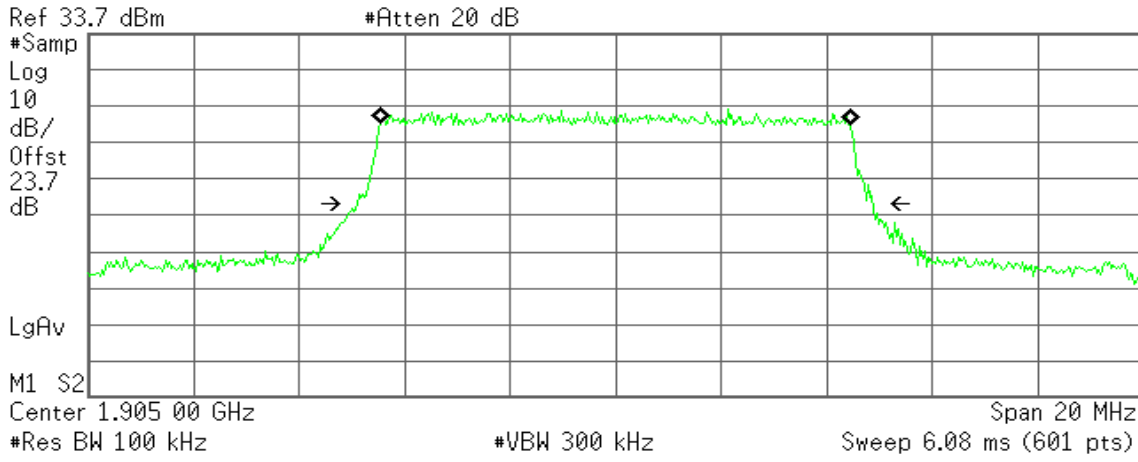
**Transmit Freq Error** -5.315 kHz  
**x dB Bandwidth** 9.989 MHz\*



**CH High**

Agilent

R T



**Occupied Bandwidth**  
8.9214 MHz

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** -9.765 kHz  
**x dB Bandwidth** 9.790 MHz\*



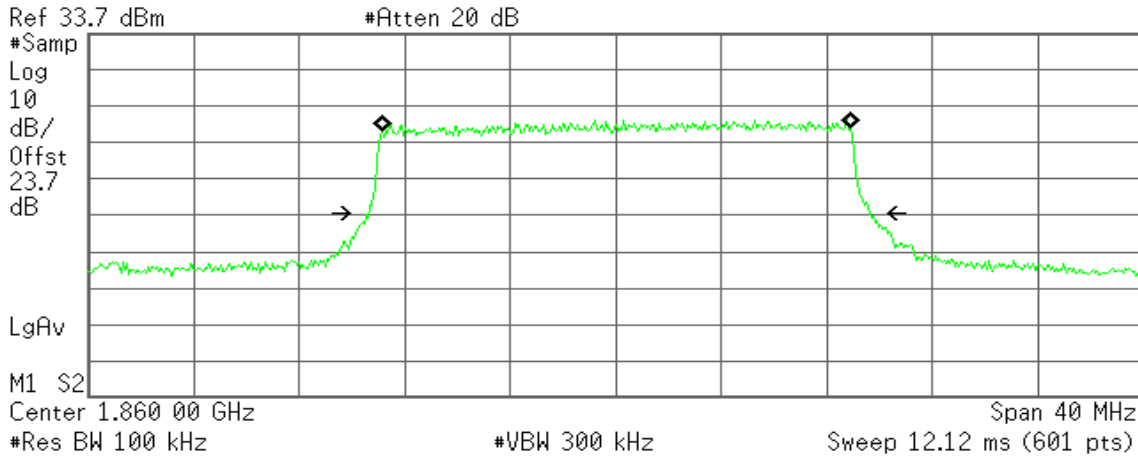


**CHANNEL BANDWIDTH: 20MHz / QPSK**

**CH Low**

Agilent

R T



**Occupied Bandwidth**  
**17.8037 MHz**

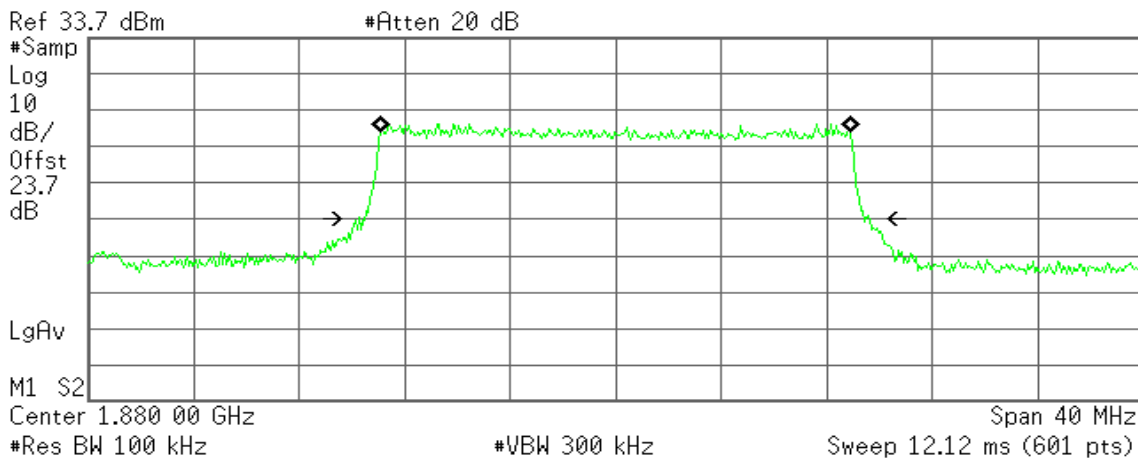
**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 27.001 kHz  
**x dB Bandwidth** 19.032 MHz\*

**CH Mid**

Agilent

R T



**Occupied Bandwidth**  
**17.8517 MHz**

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

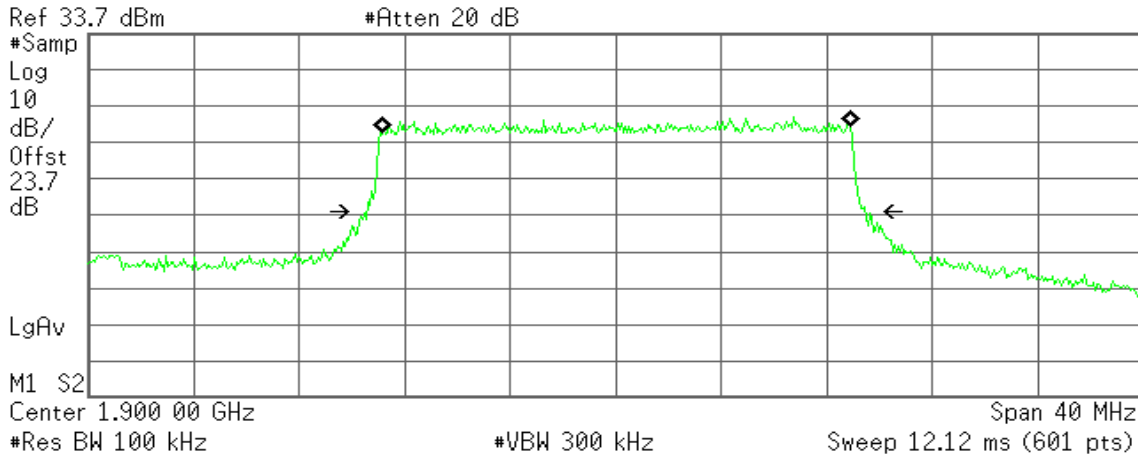
**Transmit Freq Error** -9.708 kHz  
**x dB Bandwidth** 19.382 MHz\*



**CH High**

Agilent

R T



**Occupied Bandwidth**  
**17.8106 MHz**

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 8.714 kHz  
**x dB Bandwidth** 18.950 MHz\*

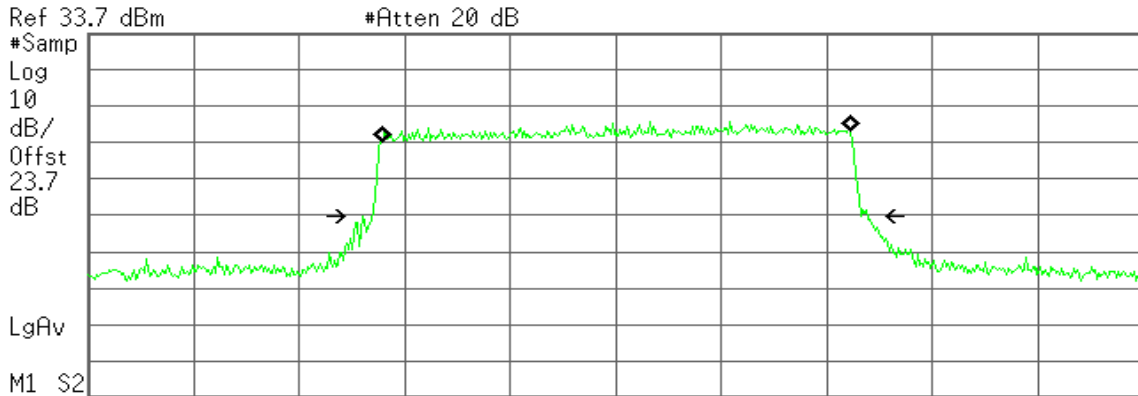


**CHANNEL BANDWIDTH: 20MHz / 16QAM**

**CH Low**

Agilent

R T



**Occupied Bandwidth**  
**17.7902 MHz**

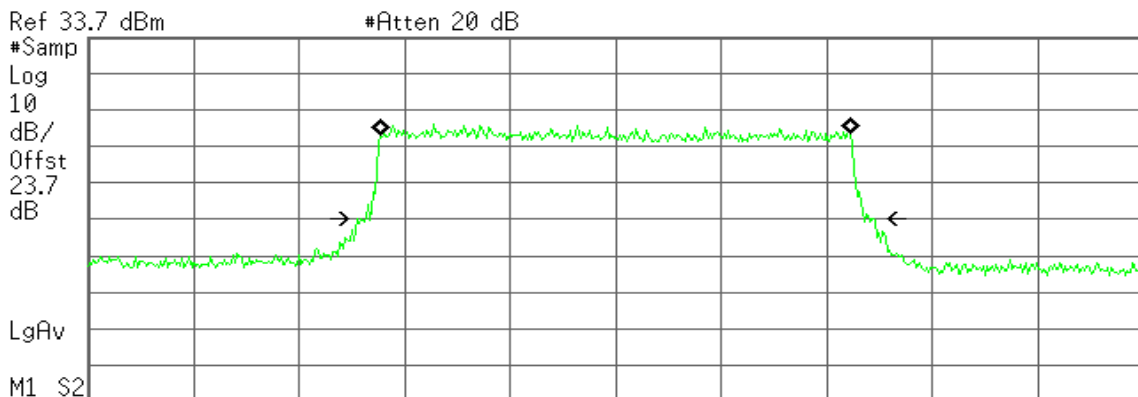
**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 32.498 kHz  
**x dB Bandwidth** 19.187 MHz\*

**CH Mid**

Agilent

R T



**Occupied Bandwidth**  
**17.8494 MHz**

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

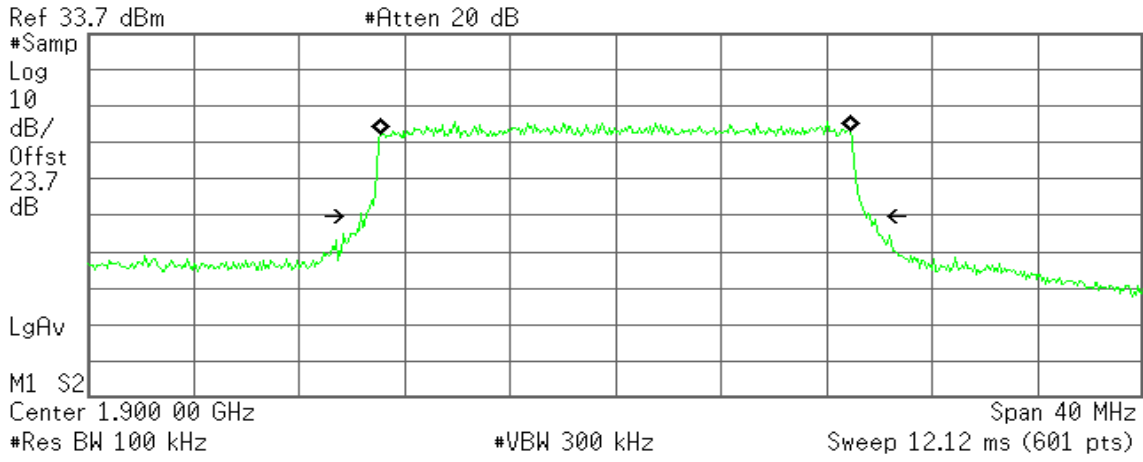
**Transmit Freq Error** -1.499 kHz  
**x dB Bandwidth** 19.133 MHz\*



**CH High**

Agilent

R T



**Occupied Bandwidth**  
17.8192 MHz

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 2.568 kHz  
**x dB Bandwidth** 19.352 MHz\*

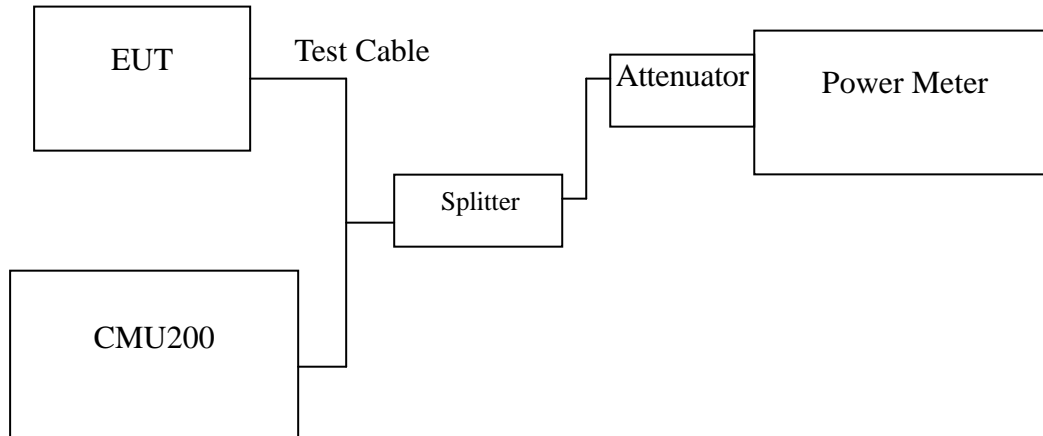


## 7.2 PEAK BURST POWER

### LIMIT

According to FCC §2.1046.

### Test Configuration



*Remark: Measurement setup for testing on Antenna connector*

### TEST PROCEDURE

The transmitter output was connected to a calibrated attenuator, the other end of which was connected to a power meter. Transmitter output was read off the power meter in dBm. The power output at the transmitter antenna port was determined by adding the value of the attenuator to the power meter reading.

### TEST RESULTS

*No non-compliance noted.*

**Test Data****LTE Band 5****Channel Bandwidth: 5MHz**

Conducted Output Power (QPSK 1 RB ALLOCATED AT THE LOWER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
826.5	20425	22.48	0.17701
836	20520	22.45	0.17579
846.5	20625	22.38	0.17298

Conducted Output Power (QPSK 1 RB ALLOCATED AT THE UPPER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
826.5	20425	22.51	0.17824
836	20520	22.31	0.17022
846.5	20625	22.27	0.16866

Conducted Output Power (QPSK 50% RB ALLOCATION CENTERED)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
826.5	20425	21.52	0.14191
836	20520	21.54	0.14256
846.5	20625	21.42	0.13868

Conducted Output Power (QPSK 100% RB ALLOCATION)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
826.5	20425	21.60	0.14454
836	20520	21.56	0.14322
846.5	20625	21.34	0.13614

**Remarks:**

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB) + 20dB Attenuator.
3. The value in bold is the worst.



**Channel Bandwidth: 5MHz**

<b>Conducted Output Power (16QAM 1 RB ALLOCATED AT THE LOWER EDGE)</b>			
<b>Frequency (MHz)</b>	<b>Channel</b>	<b>Output Power</b>	
		<b>(dBm)</b>	<b>(W)</b>
826.5	20425	21.89	0.15453
836	20520	21.73	0.14894
846.5	20625	21.79	0.15101

<b>Conducted Output Power (16QAM 1 RB ALLOCATED AT THE UPPER EDGE)</b>			
<b>Frequency (MHz)</b>	<b>Channel</b>	<b>Output Power</b>	
		<b>(dBm)</b>	<b>(W)</b>
826.5	20425	21.74	0.14928
836	20520	21.71	0.14825
846.5	20625	21.69	0.14757

<b>Conducted Output Power (16QAM 50% RB ALLOCATION CENTERED)</b>			
<b>Frequency (MHz)</b>	<b>Channel</b>	<b>Output Power</b>	
		<b>(dBm)</b>	<b>(W)</b>
826.5	20425	20.88	0.12246
836	20520	20.68	0.11695
846.5	20625	20.45	0.11092

<b>Conducted Output Power (16QAM 100% RB ALLOCATION)</b>			
<b>Frequency (MHz)</b>	<b>Channel</b>	<b>Output Power</b>	
		<b>(dBm)</b>	<b>(W)</b>
826.5	20425	21.11	0.12912
836	20520	21.09	0.12853
846.5	20625	20.83	0.12106

**Remarks:**

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB) + 20dB Attenuator.
3. The value in bold is the worst.

**LTE Band 5****Channel Bandwidth: 10MHz**

<b>Conducted Output Power (QPSK 1 RB ALLOCATED AT THE LOWER EDGE)</b>			
<b>Frequency (MHz)</b>	<b>Channel</b>	<b>Output Power</b>	
		<b>(dBm)</b>	<b>(W)</b>
829	20450	22.49	0.17742
836	20520	22.53	0.17906
844	20600	22.45	0.17579

<b>Conducted Output Power (QPSK 1 RB ALLOCATED AT THE UPPER EDGE)</b>			
<b>Frequency (MHz)</b>	<b>Channel</b>	<b>Output Power</b>	
		<b>(dBm)</b>	<b>(W)</b>
829	20450	22.54	0.17947
836	20520	22.38	0.17298
844	20600	22.16	0.16444

<b>Conducted Output Power (QPSK 50% RB ALLOCATION CENTERED)</b>			
<b>Frequency (MHz)</b>	<b>Channel</b>	<b>Output Power</b>	
		<b>(dBm)</b>	<b>(W)</b>
829	20450	21.58	0.14388
836	20520	21.46	0.13996
844	20600	21.45	0.13964

<b>Conducted Output Power (QPSK 100% RB ALLOCATION)</b>			
<b>Frequency (MHz)</b>	<b>Channel</b>	<b>Output Power</b>	
		<b>(dBm)</b>	<b>(W)</b>
829	20450	21.67	0.14689
836	20520	21.66	0.14655
844	20600	21.57	0.14355

**Remarks:**

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB) + 20dB Attenuator.
3. The value in bold is the worst.





<b>Conducted Output Power (16QAM 1 RB ALLOCATED AT THE LOWER EDGE)</b>			
<b>Frequency (MHz)</b>	<b>Channel</b>	<b>Output Power</b>	
		<b>(dBm)</b>	<b>(W)</b>
829	20450	22.31	0.17022
836	20520	21.84	0.15276
844	20600	21.95	0.15668

<b>Conducted Output Power (16QAM 1 RB ALLOCATED AT THE UPPER EDGE)</b>			
<b>Frequency (MHz)</b>	<b>Channel</b>	<b>Output Power</b>	
		<b>(dBm)</b>	<b>(W)</b>
829	20450	21.75	0.14962
836	20520	21.62	0.14521
844	20600	21.60	0.14454

<b>Conducted Output Power (16QAM 50% RB ALLOCATION CENTERED)</b>			
<b>Frequency (MHz)</b>	<b>Channel</b>	<b>Output Power</b>	
		<b>(dBm)</b>	<b>(W)</b>
829	20450	20.69	0.11722
836	20520	20.84	0.12134
844	20600	20.62	0.11535

<b>Conducted Output Power (16QAM 100% RB ALLOCATION)</b>			
<b>Frequency (MHz)</b>	<b>Channel</b>	<b>Output Power</b>	
		<b>(dBm)</b>	<b>(W)</b>
829	20450	21.24	0.13305
836	20520	21.20	0.13183
844	20600	21.05	0.12735

**Remarks:**

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB) + 20dB Attenuator.
3. The value in bold is the worst.

**LTE Band 2****Channel Bandwidth: 5MHz**

<b>Conducted Output Power (QPSK 1 RB ALLOCATED AT THE LOWER EDGE)</b>			
<b>Frequency (MHz)</b>	<b>Channel</b>	<b>Output Power</b>	
		<b>(dBm)</b>	<b>(W)</b>
1852.5	18625	22.87	0.19364
1880	18900	22.97	0.19815
1907.5	19175	23.04	0.20137

<b>Conducted Output Power (QPSK 1 RB ALLOCATED AT THE UPPER EDGE)</b>			
<b>Frequency (MHz)</b>	<b>Channel</b>	<b>Output Power</b>	
		<b>(dBm)</b>	<b>(W)</b>
1852.5	18625	22.59	0.18155
1880	18900	22.77	0.18923
1907.5	19175	22.83	0.19187

<b>Conducted Output Power (QPSK 50% RB ALLOCATION CENTERED)</b>			
<b>Frequency (MHz)</b>	<b>Channel</b>	<b>Output Power</b>	
		<b>(dBm)</b>	<b>(W)</b>
1852.5	18625	22.06	0.16069
1880	18900	22.05	0.16032
1907.5	19175	22.26	0.16827

<b>Conducted Output Power (QPSK 100% RB ALLOCATION)</b>			
<b>Frequency (MHz)</b>	<b>Channel</b>	<b>Output Power</b>	
		<b>(dBm)</b>	<b>(W)</b>
1852.5	18625	22.01	0.15885
1880	18900	22.06	0.16069
1907.5	19175	22.28	0.16904

**Remarks:**

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB) + 20dB Attenuator.
3. The value in bold is the worst.



**Channel Bandwidth: 5MHz**

<b>Conducted Output Power (16QAM 1 RB ALLOCATED AT THE LOWER EDGE)</b>			
<b>Frequency (MHz)</b>	<b>Channel</b>	<b>Output Power</b>	
		<b>(dBm)</b>	<b>(W)</b>
1852.5	18625	22.61	0.18239
1880	18900	22.15	0.16406
1907.5	19175	22.59	0.18155

<b>Conducted Output Power (16QAM 1 RB ALLOCATED AT THE UPPER EDGE)</b>			
<b>Frequency (MHz)</b>	<b>Channel</b>	<b>Output Power</b>	
		<b>(dBm)</b>	<b>(W)</b>
1852.5	18625	22.41	0.17418
1880	18900	22.10	0.16218
1907.5	19175	22.35	0.17179

<b>Conducted Output Power (16QAM 50% RB ALLOCATION CENTERED)</b>			
<b>Frequency (MHz)</b>	<b>Channel</b>	<b>Output Power</b>	
		<b>(dBm)</b>	<b>(W)</b>
1852.5	18625	21.20	0.13183
1880	18900	21.14	0.13002
1907.5	19175	21.20	0.13183

<b>Conducted Output Power (16QAM 100% RB ALLOCATION)</b>			
<b>Frequency (MHz)</b>	<b>Channel</b>	<b>Output Power</b>	
		<b>(dBm)</b>	<b>(W)</b>
1852.5	18625	21.83	0.15241
1880	18900	21.91	0.15524
1907.5	19175	21.84	0.15276

**Remarks:**

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB) + 20dB Attenuator.
3. The value in bold is the worst.

**LTE Band 2****Channel Bandwidth: 10MHz**

<b>Conducted Output Power (QPSK 1 RB ALLOCATED AT THE LOWER EDGE)</b>			
<b>Frequency (MHz)</b>	<b>Channel</b>	<b>Output Power</b>	
		<b>(dBm)</b>	<b>(W)</b>
1855	18650	23.13	0.20559
1880	18900	23.07	0.20277
1905	19150	23.31	0.21429

<b>Conducted Output Power (QPSK 1 RB ALLOCATED AT THE UPPER EDGE)</b>			
<b>Frequency (MHz)</b>	<b>Channel</b>	<b>Output Power</b>	
		<b>(dBm)</b>	<b>(W)</b>
1855	18650	22.63	0.18323
1880	18900	22.83	0.19187
1905	19150	22.70	0.18621

<b>Conducted Output Power (QPSK 50% RB ALLOCATION CENTERED)</b>			
<b>Frequency (MHz)</b>	<b>Channel</b>	<b>Output Power</b>	
		<b>(dBm)</b>	<b>(W)</b>
1855	18650	22.03	0.15959
1880	18900	22.05	0.16032
1905	19150	22.22	0.16672

<b>Conducted Output Power (QPSK 100% RB ALLOCATION)</b>			
<b>Frequency (MHz)</b>	<b>Channel</b>	<b>Output Power</b>	
		<b>(dBm)</b>	<b>(W)</b>
1855	18650	22.20	0.16596
1880	18900	22.10	0.16218
1905	19150	22.37	0.17258

**Remarks:**

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB) + 20dB Attenuator.
3. The value in bold is the worst.



**Channel Bandwidth: 10MHz**

<b>Conducted Output Power (16QAM RB ALLOCATED AT THE LOWER EDGE)</b>			
<b>Frequency (MHz)</b>	<b>Channel</b>	<b>Output Power</b>	
		<b>(dBm)</b>	<b>(W)</b>
1855	18650	22.49	0.17742
1880	18900	22.56	0.18030
1905	19150	22.79	0.19011

<b>Conducted Output Power (16QAM RB ALLOCATED AT THE UPPER EDGE)</b>			
<b>Frequency (MHz)</b>	<b>Channel</b>	<b>Output Power</b>	
		<b>(dBm)</b>	<b>(W)</b>
1855	18650	22.17	0.16482
1880	18900	22.28	0.16904
1905	19150	22.47	0.17660

<b>Conducted Output Power (16QAM 50% RB ALLOCATION CENTERED)</b>			
<b>Frequency (MHz)</b>	<b>Channel</b>	<b>Output Power</b>	
		<b>(dBm)</b>	<b>(W)</b>
1855	18650	21.19	0.13152
1880	18900	21.22	0.13243
1905	19150	21.33	0.13583

<b>Conducted Output Power (16QAM 100% RB ALLOCATION)</b>			
<b>Frequency (MHz)</b>	<b>Channel</b>	<b>Output Power</b>	
		<b>(dBm)</b>	<b>(W)</b>
1855	18650	21.60	0.14454
1880	18900	21.56	0.14322
1905	19150	21.83	0.15241

**Remarks:**

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB) + 20dB Attenuator.
3. The value in bold is the worst.



## LTE Band 2

### Channel Bandwidth: 20MHz

Conducted Output Power (QPSK 1 RB ALLOCATED AT THE LOWER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1860	18700	23.02	0.20045
1880	18900	23.14	0.20606
1900	19100	23.21	0.20941

Conducted Output Power (QPSK 1 RB ALLOCATED AT THE UPPER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1860	18700	22.22	0.16672
1880	18900	22.59	0.18155
1900	19100	22.62	0.18281

Conducted Output Power (QPSK 50% RB ALLOCATION CENTERED)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1860	18700	22.00	0.15849
1880	18900	22.10	0.16218
1900	19100	22.22	0.16672

Conducted Output Power (QPSK 100% RB ALLOCATION)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1860	18700	22.08	0.16144
1880	18900	22.19	0.16558
1900	19100	22.40	0.17378

**Remarks:**

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB) + 20dB Attenuator.
3. The value in bold is the worst.

**Channel Bandwidth: 20MHz**

<b>Conducted Output Power (16QAM 1 RB ALLOCATED AT THE LOWER EDGE)</b>			
<b>Frequency (MHz)</b>	<b>Channel</b>	<b>Output Power</b>	
		<b>(dBm)</b>	<b>(W)</b>
1860	18700	22.76	0.18880
1880	18900	22.49	0.17742
1900	19100	22.68	0.18535

<b>Conducted Output Power (16QAM 1 RB ALLOCATED AT THE UPPER EDGE)</b>			
<b>Frequency (MHz)</b>	<b>Channel</b>	<b>Output Power</b>	
		<b>(dBm)</b>	<b>(W)</b>
1860	18700	21.84	0.15276
1880	18900	22.27	0.16866
1900	19100	21.88	0.15417

<b>Conducted Output Power (16QAM 50% RB ALLOCATION CENTERED)</b>			
<b>Frequency (MHz)</b>	<b>Channel</b>	<b>Output Power</b>	
		<b>(dBm)</b>	<b>(W)</b>
1860	18700	21.11	0.12912
1880	18900	21.15	0.13032
1900	19100	21.44	0.13932

<b>Conducted Output Power (16QAM 100% RB ALLOCATION)</b>			
<b>Frequency (MHz)</b>	<b>Channel</b>	<b>Output Power</b>	
		<b>(dBm)</b>	<b>(W)</b>
1860	18700	21.63	0.14555
1880	18900	21.56	0.14322
1900	19100	21.83	0.15241

**Remarks:**

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB) + 20dB Attenuator.
3. The value in bold is the worst.

