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

TEST REPORT

For

LE910-NAG

Trade Name: Telit

Model: LE910-NAG

Issued to

Telit Communications S.p.A.
Via Stazione di Prosecco 5/B
34010 Sgonico, Trieste - Italy

Issued by

Compliance Certification Services Inc.
No.11, Wugong 6th Rd., Wugu Dist.,
New Taipei City 24891, Taiwan. (R.O.C.)
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Testing Laboratory
1309

Revision History

Rev.		Issue Date		Revisions	Effect Page	Revised By
00		May 10, 2014		Initial Issue	ALL	Angel Cheng

TABLE OF CONTENTS

1. TEST RESULT CERTIFICATION 4

2. EUT DESCRIPTION 5

3. TEST METHODOLOGY 6

3.1 EUT CONFIGURATION 6
3.2 EUT EXERCISE 6
3.3 GENERAL TEST PROCEDURES 6
3.4 DESCRIPTION OF TEST MODES 7

4. INSTRUMENT CALIBRATION 8

4.1 MEASURING INSTRUMENT CALIBRATION 8
4.2 MEASUREMENT EQUIPMENT USED 9
4.3 MEASUREMENT UNCERTAINTY 10

5. FACILITIES AND ACCREDITATIONS 11

5.1 FACILITIES 11
5.2 EQUIPMENT 11
5.3 LABORATORY ACCREDITATIONS AND LISTING 11
5.4 TABLE OF ACCREDITATIONS AND LISTINGS 12

6. SETUP OF EQUIPMENT UNDER TEST 13

6.1 SETUP CONFIGURATION OF EUT 13
6.2 SUPPORT EQUIPMENT 13

7. FCC PART 22 & 24 REQUIREMENTS & INDUSTRY CANADA RSS-132 & RSS-133 ... 14

7.1 99% BANDWIDTH 14
7.2 PEAK POWER 33
7.3 AVERAGE POWER 44
7.4 ERP & EIRP MEASUREMENT 48
7.5 OUT OF BAND EMISSION AT ANTENNA TERMINALS 55
7.6 FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT 83
7.7 FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT 145
7.8 FREQUENCY STABILITY V.S. VOLTAGE MEASUREMENT 148

APPENDIX II PHOTOGRAPHS OF TEST SETUP 150

APPENDIX 1 - PHOTOGRAPHS OF EUT

1. TEST RESULT CERTIFICATION

Applicant:	Telit Communications S.p.A. Via Stazione di Prosecco 5/B 34010 Sgonico, Trieste - Italy
Manufacturer:	Telit Communications S.p.A. Via Stazione di Prosecco 5/B 34010 Sgonico, Trieste - Italy
Equipment Under Test:	LE910-NAG
Trade Name:	Telit
Model Number:	LE910-NAG
Date of Test:	May 4, 2014

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:

Miller Lee
Section Manager
Compliance Certification Services Inc.

Reviewed by:

Angel Cheng
Section Manager
Compliance Certification Services Inc.

2. EUT DESCRIPTION

Product	LE910-NAG	
Trade Name	Telit	
Model Number	LE910-NAG	
Model Discrepancy	N/A	
Received Date	April 15, 2014	
Power Supply	DC 3.8V powered from Host device.	
Frequency Range	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
Modulation Technique	LTE Band 2	QPSK, 16QAM
	LTE Band 5	QPSK, 16QAM
Maximum EIRP Power	LTE Band 2 Channel Bandwidth: 5MHz	QPSK: 19.18dBm 16QAM: 19.85dBm
	LTE Band 2 Channel Bandwidth: 10MHz	QPSK: 17.85dBm 16QAM: 18.37dBm
	LTE Band 2 Channel Bandwidth: 20MHz	QPSK: 17.02dBm 16QAM: 18.31dBm
Maximum ERP Power	LTE Band 5 Channel Bandwidth: 5MHz	QPSK: 26.59dBm 16QAM: 23.30dBm
	LTE Band 5 Channel Bandwidth: 10MHz	QPSK: 22.21dBm 16QAM: 23.13dBm
Category	LTE: 3	
Antenna Specification	1/4l Antenna / Gain: 2.14 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.

3.1EUT 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.

3.2EUT EXERCISE

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

3.3GENERAL 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.

3.4DESCRIPTION OF TEST MODES

The EUT (model: LE910-NAG) 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

4. INSTRUMENT CALIBRATION

4.1MEASURING 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.

4.2MEASUREMENT 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	MY43360131	03/19/2015
Power Meter	Anritsu	ML2495A	1012009	06/04/2014
Power Sensor	Anritsu	MA2411A	0917072	06/04/2014

3M Semi Anechoic Chamber				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	Agilent	E4446A	US42510268	11/05/2014
EMI Test Receiver	R&S	ESCI	100064	02/16/2015
Pre-Amplifier	Mini-Circults	ZFL-1000LN	SF350700823	01/11/2015
Bilog Antenna	Sunol Sciences	JB3	A030105	02/16/2015
Bilog Antenna	Sunol Sciences	JB3	A030205	10/01/2014
Horn Antenna	EMCO	3117	00055165	02/16/2015
Horn Antenna	EMCO	3117	00055167	01/27/2015
Horn Antenna	EMCO	3116	26370	01/06/2015
Loop Antenna	EMCO	6502	8905/2356	06/12/2014
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
Site NSA	CCS	N/A	N/A	12/21/2014
Test S/W	EZ-EMC (CCS-3A1RE)			

4.3MEASUREMENT 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

5.1FACILITIES

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.

5.2EQUIPMENT

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.”

5.3LABORATORY 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.

5.4TABLE 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	TAF Testing Laboratory 1309
Canada	Industry Canada	3M Semi Anechoic Chamber (IC 2324G-1 / IC 2324G-2) to perform	Canada 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

6.1SETUP CONFIGURATION OF EUT

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

6.2SUPPORT 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.*

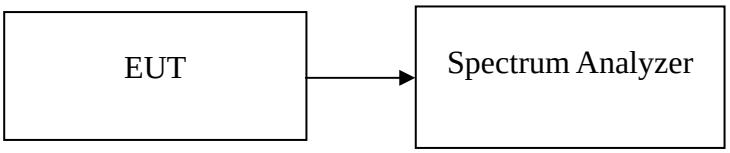
7. FCC PART 22 & 24 REQUIREMENTS & INDUSTRY CANADA RSS-132 & RSS-133

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

LTE Band 5

CHANNEL BANDWIDTH: 5MHz / QPSK

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
Low	826.5	4.5073
Mid	836	4.4907
High	846.5	4.5010

CHANNEL BANDWIDTH: 5MHz / 16QAM

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
Low	826.5	4.5028
Mid	836	4.5002
High	846.5	4.5002

CHANNEL BANDWIDTH: 10MHz / QPSK

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
Low	829	8.9998
Mid	836	8.9291
High	844	8.9992

CHANNEL BANDWIDTH: 10MHz / 16QAM

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
Low	829	8.9768
Mid	836	8.9489
High	844	8.9967

LTE Band 2

CHANNEL BANDWIDTH: 5MHz / QPSK

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
Low	1852.5	4.5035
Mid	1880	4.4936
High	1907.5	4.4977

CHANNEL BANDWIDTH: 5MHz / 16QAM

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
Low	1852.5	4.4937
Mid	1880	4.5040
High	1907.5	4.5058

CHANNEL BANDWIDTH: 10MHz / QPSK

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
Low	1855	9.0023
Mid	1880	8.9898
High	1905	9.0213

CHANNEL BANDWIDTH: 10MHz / 16QAM

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
Low	1855	8.8793
Mid	1880	8.9663
High	1905	8.9585

CHANNEL BANDWIDTH: 20MHz / QPSK

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
Low	1860	17.8836
Mid	1880	17.9264
High	1900	17.9473

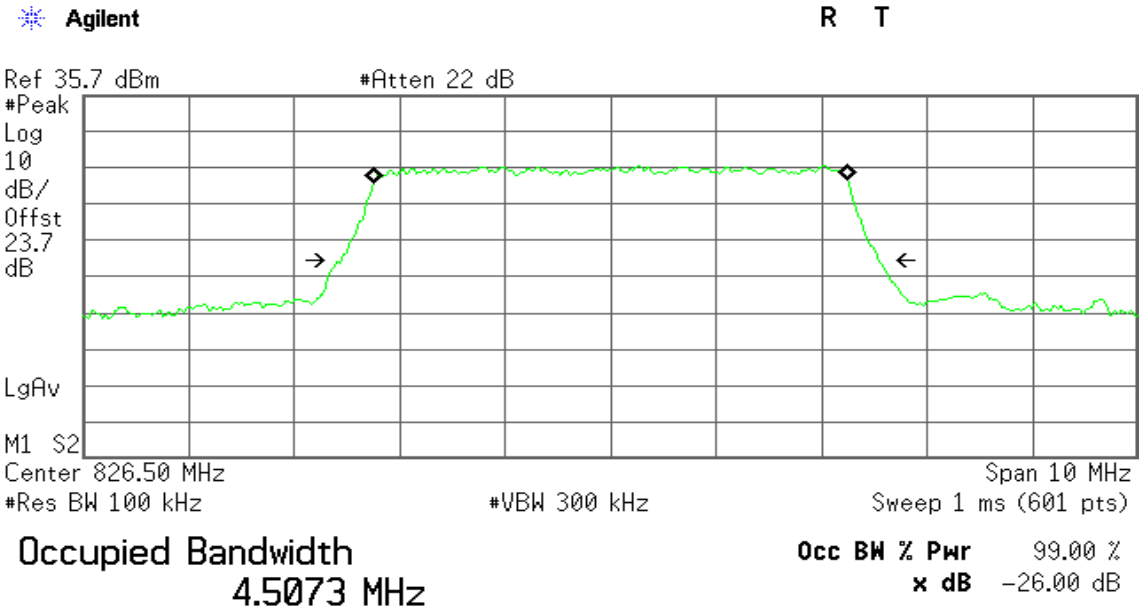
CHANNEL BANDWIDTH: 20MHz / 16QAM

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
Low	1860	17.8762
Mid	1880	17.9096
High	1900	17.9158

LTE Band 5

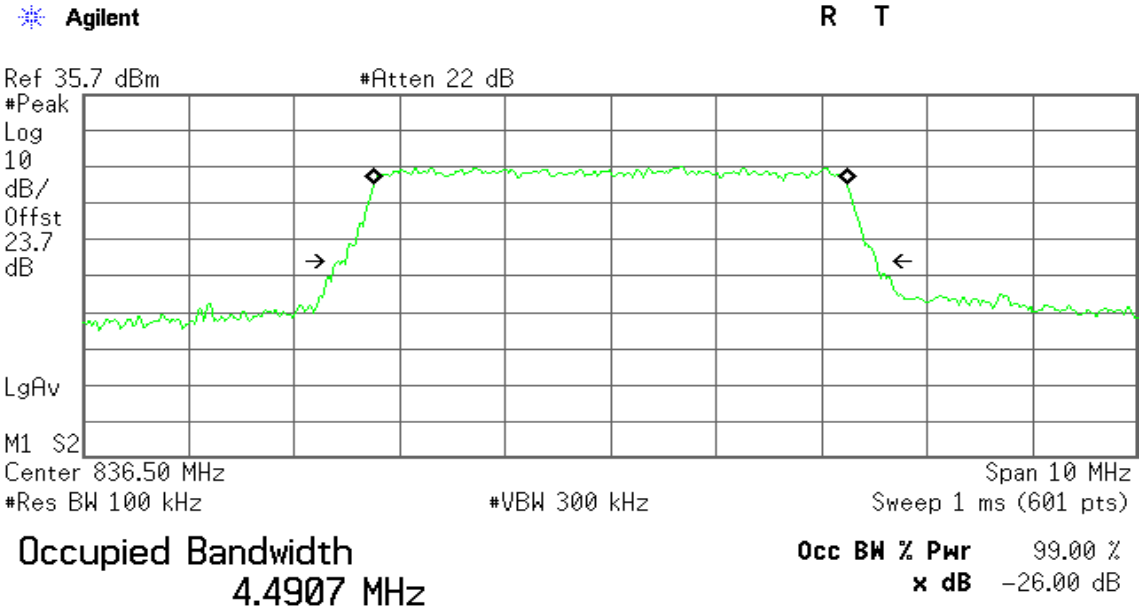
CHANNEL BANDWIDTH: 5MHz / QPSK

CH Low



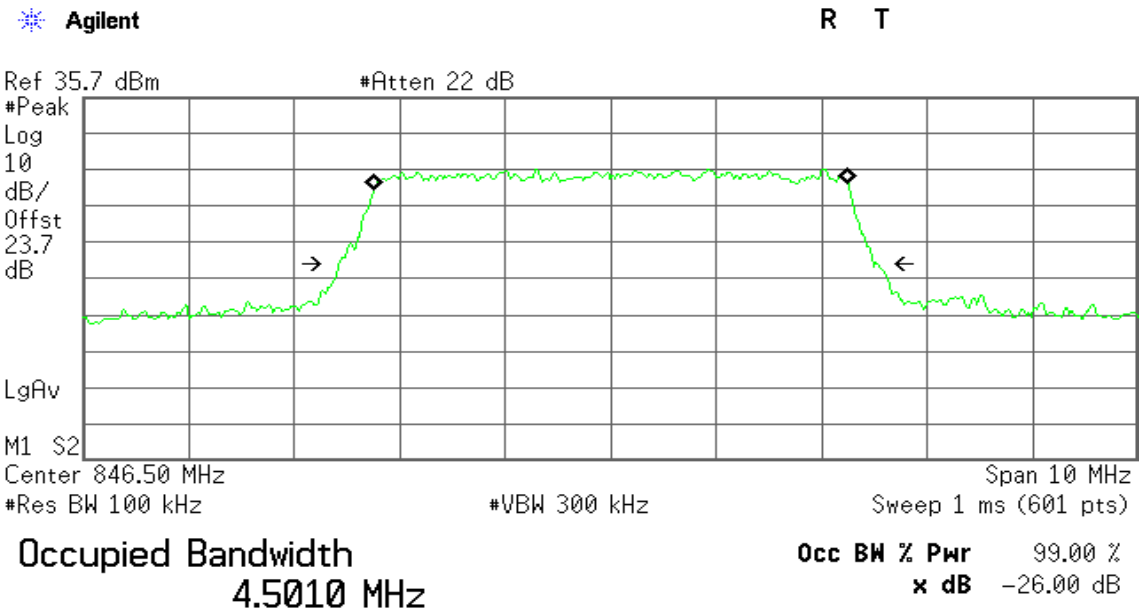
Transmit Freq Error	2.478 kHz
x dB Bandwidth	5.099 MHz

CH Mid



Transmit Freq Error	760.424 Hz
x dB Bandwidth	5.076 MHz

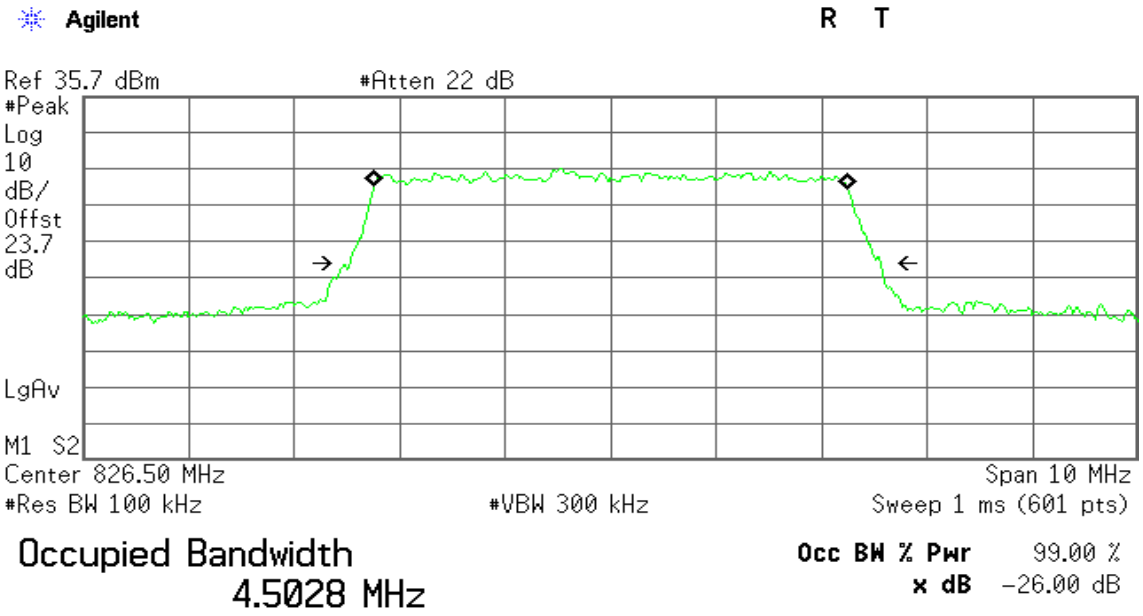
CH High



Transmit Freq Error	6.720 kHz
x dB Bandwidth	5.117 MHz

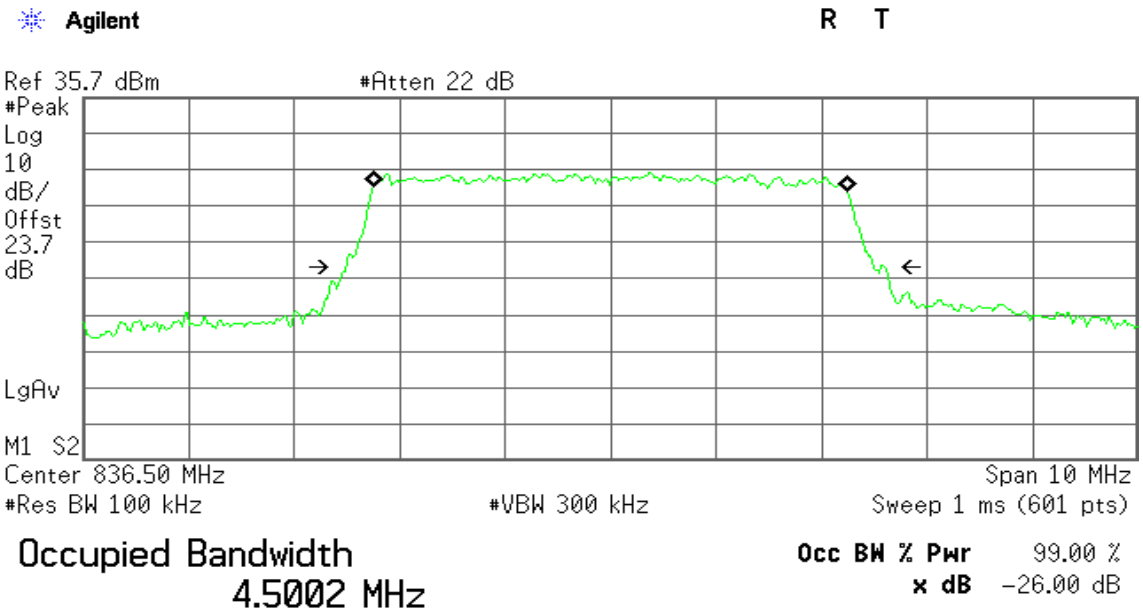
CHANNEL BANDWIDTH: 5MHz / 16QAM

CH Low



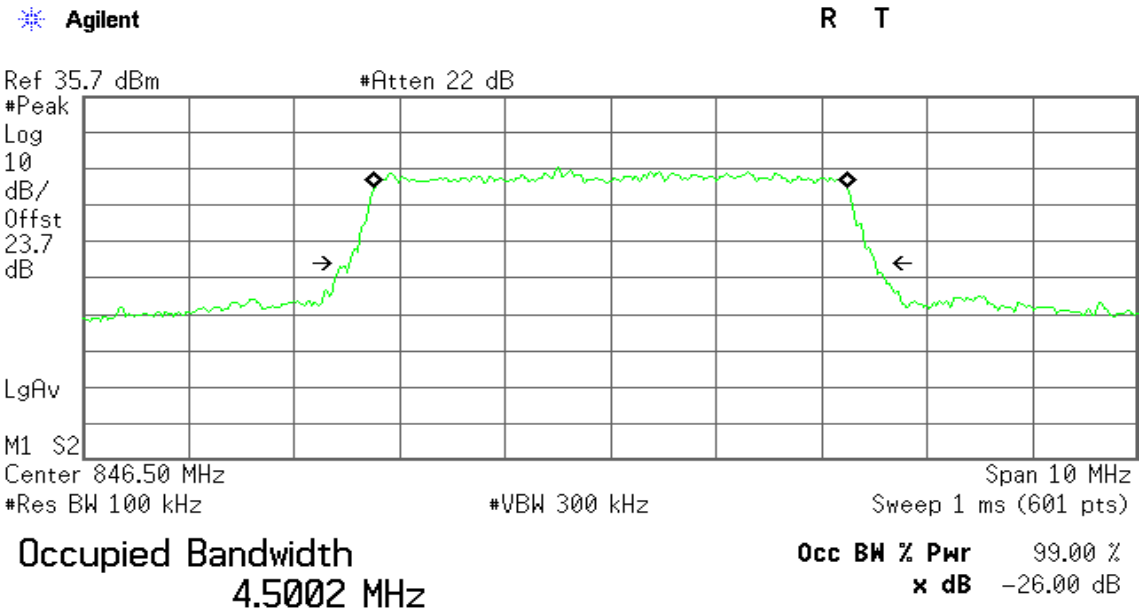
Transmit Freq Error	6.699 kHz
x dB Bandwidth	5.040 MHz

CH Mid



Transmit Freq Error	-3.862 kHz
x dB Bandwidth	5.111 MHz

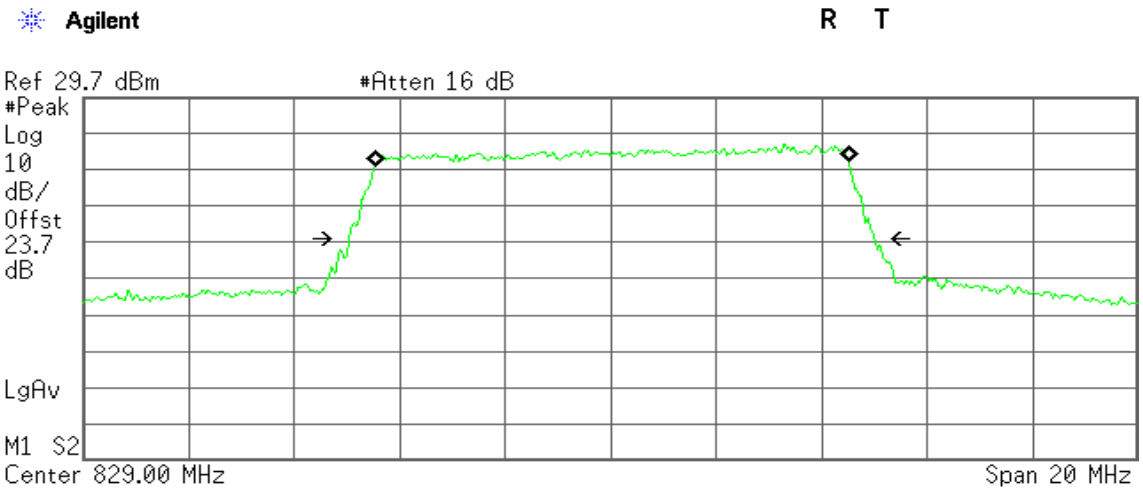
CH High



Transmit Freq Error	1.062 kHz
x dB Bandwidth	4.992 MHz

CHANNEL BANDWIDTH: 10MHz / QPSK

CH Low

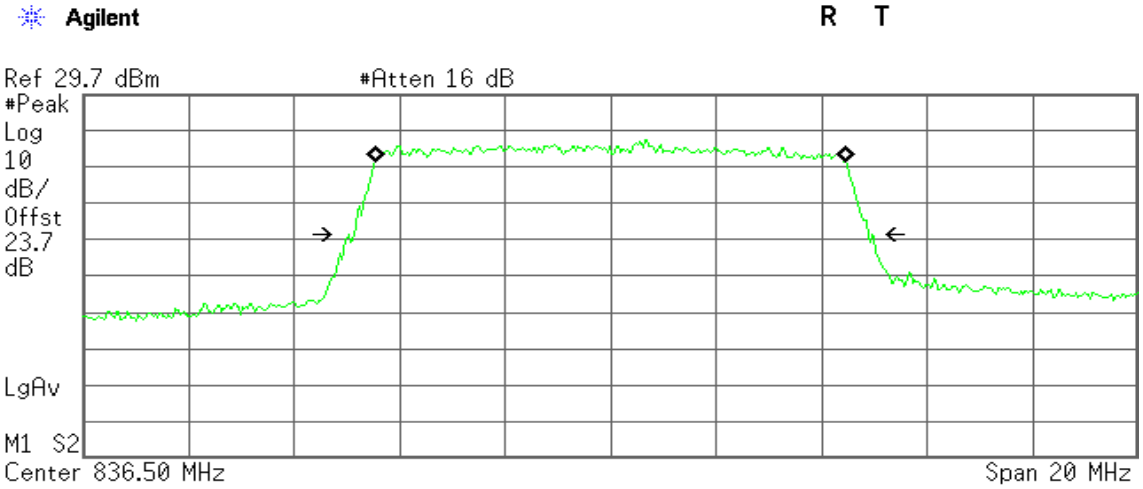


Occupied Bandwidth
8.9998 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 27.414 kHz
x dB Bandwidth 9.982 MHz