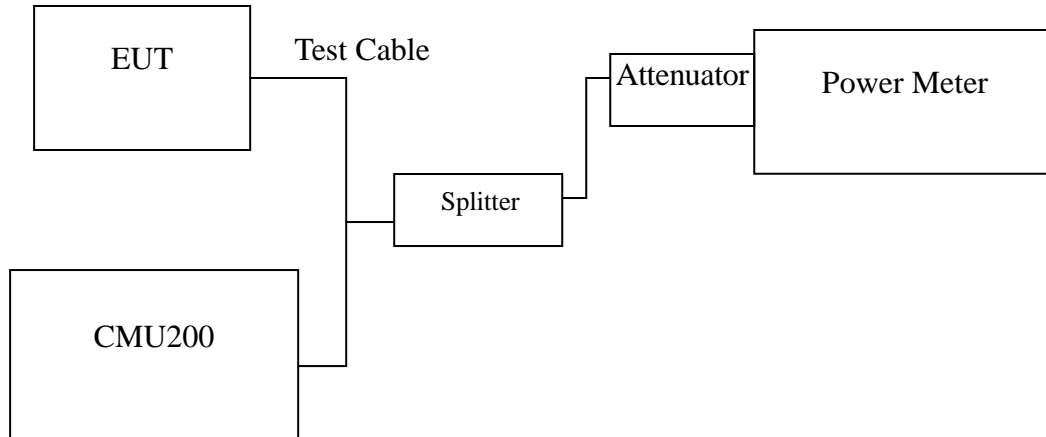


### 7.3 PEAK TO AVERAGE RATIO

#### LIMIT

For reporting purposes only.

#### Test Configuration



*Remark: Measurement setup for testing on Antenna connector*

#### TEST PROCEDURE

The transmitter output was connected to a calibrated attenuator, the other end of which was connected to a power meter. Transmitter output was read off the power meter in dBm. The power output at the transmitter antenna port was determined by adding the value of the attenuator to the power meter reading.

#### TEST RESULTS

*No non-compliance noted.*





**Test Data**

**LTE Band 5**

**CHANNEL BANDWIDTH: 5MHz / QPSK / 100%RB**

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
Low	826.5	6.51
Mid	836	6.70
High	846.5	6.97

**CHANNEL BANDWIDTH: 5MHz / 16QAM / 100%RB**

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
Low	826.5	7.96
Mid	836	7.74
High	846.5	7.75

**CHANNEL BANDWIDTH: 10MHz / QPSK / 100%RB**

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
Low	829	5.06
Mid	836	4.90
High	844	5.30

**CHANNEL BANDWIDTH: 10MHz / 16QAM / 100%RB**

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
Low	829	7.01
Mid	836	7.19
High	844	6.94



**LTE Band 2**

**CHANNEL BANDWIDTH: 5MHz / QPSK / 100%RB**

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
Low	1852.5	6.31
Mid	1880	6.09
High	1907.5	6.74

**CHANNEL BANDWIDTH: 5MHz / 16QAM / 100%RB**

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
Low	1852.5	8.18
Mid	1880	7.93
High	1907.5	7.11

**CHANNEL BANDWIDTH: 10MHz / QPSK / 100%RB**

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
Low	1855	5.00
Mid	1880	5.78
High	1905	4.99

**CHANNEL BANDWIDTH: 10MHz / 16QAM / 100%RB**

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
Low	1855	7.01
Mid	1880	7.01
High	1905	7.04



**CHANNEL BANDWIDTH: 20MHz / QPSK / 100%RB**

<b>Channel</b>	<b>FREQUENCY (MHz)</b>	<b>PEAK TO AVERAGE RATIO (dB)</b>
Low	1860	7.35
Mid	1880	8.05
High	1900	7.59

**CHANNEL BANDWIDTH: 20MHz / 16QAM / 100%RB**

<b>Channel</b>	<b>FREQUENCY (MHz)</b>	<b>PEAK TO AVERAGE RATIO (dB)</b>
Low	1860	8.48
Mid	1880	8.87
High	1900	8.14



## 7.4 ERP & EIRP MEASUREMENT

### LIMIT

According to FCC §2.1046

FCC 22.913(b): The Effective Radiated Power (ERP) of mobile transmitters must not exceed 7 Watts.

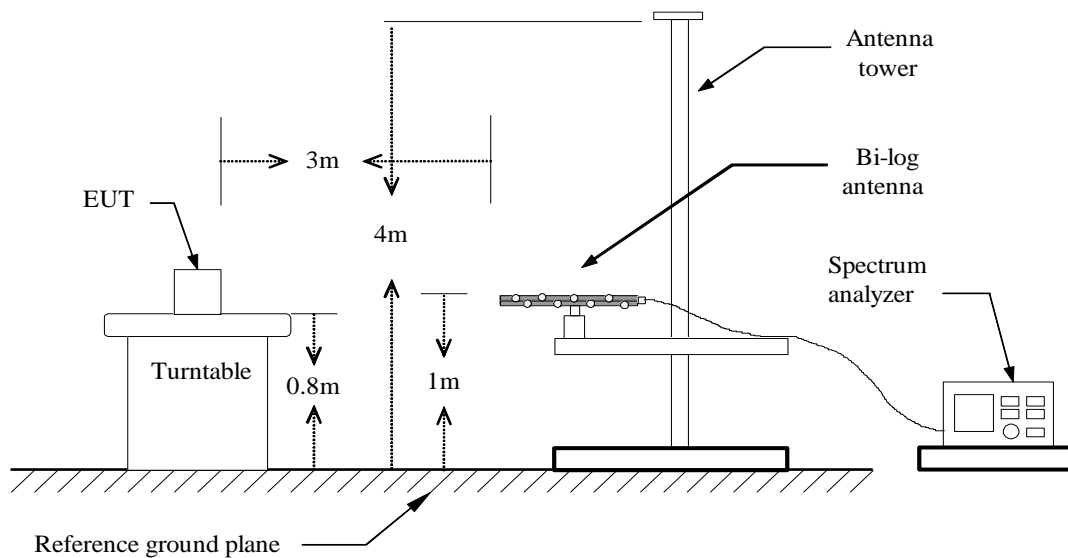
RSS-132 § 4.4 The maximum (ERP) shall be 6.3 Watts for mobile stations.

FCC 24.232(b): The equivalent Isotropic Radiated Power (EIRP) must not exceed 2 Watts.

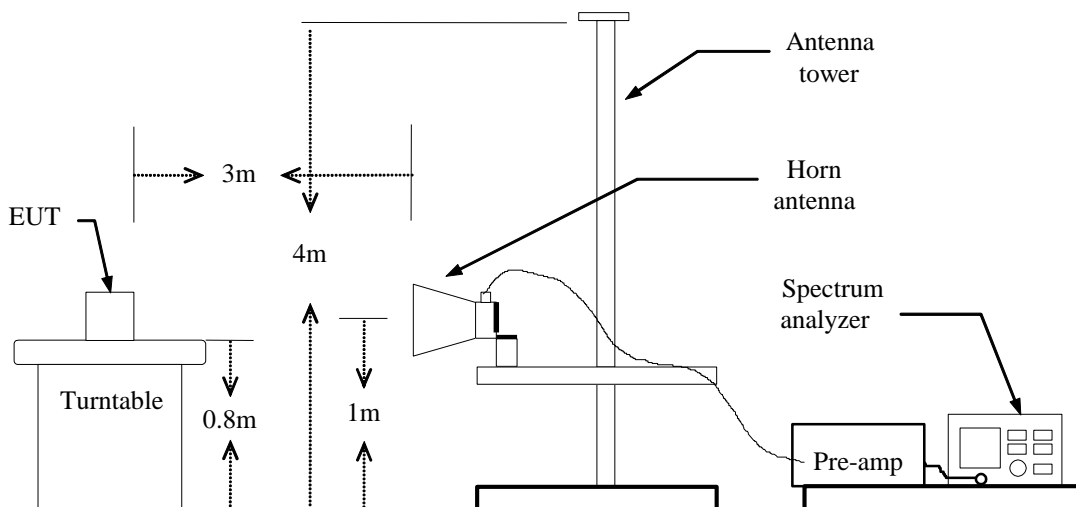
RSS133 § 6.4: Mobile stations and hand-held portables are limited to 2 watts maximum (EIRP).

### Test Configuration

#### Below 1 GHz

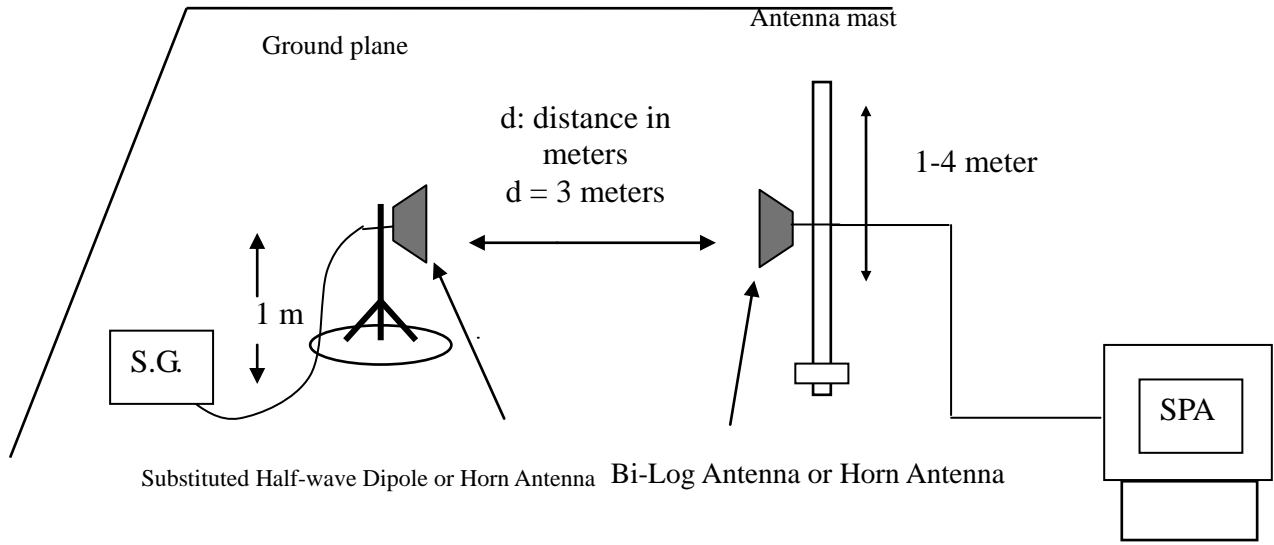


#### Above 1 GHz





### For Substituted Method Test Set-UP



### TEST PROCEDURE

The EUT was placed on a non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer.

During the measurement of the EUT, the resolution bandwidth was set to 5MHz and the average bandwidth was set to 50MHz. The highest emission was recorded with the rotation of the turntable and the lowering of the test antenna. The reading was recorded and the field strength (E in dBuV/m) was calculated.

ERP in frequency band 824-849MHz, and EIRP in frequency band 1851.25 –1910MHz were measured using a substitution method. The EUT was replaced by half-wave dipole (824-849MHz) or horn antenna (1851.25-1910MHz) connected to a signal generator. The spectrum analyzer reading was recorded and ERP/EIRP was calculated as follows:

$$\text{ERP} = \text{S.G. output (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable (dB)} - 2.15$$

$$\text{EIRP} = \text{S.G. output (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable (dB)}$$

### TEST RESULTS

*No non-compliance noted.*

**LTE BAND 5****Channel Bandwidth: 5MHz / QPSK**

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
20425	827.7200	V	21.13	3.39	6.27	<b>24.01</b>	38.45	-14.44
	825.2700	H	20.5	3.39	6.25	23.36	38.45	-15.09
20520	835.1400	V	20.95	3.4	6.35	23.90	38.45	-14.55
	834.9300	H	18.92	3.4	6.35	21.87	38.45	-16.58
20625	848.2300	V	17.03	3.4	6.4	20.03	38.45	-18.42
	846.9700	H	20.34	3.4	6.4	23.34	38.45	-15.11

**Channel Bandwidth: 5MHz / 16QAM**

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
20425	825.9700	V	22.52	3.39	6.26	<b>25.39</b>	38.45	-13.06
	825.9000	H	21.69	3.39	6.26	24.56	38.45	-13.89
20520	836.5400	V	21.89	3.4	6.36	24.85	38.45	-13.60
	836.7500	H	19.17	3.4	6.37	22.14	38.45	-16.31
20625	846.9000	V	22.36	3.4	6.4	25.36	38.45	-13.09
	846.2000	H	18.18	3.4	6.4	21.18	38.45	-17.27

**Remark:**

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = S.G Level + Gain of Substitution horn + TX cable loss.
3. The value in bold is the worst.

**Channel Bandwidth: 10MHz / QPSK**

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
20450	825.4800	V	20.12	3.39	6.25	22.98	38.45	-15.47
	825.8300	H	18.69	3.39	6.25	21.55	38.45	-16.90
20520	840.1100	V	19.9	3.41	6.4	22.89	38.45	-15.56
	833.1800	H	17.26	3.4	6.33	20.19	38.45	-18.26
20600	841.0900	V	20.65	3.41	6.4	<b>23.64</b>	38.45	-14.81
	840.8100	H	16.91	3.41	6.4	19.90	38.45	-18.55

**Channel Bandwidth: 10MHz / 16QAM**

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
20450	825.7600	V	21.02	3.39	6.25	23.88	38.45	-14.57
	826.4600	H	20.28	3.39	6.26	23.15	38.45	-15.30
20520	839.9700	V	20.58	3.41	6.4	23.57	38.45	-14.88
	833.6700	H	18.43	3.4	6.34	21.37	38.45	-17.08
20600	840.6000	V	21.31	3.41	6.4	<b>24.30</b>	38.45	-14.15
	840.1100	H	18.17	3.41	6.4	21.16	38.45	-17.29

**Remark:**

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = S.G Level + Gain of Substitution horn + TX cable loss.
3. The value in bold is the worst.

**LTE BAND 2****Channel Bandwidth: 5MHz / QPSK**

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
18625	1854.480	V	17.45	5.38	5.66	17.73	33.00	-15.27
	1854.000	H	25.76	5.38	5.66	26.04	33.00	-6.96
18900	1878.720	V	5.42	5.62	17.60	<b>33.00</b>	-15.40	17.4
	1879.080	H	26.12	5.42	5.62	26.32	33.00	-6.68
19175	1905.960	V	17.99	5.47	5.57	18.09	33.00	-14.91
	1905.840	H	27.87	5.47	5.57	27.97	33.00	-5.03

**Channel Bandwidth: 5MHz / 16QAM**

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
18625	1853.040	V	18.2	5.37	5.66	18.49	33.00	-14.51
	1853.880	H	26.11	5.38	5.66	26.39	33.00	-6.61
18900	1878.600	V	17.54	5.42	5.62	17.74	33.00	-15.26
	1879.080	H	26.38	5.42	5.62	26.58	33.00	-6.42
19175	1906.080	V	18.51	5.47	5.57	18.61	33.00	-14.39
	1906.200	H	28.02	5.47	5.57	<b>28.12</b>	33.00	-4.88

**Remark:**

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = S.G Level + Gain of Substitution horn + TX cable loss.
3. The value in bold is the worst.





**Channel Bandwidth: 10MHz / QPSK**

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
18650	1858.080	V	16.7	5.38	5.66	16.98	33.00	-16.02
	1858.080	H	25.48	5.38	5.66	25.76	33.00	-7.24
18900	1876.680	V	16.41	5.41	5.62	16.62	33.00	-16.38
	1876.440	H	25.45	5.41	5.62	25.66	33.00	-7.34
19150	1901.520	V	17.68	5.45	5.58	17.81	33.00	-15.19
	1901.280	H	26.92	5.45	5.58	<b>27.05</b>	33.00	-5.95

**Channel Bandwidth: 10MHz / 16QAM**

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
18650	1857.720	V	16.75	5.38	5.66	17.03	33.00	-15.97
	1851.960	H	24.9	5.37	5.67	25.20	33.00	-7.80
18900	1876.320	V	21.22	5.41	5.62	21.43	33.00	-11.57
	1877.160	H	16.41	5.41	5.62	16.62	33.00	-16.38
19150	1902.360	V	17.62	5.46	5.58	17.74	33.00	-15.26
	1901.280	H	27.59	5.45	5.58	<b>27.72</b>	33.00	-5.28

**Remark:**

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = S.G Level + Gain of Substitution horn + TX cable loss.
3. The value in bold is the worst.

**Channel Bandwidth: 20MHz / QPSK**

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
18700	1867.560	V	16.6	5.4	5.64	16.84	33.00	-16.16
	1866.480	H	25.24	5.4	5.64	25.48	33.00	-7.52
18900	1872.600	V	16.25	5.41	5.63	16.47	33.00	-16.53
	1872.720	H	25.24	5.41	5.63	25.46	33.00	-7.54
19100	1900.080	V	16.45	5.45	5.58	16.58	33.00	-16.42
	1900.200	H	26.06	5.45	5.58	<b>26.19</b>	33.00	-6.81

**Channel bandwidth: 20MHz / 16QAM**

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
18700	1863.480	V	16.18	5.39	5.65	16.44	33.00	-16.56
	1866.000	H	25.21	5.4	5.64	25.45	33.00	-7.55
18900	1872.720	V	16.39	5.41	5.63	16.61	33.00	-16.39
	1872.120	H	24.75	5.41	5.63	24.97	33.00	-8.03
19100	1899.960	V	16.19	5.45	5.58	16.32	33.00	-16.68
	1900.320	H	25.7	5.45	5.58	<b>25.83</b>	33.00	-7.17

**Remark:**

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = S.G Level + Gain of Substitution horn + TX cable loss.
3. The value in bold is the worst.



## 7.5 OUT OF BAND EMISSION AT ANTENNA TERMINALS

### LIMIT

According to FCC §2.1051, FCC §22.917, FCC §24.238(a), RSS-132 (4.5.2), RSS-133 (6.6).

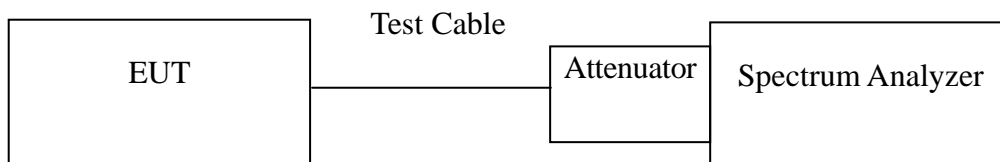
**Out of Band Emissions:** The mean power of emission must be attenuated below the mean power of the non-modulated carrier (P) on any frequency twice or more than twice the fundamental frequency by at least  $43 + 10 \log P$  dB.

**Mobile Emissions in Base Frequency Range:** The mean power of any emissions appearing in the base station frequency range from cellular mobile transmitters operated must be attenuated to a level not exceed  $-80$  dBm at the transmit antenna connector.

**Band Edge Requirements:** In the 1MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1% of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the Out of band Emission

### Test Configuration

**Out of band emission at antenna terminals:**



### TEST PROCEDURE

The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic.

For the out of band: Set the RBW, VBW = 1MHz, Start=30MHz, Stop= 10 th harmonic. Limit = -13dBm

Band Edge Requirements (824 MHz and 849 MHz /1850MHz and 1910MHz): In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions. Limit, -13dBm.

### TEST RESULTS

*No non-compliance noted.*



**Test Data**

**LTE Band 5**

**Channel Bandwidth: 5MHz / QPSK**

Mode	CH	Location	Description
LTE Band 5	20425	Figure 7-1	Conducted spurious emissions, 30MHz - 20GHz
	20520	Figure 7-2	Conducted spurious emissions, 30MHz - 20GHz
	20625	Figure 7-3	Conducted spurious emissions, 30MHz - 20GHz

**Channel Bandwidth: 5MHz / 16QAM**

Mode	CH	Location	Description
LTE Band 5	20425	Figure 8-1	Conducted spurious emissions, 30MHz - 20GHz
	20520	Figure 8-2	Conducted spurious emissions, 30MHz - 20GHz
	20625	Figure 8-3	Conducted spurious emissions, 30MHz - 20GHz

**Channel Bandwidth: 10MHz / QPSK**

Mode	CH	Location	Description
LTE Band 5	20450	Figure 9-1	Conducted spurious emissions, 30MHz - 20GHz
	20520	Figure 9-2	Conducted spurious emissions, 30MHz - 20GHz
	20600	Figure 9-3	Conducted spurious emissions, 30MHz - 20GHz

Mode	CH	Location	Description
LTE Band 5	20450	Figure 10-1	Band Edge emissions
	20600	Figure 10-2	Band Edge emissions

**Channel Bandwidth: 10MHz / 16QAM**

Mode	CH	Location	Description
LTE Band 5	20450	Figure 11-1	Conducted spurious emissions, 30MHz - 20GHz
	20520	Figure 11-2	Conducted spurious emissions, 30MHz - 20GHz
	20600	Figure 11-3	Conducted spurious emissions, 30MHz - 20GHz

Mode	CH	Location	Description
LTE Band 5	20450	Figure 12-1	Band Edge emissions
	20600	Figure 12-2	Band Edge emissions



**LTE Band 2**

**Channel Bandwidth: 5MHz / QPSK**

Mode	CH	Location	Description
LTE Band 2	18625	Figure 13-1	Conducted spurious emissions, 30MHz - 20GHz
	18900	Figure 13-2	Conducted spurious emissions, 30MHz - 20GHz
	19175	Figure 13-3	Conducted spurious emissions, 30MHz - 20GHz

**Channel Bandwidth: 5MHz / 16QAM**

Mode	CH	Location	Description
LTE Band 2	18625	Figure 14-1	Conducted spurious emissions, 30MHz - 20GHz
	18900	Figure 14-2	Conducted spurious emissions, 30MHz - 20GHz
	19175	Figure 14-3	Conducted spurious emissions, 30MHz - 20GHz

**Channel Bandwidth: 10MHz / QPSK**

Mode	CH	Location	Description
LTE Band 2	18650	Figure 15-1	Conducted spurious emissions, 30MHz - 20GHz
	18900	Figure 15-2	Conducted spurious emissions, 30MHz - 20GHz
	19150	Figure 15-3	Conducted spurious emissions, 30MHz - 20GHz

**Channel Bandwidth: 10MHz / 16QAM**

Mode	CH	Location	Description
LTE Band 2	18650	Figure 16-1	Conducted spurious emissions, 30MHz - 20GHz
	18900	Figure 16-2	Conducted spurious emissions, 30MHz - 20GHz
	19150	Figure 16-3	Conducted spurious emissions, 30MHz - 20GHz



**Channel Bandwidth: 20MHz / QPSK**

Mode	CH	Location	Description
LTE Band 2	18700	Figure 17-1	Conducted spurious emissions, 30MHz - 20GHz
	18900	Figure 17-2	Conducted spurious emissions, 30MHz - 20GHz
	19100	Figure 17-3	Conducted spurious emissions, 30MHz - 20GHz

Mode	CH	Location	Description
LTE Band 2	18700	Figure 18-1	Band Edge emissions
	19100	Figure 18-2	Band Edge emissions

**Channel Bandwidth: 20MHz / 16QAM**

Mode	CH	Location	Description
LTE Band 2	18700	Figure 19-1	Conducted spurious emissions, 30MHz - 20GHz
	18900	Figure 19-2	Conducted spurious emissions, 30MHz - 20GHz
	19100	Figure 19-3	Conducted spurious emissions, 30MHz - 20GHz

Mode	CH	Location	Description
LTE Band 2	18700	Figure 20-1	Band Edge emissions
	19100	Figure 20-2	Band Edge emissions



**Test Plot**

**LTE Band 5**

**Channel Bandwidth: 5MHz / QPSK**

Figure 7-1: Out of Band emission at antenna terminals – CH Low

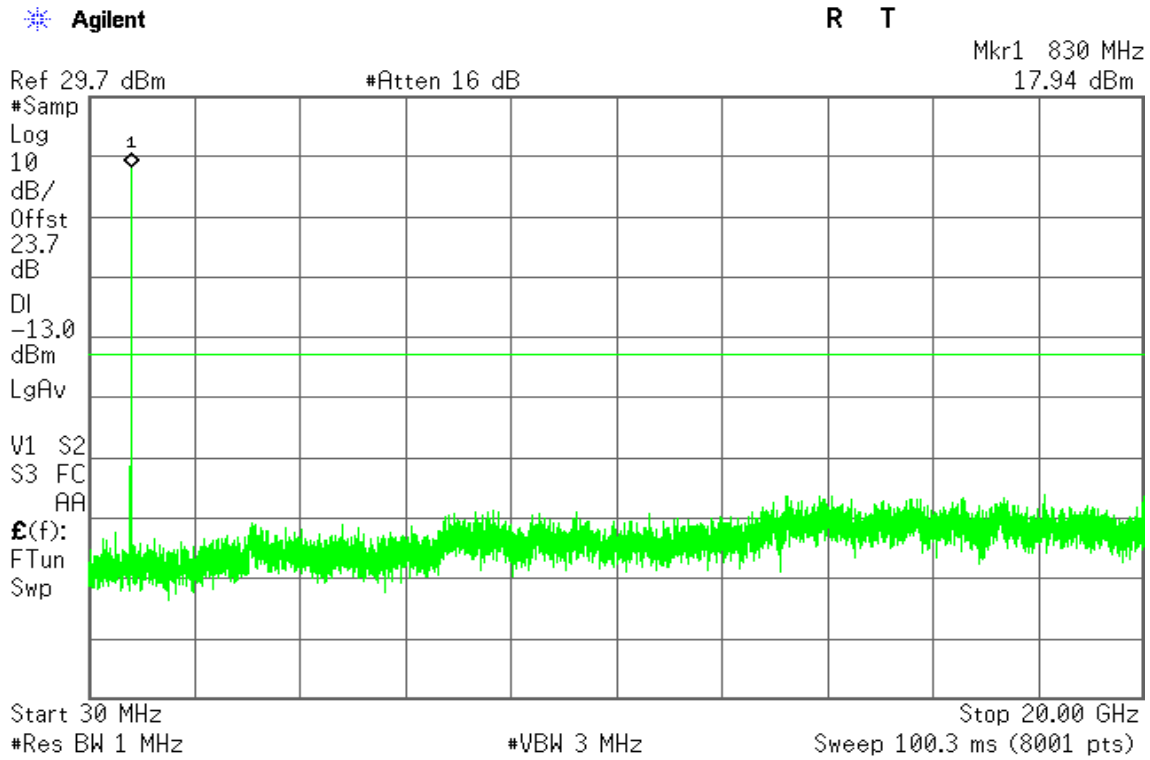


Figure 7-2: Out of Band emission at antenna terminals – CH Mid

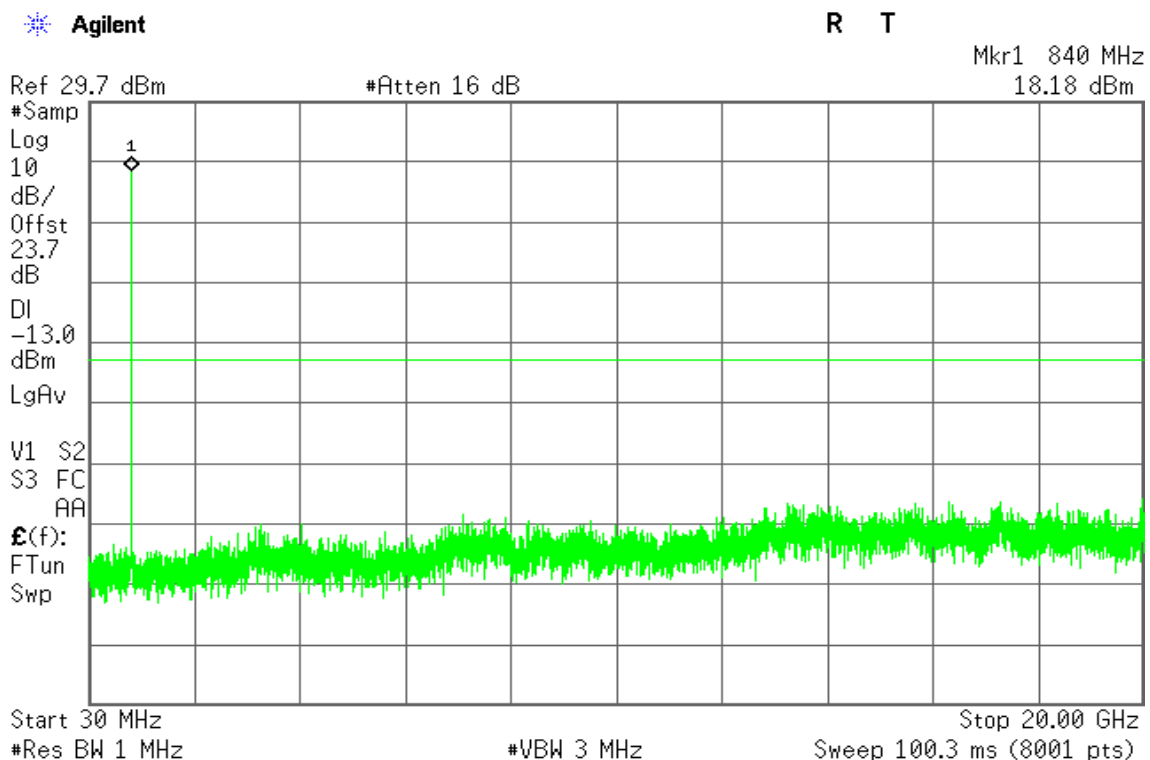
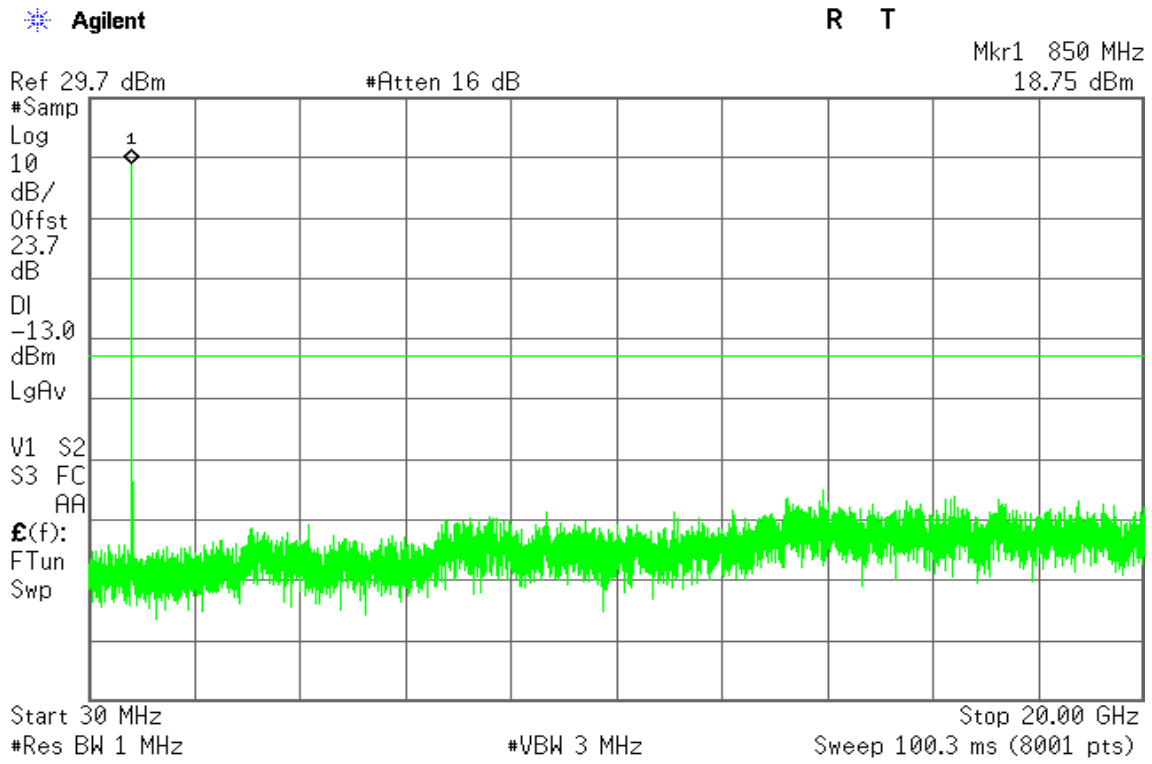




Figure 7-3: Out of Band emission at antenna terminals – CH High







**LTE Band 5**

**Channel Bandwidth: 5MHz / 16QAM**

Figure 8-1: Out of Band emission at antenna terminals – CH Low

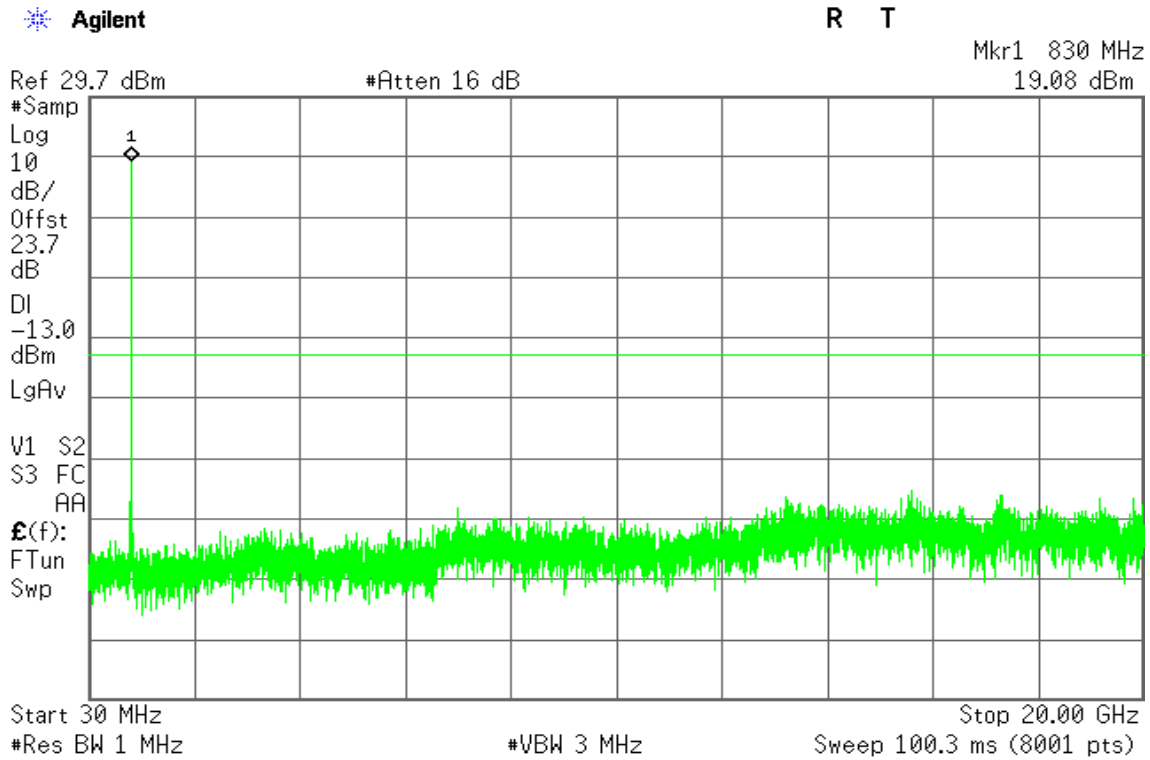


Figure 8-2: Out of Band emission at antenna terminals – CH Mid

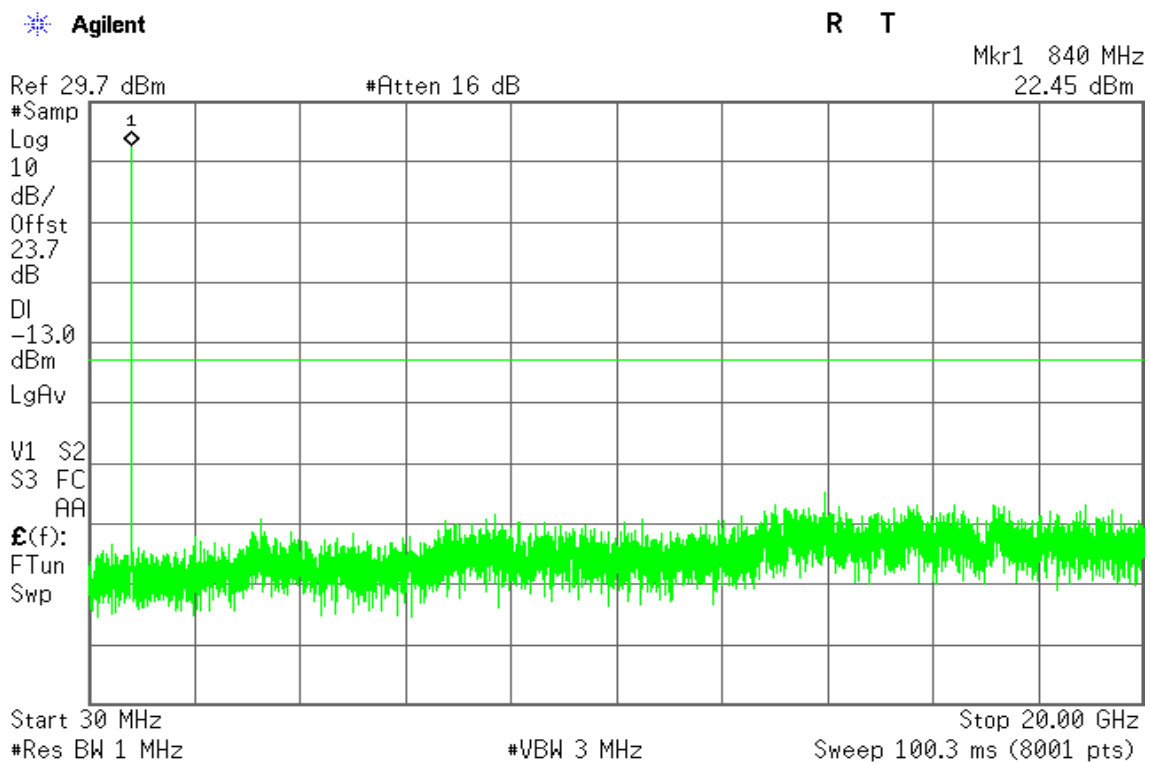
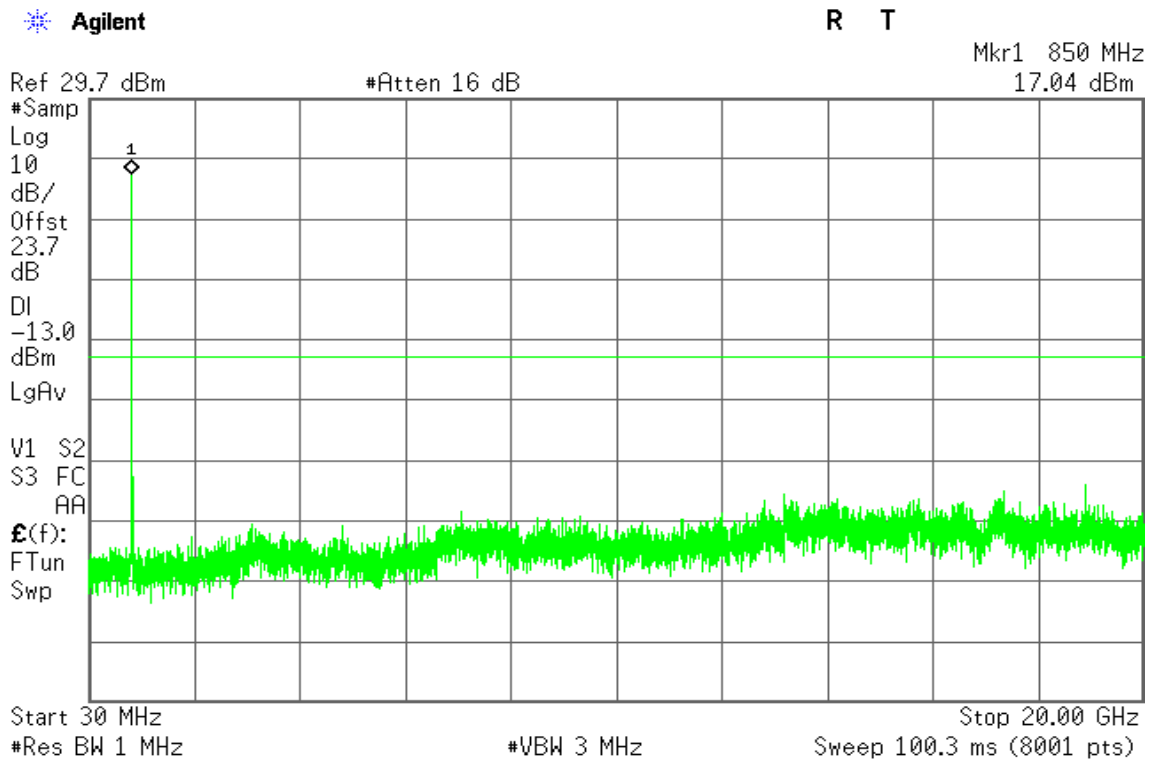




Figure 8-3: Out of Band emission at antenna terminals – CH High





**LTE Band 5**

**Channel Bandwidth: 10MHz / QPSK**

Figure 9-1: Out of Band emission at antenna terminals – CH Low

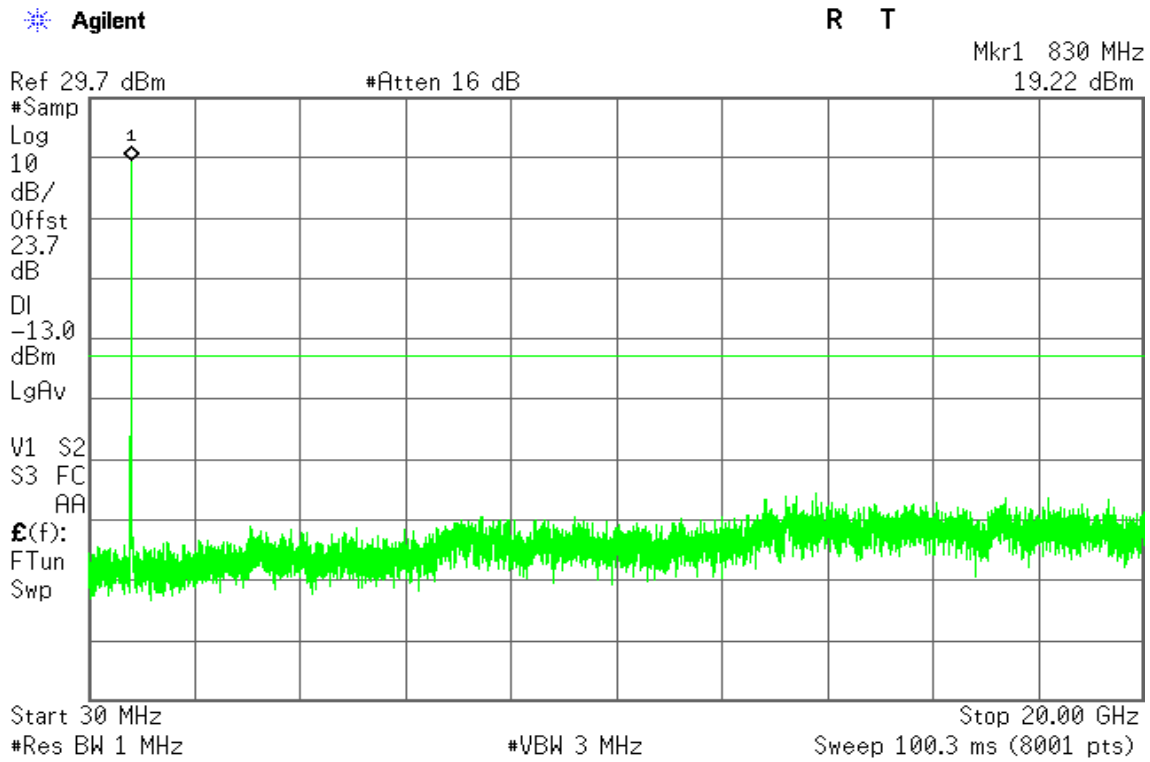


Figure 9-2: Out of Band emission at antenna terminals – CH Mid

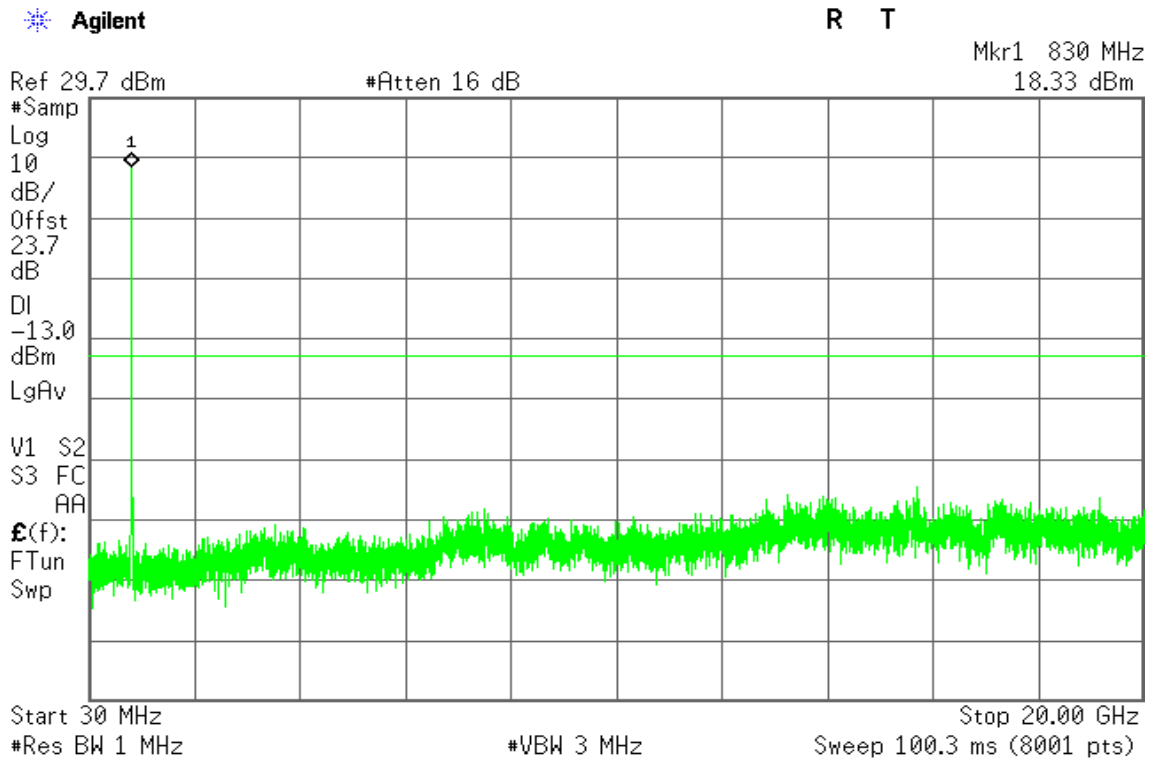




Figure 9-3: Out of Band emission at antenna terminals – CH High

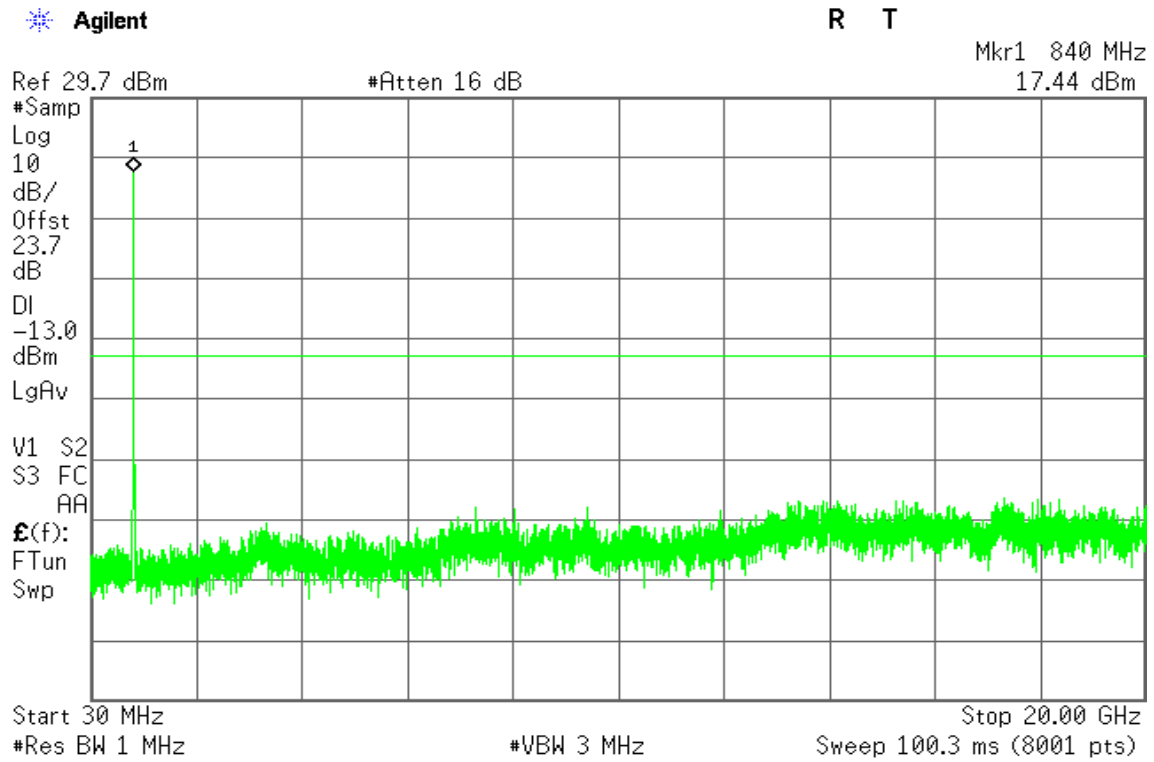




Figure 10-1: Band Edge emissions – CH Low

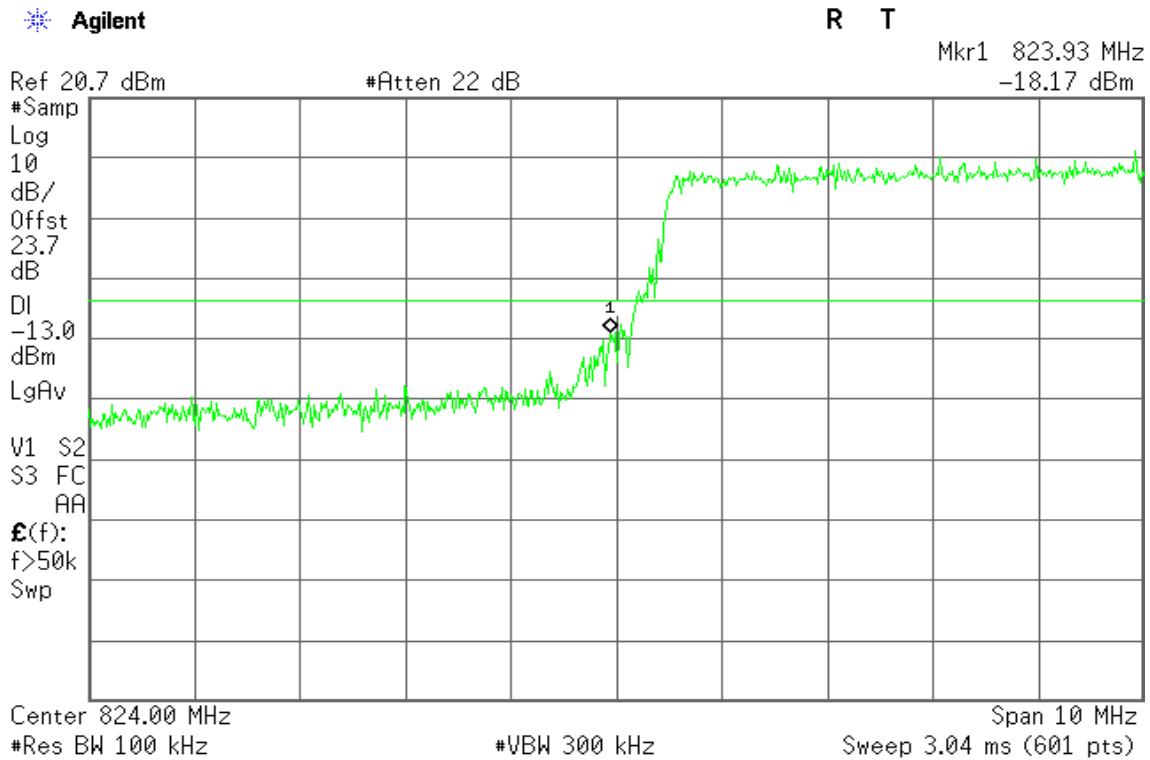
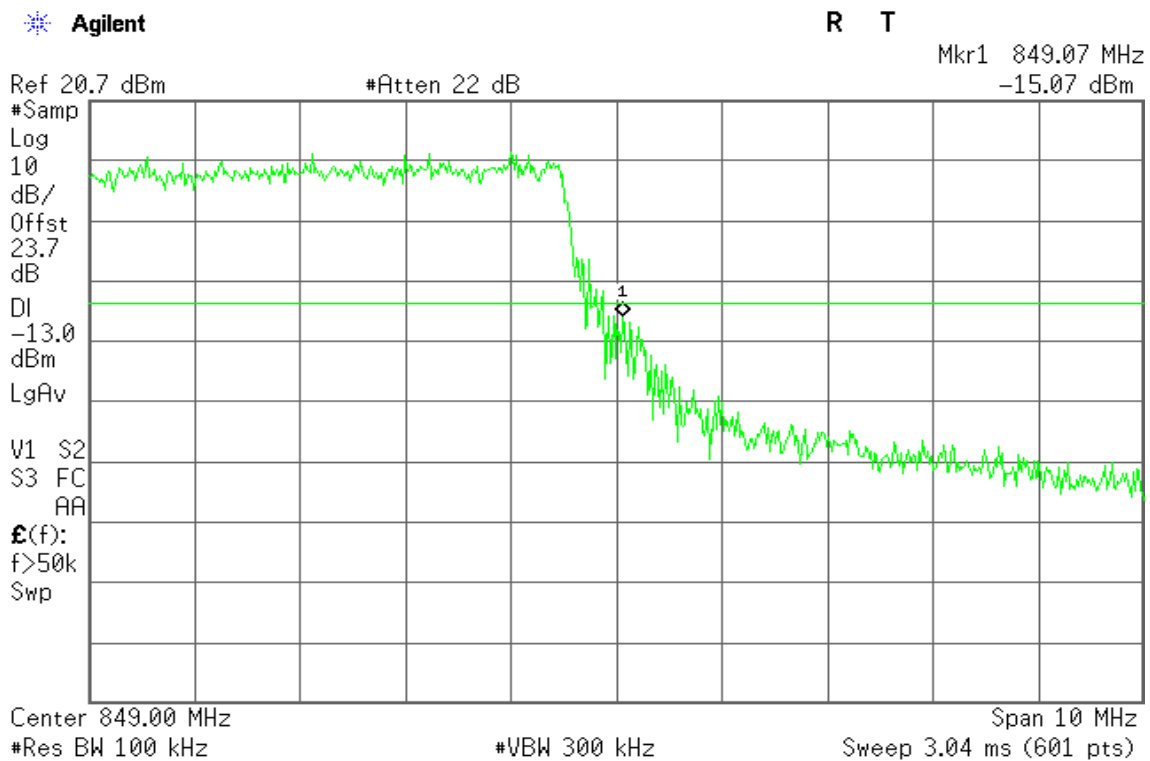