CH Mid

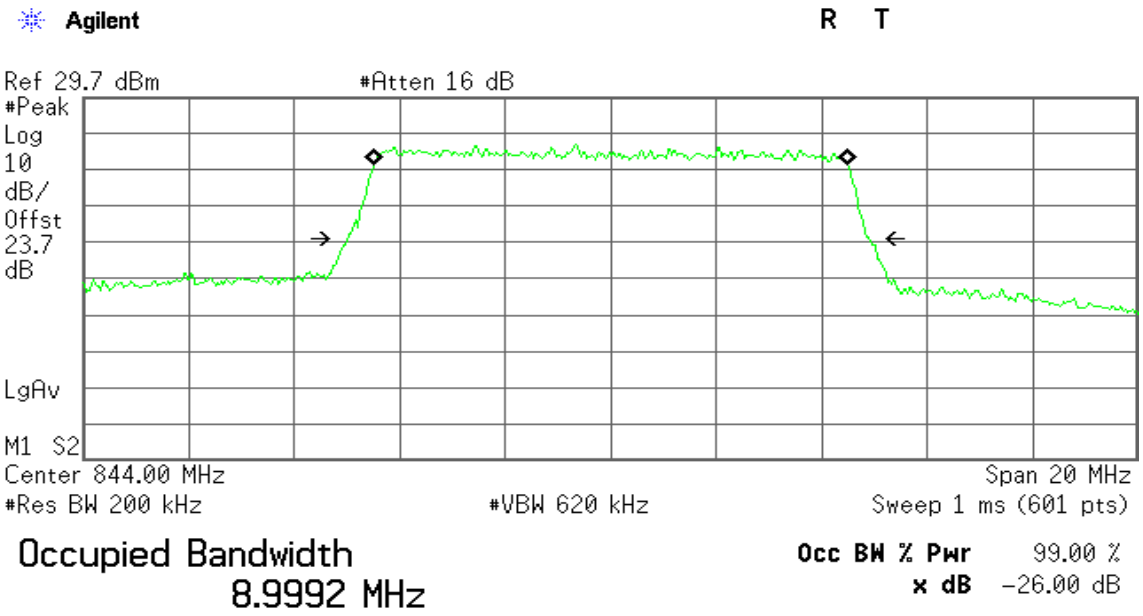


Occupied Bandwidth
8.9291 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 326.077 Hz
x dB Bandwidth 9.875 MHz

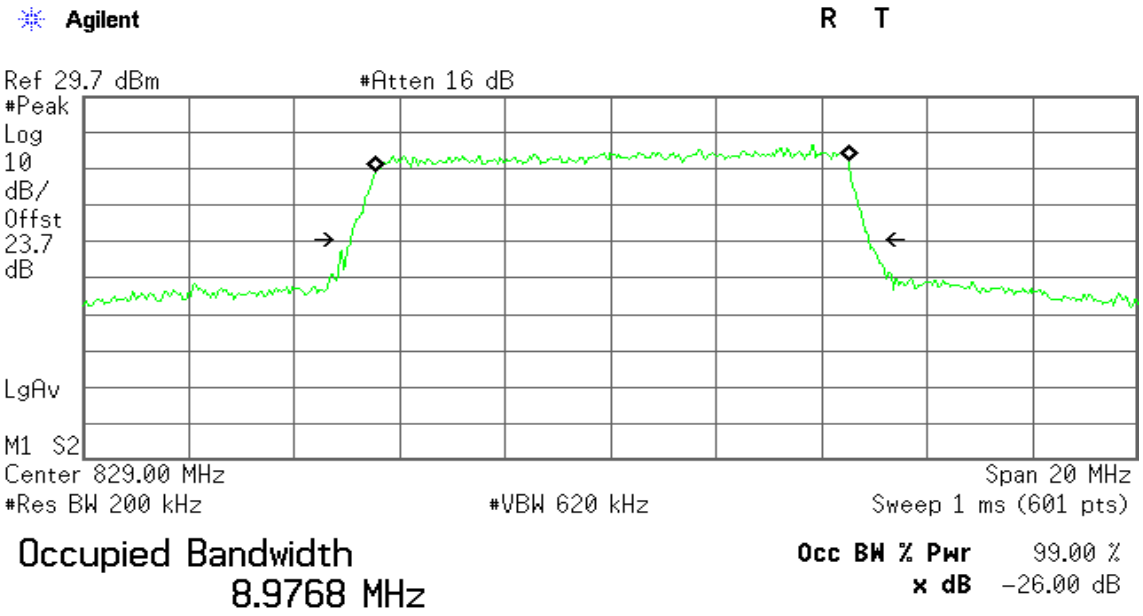
CH High



Transmit Freq Error	2.046 kHz
x dB Bandwidth	9.909 MHz

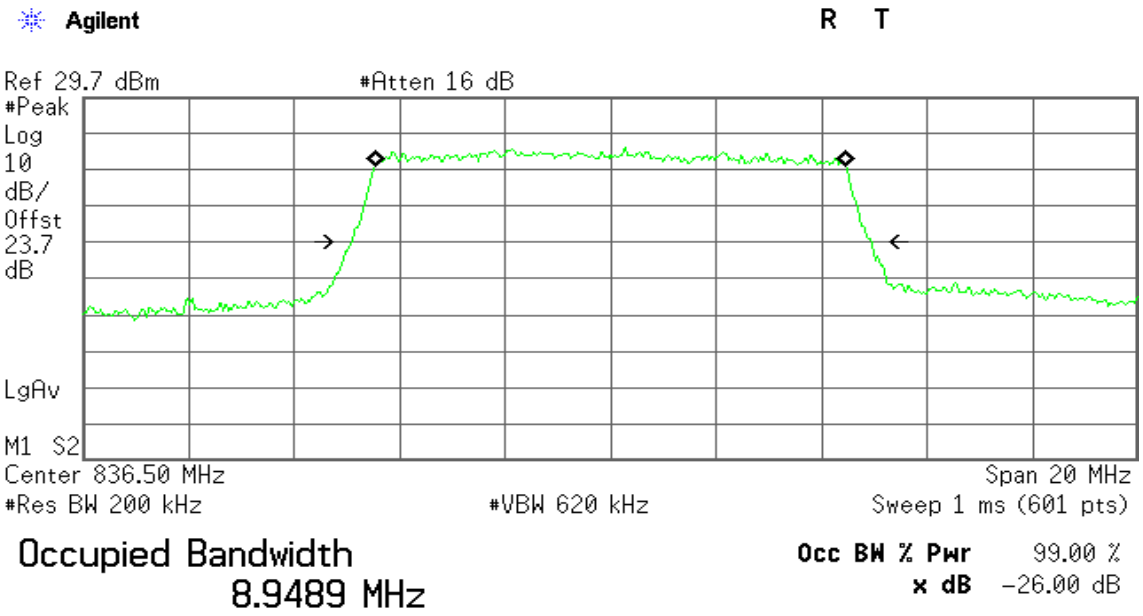
CHANNEL BANDWIDTH: 10MHz / 16QAM

CH Low



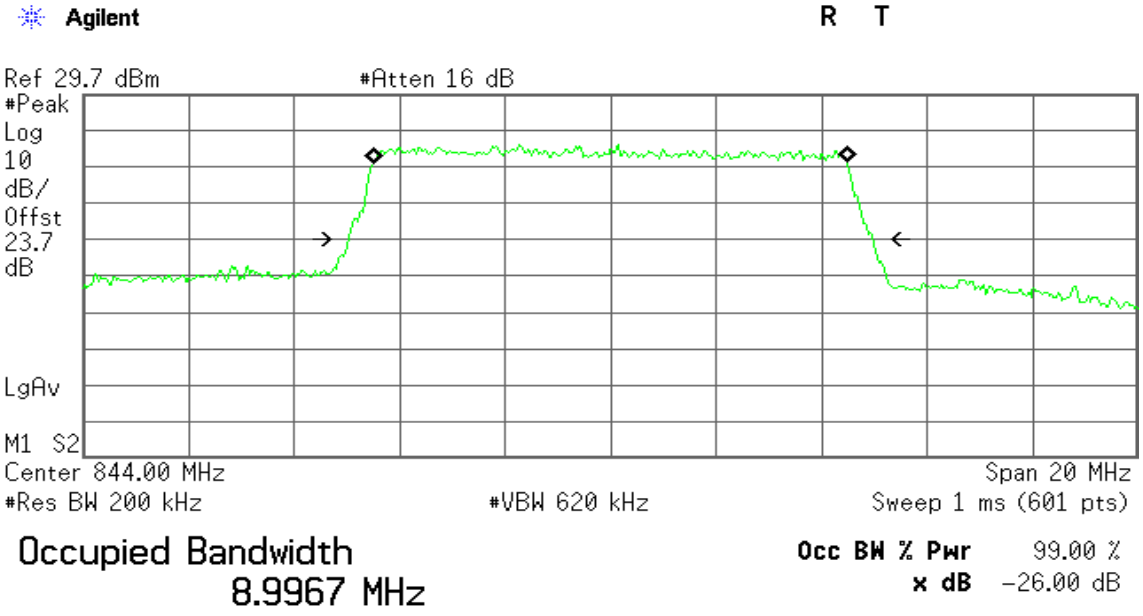
Transmit Freq Error	29.180 kHz
x dB Bandwidth	9.837 MHz