Figure 10-2: Band Edge emissions – CH High





**LTE Band 5**

**Channel Bandwidth: 10MHz / 16QAM**

Figure 11-1: Out of Band emission at antenna terminals – CH Low

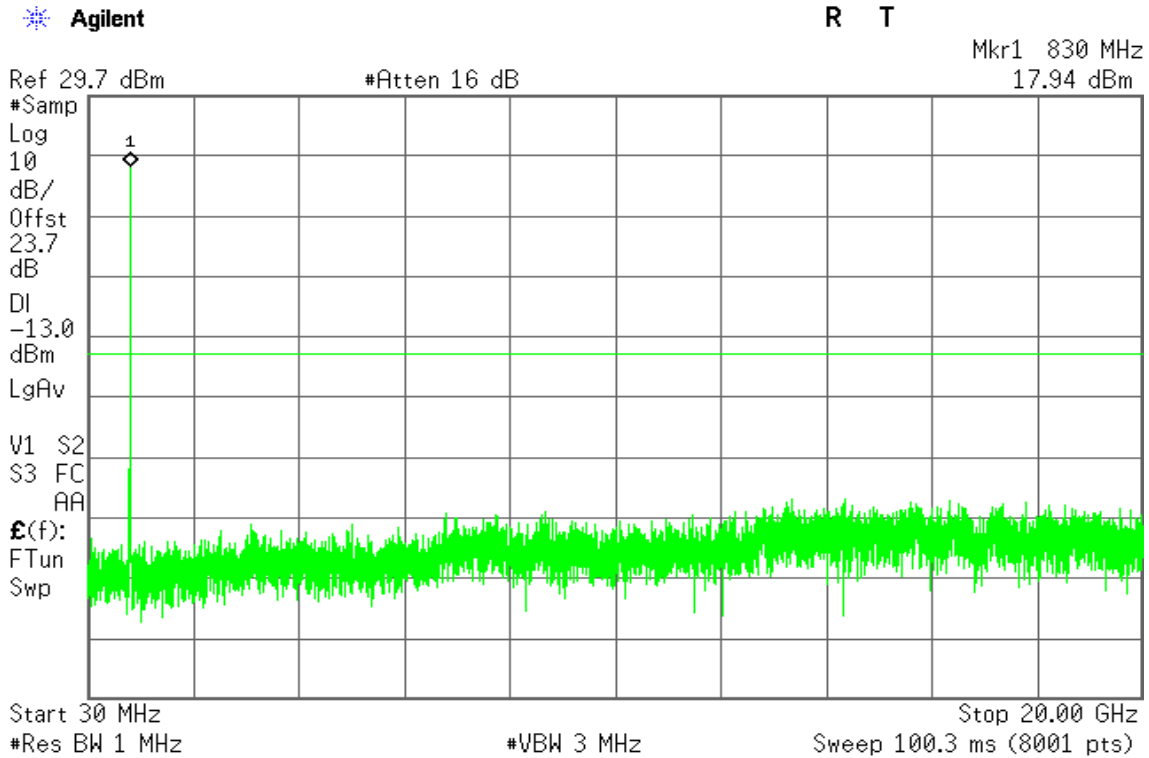


Figure 11-2: Out of Band emission at antenna terminals – CH Mid

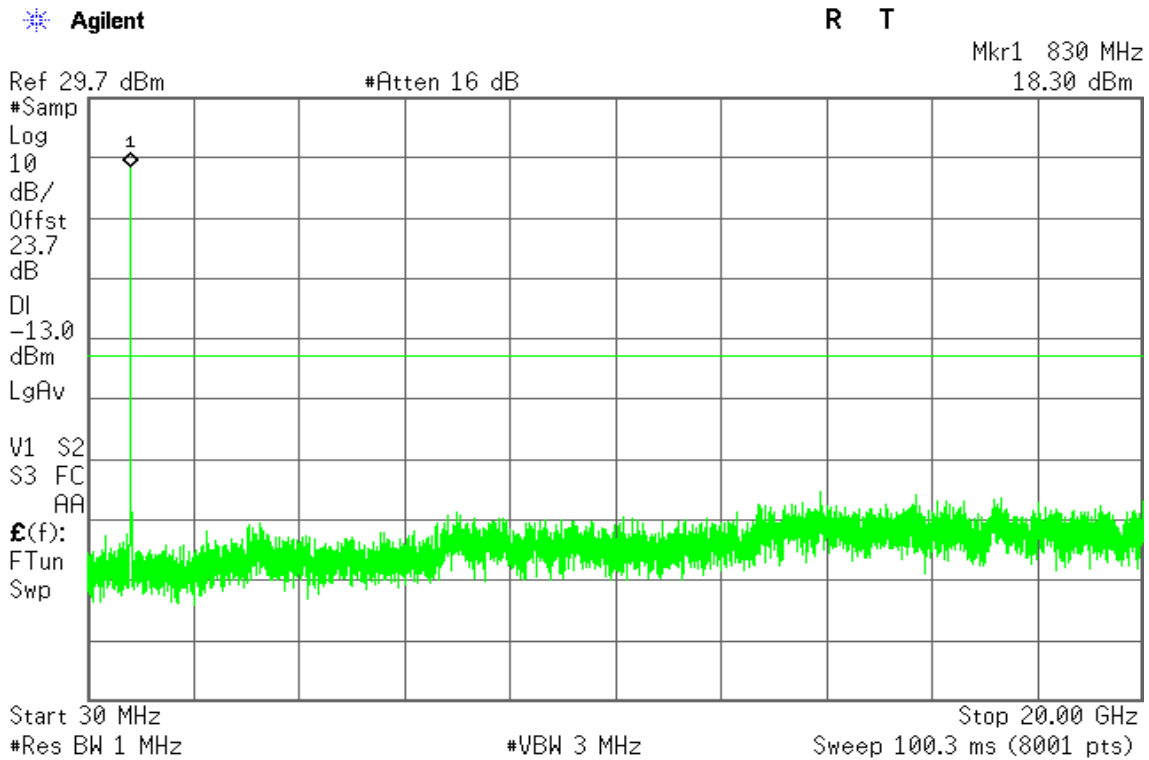




Figure 11-3: Out of Band emission at antenna terminals – CH High

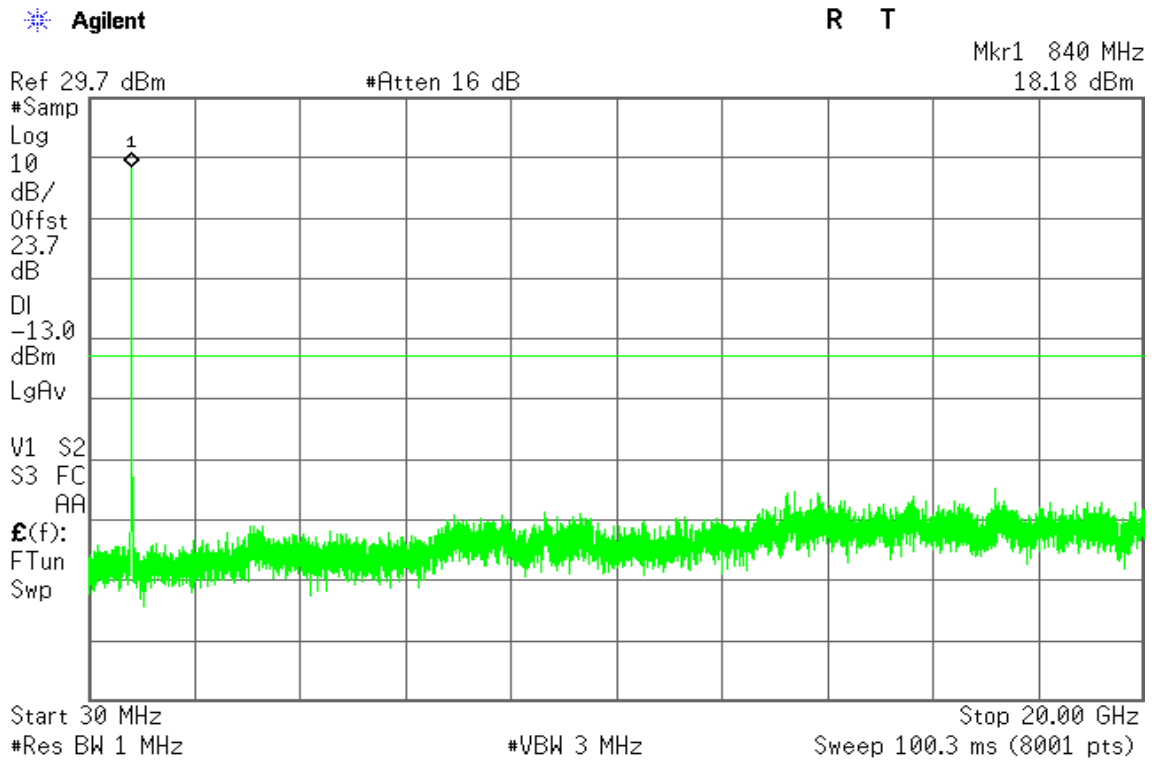




Figure 12-1: Band Edge emissions – CH Low

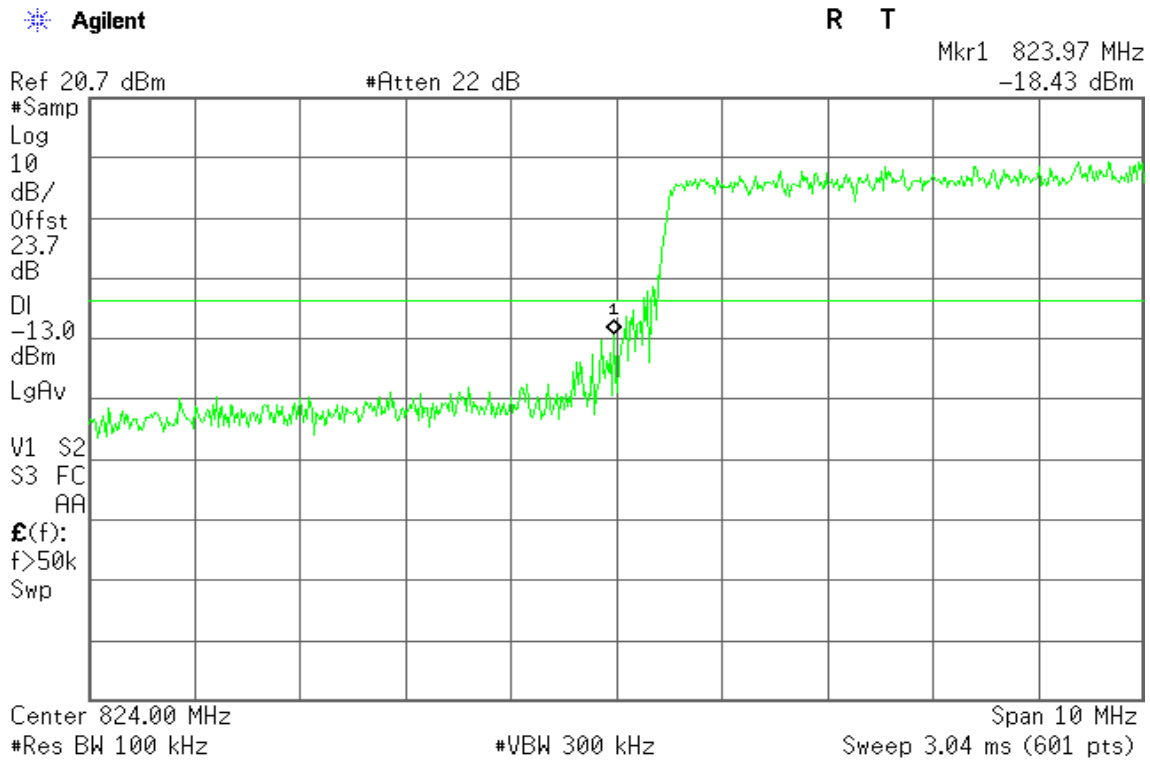
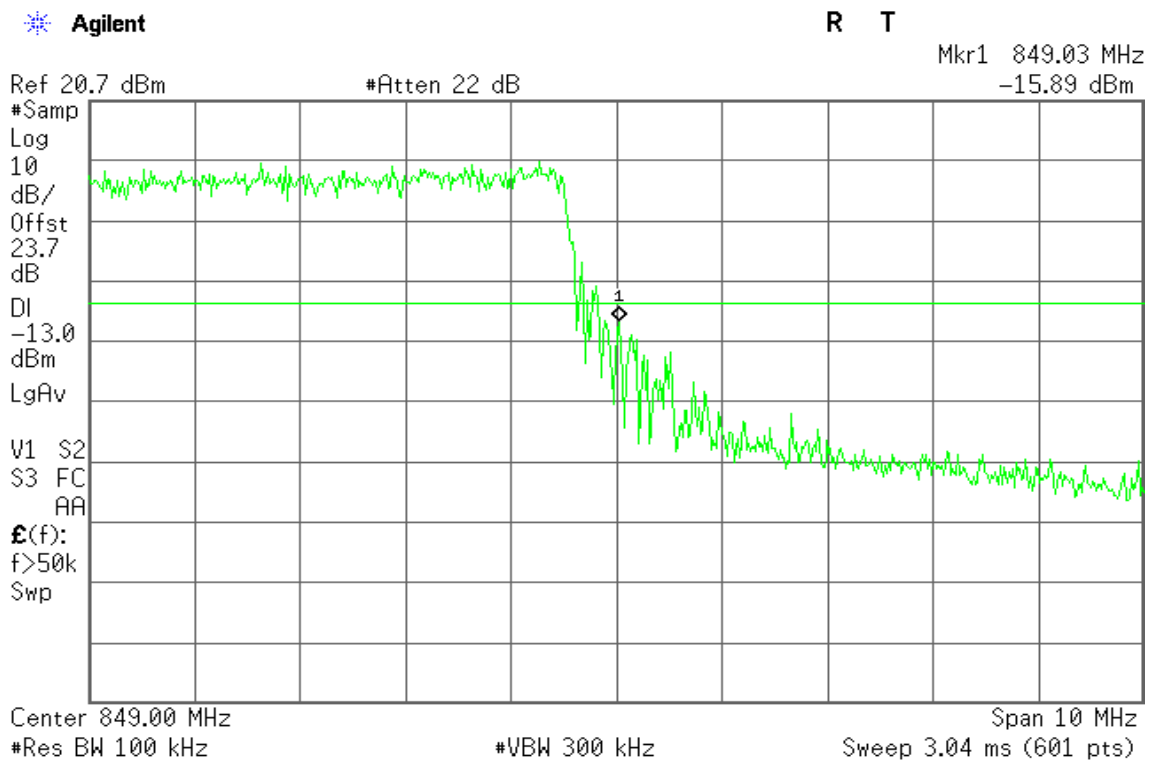


Figure 12-2: Band Edge emissions – CH High







**LTE Band 2**

**Channel Bandwidth: 5MHz / QPSK**

Figure 13-1: Out of Band emission at antenna terminals – CH Low

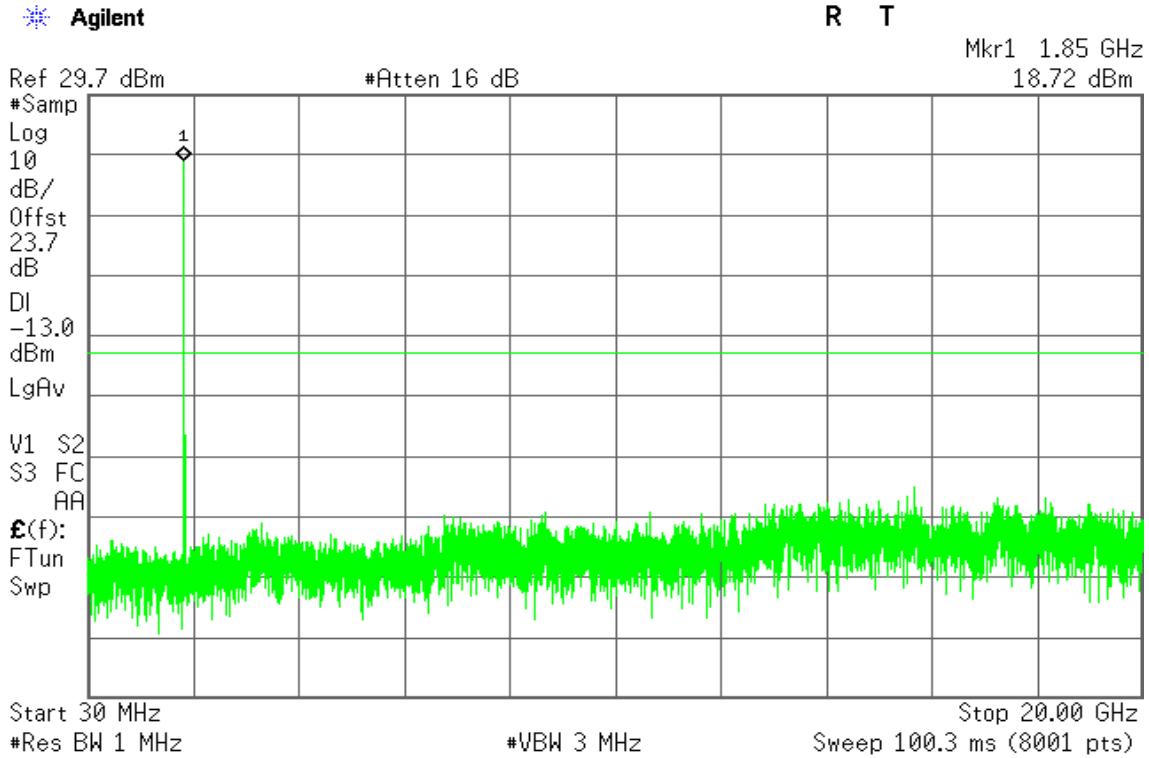


Figure 13-2: Out of Band emission at antenna terminals – CH Mid

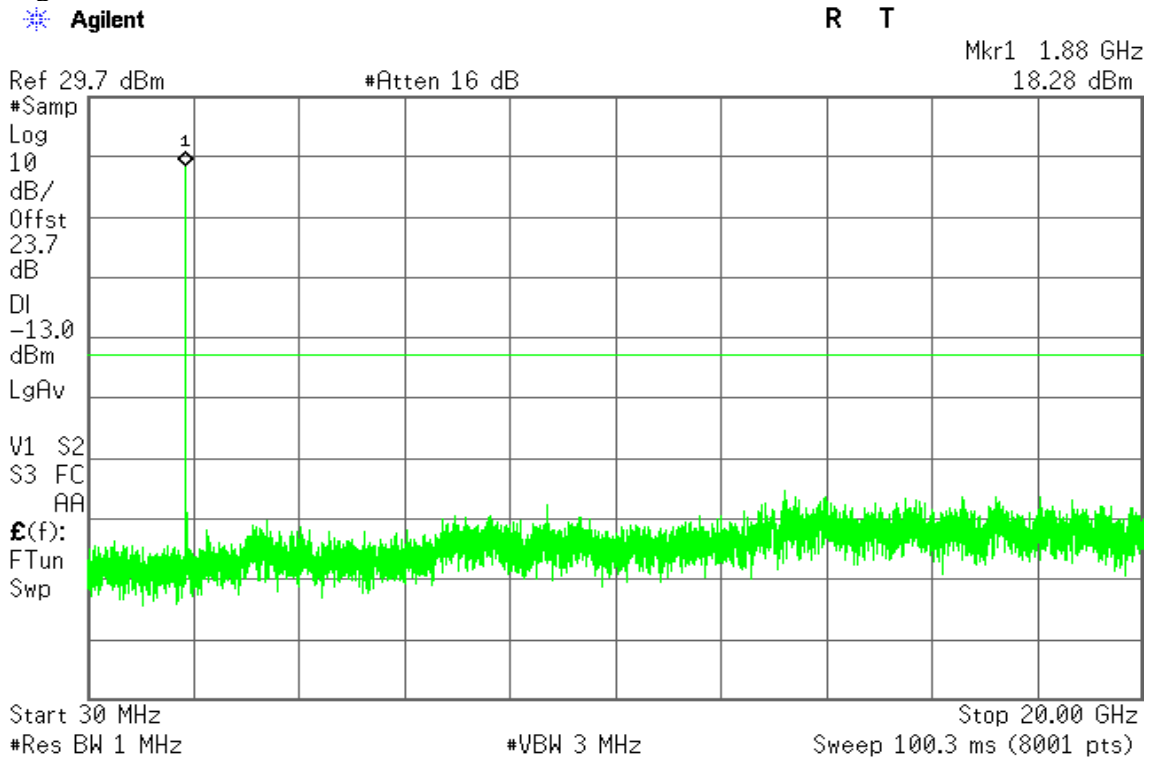
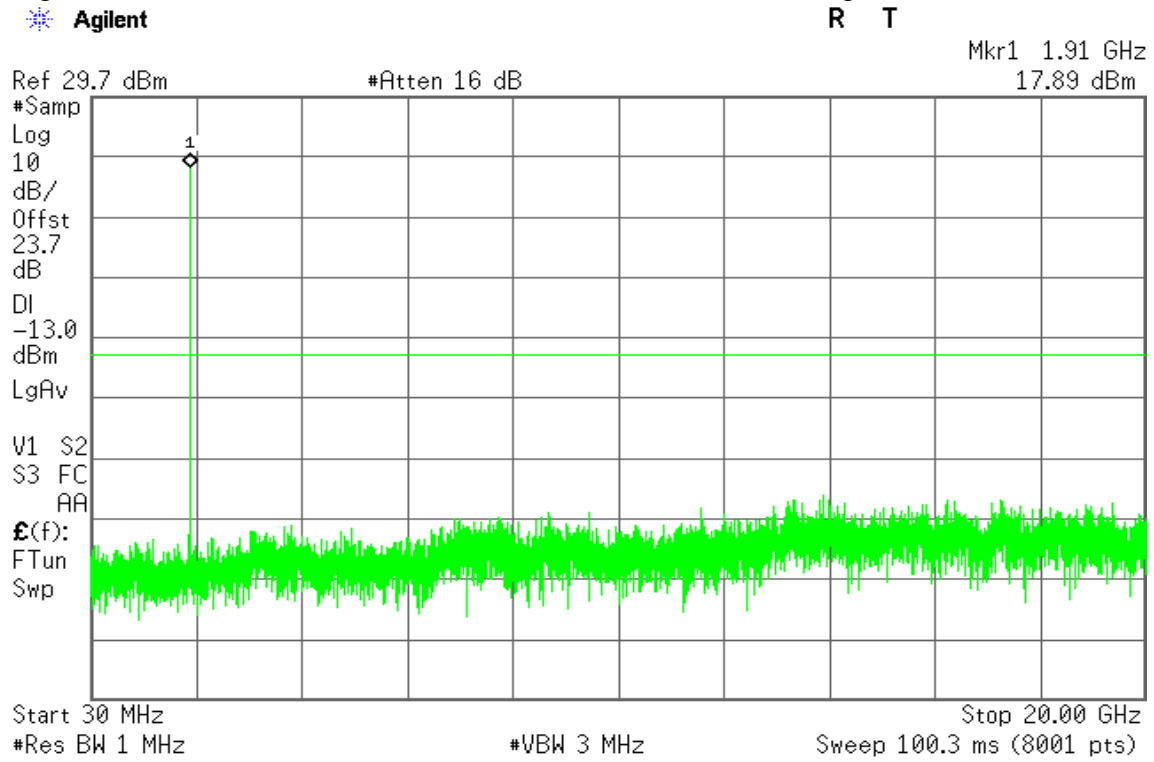




Figure 13-3: Out of Band emission at antenna terminals – CH High





**LTE Band 2**

**Channel Bandwidth: 5MHz / 16QAM**

Figure 14-1: Out of Band emission at antenna terminals – CH Low

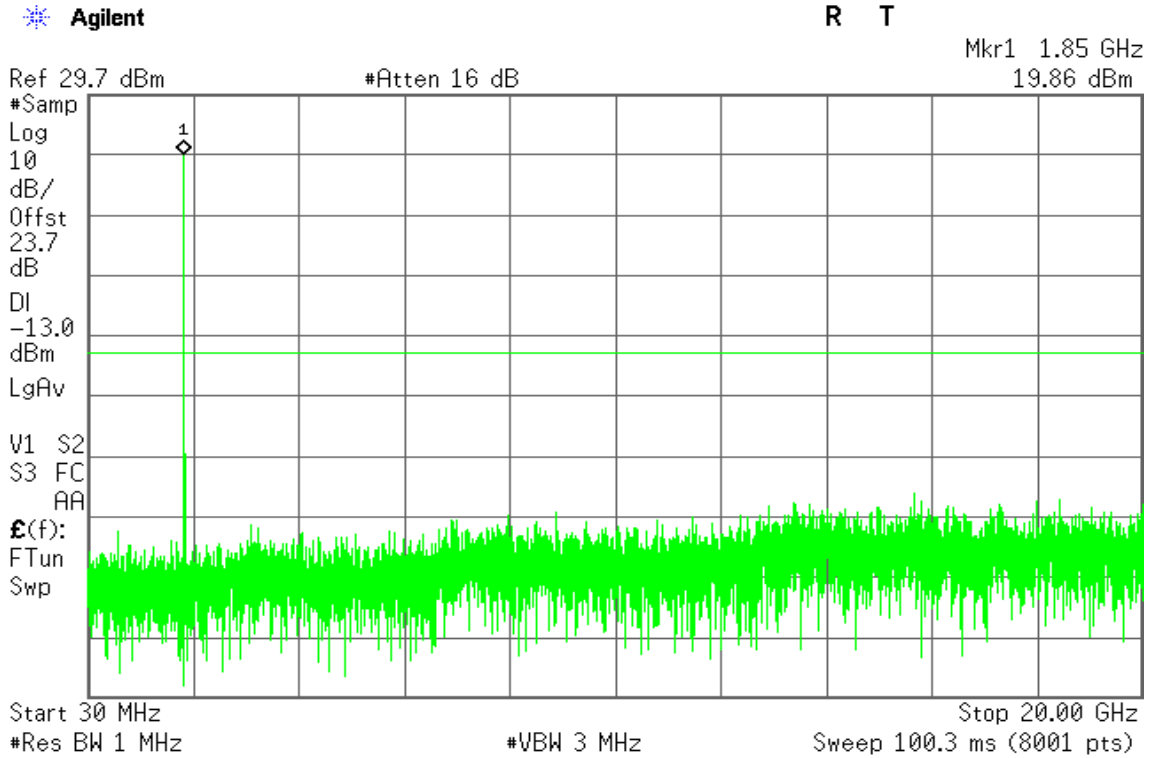


Figure 14-2: Out of Band emission at antenna terminals – CH Mid

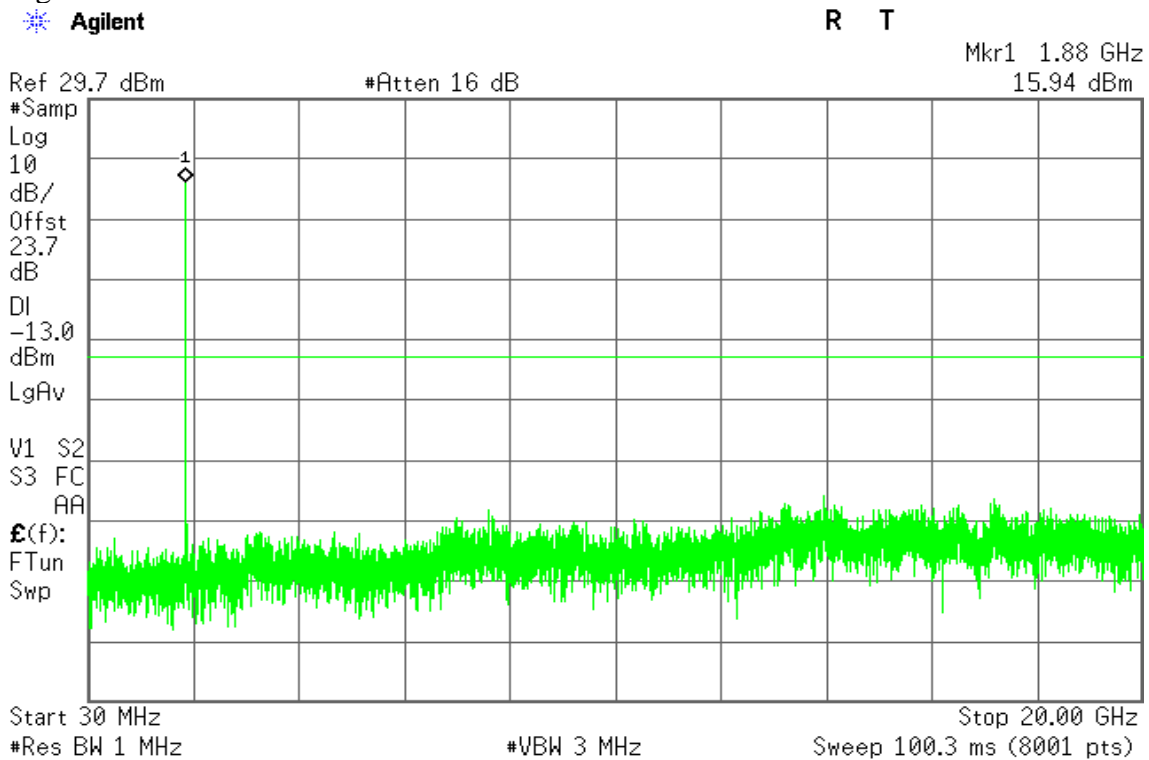
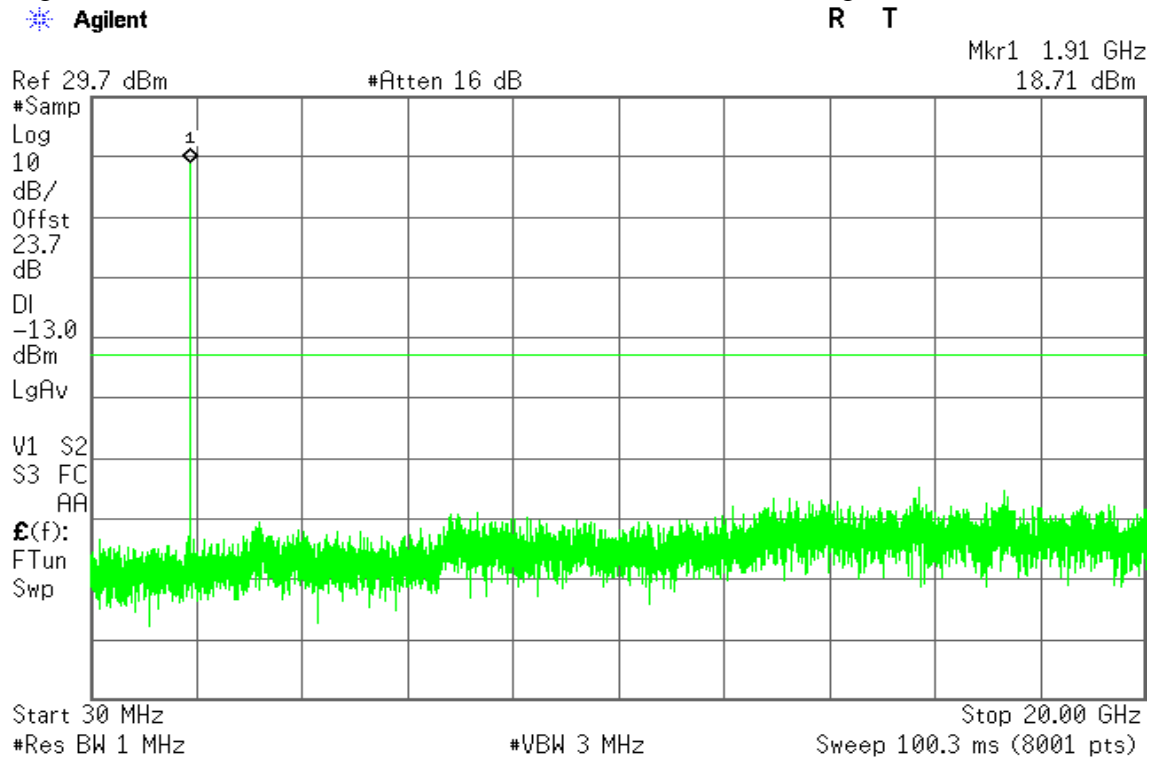