CH Mid



Transmit Freq Error -5.736 kHz
x dB Bandwidth 9.876 MHz

CH High

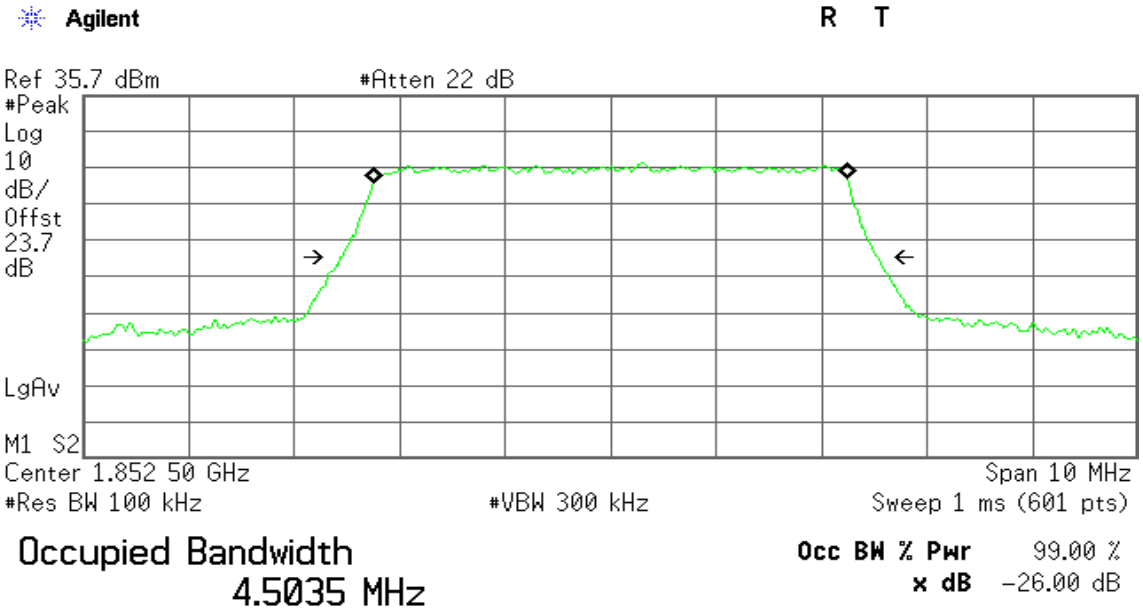


Transmit Freq Error -13.789 kHz
x dB Bandwidth 9.963 MHz

LTE Band 2

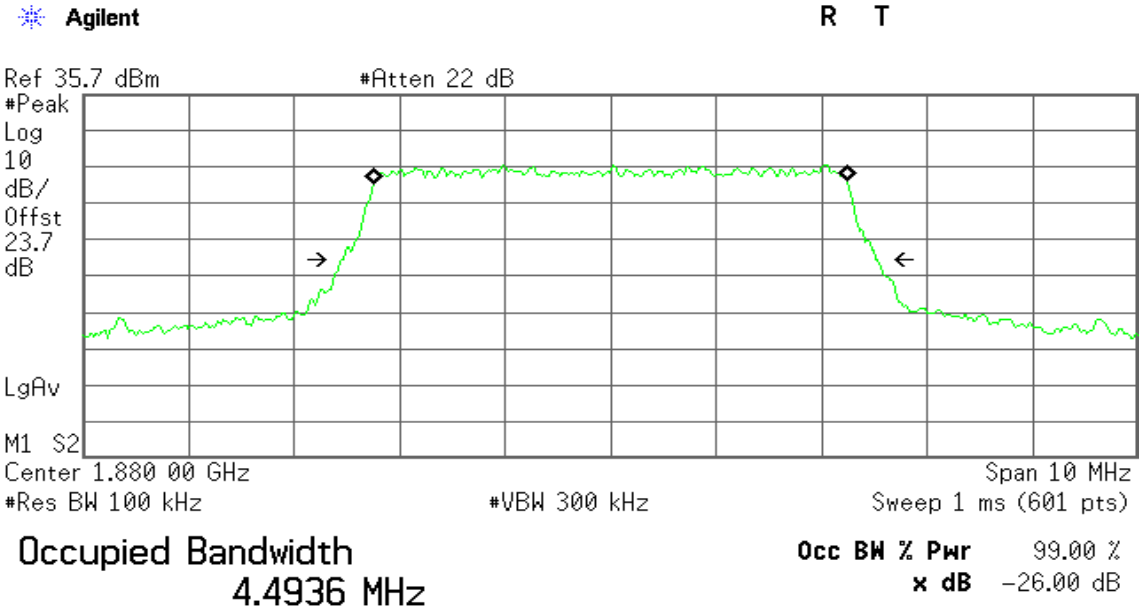
CHANNEL BANDWIDTH: 5MHz / QPSK

CH Low



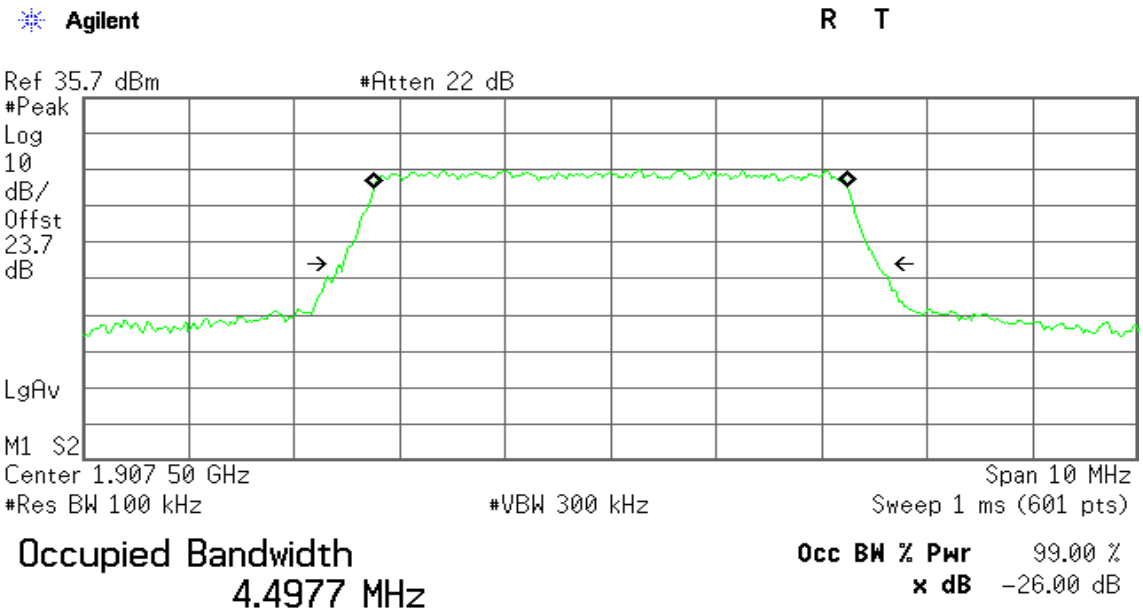
Transmit Freq Error -1.369 kHz
x dB Bandwidth 5.095 MHz

CH Mid



Transmit Freq Error 888.447 Hz
x dB Bandwidth 5.072 MHz

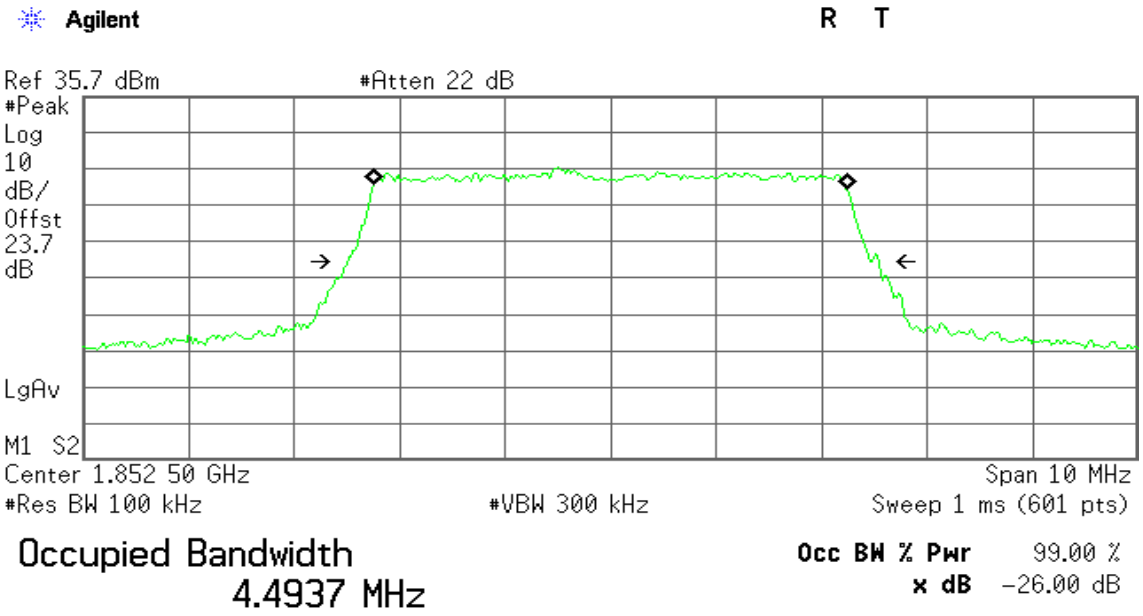
CH High



Transmit Freq Error -1.154 kHz
x dB Bandwidth 5.070 MHz

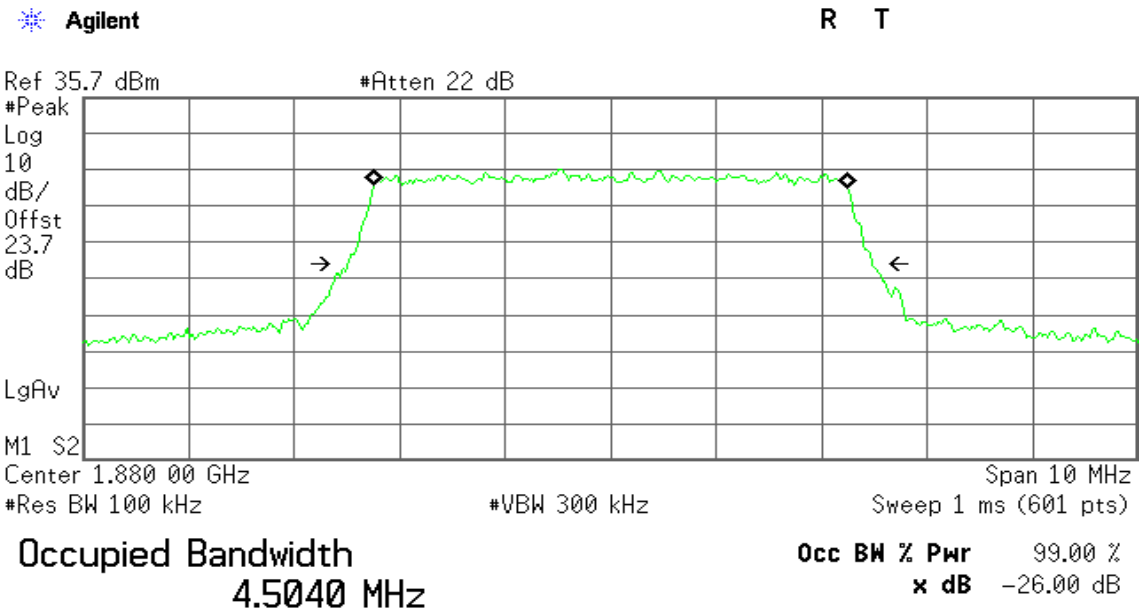
CHANNEL BANDWIDTH: 5MHz / 16QAM

CH Low



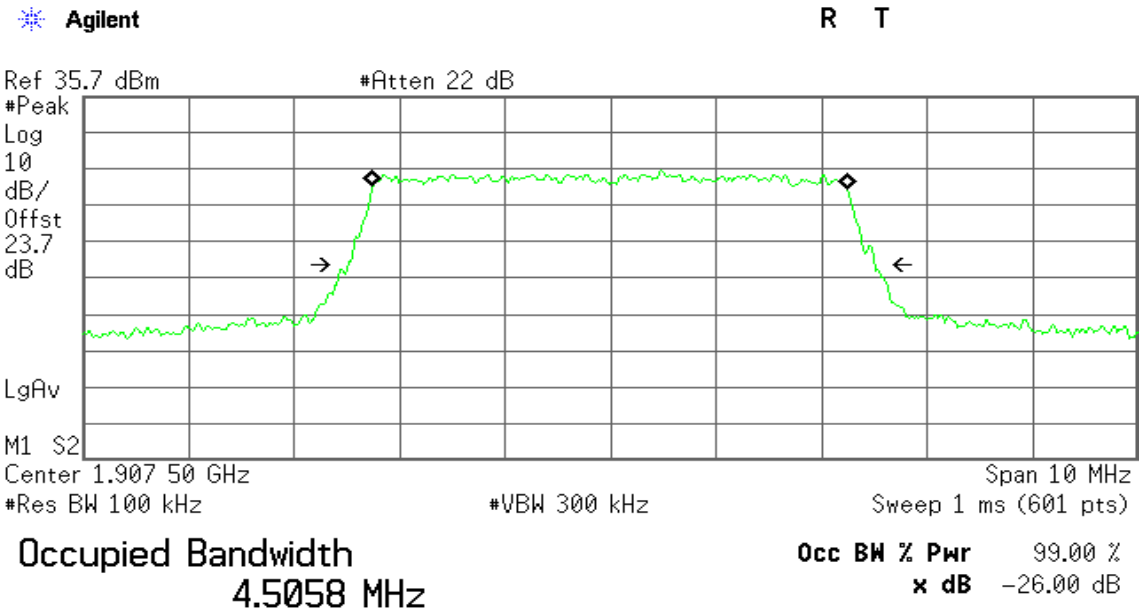
Transmit Freq Error -3.779 kHz
x dB Bandwidth 5.046 MHz

CH Mid



Transmit Freq Error 150.022 Hz
x dB Bandwidth 4.978 MHz

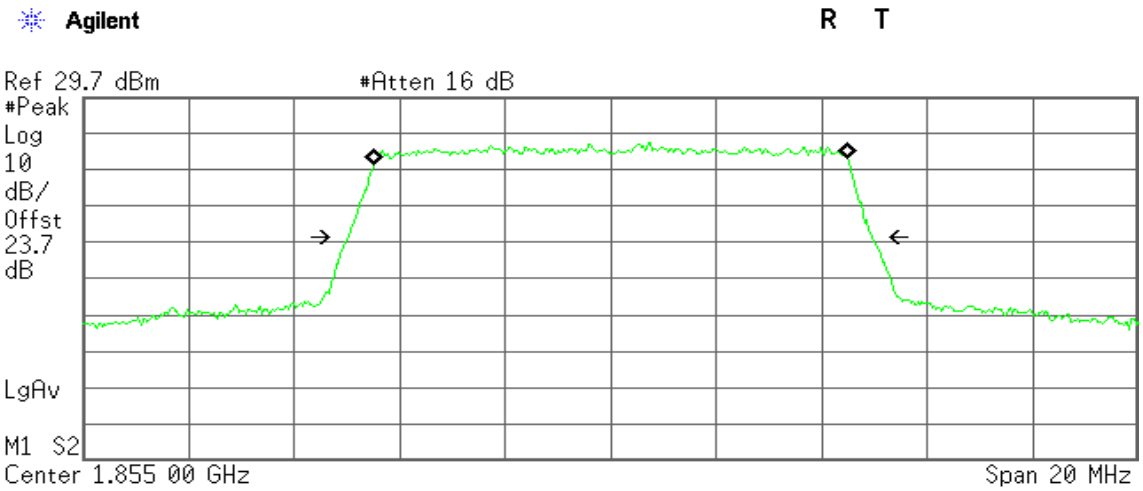
CH High



Transmit Freq Error -5.434 kHz
x dB Bandwidth 5.003 MHz

CHANNEL BANDWIDTH: 10MHz / QPSK

CH Low

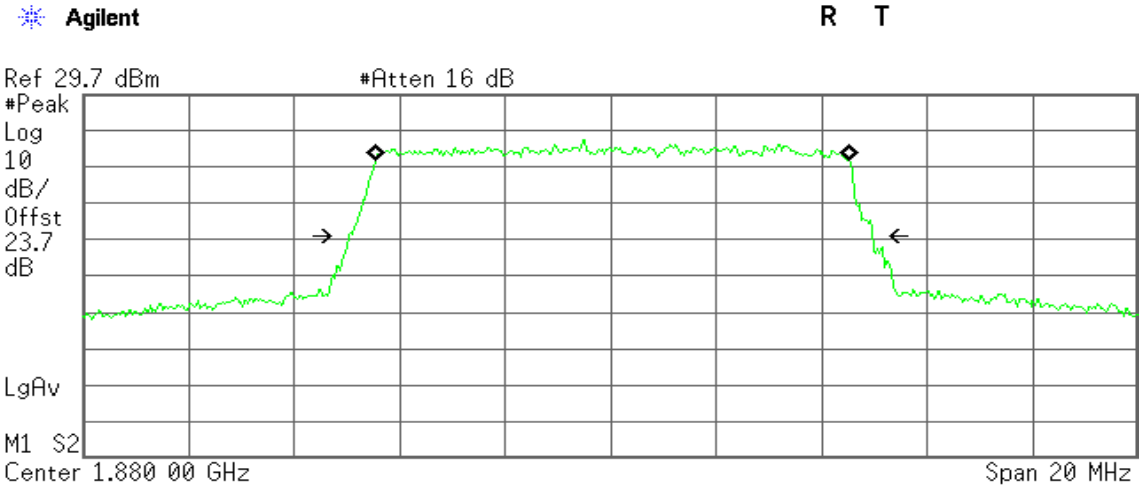


Occupied Bandwidth
9.0023 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 10.082 kHz
x dB Bandwidth 9.944 MHz

CH Mid

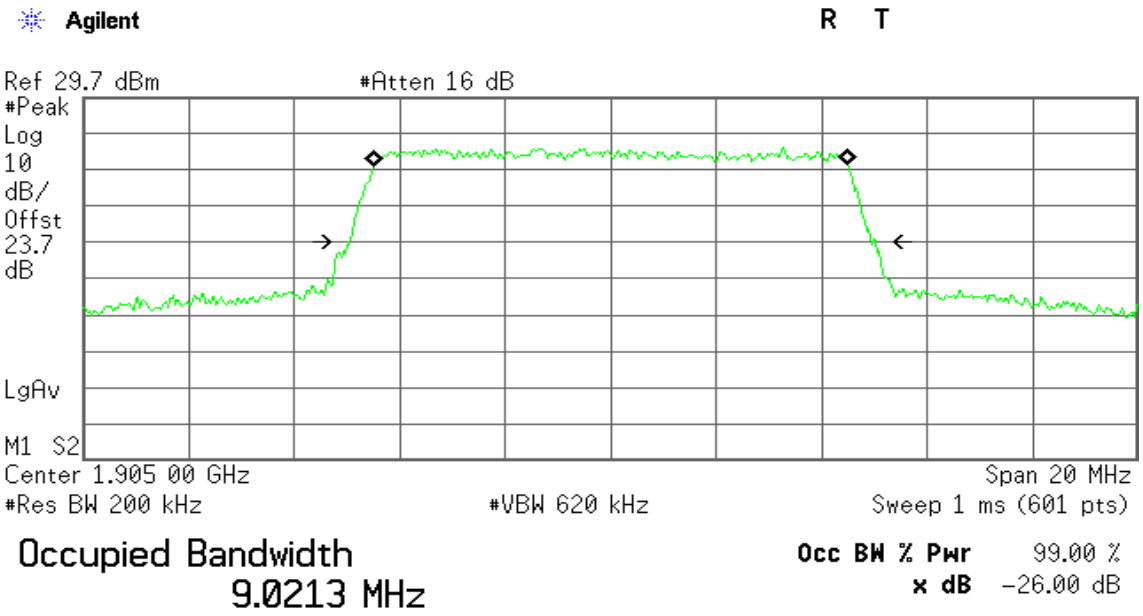


Occupied Bandwidth
8.9898 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 27.588 kHz
x dB Bandwidth 9.952 MHz

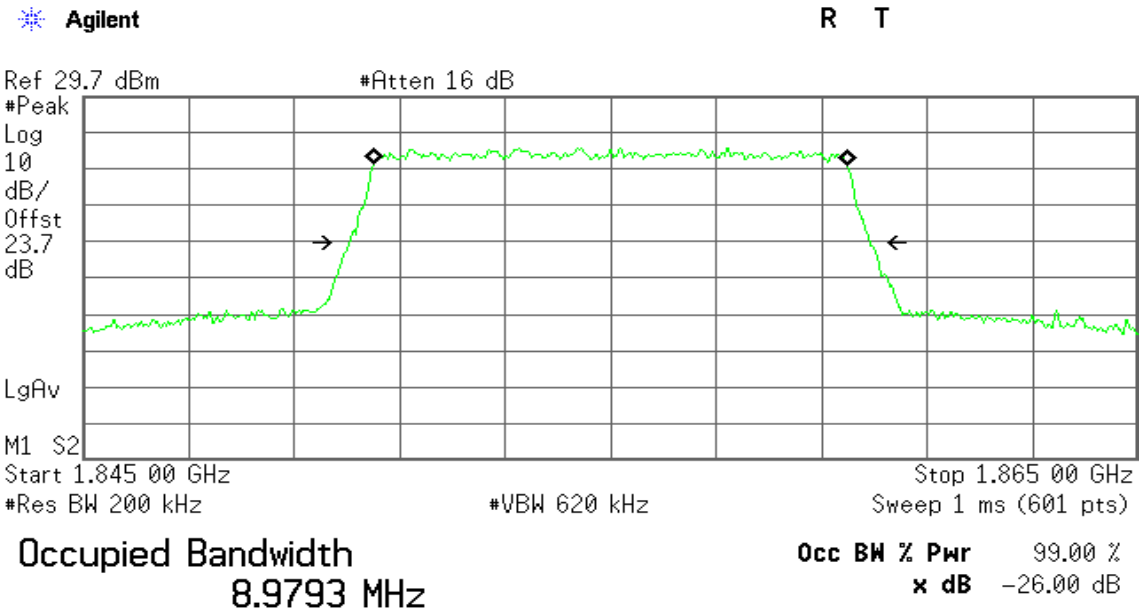
CH High



Transmit Freq Error -834.185 Hz
x dB Bandwidth 9.996 MHz

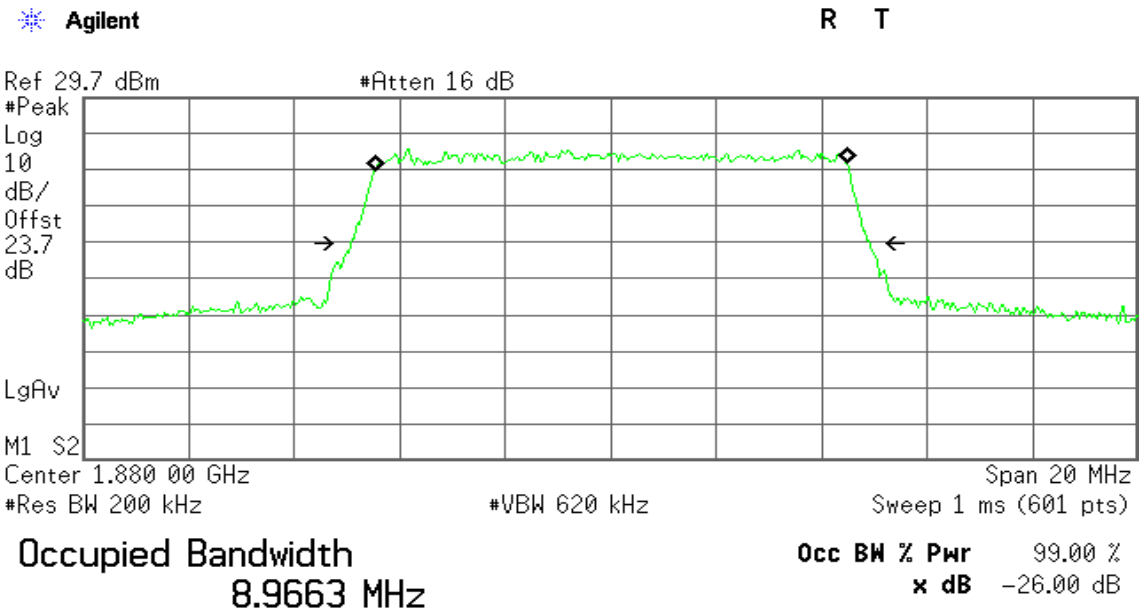
CHANNEL BANDWIDTH: 10MHz / 16QAM

CH Low



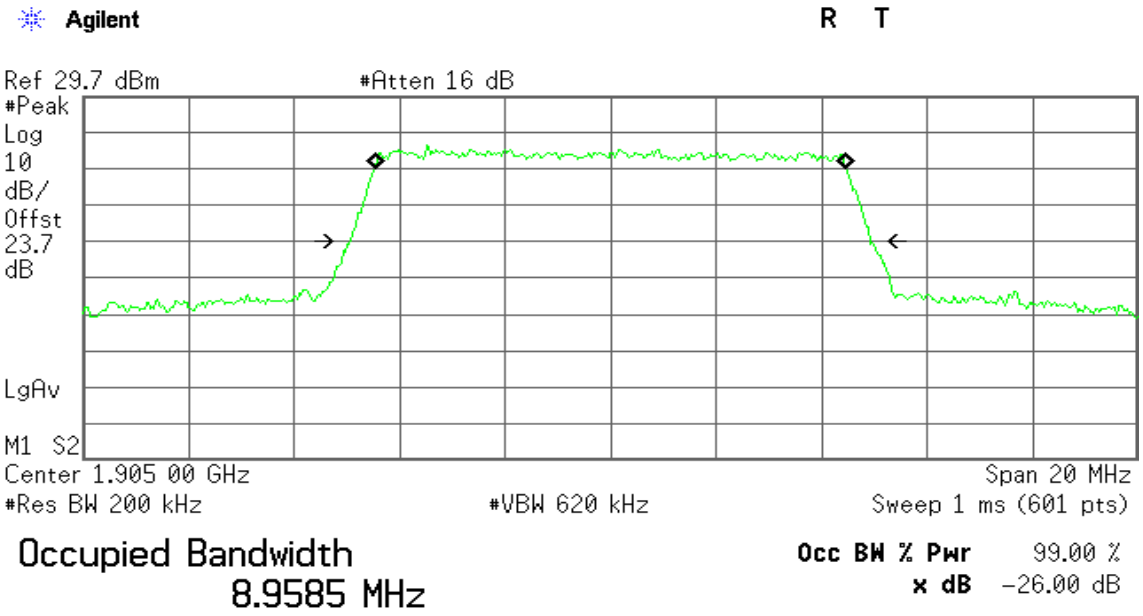
Transmit Freq Error -4.599 kHz
x dB Bandwidth 9.880 MHz