Figure 14-3: Out of Band emission at antenna terminals – CH High





**LTE Band 2**

**Channel Bandwidth: 10MHz / QPSK**

Figure 15-1: Out of Band emission at antenna terminals – CH Low

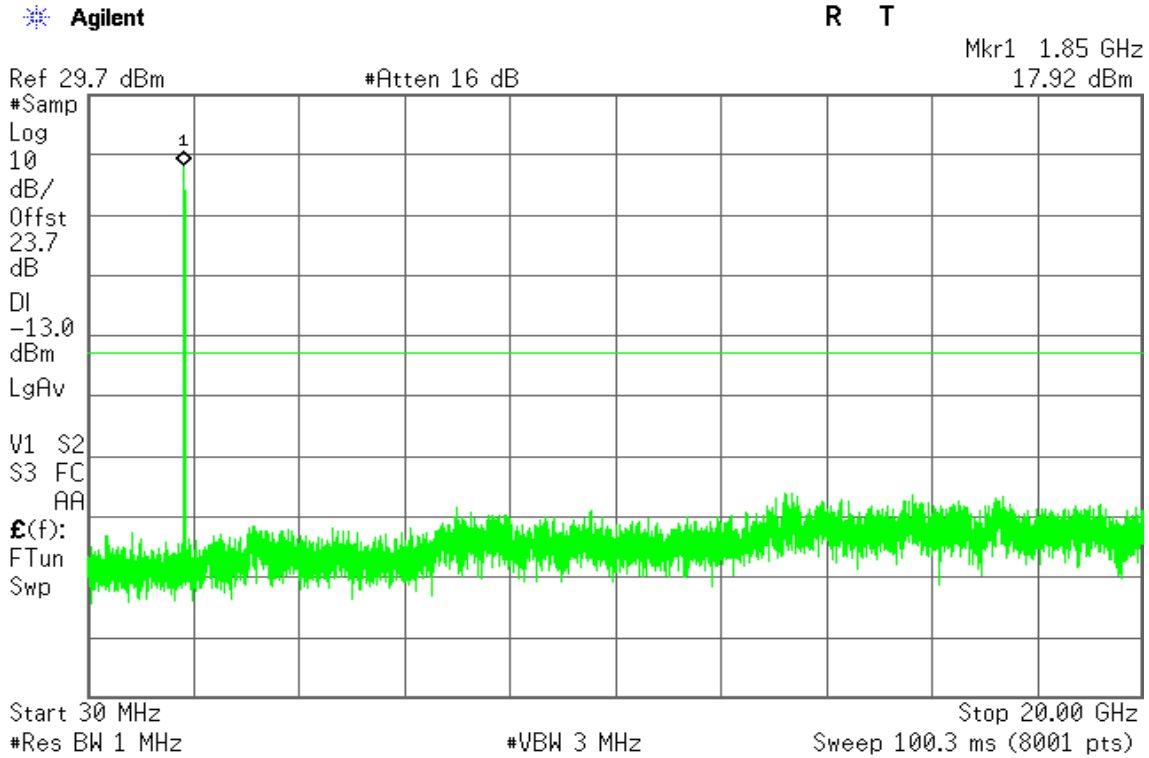


Figure 15-2: Out of Band emission at antenna terminals – CH Mid

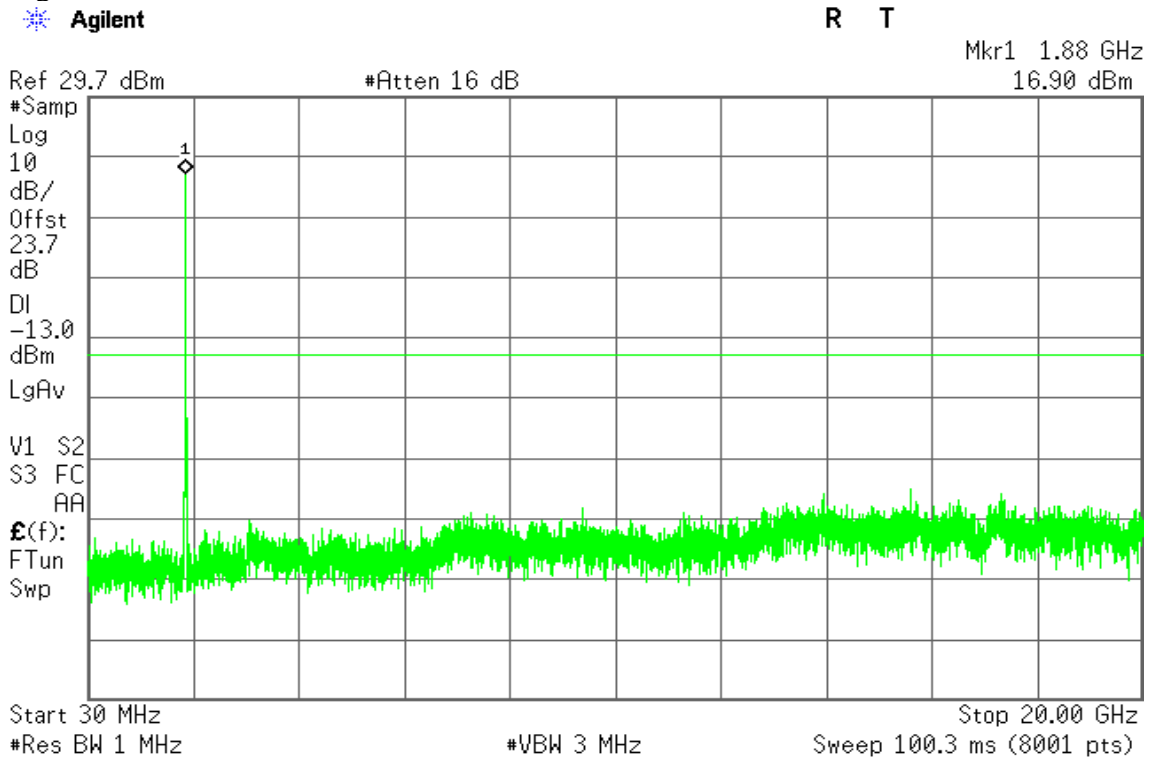
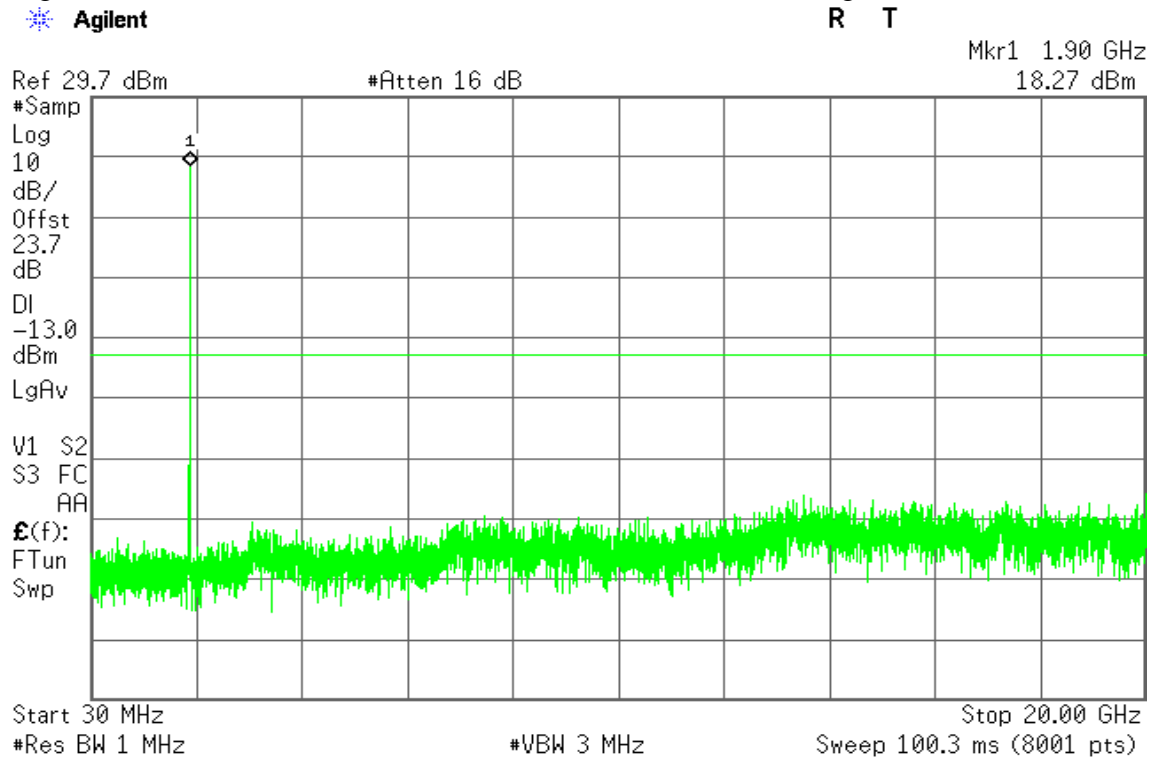




Figure 15-3: Out of Band emission at antenna terminals – CH High





**LTE Band 2**

**Channel Bandwidth: 10MHz / 16QAM**

Figure 16-1: Out of Band emission at antenna terminals – CH Low

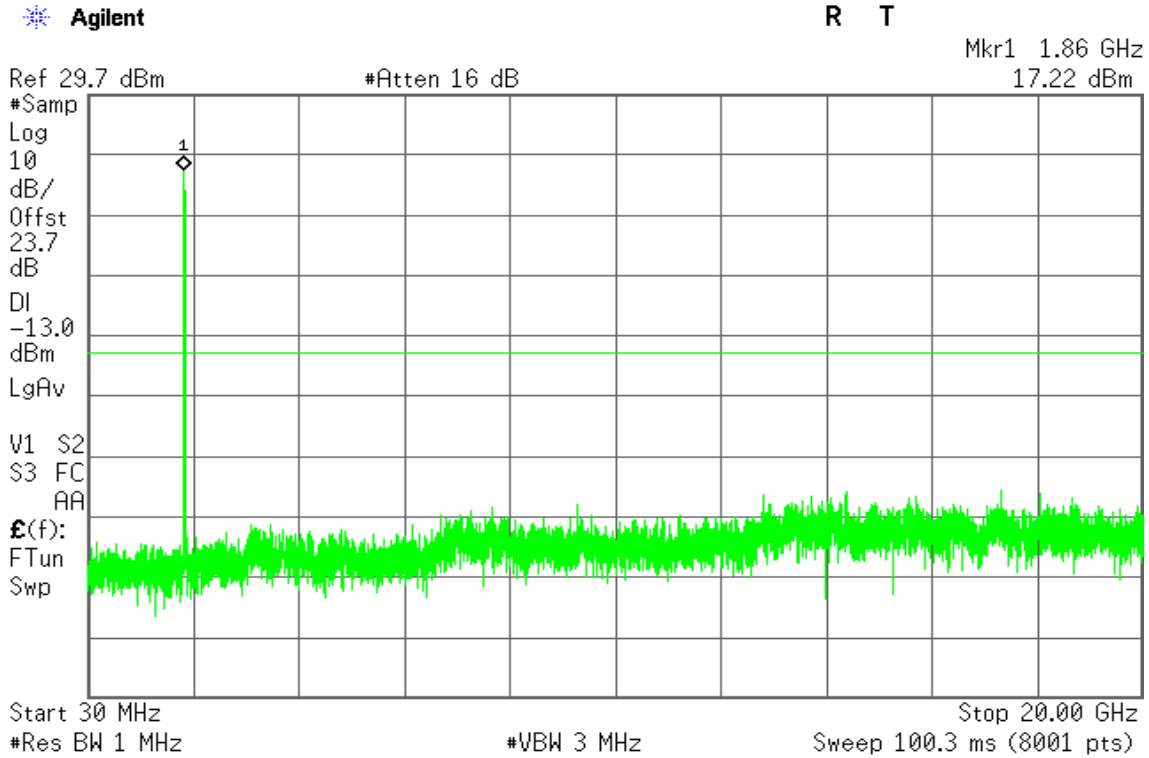


Figure 16-2: Out of Band emission at antenna terminals – CH Mid

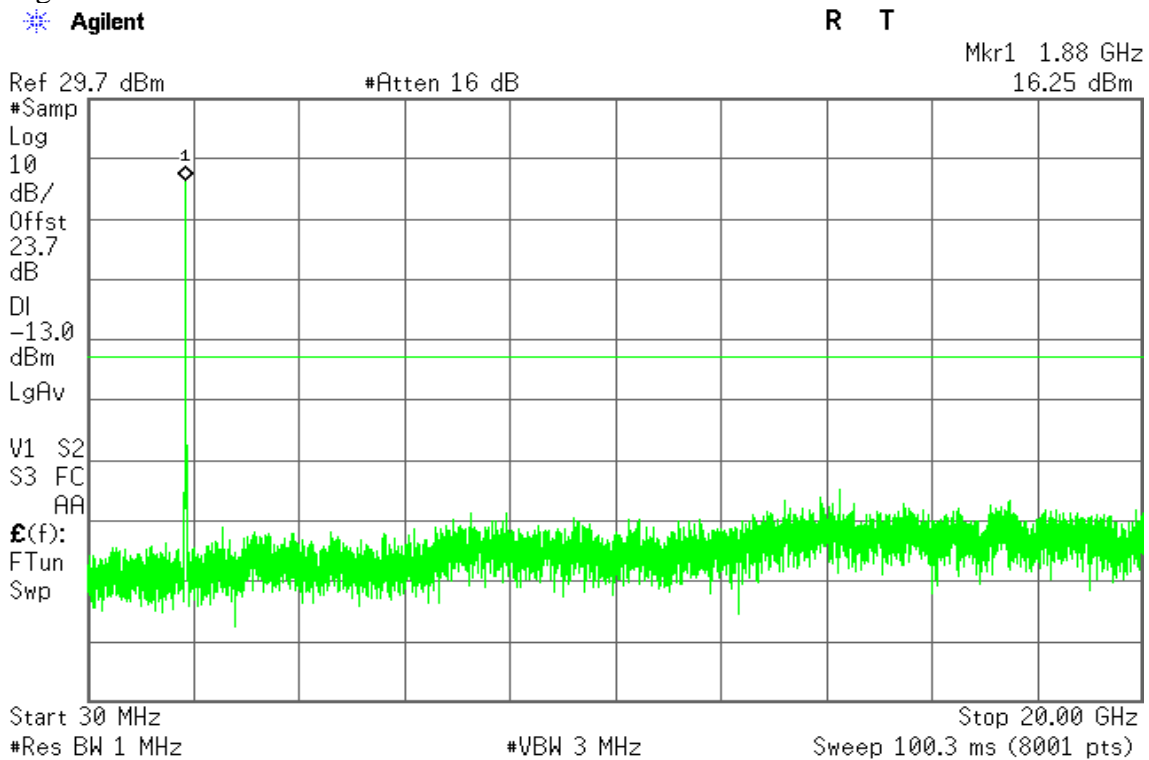
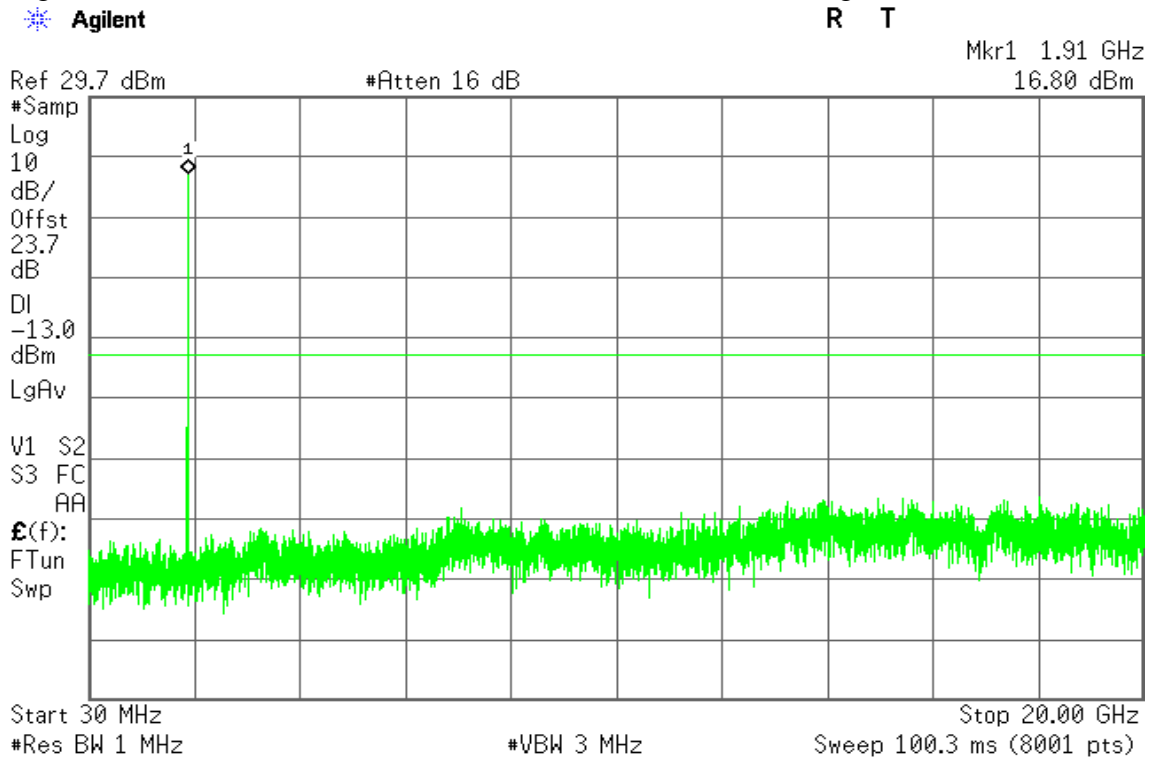