CH Mid



Transmit Freq Error	14.649 kHz
x dB Bandwidth	9.846 MHz

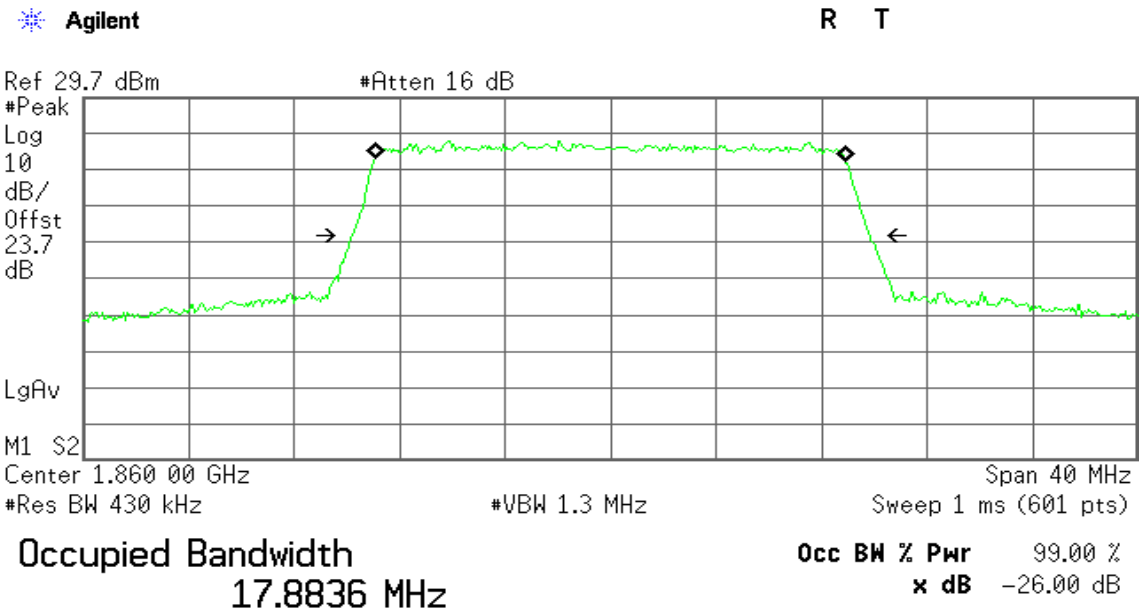
CH High



Transmit Freq Error	-1.837 kHz
x dB Bandwidth	9.871 MHz

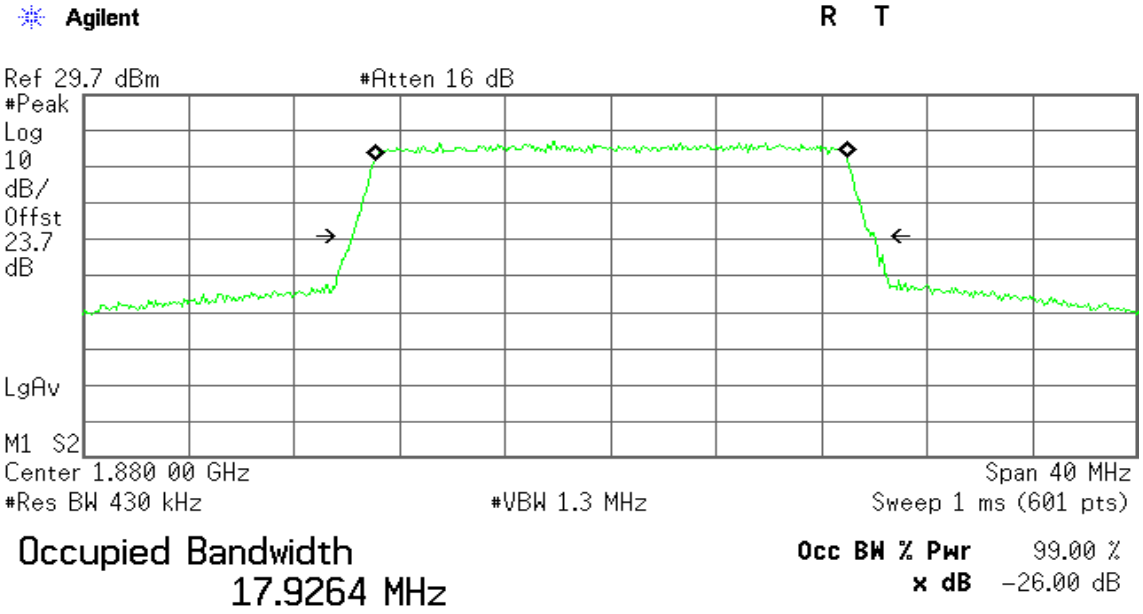
CHANNEL BANDWIDTH: 20MHz / QPSK

CH Low



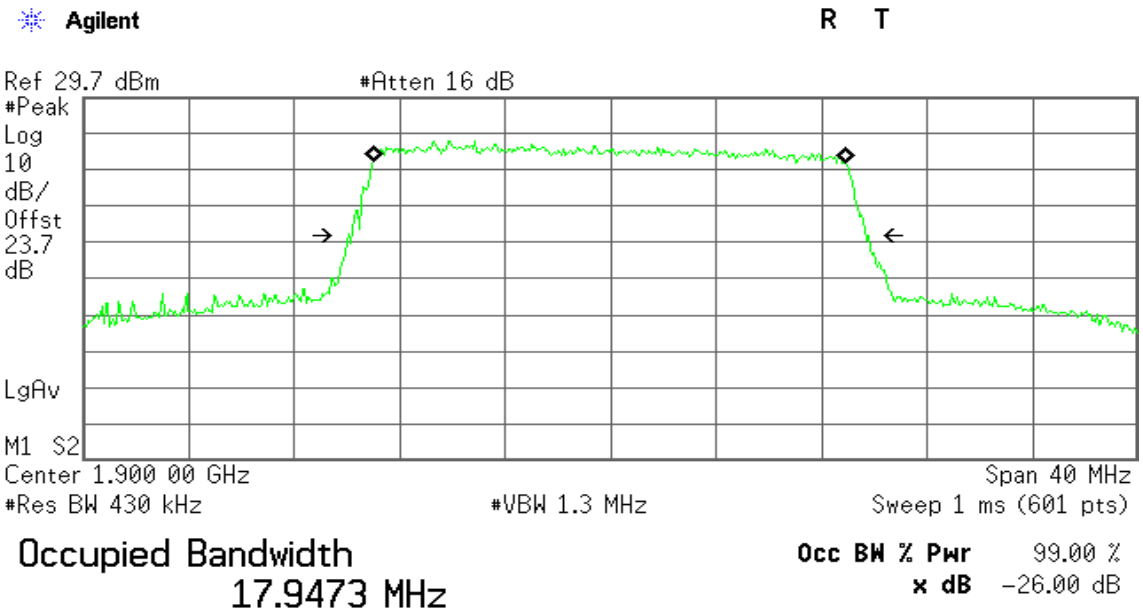
Transmit Freq Error -13.007 kHz
x dB Bandwidth 19.626 MHz