Figure 16-3: Out of Band emission at antenna terminals – CH High







**LTE Band 2**

**Channel Bandwidth: 20MHz / QPSK**

Figure 17-1: Out of Band emission at antenna terminals – CH Low

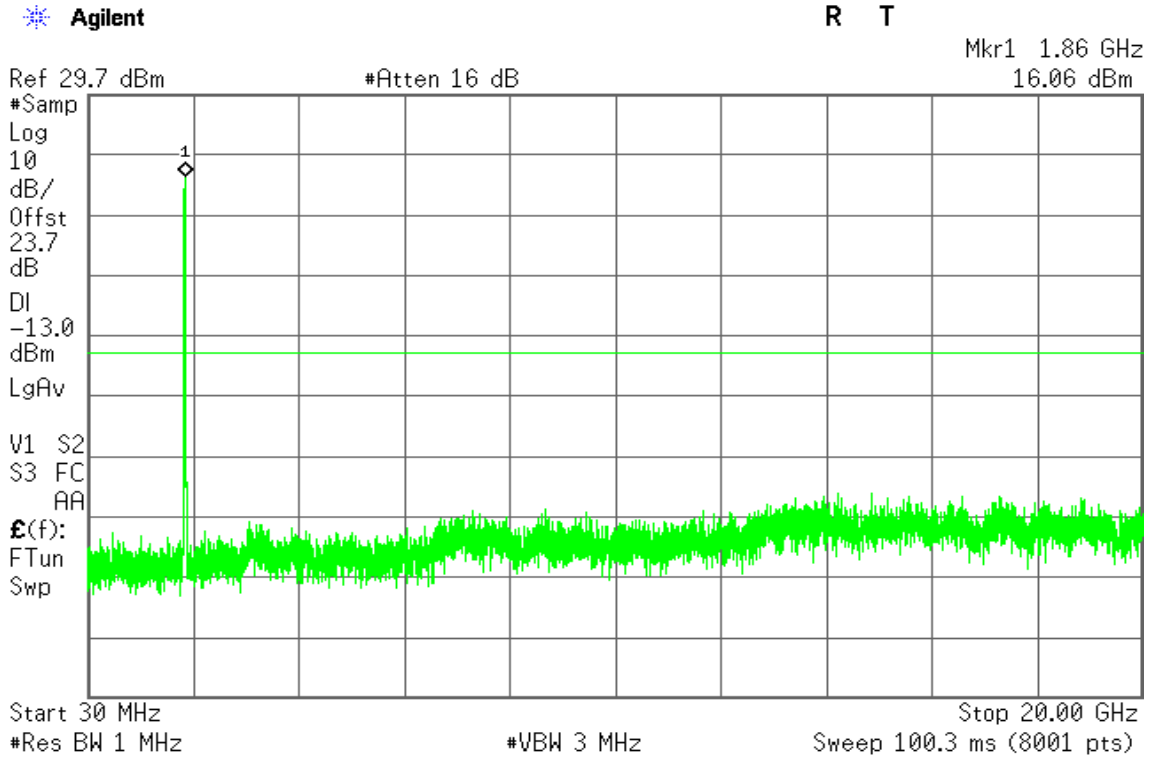


Figure 17-2: Out of Band emission at antenna terminals – CH Mid

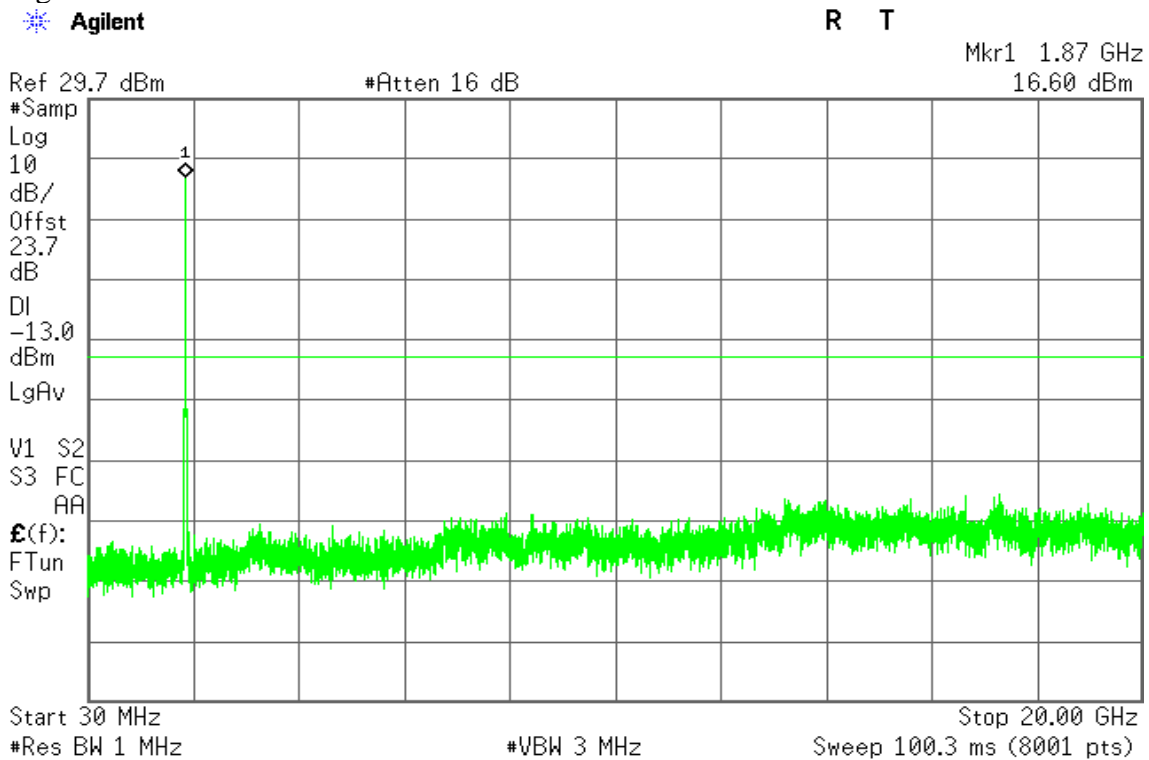




Figure 17-3: Out of Band emission at antenna terminals – CH High

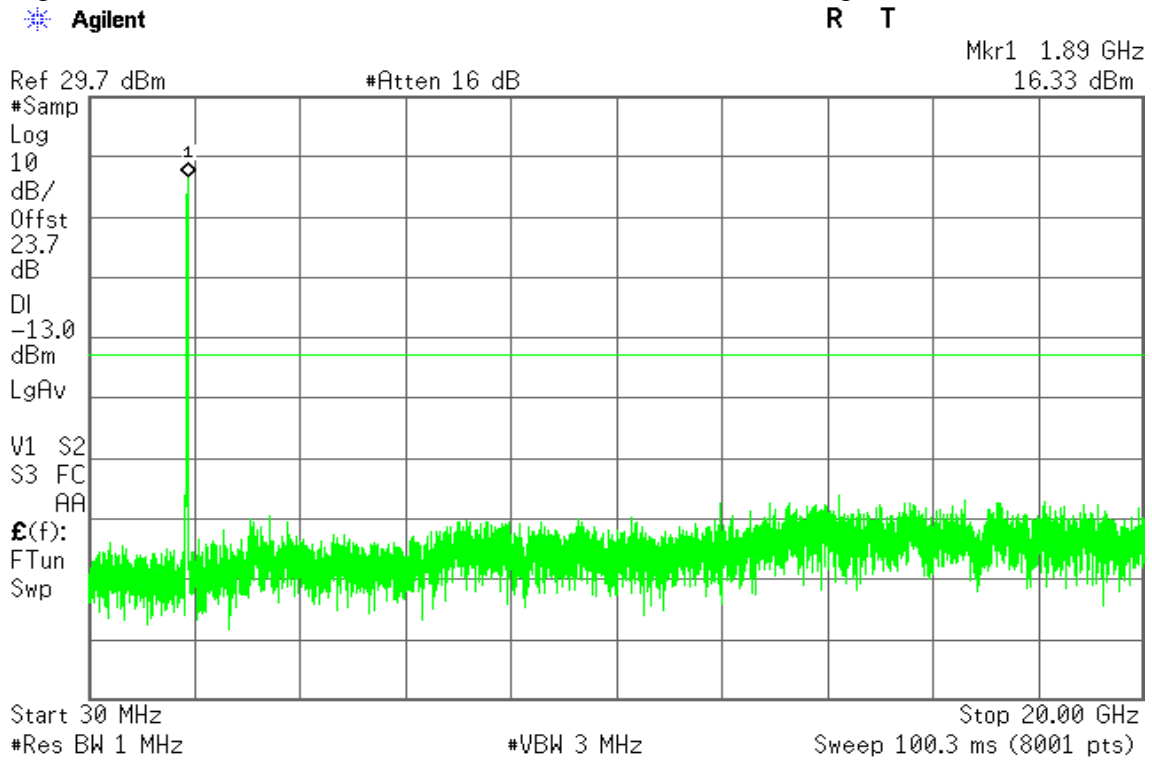




Figure 18-1: Band Edge emissions – CH Low

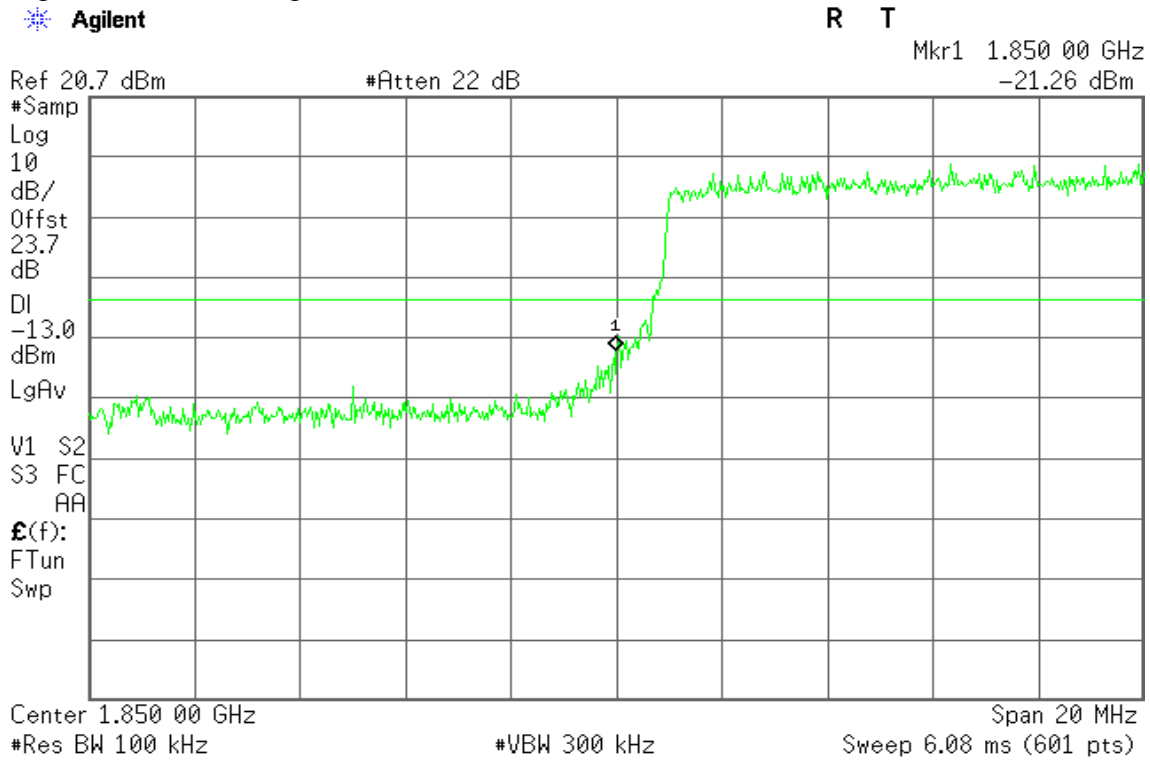
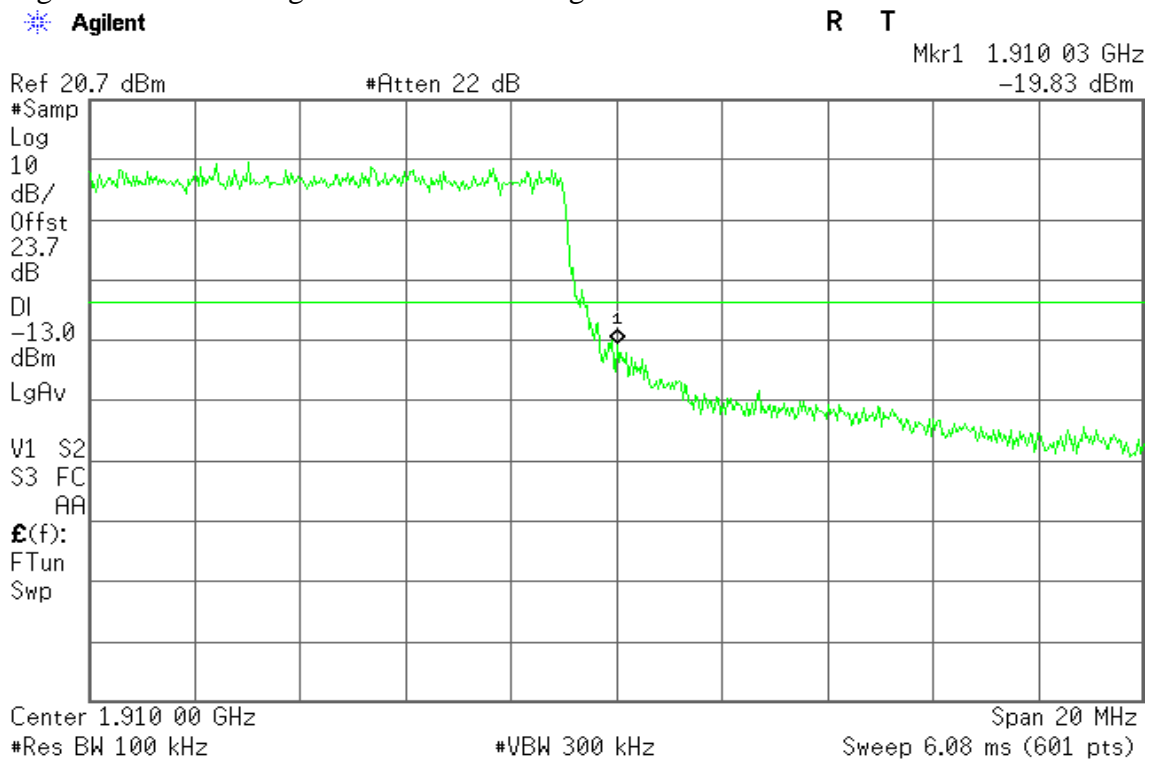


Figure 18-2: Band Edge emissions – CH High





**LTE Band 2**

**Channel Bandwidth: 20MHz / 16QAM**

Figure 19-1: Out of Band emission at antenna terminals – CH Low

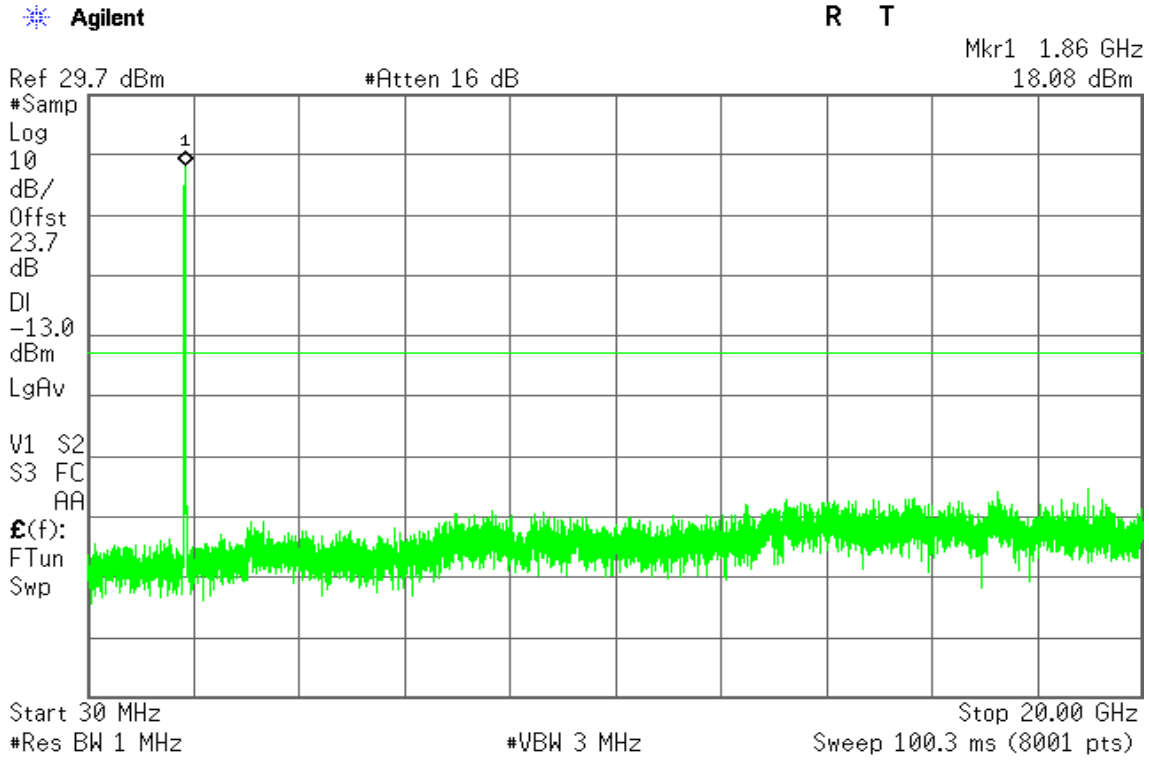


Figure 19-2: Out of Band emission at antenna terminals – CH Mid

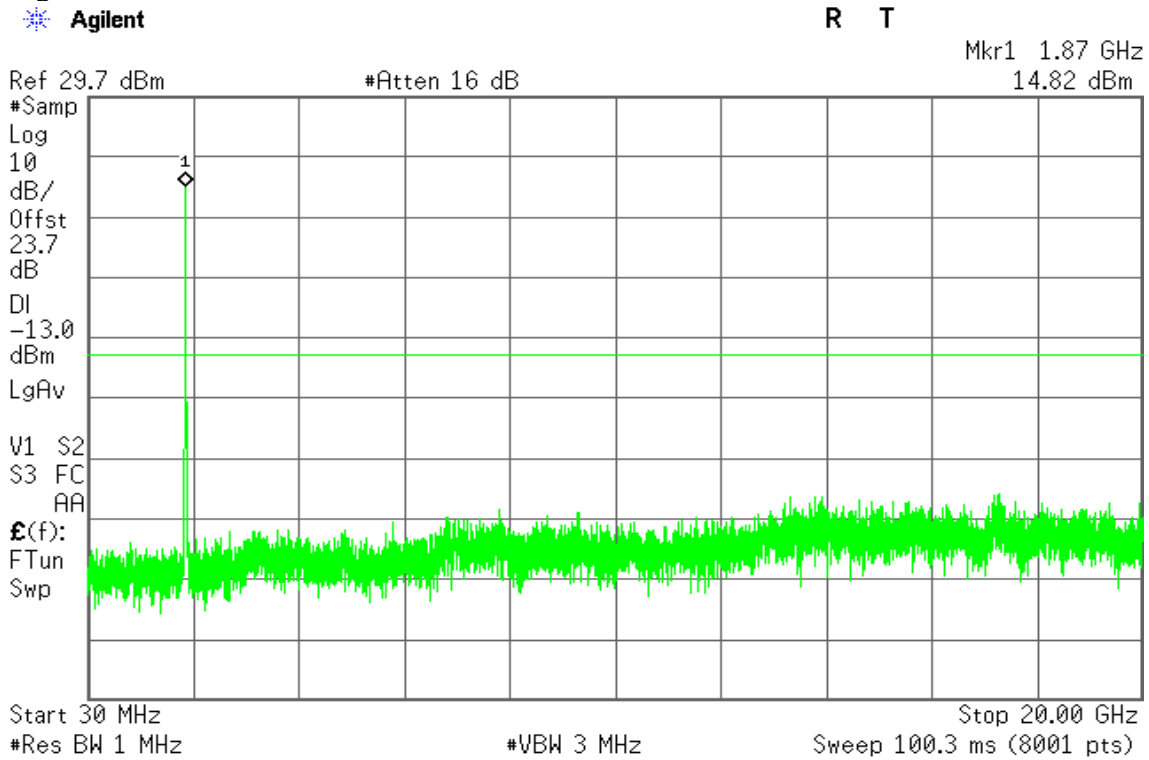




Figure 19-3: Out of Band emission at antenna terminals – CH High

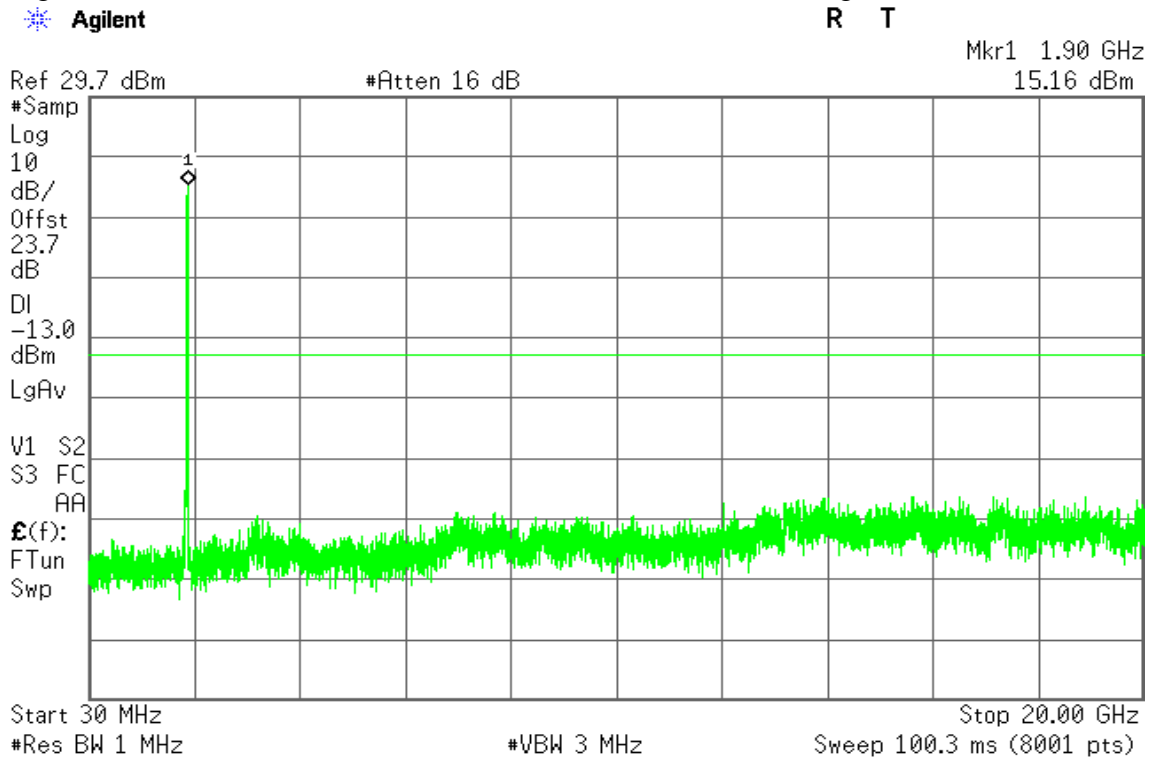




Figure 20-1: Band Edge emissions – CH Low

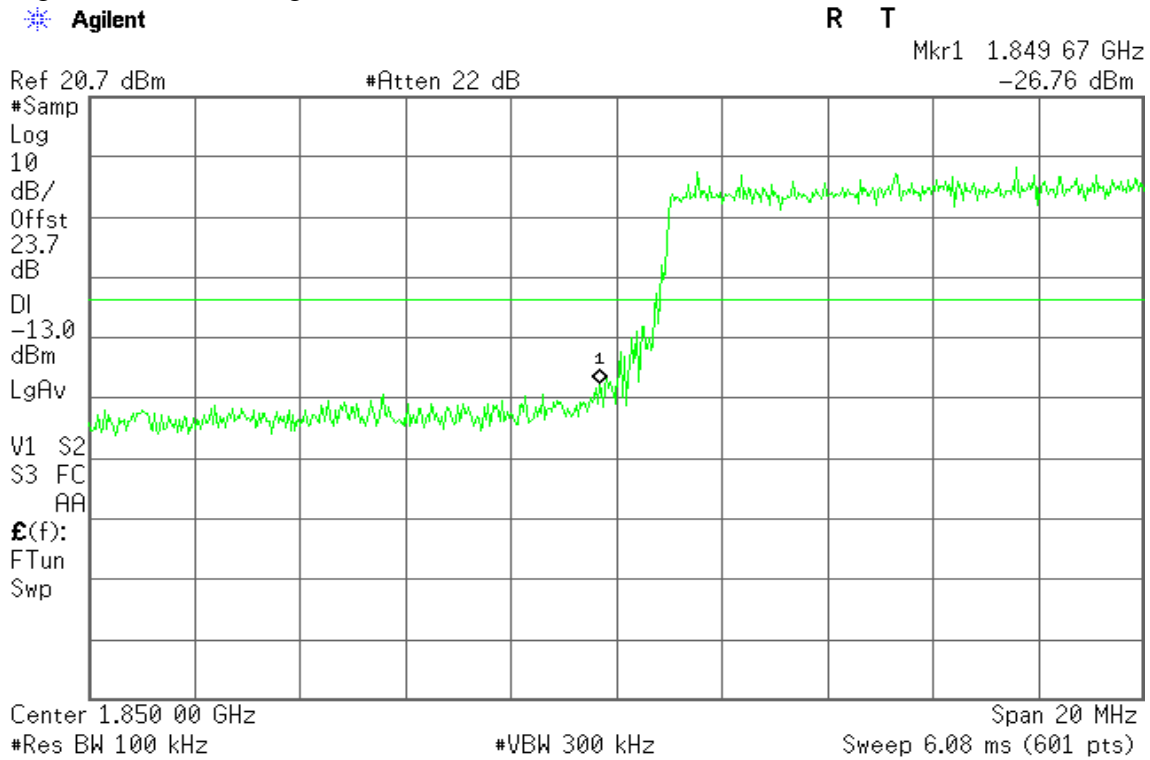
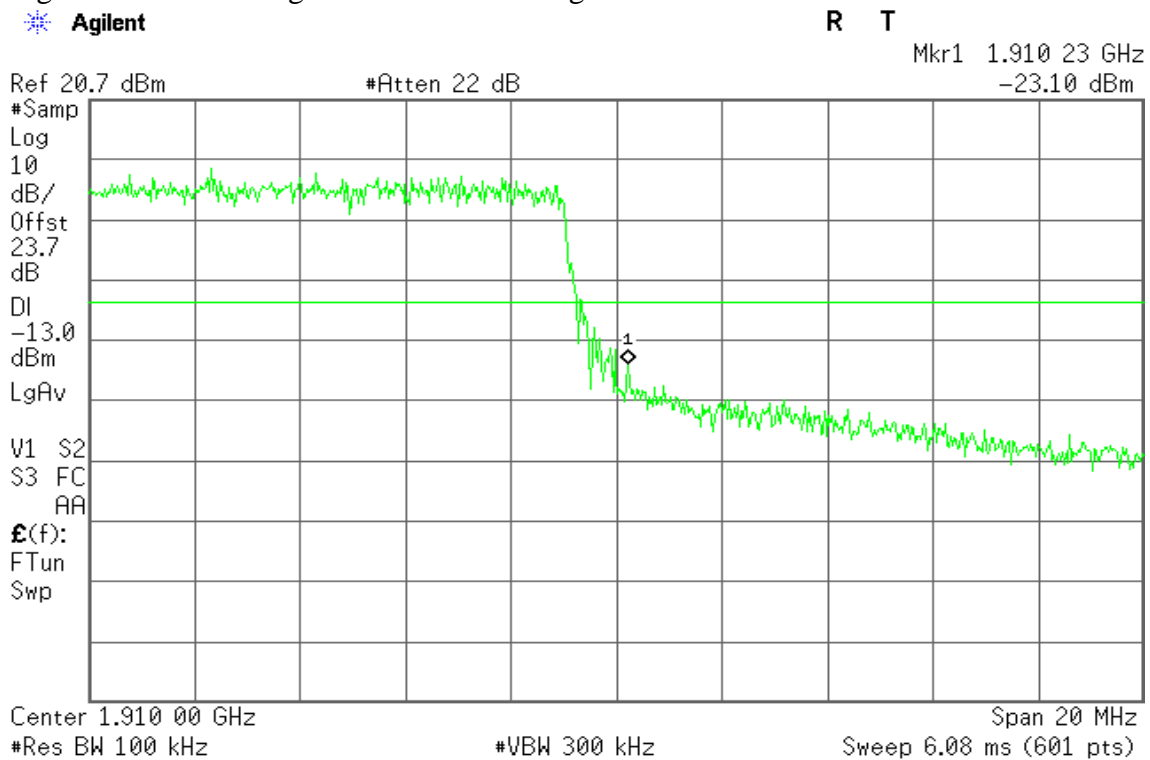


Figure 20-2: Band Edge emissions – CH High





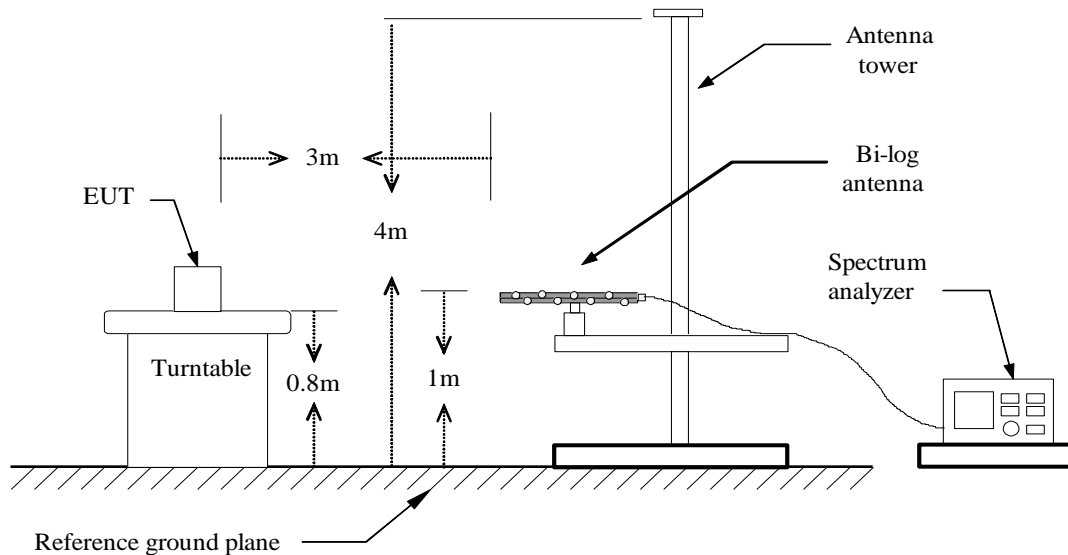
## 7.6 FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

### LIMIT

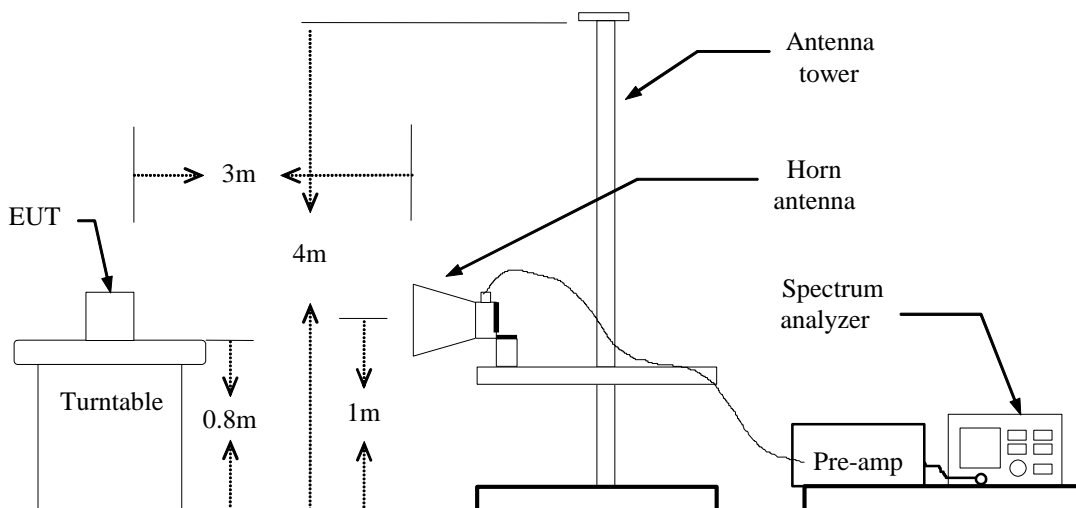
According to FCC §2.1053, RSS-132 (4.6) & RSS-133 (6.5).

### Test Configuration

#### Below 1 GHz

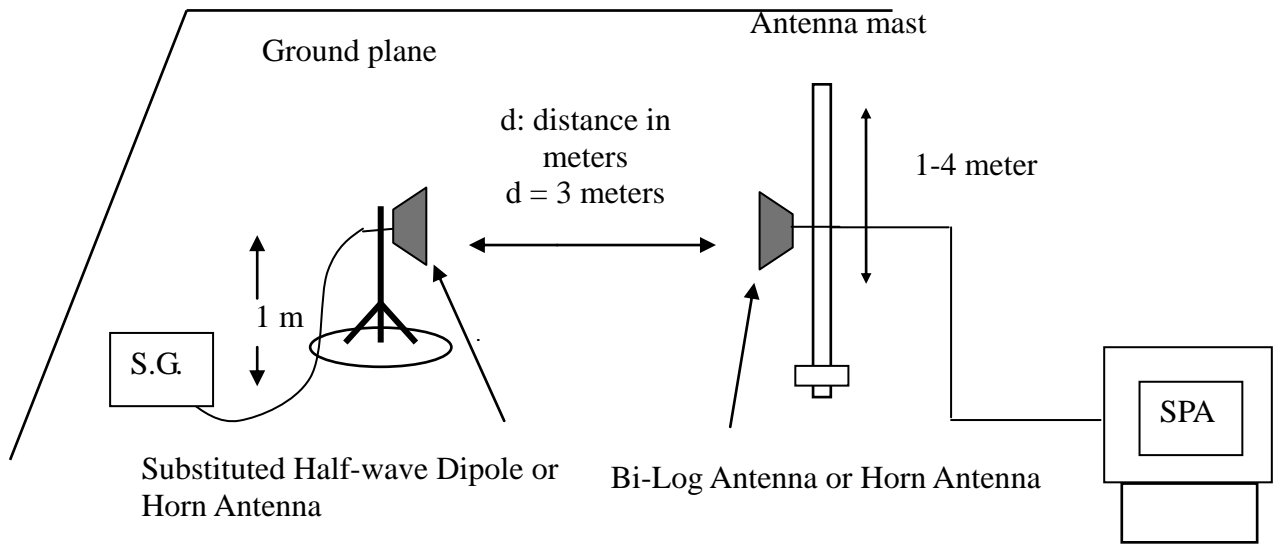


#### Above 1 GHz





## Substituted Method Test Set-up



## TEST PROCEDURE

The EUT was placed on a non-conductive, the measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

The frequency range up to tenth harmonic was investigated for each of three fundamental frequency (low, middle and high channels). Once spurious emission were identified, the power of the emission was determined using the substitution method.

The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency.

$$\text{ERP} = \text{S.G. output (dBm)} + \text{Antenna Gain (dBd)} - \text{Cable (dB)}$$

$$\text{EIRP} = \text{S.G. output (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable (dB)}$$

## TEST RESULTS

*Refer to the attached tabular data sheets.*



**Radiated Spurious Emission Measurement Result / Below 1GHz****LTE Band 5 / channel bandwidth: 5MHz / QPSK****Operation Mode:** Tx / Low channel**Test Date:** January 16, 2015**Temperature:** 26°C**Tested by:** David Shu**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
67.8300	-49.43	0.94	-1.85	-52.22	-13.00	-39.22	V
147.3700	-61.14	1.42	0.44	-62.12	-13.00	-49.12	V
257.9500	-73.39	1.89	5.61	-69.67	-13.00	-56.67	V
418.0000	-80.12	2.46	5.83	-76.75	-13.00	-63.75	V
637.2200	-82.84	3	6.15	-79.69	-13.00	-66.69	V
770.1100	-81.48	3.27	6.38	-78.37	-13.00	-65.37	V
67.8300	-45.73	0.94	-1.85	-48.52	-13.00	-35.52	H
147.3700	-54.3	1.42	0.44	-55.28	-13.00	-42.28	H
237.5800	-66.84	1.81	5.36	-63.29	-13.00	-50.29	H
392.7800	-72.78	2.33	5.99	-69.12	-13.00	-56.12	H
526.6400	-79	2.74	6.03	-75.71	-13.00	-62.71	H
726.4600	-77.56	3.18	6.43	-74.31	-13.00	-61.31	H

**Remark:**

1. The emission behaviour belongs to narrowband spurious emission.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.



**Operation Mode:** Tx / Middle channel

**Test Date:** January 16, 2015

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
67.8300	-49.15	0.94	-1.85	-51.94	-13.00	-38.94	V
147.3700	-59.57	1.42	0.44	-60.55	-13.00	-47.55	V
257.9500	-74.4	1.89	5.61	-70.68	-13.00	-57.68	V
392.7800	-80.16	2.33	5.99	-76.50	-13.00	-63.50	V
519.8500	-84.04	2.7	6.1	-80.64	-13.00	-67.64	V
687.6600	-82	3.12	6.5	-78.62	-13.00	-65.62	V
67.8300	-46.4	0.94	-1.85	-49.19	-13.00	-36.19	H
147.3700	-53.77	1.42	0.44	-54.75	-13.00	-41.75	H
256.0100	-67.78	1.88	5.63	-64.03	-13.00	-51.03	H
392.7800	-71.94	2.33	5.99	-68.28	-13.00	-55.28	H
548.9500	-78.66	2.8	6.19	-75.27	-13.00	-62.27	H
730.3400	-77.38	3.18	6.39	-74.17	-13.00	-61.17	H

**Remark:**

1. *The emission behaviour belongs to narrowband spurious emission.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*



**Operation Mode:** Tx / High channel

**Test Date:** January 16, 2015

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
67.8300	-48.7	0.94	-1.85	-51.49	-13.00	-38.49	V
147.3700	-61.44	1.42	0.44	-62.42	-13.00	-49.42	V
257.9500	-74.49	1.89	5.61	-70.77	-13.00	-57.77	V
329.7300	-80.57	2.16	5.71	-77.02	-13.00	-64.02	V
392.7800	-79.41	2.33	5.99	-75.75	-13.00	-62.75	V
573.2000	-82.57	2.88	6.08	-79.37	-13.00	-66.37	V
67.8300	-46.42	0.94	-1.85	-49.21	-13.00	-36.21	H
147.3700	-54.38	1.42	0.44	-55.36	-13.00	-42.36	H
237.5800	-66.88	1.81	5.36	-63.33	-13.00	-50.33	H
392.7800	-72.21	2.33	5.99	-68.55	-13.00	-55.55	H
519.8500	-78.83	2.7	6.1	-75.43	-13.00	-62.43	H
643.0400	-78.11	3.01	6.16	-74.96	-13.00	-61.96	H

**Remark:**

1. *The emission behaviour belongs to narrowband spurious emission.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*



**LTE Band 5 / channel bandwidth: 5MHz / 16QAM**

**Operation Mode:** Tx / Low channel

**Test Date:** January 16, 2015

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
67.8300	-49	0.94	-1.85	-51.79	-13.00	-38.79	V
149.3100	-65.58	1.42	0.62	-66.38	-13.00	-53.38	V
257.9500	-74.04	1.89	5.61	-70.32	-13.00	-57.32	V
392.7800	-79.73	2.33	5.99	-76.07	-13.00	-63.07	V
577.0800	-82.4	2.88	6.04	-79.24	-13.00	-66.24	V
692.5100	-81.92	3.12	6.47	-78.57	-13.00	-65.57	V
79.4700	-55.67	1.04	-0.26	-56.97	-13.00	-43.97	H
147.3700	-54.38	1.42	0.44	-55.36	-13.00	-42.36	H
279.2900	-63.64	2	5.29	-60.35	-13.00	-47.35	H
412.1800	-69.69	2.45	5.89	-66.25	-13.00	-53.25	H
540.2200	-72.1	2.78	6.26	-68.62	-13.00	-55.62	H
599.3900	-74.16	2.9	6.39	-70.67	-13.00	-57.67	H

**Remark:**

1. *The emission behaviour belongs to narrowband spurious emission.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser; with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.*



**Operation Mode:** Tx / Middle channel

**Test Date:** January 16, 2015

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
67.8300	-48.8	0.94	-1.85	-51.59	-13.00	-38.59	V
149.3100	-65.23	1.42	0.62	-66.03	-13.00	-53.03	V
257.9500	-73.98	1.89	5.61	-70.26	-13.00	-57.26	V
392.7800	-80.26	2.33	5.99	-76.60	-13.00	-63.60	V
548.9500	-83.82	2.8	6.19	-80.43	-13.00	-67.43	V
680.8700	-81.61	3.09	6.5	-78.20	-13.00	-65.20	V
77.5300	-56.22	1.02	-0.6	-57.84	-13.00	-44.84	H
147.3700	-52.83	1.42	0.44	-53.81	-13.00	-40.81	H
193.9300	-56.55	1.62	3.58	-54.59	-13.00	-41.59	H
275.4100	-63.98	1.99	5.21	-60.76	-13.00	-47.76	H
418.9700	-69.39	2.46	5.82	-66.03	-13.00	-53.03	H
599.3900	-74.3	2.9	6.39	-70.81	-13.00	-57.81	H

**Remark:**

1. *The emission behaviour belongs to narrowband spurious emission.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*



**Operation Mode:** Tx / High channel

**Test Date:** January 16, 2015

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
67.8300	-49	0.94	-1.85	-51.79	-13.00	-38.79	V
147.3700	-62.27	1.42	0.44	-63.25	-13.00	-50.25	V
257.9500	-73.5	1.89	5.61	-69.78	-13.00	-56.78	V
392.7800	-79.31	2.33	5.99	-75.65	-13.00	-62.65	V
519.8500	-83.82	2.7	6.1	-80.42	-13.00	-67.42	V
725.4900	-81.47	3.17	6.45	-78.19	-13.00	-65.19	V
112.4500	-54.37	1.22	-1.8	-57.39	-13.00	-44.39	H
147.3700	-54.69	1.42	0.44	-55.67	-13.00	-42.67	H
279.2900	-64.14	2	5.29	-60.85	-13.00	-47.85	H
418.9700	-69.55	2.46	5.82	-66.19	-13.00	-53.19	H
540.2200	-72.89	2.78	6.26	-69.41	-13.00	-56.41	H
595.5100	-75.49	2.9	6.31	-72.08	-13.00	-59.08	H

**Remark:**

1. *The emission behaviour belongs to narrowband spurious emission.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*



**LTE Band 5 / channel bandwidth: 10MHz / QPSK**

**Operation Mode:** Tx / Low channel

**Test Date:** January 16, 2015

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
69.7700	-49.24	0.96	-1.76	-51.96	-13.00	-38.96	V
147.3700	-61.91	1.42	0.44	-62.89	-13.00	-49.89	V
257.9500	-74.97	1.89	5.61	-71.25	-13.00	-58.25	V
392.7800	-80.31	2.33	5.99	-76.65	-13.00	-63.65	V
575.1400	-82.83	2.88	6.06	-79.65	-13.00	-66.65	V
664.3800	-81.35	3.06	6.3	-78.11	-13.00	-65.11	V
67.8300	-46.36	0.94	-1.85	-49.15	-13.00	-36.15	H
147.3700	-54.1	1.42	0.44	-55.08	-13.00	-42.08	H
226.9100	-65.78	1.79	5.37	-62.20	-13.00	-49.20	H
392.7800	-72.31	2.33	5.99	-68.65	-13.00	-55.65	H
525.6700	-79.32	2.73	6.04	-76.01	-13.00	-63.01	H
725.4900	-77.68	3.17	6.45	-74.40	-13.00	-61.40	H

**Remark:**

1. *The emission behaviour belongs to narrowband spurious emission.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.*



**Operation Mode:** Tx / Middle channel

**Test Date:** January 16, 2015

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
67.8300	-49.07	0.94	-1.85	-51.86	-13.00	-38.86	V
147.3700	-61.3	1.42	0.44	-62.28	-13.00	-49.28	V
257.9500	-75.66	1.89	5.61	-71.94	-13.00	-58.94	V
415.0900	-80.01	2.45	5.86	-76.60	-13.00	-63.60	V
573.2000	-82.39	2.88	6.08	-79.19	-13.00	-66.19	V
666.3200	-81.36	3.07	6.3	-78.13	-13.00	-65.13	V
69.7700	-46.1	0.96	-1.76	-48.82	-13.00	-35.82	H
147.3700	-53.36	1.42	0.44	-54.34	-13.00	-41.34	H
230.7900	-64.57	1.8	5.4	-60.97	-13.00	-47.97	H
392.7800	-71.49	2.33	5.99	-67.83	-13.00	-54.83	H
514.0300	-78.99	2.69	6.04	-75.64	-13.00	-62.64	H
658.5600	-77.73	3.05	6.3	-74.48	-13.00	-61.48	H

**Remark:**

1. *The emission behaviour belongs to narrowband spurious emission.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*





**Operation Mode:** Tx / High channel

**Test Date:** January 16, 2015

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
71.7100	-49	0.97	-1.61	-51.58	-13.00	-38.58	V
147.3700	-61.04	1.42	0.44	-62.02	-13.00	-49.02	V
257.9500	-74.5	1.89	5.61	-70.78	-13.00	-57.78	V
319.0600	-79.42	2.17	5.71	-75.88	-13.00	-62.88	V
403.4500	-80.74	2.41	5.96	-77.19	-13.00	-64.19	V
621.7000	-82.62	2.95	6.13	-79.44	-13.00	-66.44	V
67.8300	-46.62	0.94	-1.85	-49.41	-13.00	-36.41	H
147.3700	-53.64	1.42	0.44	-54.62	-13.00	-41.62	H
230.7900	-66.08	1.8	5.4	-62.48	-13.00	-49.48	H
392.7800	-72.97	2.33	5.99	-69.31	-13.00	-56.31	H
550.8900	-78.47	2.81	6.17	-75.11	-13.00	-62.11	H
712.8800	-77.69	3.15	6.36	-74.48	-13.00	-61.48	H

**Remark:**

1. *The emission behaviour belongs to narrowband spurious emission.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*



**LTE Band 5 / channel bandwidth: 10MHz / 16QAM**

**Operation Mode:** Tx / Low channel

**Test Date:** January 16, 2015

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
67.8300	-48.37	0.94	-1.85	-51.16	-13.00	-38.16	V
147.3700	-61.86	1.42	0.44	-62.84	-13.00	-49.84	V
219.1500	-74.34	1.76	5.32	-70.78	-13.00	-57.78	V
415.0900	-80.05	2.45	5.86	-76.64	-13.00	-63.64	V
577.0800	-82.74	2.88	6.04	-79.58	-13.00	-66.58	V
717.7300	-81.33	3.16	6.44	-78.05	-13.00	-65.05	V
67.8300	-46.87	0.94	-1.85	-49.66	-13.00	-36.66	H
147.3700	-54.5	1.42	0.44	-55.48	-13.00	-42.48	H
226.9100	-65.71	1.79	5.37	-62.13	-13.00	-49.13	H
392.7800	-72.75	2.33	5.99	-69.09	-13.00	-56.09	H
577.0800	-79.18	2.88	6.04	-76.02	-13.00	-63.02	H
703.1800	-77.79	3.12	6.36	-74.55	-13.00	-61.55	H

**Remark:**

- 1. The emission behaviour belongs to narrowband spurious emission.*
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.*



**Operation Mode:** Tx / Middle channel

**Test Date:** January 16, 2015

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
67.8300	-49.08	0.94	-1.85	-51.87	-13.00	-38.87	V
147.3700	-59.99	1.42	0.44	-60.97	-13.00	-47.97	V
226.9100	-74.42	1.79	5.37	-70.84	-13.00	-57.84	V
392.7800	-79.9	2.33	5.99	-76.24	-13.00	-63.24	V
549.9200	-83.53	2.81	6.18	-80.16	-13.00	-67.16	V
667.2900	-81.68	3.07	6.3	-78.45	-13.00	-65.45	V
67.8300	-47	0.94	-1.85	-49.79	-13.00	-36.79	H
147.3700	-54	1.42	0.44	-54.98	-13.00	-41.98	H
230.7900	-65.71	1.8	5.4	-62.11	-13.00	-49.11	H
392.7800	-71.54	2.33	5.99	-67.88	-13.00	-54.88	H
519.8500	-78.23	2.7	6.1	-74.83	-13.00	-61.83	H
679.9000	-77.22	3.09	6.5	-73.81	-13.00	-60.81	H

**Remark:**

1. *The emission behaviour belongs to narrowband spurious emission.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*



**Operation Mode:** Tx / High channel

**Test Date:** January 16, 2015

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
67.8300	-49.16	0.94	-1.85	-51.95	-13.00	-38.95	V
147.3700	-61.78	1.42	0.44	-62.76	-13.00	-49.76	V
226.9100	-74.59	1.79	5.37	-71.01	-13.00	-58.01	V
392.7800	-80.02	2.33	5.99	-76.36	-13.00	-63.36	V
550.8900	-83.29	2.81	6.17	-79.93	-13.00	-66.93	V
718.7000	-81.03	3.16	6.46	-77.73	-13.00	-64.73	V
67.8300	-46.42	0.94	-1.85	-49.21	-13.00	-36.21	H
147.3700	-52.09	1.42	0.44	-53.07	-13.00	-40.07	H
226.9100	-66.19	1.79	5.37	-62.61	-13.00	-49.61	H
374.3500	-73.27	2.31	5.89	-69.69	-13.00	-56.69	H
458.7400	-79.24	2.6	5.87	-75.97	-13.00	-62.97	H
608.1200	-78.41	2.93	6.32	-75.02	-13.00	-62.02	H

**Remark:**

1. *The emission behaviour belongs to narrowband spurious emission.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*



**LTE Band 2 / channel bandwidth: 5MHz / QPSK**

**Operation Mode:** Tx / Low channel

**Test Date:** January 16, 2015

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
66.8600	-70.32	0.93	-1.89	-73.14	-13.00	-60.14	V
174.5300	-83.57	1.59	3	-82.16	-13.00	-69.16	V
413.1500	-84.73	2.45	5.88	-81.30	-13.00	-68.30	V
540.2200	-82.96	2.78	6.26	-79.48	-13.00	-66.48	V
710.9400	-81.2	3.14	6.33	-78.01	-13.00	-65.01	V
811.8200	-80.2	3.35	6.2	-77.35	-13.00	-64.35	V
57.1600	-60.38	0.86	-2.8	-64.04	-13.00	-51.04	H
128.9400	-64.4	1.34	-1.5	-67.24	-13.00	-54.24	H
323.9100	-78.45	2.17	5.7	-74.92	-13.00	-61.92	H
450.9800	-78.95	2.59	5.74	-75.80	-13.00	-62.80	H
540.2200	-78.16	2.78	6.26	-74.68	-13.00	-61.68	H
670.2000	-77.26	3.07	6.3	-74.03	-13.00	-61.03	H

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*



Operation Mode: Tx / Middle channel

Test Date: January 16, 2015

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
66.8600	-70.49	0.93	-1.89	-73.31	-13.00	-60.31	V
86.2600	-81.85	1.08	0.62	-82.31	-13.00	-69.31	V
252.1300	-86.26	1.85	5.68	-82.43	-13.00	-69.43	V
472.3200	-83.81	2.62	5.72	-80.71	-13.00	-67.71	V
672.1400	-81.28	3.07	6.34	-78.01	-13.00	-65.01	V
841.8900	-79.68	3.41	6.4	-76.69	-13.00	-63.69	V
57.1600	-60.11	0.86	-2.8	-63.77	-13.00	-50.77	H
128.9400	-64.65	1.34	-1.5	-67.49	-13.00	-54.49	H
213.3300	-74.65	1.71	5.4	-70.96	-13.00	-57.96	H
431.5800	-78.93	2.5	5.81	-75.62	-13.00	-62.62	H
540.2200	-78.32	2.78	6.26	-74.84	-13.00	-61.84	H
658.5600	-77.07	3.05	6.3	-73.82	-13.00	-60.82	H

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.



**Operation Mode:** Tx / High channel

**Test Date:** January 16, 2015

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
66.8600	-70.21	0.93	-1.89	-73.03	-13.00	-60.03	V
157.0700	-79.83	1.47	1.22	-80.08	-13.00	-67.08	V
394.7200	-85.54	2.35	5.99	-81.90	-13.00	-68.90	V
540.2200	-83.77	2.78	6.26	-80.29	-13.00	-67.29	V
730.3400	-81.48	3.18	6.39	-78.27	-13.00	-65.27	V
813.7600	-79.43	3.35	6.2	-76.58	-13.00	-63.58	V
57.1600	-60.2	0.86	-2.8	-63.86	-13.00	-50.86	H
128.9400	-65.06	1.34	-1.5	-67.90	-13.00	-54.90	H
323.9100	-76.49	2.17	5.7	-72.96	-13.00	-59.96	H
431.5800	-80.04	2.5	5.81	-76.73	-13.00	-63.73	H
599.3900	-79.17	2.9	6.39	-75.68	-13.00	-62.68	H
685.7200	-78.16	3.11	6.5	-74.77	-13.00	-61.77	H

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with “ N/A ” remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.*



**LTE Band 2 / channel bandwidth: 5MHz / 16QAM**

**Operation Mode:** Tx / Low channel

**Test Date:** January 16, 2015

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
66.8600	-69.99	0.93	-1.89	-72.81	-13.00	-59.81	V
191.0200	-85.56	1.62	3.89	-83.29	-13.00	-70.29	V
314.2100	-86.53	2.15	5.74	-82.94	-13.00	-69.94	V
438.3700	-84.44	2.52	5.89	-81.07	-13.00	-68.07	V
609.0900	-83.11	2.94	6.31	-79.74	-13.00	-66.74	V
713.8500	-80.73	3.15	6.38	-77.50	-13.00	-64.50	V
57.1600	-60.42	0.86	-2.8	-64.08	-13.00	-51.08	H
128.9400	-64.44	1.34	-1.5	-67.28	-13.00	-54.28	H
271.5300	-74.58	1.98	5.13	-71.43	-13.00	-58.43	H
323.9100	-77.47	2.17	5.7	-73.94	-13.00	-60.94	H
481.0500	-78.49	2.64	5.52	-75.61	-13.00	-62.61	H
666.3200	-77.37	3.07	6.3	-74.14	-13.00	-61.14	H

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*





**Operation Mode:** Tx / Middle channel

**Test Date:** January 16, 2015

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
66.8600	-71.06	0.93	-1.89	-73.88	-13.00	-60.88	V
183.2600	-84.99	1.61	3.73	-82.87	-13.00	-69.87	V
309.3600	-86.53	2.13	5.78	-82.88	-13.00	-69.88	V
438.3700	-84.69	2.52	5.89	-81.32	-13.00	-68.32	V
552.8300	-82.33	2.82	6.14	-79.01	-13.00	-66.01	V
699.3000	-81.12	3.11	6.4	-77.83	-13.00	-64.83	V
66.8600	-60.11	0.93	-1.89	-62.93	-13.00	-49.93	H
128.9400	-62.09	1.34	-1.5	-64.93	-13.00	-51.93	H
239.5200	-81.33	1.81	5.35	-77.79	-13.00	-64.79	H
407.3300	-80.91	2.43	5.93	-77.41	-13.00	-64.41	H
540.2200	-78.86	2.78	6.26	-75.38	-13.00	-62.38	H
657.5900	-77.75	3.05	6.3	-74.50	-13.00	-61.50	H

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser; with “ N/A ” remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.*



Operation Mode: Tx / High channel

Test Date: January 16, 2015

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
66.8600	-69.66	0.93	-1.89	-72.48	-13.00	-59.48	V
157.0700	-81.87	1.47	1.22	-82.12	-13.00	-69.12	V
326.8200	-86.19	2.17	5.71	-82.65	-13.00	-69.65	V
428.6700	-83.98	2.49	5.8	-80.67	-13.00	-67.67	V
576.1100	-83.26	2.88	6.05	-80.09	-13.00	-67.09	V
677.9600	-82.32	3.09	6.46	-78.95	-13.00	-65.95	V
57.1600	-59.98	0.86	-2.8	-63.64	-13.00	-50.64	H
128.9400	-63.58	1.34	-1.5	-66.42	-13.00	-53.42	H
197.8100	-73.27	1.63	3.15	-71.75	-13.00	-58.75	H
323.9100	-77.54	2.17	5.7	-74.01	-13.00	-61.01	H
431.5800	-78.84	2.5	5.81	-75.53	-13.00	-62.53	H
575.1400	-78.76	2.88	6.06	-75.58	-13.00	-62.58	H

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.*



**LTE Band 2 / channel bandwidth: 10MHz / QPSK**

**Operation Mode:** Tx / Low channel

**Test Date:** January 16, 2015

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
67.8300	-49.14	0.94	-1.85	-51.93	-13.00	-38.93	V
147.3700	-60.95	1.42	0.44	-61.93	-13.00	-48.93	V
257.9500	-75.23	1.89	5.61	-71.51	-13.00	-58.51	V
392.7800	-79.91	2.33	5.99	-76.25	-13.00	-63.25	V
567.3800	-82.57	2.86	6.07	-79.36	-13.00	-66.36	V
657.5900	-81.28	3.05	6.3	-78.03	-13.00	-65.03	V
67.8300	-45.97	0.94	-1.85	-48.76	-13.00	-35.76	H
147.3700	-53.76	1.42	0.44	-54.74	-13.00	-41.74	H
226.9100	-65.38	1.79	5.37	-61.80	-13.00	-48.80	H
392.7800	-72.15	2.33	5.99	-68.49	-13.00	-55.49	H
529.5500	-78.8	2.75	6	-75.55	-13.00	-62.55	H
668.2600	-77.5	3.07	6.3	-74.27	-13.00	-61.27	H

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*



Operation Mode: Tx / Middle channel

Test Date: January 16, 2015

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
67.8300	-49.33	0.94	-1.85	-52.12	-13.00	-39.12	V
147.3700	-60.98	1.42	0.44	-61.96	-13.00	-48.96	V
226.9100	-74.29	1.79	5.37	-70.71	-13.00	-57.71	V
394.7200	-79.21	2.35	5.99	-75.57	-13.00	-62.57	V
510.1500	-83.35	2.69	6	-80.04	-13.00	-67.04	V
683.7800	-82.06	3.11	6.5	-78.67	-13.00	-65.67	V
67.8300	-47.07	0.94	-1.85	-49.86	-13.00	-36.86	H
147.3700	-53.75	1.42	0.44	-54.73	-13.00	-41.73	H
230.7900	-64.82	1.8	5.4	-61.22	-13.00	-48.22	H
392.7800	-71.73	2.33	5.99	-68.07	-13.00	-55.07	H
519.8500	-78.08	2.7	6.1	-74.68	-13.00	-61.68	H
696.3900	-77.81	3.12	6.43	-74.50	-13.00	-61.50	H

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.*



Operation Mode: Tx / High channel

Test Date: January 16, 2015

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
67.8300	-47.21	0.94	-1.85	-50.00	-13.00	-37.00	V
147.3700	-61.21	1.42	0.44	-62.19	-13.00	-49.19	V
226.9100	-74.73	1.79	5.37	-71.15	-13.00	-58.15	V
392.7800	-80.34	2.33	5.99	-76.68	-13.00	-63.68	V
439.3400	-83.67	2.53	5.9	-80.30	-13.00	-67.30	V
612.0000	-82.35	2.94	6.25	-79.04	-13.00	-66.04	V
67.8300	-47.06	0.94	-1.85	-49.85	-13.00	-36.85	H
147.3700	-52.43	1.42	0.44	-53.41	-13.00	-40.41	H
230.7900	-65.26	1.8	5.4	-61.66	-13.00	-48.66	H
392.7800	-71.98	2.33	5.99	-68.32	-13.00	-55.32	H
569.3200	-79.14	2.87	6.09	-75.92	-13.00	-62.92	H
699.3000	-77.8	3.11	6.4	-74.51	-13.00	-61.51	H

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.*



**LTE Band 2 / channel bandwidth: 10MHz / 16QAM**

**Operation Mode:** Tx / Low channel

**Test Date:** January 16, 2015

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
66.8600	-71.49	0.93	-1.89	-74.31	-13.00	-61.31	V
161.9200	-80.85	1.5	1.61	-80.74	-13.00	-67.74	V
296.7500	-86.23	2.07	5.53	-82.77	-13.00	-69.77	V
324.8800	-85.65	2.17	5.7	-82.12	-13.00	-69.12	V
519.8500	-84.39	2.7	6.1	-80.99	-13.00	-67.99	V
646.9200	-82.11	3.02	6.23	-78.90	-13.00	-65.90	V
57.1600	-61.36	0.86	-2.8	-65.02	-13.00	-52.02	H
151.2500	-68.28	1.43	0.8	-68.91	-13.00	-55.91	H
323.9100	-78.44	2.17	5.7	-74.91	-13.00	-61.91	H
431.5800	-78.73	2.5	5.81	-75.42	-13.00	-62.42	H
575.1400	-78.9	2.88	6.06	-75.72	-13.00	-62.72	H
696.3900	-78.45	3.12	6.43	-75.14	-13.00	-62.14	H

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*



**Operation Mode:** Tx / Middle channel

**Test Date:** January 16, 2015

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
66.8600	-71.62	0.93	-1.89	-74.44	-13.00	-61.44	V
150.2800	-80.9	1.43	0.71	-81.62	-13.00	-68.62	V
334.5800	-85.98	2.16	5.75	-82.39	-13.00	-69.39	V
494.6300	-83.53	2.68	5.84	-80.37	-13.00	-67.37	V
678.9300	-81.45	3.09	6.48	-78.06	-13.00	-65.06	V
817.6400	-79.76	3.38	6.2	-76.94	-13.00	-63.94	V
57.1600	-61.59	0.86	-2.8	-65.25	-13.00	-52.25	H
151.2500	-68.43	1.43	0.8	-69.06	-13.00	-56.06	H
294.8100	-72.53	2.06	5.5	-69.09	-13.00	-56.09	H
431.5800	-76.57	2.5	5.81	-73.26	-13.00	-60.26	H
629.4600	-78.68	2.97	6.19	-75.46	-13.00	-62.46	H
698.3300	-78.24	3.11	6.41	-74.94	-13.00	-61.94	H

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with “ N/A ” remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.*



Operation Mode: Tx / High channel

Test Date: January 16, 2015

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
66.8600	-72.24	0.93	-1.89	-75.06	-13.00	-62.06	V
151.2500	-80.42	1.43	0.8	-81.05	-13.00	-68.05	V
250.1900	-83.71	1.84	5.68	-79.87	-13.00	-66.87	V
412.1800	-85.65	2.45	5.89	-82.21	-13.00	-69.21	V
536.3400	-83.69	2.77	6.19	-80.27	-13.00	-67.27	V
620.7300	-81.48	2.94	6.12	-78.30	-13.00	-65.30	V
57.1600	-61.35	0.86	-2.8	-65.01	-13.00	-52.01	H
151.2500	-69.35	1.43	0.8	-69.98	-13.00	-56.98	H
258.9200	-81.45	1.9	5.6	-77.75	-13.00	-64.75	H
414.1200	-80.32	2.45	5.87	-76.90	-13.00	-63.90	H
503.3600	-80.53	2.7	5.93	-77.30	-13.00	-64.30	H
620.7300	-78.6	2.94	6.12	-75.42	-13.00	-62.42	H