CH Mid



Transmit Freq Error 13.128 kHz
x dB Bandwidth 19.809 MHz

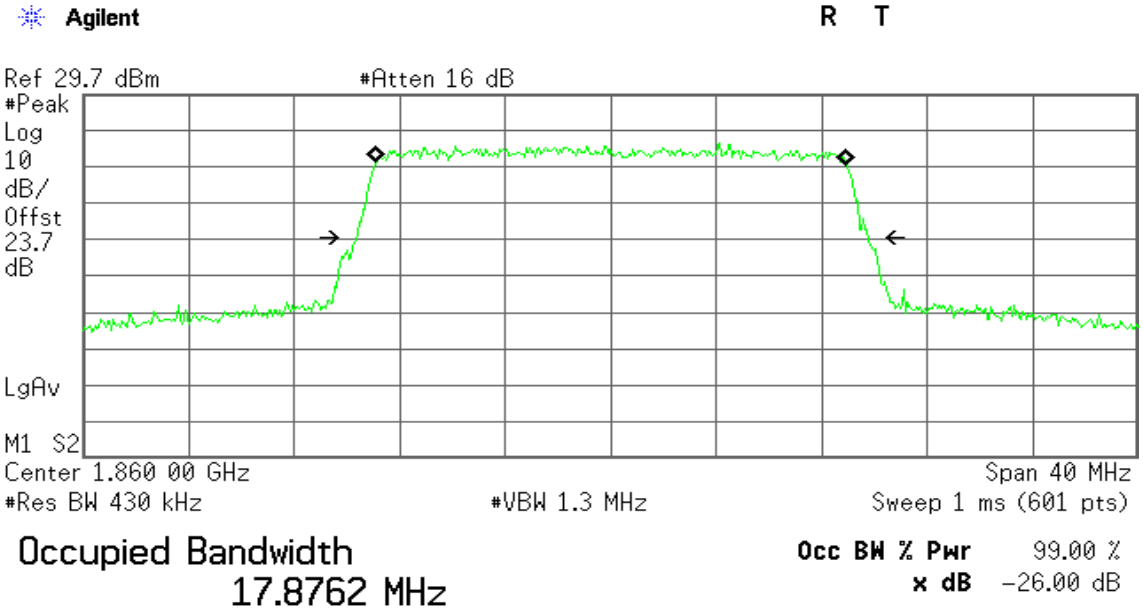
CH High



Transmit Freq Error -31.770 kHz
x dB Bandwidth 19.653 MHz

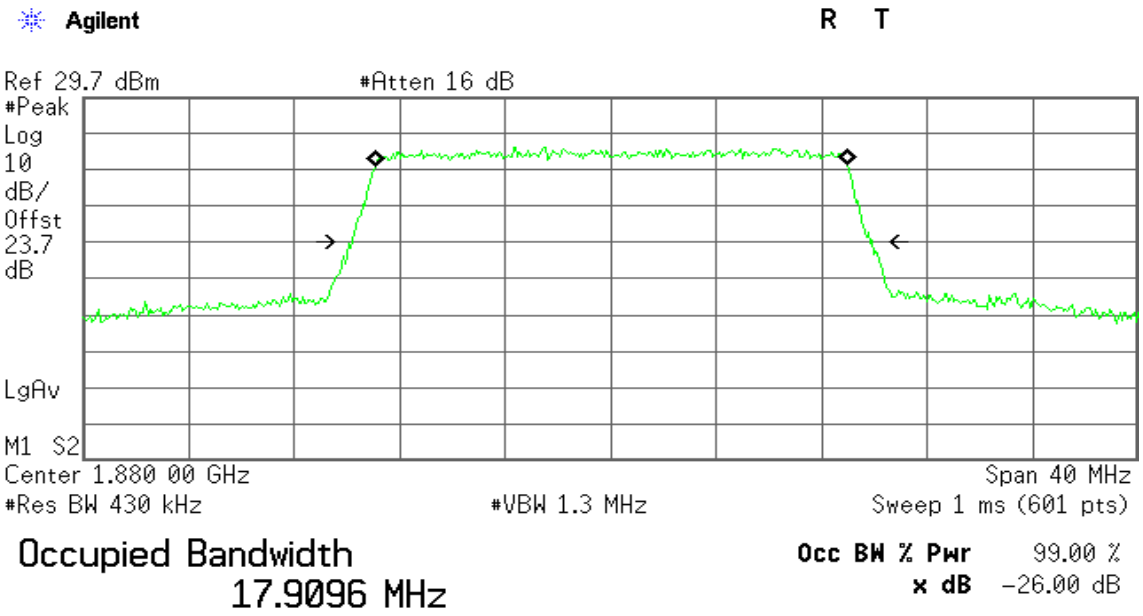
CHANNEL BANDWIDTH: 20MHz / 16QAM

CH Low



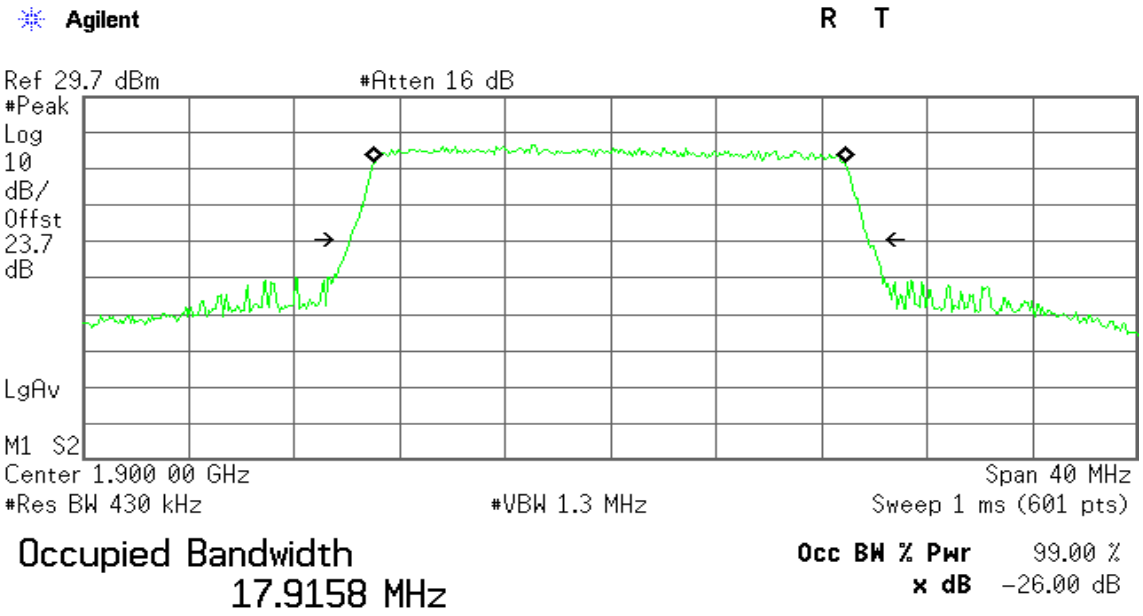
Transmit Freq Error 11.925 kHz
x dB Bandwidth 19.425 MHz

CH Mid



Transmit Freq Error 20.932 kHz
x dB Bandwidth 19.764 MHz

CH High



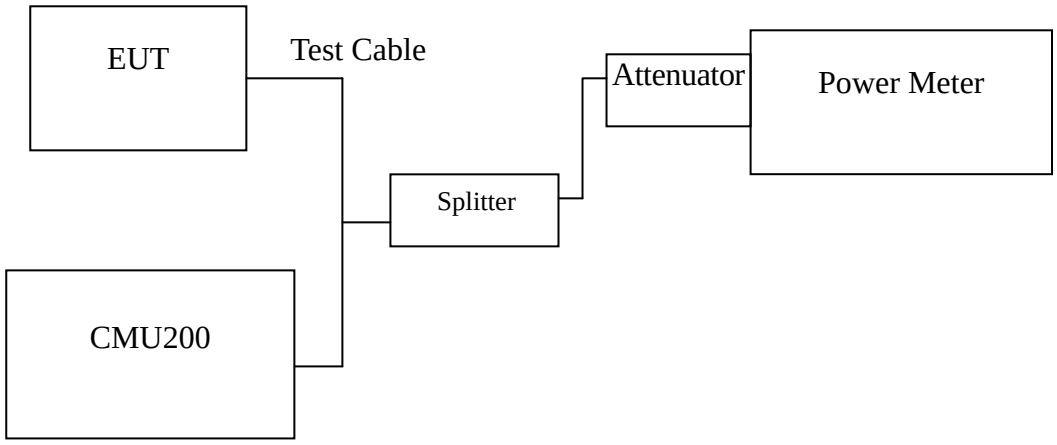
Transmit Freq Error -32.733 kHz
x dB Bandwidth 19.664 MHz

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	22.93	0.19634
836	20520	23.01	0.19999
846.5	20625	22.98	0.19861

Conducted Output Power (QPSK 1 RB ALLOCATED AT THE UPPER EDGE)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
826.5	20425	22.86	0.19320
836	20520	22.90	0.19498
846.5	20625	23.13	0.20559

Conducted Output Power (QPSK 50% RB ALLOCATION CENTERED)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
826.5	20425	22.95	0.19724
836	20520	22.64	0.18365
846.5	20625	22.69	0.18578

Conducted Output Power (QPSK 100% RB ALLOCATION)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
826.5	20425	21.70	0.14791
836	20520	21.53	0.14223
846.5	20625	22.16	0.16444

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

Conducted Output Power (16QAM 1 RB ALLOCATED AT THE LOWER EDGE)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
826.5	20425	22.02	0.15922
836	20520	22.05	0.16032
846.5	20625	22.28	0.16904

Conducted Output Power (16QAM 1 RB ALLOCATED AT THE UPPER EDGE)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
826.5	20425	22.24	0.16749
836	20520	21.83	0.15241
846.5	20625	21.91	0.15524

Conducted Output Power (16QAM 50% RB ALLOCATION CENTERED)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
826.5	20425	21.15	0.13032
836	20520	21.16	0.13062
846.5	20625	21.49	0.14093

Conducted Output Power (16QAM 100% RB ALLOCATION)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
826.5	20425	21.18	0.13122
836	20520	21.14	0.13002
846.5	20625	21.28	0.13428

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

Conducted Output Power (QPSK 1 RB ALLOCATED AT THE LOWER EDGE)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
829	20450	22.83	0.19187
836	20520	22.82	0.19143
844	20600	22.56	0.18030

Conducted Output Power (QPSK 1 RB ALLOCATED AT THE UPPER EDGE)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
829	20450	22.88	0.19409
836	20520	22.66	0.18450
844	20600	22.87	0.19364

Conducted Output Power (QPSK 50% RB ALLOCATION CENTERED)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
829	20450	21.71	0.14825
836	20520	21.54	0.14256
844	20600	21.45	0.13964

Conducted Output Power (QPSK 100% RB ALLOCATION)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
829	20450	21.67	0.14689
836	20520	21.45	0.13964
844	20600	21.73	0.14894

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.

Conducted Output Power (16QAM 1 RB ALLOCATED AT THE LOWER EDGE)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
829	20450	22.11	0.16255
836	20520	22.13	0.16331
844	20600	21.73	0.14894

Conducted Output Power (16QAM 1 RB ALLOCATED AT THE UPPER EDGE)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
829	20450	22.05	0.16032
836	20520	21.89	0.15453
844	20600	22.05	0.16032

Conducted Output Power (16QAM 50% RB ALLOCATION CENTERED)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
829	20450	21.19	0.13152
836	20520	21.10	0.12882
844	20600	21.15	0.13032

Conducted Output Power (16QAM 100% RB ALLOCATION)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
829	20450	21.03	0.12677
836	20520	21.19	0.13152
844	20600	21.11	0.12912

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

Conducted Output Power (QPSK 1 RB ALLOCATED AT THE LOWER EDGE)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
1852.5	18625	22.79	0.19011
1880	18900	22.23	0.16711
1907.5	19175	21.24	0.13305

Conducted Output Power (QPSK 1 RB ALLOCATED AT THE UPPER EDGE)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
1852.5	18625	22.97	0.19815
1880	18900	22.49	0.17742
1907.5	19175	21.12	0.12942

Conducted Output Power (QPSK 50% RB ALLOCATION CENTERED)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
1852.5	18625	21.83	0.15241
1880	18900	21.65	0.14622
1907.5	19175	21.16	0.13062

Conducted Output Power (QPSK 100% RB ALLOCATION)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
1852.5	18625	21.75	0.14962
1880	18900	21.52	0.14191
1907.5	19175	21.20	0.13183

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

Conducted Output Power (16QAM 1 RB ALLOCATED AT THE LOWER EDGE)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
1852.5	18625	22.63	0.18323
1880	18900	22.12	0.16293
1907.5	19175	21.58	0.14388

Conducted Output Power (16QAM 1 RB ALLOCATED AT THE UPPER EDGE)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
1852.5	18625	22.74	0.18793
1880	18900	22.35	0.17179
1907.5	19175	21.32	0.13552

Conducted Output Power (16QAM 50% RB ALLOCATION CENTERED)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
1852.5	18625	21.79	0.15101
1880	18900	21.54	0.14256
1907.5	19175	21.24	0.13305

Conducted Output Power (16QAM 100% RB ALLOCATION)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
1852.5	18625	21.68	0.14723
1880	18900	21.49	0.14093
1907.5	19175	21.22	0.13243

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

Conducted Output Power (QPSK 1 RB ALLOCATED AT THE LOWER EDGE)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
1855	18650	22.59	0.18155
1880	18900	21.86	0.15346
1905	19150	21.36	0.13677

Conducted Output Power (QPSK 1 RB ALLOCATED AT THE UPPER EDGE)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
1855	18650	22.59	0.18155
1880	18900	22.44	0.17539
1905	19150	21.14	0.13002

Conducted Output Power (QPSK 50% RB ALLOCATION CENTERED)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
1855	18650	21.71	0.14825
1880	18900	21.54	0.14256
1905	19150	21.33	0.13583

Conducted Output Power (QPSK 100% RB ALLOCATION)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
1855	18650	21.75	0.14962
1880	18900	21.48	0.14060
1905	19150	21.28	0.13428

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.

Conducted Output Power (16QAM RB ALLOCATED AT THE LOWER EDGE)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
1855	18650	22.63	0.18323
1880	18900	21.94	0.15631
1905	19150	21.53	0.14223

Conducted Output Power (16QAM RB ALLOCATED AT THE UPPER EDGE)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
1855	18650	22.47	0.17660
1880	18900	22.36	0.17219
1905	19150	21.52	0.14191

Conducted Output Power (16QAM 50% RB ALLOCATION CENTERED)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
1855	18650	21.84	0.15276
1880	18900	21.46	0.13996
1905	19150	21.31	0.13521

Conducted Output Power (16QAM 100% RB ALLOCATION)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
1855	18650	21.47	0.14028
1880	18900	21.49	0.14093
1905	19150	21.16	0.13062

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	22.56	0.18030
1880	18900	21.89	0.15453
1900	19100	21.48	0.14060

Conducted Output Power (QPSK 1 RB ALLOCATED AT THE UPPER EDGE)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
1860	18700	22.54	0.17947
1880	18900	22.37	0.17258
1900	19100	21.28	0.13428

Conducted Output Power (QPSK 50% RB ALLOCATION CENTERED)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
1860	18700	22.14	0.16368
1880	18900	21.69	0.14757
1900	19100	21.47	0.14028

Conducted Output Power (QPSK 100% RB ALLOCATION)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
1860	18700	21.85	0.15311
1880	18900	21.63	0.14555
1900	19100	21.35	0.13646

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.

Conducted Output Power (16QAM 1 RB ALLOCATED AT THE LOWER EDGE)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
1860	18700	22.45	0.17579
1880	18900	21.78	0.15066
1900	19100	21.66	0.14655

Conducted Output Power (16QAM 1 RB ALLOCATED AT THE UPPER EDGE)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
1860	18700	22.44	0.17539
1880	18900	22.41	0.17418
1900	19100	21.52	0.14191

Conducted Output Power (16QAM 50% RB ALLOCATION CENTERED)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
1860	18700	22.28	0.16904
1880	18900	21.78	0.15066
1900	19100	21.62	0.14521

Conducted Output Power (16QAM 100% RB ALLOCATION)			
Frequency (MHz)	**Channel**	**Output Power**	
		(dBm)	**(W)**
1860	18700	21.74	0.14928
1880	18900	21.59	0.14421
1900	19100	21.48	0.14060

Remarks:

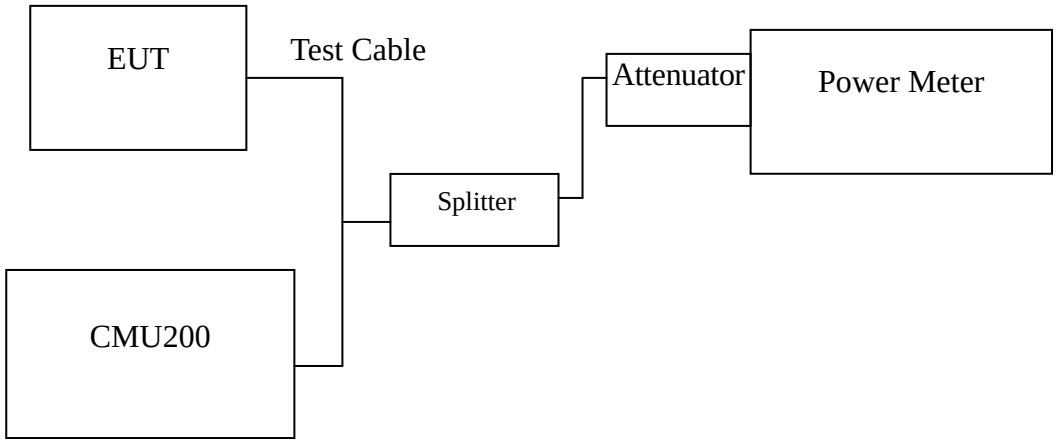
1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB) + 20dB Attenuator.
3. The value in bold is the worst.