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.*





**LTE Band 2 / channel bandwidth: 20MHz / QPSK**

**Operation Mode:** Tx / Low channel

**Test Date:** January 16, 2015

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
66.8600	-68.89	0.93	-1.89	-71.71	-13.00	-58.71	V
157.0700	-81.96	1.47	1.22	-82.21	-13.00	-69.21	V
380.1700	-86.57	2.31	5.98	-82.90	-13.00	-69.90	V
538.2800	-84.01	2.78	6.24	-80.55	-13.00	-67.55	V
630.4300	-82.16	2.98	6.19	-78.95	-13.00	-65.95	V
784.6600	-81.11	3.32	6.16	-78.27	-13.00	-65.27	V
57.1600	-59.77	0.86	-2.8	-63.43	-13.00	-50.43	H
157.0700	-69.65	1.47	1.22	-69.90	-13.00	-56.90	H
323.9100	-78.17	2.17	5.7	-74.64	-13.00	-61.64	H
471.3500	-80.34	2.62	5.74	-77.22	-13.00	-64.22	H
631.4000	-78.85	2.98	6.2	-75.63	-13.00	-62.63	H
769.1400	-77.59	3.27	6.39	-74.47	-13.00	-61.47	H

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*



**Operation Mode:** Tx / Middle channel

**Test Date:** January 16, 2015

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
66.8600	-69.42	0.93	-1.89	-72.24	-13.00	-59.24	V
206.5400	-85.25	1.67	4.7	-82.22	-13.00	-69.22	V
389.8700	-85.84	2.32	6	-82.16	-13.00	-69.16	V
559.6200	-83.87	2.84	6.03	-80.68	-13.00	-67.68	V
644.0100	-81.23	3.02	6.17	-78.08	-13.00	-65.08	V
722.5800	-81.15	3.17	6.48	-77.84	-13.00	-64.84	V
57.1600	-59.87	0.86	-2.8	-63.53	-13.00	-50.53	H
157.0700	-70.58	1.47	1.22	-70.83	-13.00	-57.83	H
323.9100	-78.31	2.17	5.7	-74.78	-13.00	-61.78	H
431.5800	-78.64	2.5	5.81	-75.33	-13.00	-62.33	H
540.2200	-79.2	2.78	6.26	-75.72	-13.00	-62.72	H
665.3500	-77.84	3.06	6.3	-74.60	-13.00	-61.60	H

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.*



**Operation Mode:** Tx / High channel

**Test Date:** January 16, 2015

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
66.8600	-69.17	0.93	-1.89	-71.99	-13.00	-58.99	V
168.7100	-83.85	1.55	2.37	-83.03	-13.00	-70.03	V
395.6900	-86.51	2.36	5.99	-82.88	-13.00	-69.88	V
482.9900	-83.9	2.65	5.58	-80.97	-13.00	-67.97	V
640.1300	-82.44	3.01	6.13	-79.32	-13.00	-66.32	V
768.1700	-81.45	3.26	6.38	-78.33	-13.00	-65.33	V
66.8600	-60.16	0.93	-1.89	-62.98	-13.00	-49.98	H
128.9400	-64.27	1.34	-1.5	-67.11	-13.00	-54.11	H
225.9400	-81.96	1.78	5.36	-78.38	-13.00	-65.38	H
379.2000	-81.67	2.31	5.98	-78.00	-13.00	-65.00	H
460.6800	-80.45	2.6	5.87	-77.18	-13.00	-64.18	H
621.7000	-78.02	2.95	6.13	-74.84	-13.00	-61.84	H

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.*



**LTE Band 2 / channel bandwidth: 20MHz / 16QAM**

**Operation Mode:** Tx / Low channel

**Test Date:** January 16, 2015

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
66.8600	-71.56	0.93	-1.89	-74.38	-13.00	-61.38	V
157.0700	-81.34	1.47	1.22	-81.59	-13.00	-68.59	V
367.5600	-86.26	2.29	5.78	-82.77	-13.00	-69.77	V
486.8700	-83.86	2.66	5.69	-80.83	-13.00	-67.83	V
644.9800	-83.09	3.02	6.19	-79.92	-13.00	-66.92	V
703.1800	-81.71	3.12	6.36	-78.47	-13.00	-65.47	V
57.1600	-61.41	0.86	-2.8	-65.07	-13.00	-52.07	H
157.0700	-70.88	1.47	1.22	-71.13	-13.00	-58.13	H
323.9100	-77.58	2.17	5.7	-74.05	-13.00	-61.05	H
431.5800	-78.55	2.5	5.81	-75.24	-13.00	-62.24	H
540.2200	-79.66	2.78	6.26	-76.18	-13.00	-63.18	H
705.1200	-77.9	3.13	6.34	-74.69	-13.00	-61.69	H

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



**Operation Mode:** Tx / Middle channel

**Test Date:** January 16, 2015

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
66.8600	-70.94	0.93	-1.89	-73.76	-13.00	-60.76	V
252.1300	-86.86	1.85	5.68	-83.03	-13.00	-70.03	V
261.8300	-83.25	1.92	5.51	-79.66	-13.00	-66.66	V
405.3900	-84.82	2.42	5.94	-81.30	-13.00	-68.30	V
516.9400	-84.29	2.7	6.07	-80.92	-13.00	-67.92	V
697.3600	-81.68	3.11	6.42	-78.37	-13.00	-65.37	V
57.1600	-61.1	0.86	-2.8	-64.76	-13.00	-51.76	H
128.9400	-66.25	1.34	-1.5	-69.09	-13.00	-56.09	H
311.3000	-79.97	2.14	5.76	-76.35	-13.00	-63.35	H
431.5800	-78.29	2.5	5.81	-74.98	-13.00	-61.98	H
625.5800	-79.13	2.96	6.16	-75.93	-13.00	-62.93	H
771.0800	-77.9	3.27	6.35	-74.82	-13.00	-61.82	H

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.*



**Operation Mode:** Tx / High channel

**Test Date:** January 16, 2015

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
66.8600	-68.03	0.93	-1.89	-70.85	-13.00	-57.85	V
158.0400	-81.27	1.47	1.29	-81.45	-13.00	-68.45	V
323.9100	-85.06	2.17	5.7	-81.53	-13.00	-68.53	V
432.5500	-84.08	2.5	5.82	-80.76	-13.00	-67.76	V
543.1300	-84.28	2.79	6.24	-80.83	-13.00	-67.83	V
685.7200	-82.1	3.11	6.5	-78.71	-13.00	-65.71	V
57.1600	-61.33	0.86	-2.8	-64.99	-13.00	-51.99	H
151.2500	-66.6	1.43	0.8	-67.23	-13.00	-54.23	H
252.1300	-82.71	1.85	5.68	-78.88	-13.00	-65.88	H
431.5800	-78.54	2.5	5.81	-75.23	-13.00	-62.23	H
540.2200	-79.16	2.78	6.26	-75.68	-13.00	-62.68	H
703.1800	-77.55	3.12	6.36	-74.31	-13.00	-61.31	H

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.*



**Above 1GHz**

**LTE Band 5 / channel bandwidth: 5MHz / QPSK**

**Operation Mode:** Tx / Low channel

**Test Date:** January 16, 2015

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2400.000	-47.53	6.18	5.96	-47.75	-13.00	-34.75	V
4472.000	-50.36	8.83	9.78	-49.41	-13.00	-36.41	V
N/A							
2393.000	-47.31	6.17	5.95	-47.53	-13.00	-34.53	H
3303.000	-51.32	7.46	8.31	-50.47	-13.00	-37.47	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: Tx / Middle channel

Test Date: January 16, 2015

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2393.000	-47.63	6.17	5.95	-47.85	-13.00	-34.85	V
4493.000	-50.04	8.89	9.79	-49.14	-13.00	-36.14	V
N/A							
2393.000	-49.68	6.17	5.95	-49.90	-13.00	-36.90	H
5116.000	-52.67	9.47	10.65	-51.49	-13.00	-38.49	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.





Operation Mode: Tx / High channel

Test Date: January 16, 2015

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2386.000	-46.58	6.16	5.94	-46.80	-13.00	-33.80	V
4465.000	-50.42	8.82	9.77	-49.47	-13.00	-36.47	V
N/A							
1791.000	-50.42	5.27	5.78	-49.91	-13.00	-36.91	H
2393.000	-49.66	6.17	5.95	-49.88	-13.00	-36.88	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.



**LTE Band 5 / channel bandwidth: 5MHz / 16QAM**

**Operation Mode:** Tx / Low channel

**Test Date:** January 16, 2015

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2393.000	-46.83	6.17	5.95	-47.05	-13.00	-34.05	V
4500.000	-53.18	8.91	9.8	-52.29	-13.00	-39.29	V
N/A							
2393.000	-47.44	6.17	5.95	-47.66	-13.00	-34.66	H
2995.000	-50.9	7.02	7.39	-50.53	-13.00	-37.53	H
N/A							

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.*



Operation Mode: Tx / Middle channel

Test Date: January 16, 2015

Temperature: 25°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2547.000	-49.08	6.42	6.22	-49.28	-13.00	-36.28	V
3898.000	-51.06	8.39	9.3	-50.15	-13.00	-37.15	V
N/A							
2379.000	-46	6.16	5.93	-46.23	-13.00	-33.23	H
4444.000	-52.01	8.76	9.76	-51.01	-13.00	-38.01	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser; with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: Tx / High channel

Test Date: January 16, 2015

Temperature: 25°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2393.000	-45.28	6.17	5.95	-45.50	-13.00	-32.50	V
4472.000	-52.16	8.83	9.78	-51.21	-13.00	-38.21	V
N/A							
1994.000	-51.42	5.7	5.41	-51.71	-13.00	-38.71	H
4752.000	-52.55	9.23	10.2	-51.58	-13.00	-38.58	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser; with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.



**LTE Band 5 / channel bandwidth: 10MHz / QPSK**

**Operation Mode:** Tx / Low channel

**Test Date:** January 16, 2015

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2386.000	-48.78	6.16	5.94	-49.00	-13.00	-36.00	V
4983.000	-45.18	9.38	10.57	-43.99	-13.00	-30.99	V
N/A							
1784.000	-51.35	5.26	5.79	-50.82	-13.00	-37.82	H
3317.000	-50.66	7.48	8.35	-49.79	-13.00	-36.79	H
N/A							

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*



Operation Mode: Tx / Middle channel

Test Date: January 16, 2015

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2533.000	-46.15	6.4	6.19	-46.36	-13.00	-33.36	V
4997.000	-48.54	9.41	10.6	-47.35	-13.00	-34.35	V
N/A							
1791.000	-51.16	5.27	5.78	-50.65	-13.00	-37.65	H
2400.000	-50.18	6.18	5.96	-50.40	-13.00	-37.40	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: Tx / High channel

Test Date: January 16, 2015

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2386.000	-47.19	6.16	5.94	-47.41	-13.00	-34.41	V
3898.000	-50.48	8.39	9.3	-49.57	-13.00	-36.57	V
N/A							
1798.000	-50.61	5.29	5.76	-50.14	-13.00	-37.14	H
2470.000	-51.12	6.3	6.06	-51.36	-13.00	-38.36	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



**LTE Band 5 / channel bandwidth: 10MHz / 16QAM**

**Operation Mode:** Tx / Low channel

**Test Date:** January 16, 2015

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1945.000	-45.76	5.57	5.5	-45.83	-13.00	-32.83	V
2393.000	-47.39	6.17	5.95	-47.61	-13.00	-34.61	V
N/A							
2393.000	-49.64	6.17	5.95	-49.86	-13.00	-36.86	H
4647.000	-50.82	9.13	10.04	-49.91	-13.00	-36.91	H
N/A							

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*





Operation Mode: Tx / Middle channel

Test Date: January 16, 2015

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2540.000	-48.41	6.41	6.2	-48.62	-13.00	-35.62	V
4465.000	-50.96	8.82	9.77	-50.01	-13.00	-37.01	V
N/A							
1798.000	-49.61	5.29	5.76	-49.14	-13.00	-36.14	H
2386.000	-48.73	6.16	5.94	-48.95	-13.00	-35.95	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: Tx / High channel

Test Date: January 16, 2015

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2379.000	-45.7	6.16	5.93	-45.93	-13.00	-32.93	V
3744.000	-46.56	8.23	9.14	-45.65	-13.00	-32.65	V
N/A							
1945.000	-50.27	5.57	5.5	-50.34	-13.00	-37.34	H
2995.000	-51.35	7.02	7.39	-50.98	-13.00	-37.98	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



**LTE Band 2 / channel bandwidth: 5MHz / QPSK**

**Operation Mode:** Tx / Low channel

**Test Date:** January 16, 2015

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2533.000	-49.43	6.4	6.19	-49.64	-13.00	-36.64	V
4486.000	-48.8	8.87	9.79	-47.88	-13.00	-34.88	V
N/A							
3702.000	-47.26	8.2	9.1	-46.36	-13.00	-33.36	H
5557.000	-50.3	10.08	10.81	-49.57	-13.00	-36.57	H
N/A							

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*



Operation Mode: Tx / Middle channel

Test Date: January 16, 2015

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2540.000	-52.1	6.41	6.2	-52.31	-13.00	-39.31	V
4479.000	-52.7	8.85	9.78	-51.77	-13.00	-38.77	V
N/A							
2981.000	-52.74	7.04	7.35	-52.43	-13.00	-39.43	H
3758.000	-42.07	8.23	9.16	-41.14	-13.00	-28.14	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: Tx / High channel

Test Date: January 16, 2015

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2533.000	-49.13	6.4	6.19	-49.34	-13.00	-36.34	V
4178.000	-52.96	8.48	9.54	-51.90	-13.00	-38.90	V
N/A							
2974.000	-53.17	7.05	7.33	-52.89	-13.00	-39.89	H
3814.000	-45.98	8.28	9.21	-45.05	-13.00	-32.05	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



**LTE Band 2 / channel bandwidth: 5MHz / 16QAM**

**Operation Mode:** Tx / Low channel

**Test Date:** January 16, 2015

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2974.000	-54.14	7.05	7.33	-53.86	-13.00	-40.86	V
4465.000	-49.68	8.82	9.77	-48.73	-13.00	-35.73	V
N/A							
3709.000	-47.61	8.21	9.11	-46.71	-13.00	-33.71	H
5557.000	-50.46	10.08	10.81	-49.73	-13.00	-36.73	H
N/A							

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*



Operation Mode: Tx / Middle channel

Test Date: January 16, 2015

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2540.000	-50.58	6.41	6.2	-50.79	-13.00	-37.79	V
3758.000	-51.84	8.23	9.16	-50.91	-13.00	-37.91	V
N/A							
3758.000	-40.25	8.23	9.16	-39.32	-13.00	-26.32	H
5494.000	-52.41	9.93	10.8	-51.54	-13.00	-38.54	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: Tx / High channel

Test Date: January 16, 2015

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2547.000	-52.15	6.42	6.22	-52.35	-13.00	-39.35	V
3898.000	-52.2	8.39	9.3	-51.29	-13.00	-38.29	V
N/A							
2988.000	-53.11	7.03	7.37	-52.77	-13.00	-39.77	H
3814.000	-46.05	8.28	9.21	-45.12	-13.00	-32.12	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.





**LTE Band 2 / channel bandwidth: 10MHz / QPSK**

**Operation Mode:** Tx / Low channel

**Test Date:** January 16, 2015

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2519.000	-41.22	6.38	6.15	-41.45	-13.00	-28.45	V
4486.000	-53.07	8.87	9.79	-52.15	-13.00	-39.15	V
N/A							
2967.000	-52.53	7.06	7.31	-52.28	-13.00	-39.28	H
3709.000	-49.18	8.21	9.11	-48.28	-13.00	-35.28	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: Tx / Middle channel

Test Date: January 16, 2015

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2680.000	-50.21	6.68	6.57	-50.32	-13.00	-37.32	V
3870.000	-50.87	8.35	9.27	-49.95	-13.00	-36.95	V
N/A							
2974.000	-50.78	7.05	7.33	-50.50	-13.00	-37.50	H
3758.000	-43.15	8.23	9.16	-42.22	-13.00	-29.22	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: Tx / High channel

Test Date: January 16, 2015

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2526.000	-47.46	6.39	6.17	-47.68	-13.00	-34.68	V
3870.000	-51.97	8.35	9.27	-51.05	-13.00	-38.05	V
N/A							
2995.000	-52.43	7.02	7.39	-52.06	-13.00	-39.06	H
3800.000	-46.26	8.26	9.2	-45.32	-13.00	-32.32	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



**LTE Band 2 / channel bandwidth: 10MHz / 16QAM**

**Operation Mode:** Tx / Low channel

**Test Date:** January 16, 2015

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2547.000	-50.23	6.42	6.22	-50.43	-13.00	-37.43	V
4983.000	-45.53	9.38	10.57	-44.34	-13.00	-31.34	V
N/A							
3709.000	-49.18	8.21	9.11	-48.28	-13.00	-35.28	H
6026.000	-49.3	10.78	10.92	-49.16	-13.00	-36.16	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: Tx / Middle channel

Test Date: January 16, 2015

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2533.000	-52.18	6.4	6.19	-52.39	-13.00	-39.39	V
4472.000	-50.54	8.83	9.78	-49.59	-13.00	-36.59	V
N/A							
2694.000	-52.56	6.72	6.6	-52.68	-13.00	-39.68	H
3758.000	-45.68	8.23	9.16	-44.75	-13.00	-31.75	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: Tx / High channel

Test Date: January 16, 2015

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2687.000	-52.26	6.7	6.59	-52.37	-13.00	-39.37	V
4486.000	-50.86	8.87	9.79	-49.94	-13.00	-36.94	V
N/A							
2967.000	-52.12	7.06	7.31	-51.87	-13.00	-38.87	H
3800.000	-45.66	8.26	9.2	-44.72	-13.00	-31.72	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



**LTE Band 2 / channel bandwidth: 20MHz / QPSK**

**Operation Mode:** Tx / Low channel

**Test Date:** January 16, 2015

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2540.000	-51.02	6.41	6.2	-51.23	-13.00	-38.23	V
4493.000	-51.28	8.89	9.79	-50.38	-13.00	-37.38	V
N/A							
3737.000	-50.65	8.22	9.14	-49.73	-13.00	-36.73	H
5312.000	-52.4	9.67	10.72	-51.35	-13.00	-38.35	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: Tx / Middle channel

Test Date: January 16, 2015

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2547.000	-51.94	6.42	6.22	-52.14	-13.00	-39.14	V
4493.000	-51.95	8.89	9.79	-51.05	-13.00	-38.05	V
N/A							
3758.000	-46.9	8.23	9.16	-45.97	-13.00	-32.97	H
6026.000	-50.61	10.78	10.92	-50.47	-13.00	-37.47	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser; with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.





Operation Mode: Tx / High channel

Test Date: January 16, 2015

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2526.000	-48.83	6.39	6.17	-49.05	-13.00	-36.05	V
4990.000	-52.61	9.39	10.58	-51.42	-13.00	-38.42	V
N/A							
3800.000	-46.87	8.26	9.2	-45.93	-13.00	-32.93	H
5585.000	-51.76	10.15	10.82	-51.09	-13.00	-38.09	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.



**LTE Band 2 / channel bandwidth: 20MHz / 16QAM**

**Operation Mode:** Tx / Low channel

**Test Date:** January 16, 2015

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2687.000	-51.98	6.7	6.59	-52.09	-13.00	-39.09	V
4465.000	-51.59	8.82	9.77	-50.64	-13.00	-37.64	V
N/A							
3730.000	-50.13	8.22	9.13	-49.22	-13.00	-36.22	H
6551.000	-48.61	11.14	11.36	-48.39	-13.00	-35.39	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: Tx / Middle channel

Test Date: January 16, 2015

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2540.000	-53.91	6.41	6.2	-54.12	-13.00	-41.12	V
4388.000	-53.54	8.64	9.71	-52.47	-13.00	-39.47	V
N/A							
3758.000	-49.43	8.23	9.16	-48.50	-13.00	-35.50	H
5074.000	-52.44	9.44	10.63	-51.25	-13.00	-38.25	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser; with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: Tx / High channel

Test Date: January 16, 2015

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2533.000	-50.77	6.4	6.19	-50.98	-13.00	-37.98	V
4983.000	-43.01	9.38	10.57	-41.82	-13.00	-28.82	V
N/A							
2498.000	-51.59	6.35	6.1	-51.84	-13.00	-38.84	H
3800.000	-48.5	8.26	9.2	-47.56	-13.00	-34.56	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.



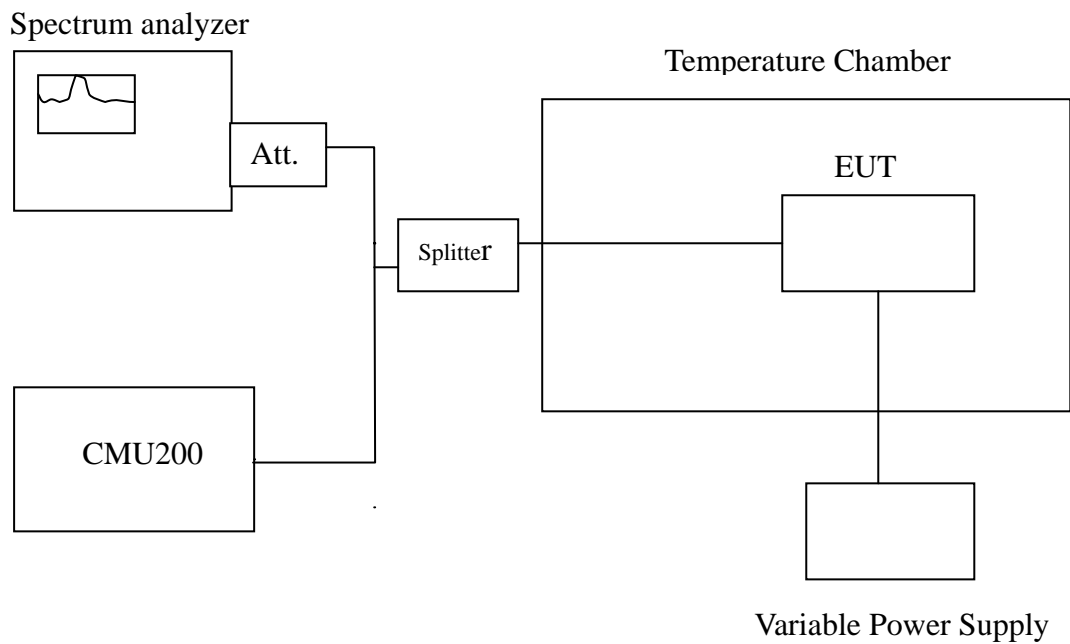
## 7.7 FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT

### LIMIT

According to FCC §2.1055, FCC §24.235, RSS-132 (4.3) & RSS-133 (6.3).

Frequency Tolerance: 2.5 ppm

### Test Configuration



**Remark:** Measurement setup for testing on Antenna connector.



## **TEST PROCEDURE**

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.



**TEST RESULTS**

No non-compliance noted.

**LTE Band 5**

Reference Frequency: LTE Band 5 836 MHz @ 20°C						
Limit: ± 2.5 ppm = 2091.3Hz						
Power Supply Vdc	Environment Temperature (°C)	5M Frequency (Hz)	Delta (Hz)	10M Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.7	50	836499996	5	836499994	-11	2091
	40	836499992	1	836499993	-12	
	30	836499995	4	836499996	-9	
	20	836499991	0	836500005	0	
	10	836499993	2	836499988	-17	
	0	836499993	2	836499995	-10	
	-10	836499993	2	836499994	-11	
	-20	836499999	8	836499998	-7	
	-30	836499992	1	836499946	-59	

**LTE Band 2**

Reference Frequency: LTE Band 2 4700 MHz @ 20°C								
Limit: ± 2.5 ppm = 4700Hz								
Power Supply Vdc	Environment Temperature (°C)	5M Frequency (Hz)	Delta (Hz)	10M Frequency (Hz)	Delta (Hz)	20M Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.7	50	1879999998	-4	1879999995	-30	1879999979	-46	4700
	40	1879999995	-7	1879999998	-27	1879999985	-40	
	30	1879999994	-8	1879999995	-30	1879999986	-39	
	20	1880000002	0	1880000025	0	1880000009	0	
	10	1879999995	-7	1879999999	-26	1879999995	-30	
	0	1879999996	-6	1879999992	-33	1879999991	-34	
	-10	1879999998	-4	1879999994	-31	1879999995	-30	
	-20	1879999997	-5	1879999995	-30	1880000011	-14	
	-30	1879999992	-10	1879999988	-37	1880000005	-20	



## 7.8 FREQUENCY STABILITY V.S. VOLTAGE MEASUREMENT

### LIMIT

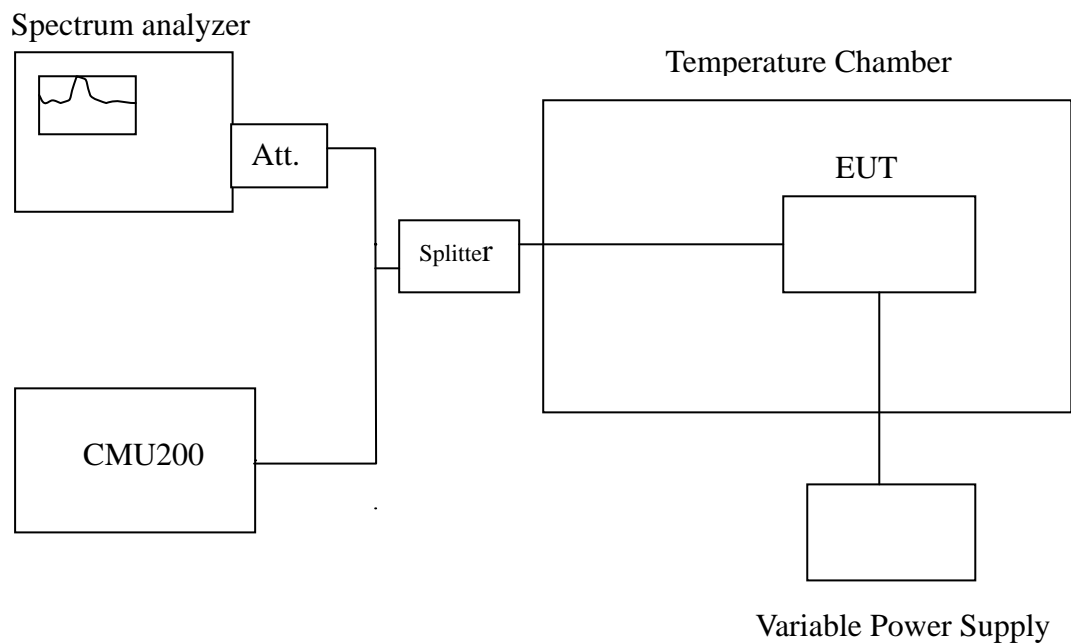
According to FCC §2.1055, FCC §24.235,

Frequency Tolerance: 2.5 ppm.

According to RSS-132 (4.3) & RSS-133 (6.3).

The carrier frequency shall not depart from the reference frequency in excess of  $\pm 2.5$  ppm for mobile stations and  $\pm 1.0$  ppm for base stations.

### Test Configuration



**Remark:** Measurement setup for testing on Antenna connector.





**TEST PROCEDURE**

Set chamber temperature to 20°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specify extreme voltage variation (± 15%) and endpoint, record the maximum frequency change.

**TEST RESULTS**

*No non-compliance noted.*

**LTE Band 5**

Reference Frequency: LTE Band 5 836 MHz @ 20°C						
Limit: ± 2.5 ppm = 2091.3Hz						
Power Supply Vdc	Environment Temperature (°C)	5M Frequency (Hz)	Delta (Hz)	10M Frequency (Hz)	Delta (Hz)	Limit (Hz)
4.07	20	836499995	4	836500008	3	2091
3.7		836499991	0	836500005	0	
3.145		836500011	20	836500045	40	

**LTE Band 2**

Reference Frequency: LTE Band 2 4700 MHz @ 20°C								
Limit: ± 2.5 ppm = 4700Hz								
Power Supply Vdc	Environment Temperature (°C)	5M Frequency (Hz)	Delta (Hz)	10M Frequency (Hz)	Delta (Hz)	20M Frequency (Hz)	Delta (Hz)	Limit (Hz)
4.07	20	1880000011	9	1880000005	-20	1880000002	-7	4700
3.7		1880000002	0	1880000025	0	1880000009	0	
3.145		1880000015	13	1880000002	-23	1880000012	3	