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	6.87
Mid	836	6.13
High	846.5	6.57

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

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
Low	826.5	7.65
Mid	836	6.94
High	846.5	7.87

CHANNEL BANDWIDTH: 10MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
Low	829	4.82
Mid	836	5.57
High	844	5.24

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

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
Low	829	6.81
Mid	836	6.85
High	844	6.92

LTE Band 2

CHANNEL BANDWIDTH: 5MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
Low	1852.5	6.72
Mid	1880	7.17
High	1907.5	6.86

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

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
Low	1852.5	7.84
Mid	1880	7.66
High	1907.5	7.23

CHANNEL BANDWIDTH: 10MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
Low	1855	5.70
Mid	1880	5.10
High	1905	5.37

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

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
Low	1855	7.63
Mid	1880	7.15
High	1905	6.57

CHANNEL BANDWIDTH: 20MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
Low	1860	7.54
Mid	1880	7.49
High	1900	7.21

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

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
Low	1860	8.98
Mid	1880	9.09
High	1900	7.76

7.4ERP & 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.

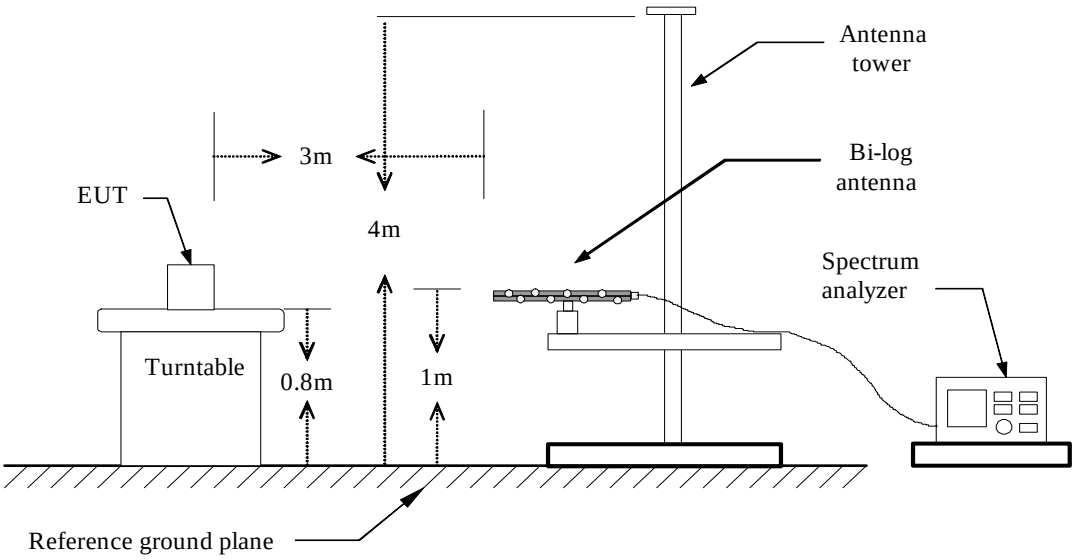
RSS-132 § 4.4 The maximum (ERP) shall be 6.3 Watts for mobile stations.

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

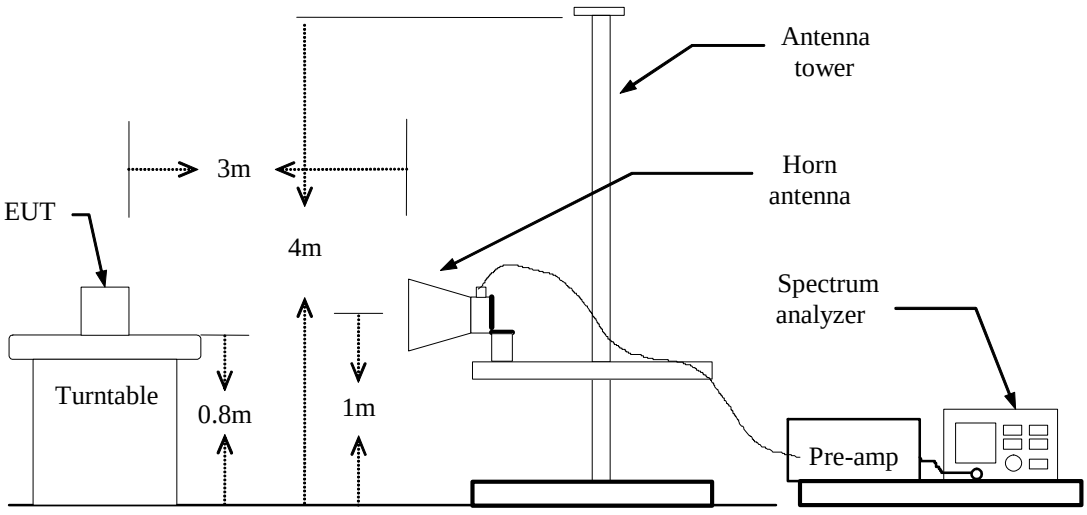
RSS133 § 6.4: Mobile stations and hand-held portables are limited to 2 watts maximum (EIRP).

Test Configuration

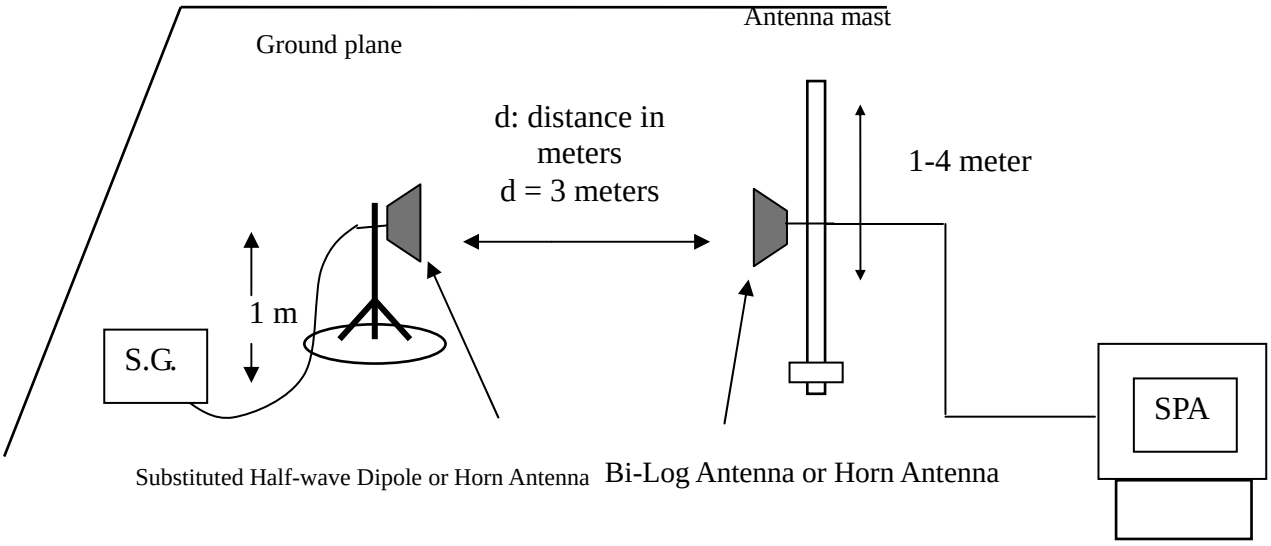
Below 1 GHz



Above 1 GHz



For Substituted Method Test Set-UP



TEST PROCEDURE

The EUT was placed on an 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:

ERP = S.G. output (dBm) + Antenna Gain (dBi) – Cable (dB)-2.15
EIRP = S.G. output (dBm) + Antenna Gain (dBi) – 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	826.5	V	19.36	3.39	6.24	22.21	38.45	-16.24
	826.5	H	23.74	3.39	6.24	***26.59**	38.45	-11.86
20520	836	V	23.13	3.4	6.34	26.07	38.45	-12.38
	836	H	19.62	3.4	6.34	22.56	38.45	-15.89
20625	846.5	V	21.47	3.41	6.4	24.46	38.45	-13.99
	846.5	H	20.62	3.41	6.4	23.61	38.45	-14.84

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	826.5	V	20.44	3.39	6.25	***23.30**	38.45	-15.15
	826.5	H	16.53	3.39	6.26	19.40	38.45	-19.05
20520	836	V	19.8	3.4	6.35	22.75	38.45	-15.70
	836	H	16.96	3.4	6.34	19.90	38.45	-18.55
20625	846.5	V	18.94	3.4	6.4	21.94	38.45	-16.51
	846.5	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	829	V	19.28	3.39	6.32	***22.21**	38.45	-16.24
	829	H	15.28	3.39	6.32	18.21	38.45	-20.24
20520	836	V	18.64	3.4	6.33	21.57	38.45	-16.88
	836	H	15.08	3.4	6.33	18.01	38.45	-20.44
20600	844	V	17.22	3.41	6.4	20.21	38.45	-18.24
	844	H	15.68	3.4	6.4	18.68	38.45	-19.77

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	829	V	20.22	3.39	6.3	***23.13**	38.45	-15.32
	829	H	16.23	3.39	6.3	19.14	38.45	-19.31
20520	836	V	20.16	3.4	6.34	23.10	38.45	-15.35
	836	H	16.75	3.4	6.36	19.71	38.45	-18.74
20600	844	V	17.78	3.41	6.4	20.77	38.45	-17.68
	844	H	16.22	3.4	6.4	19.22	38.45	-19.23

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	1852.5	V	12.99	5.37	5.67	13.29	33.00	-19.71
	182.5	H	18.38	5.37	5.67	18.68	33.00	-14.32
18900	1880	V	12.49	5.42	5.61	12.68	33.00	-20.32
	1880	H	18.86	5.42	5.62	19.06	33.00	-13.94
19175	1907.5	V	11.95	5.47	5.57	12.05	33.00	-20.95
	1907.5	H	19.08	5.47	5.57	***19.18**	33.00	-13.82

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	1852.5	V	19.41	5.37	5.67	19.71	33.00	-13.29
	182.5	H	12.92	5.37	5.67	13.22	33.00	-19.78
18900	1880	V	19.53	5.42	5.62	19.73	33.00	-13.27
	1880	H	13.15	5.42	5.61	13.34	33.00	-19.66
19175	1907.5	V	19.75	5.47	5.57	***19.85**	33.00	-13.15
	1907.5	H	12.58	5.47	5.57	12.68	33.00	-20.32

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	1855	V	11.5	5.37	5.67	11.80	33.00	-21.20
	1855	H	16.59	5.37	5.67	16.89	33.00	-16.11
18900	1880	V	11.15	5.42	5.61	11.34	33.00	-21.66
	1880	H	17.66	5.42	5.61	***17.85**	33.00	-15.15
19150	1905	V	10.43	5.45	5.58	10.56	33.00	-22.44
	1905	H	17.33	5.46	5.58	17.45	33.00	-15.55

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)
18650	1855	V	17.38	5.37	5.67	17.68	33.00	-15.32
	1855	H	11.08	5.37	5.67	11.38	33.00	-21.62
18900	1880	V	18.18	5.42	5.61	***18.37**	33.00	-14.63
	1880	H	11.58	5.42	5.61	11.77	33.00	-21.23
19150	1905	V	18.03	5.46	5.57	18.14	33.00	-14.86
	1905	H	11.39	5.46	5.57	11.50	33.00	-21.50

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	1860	V	10.27	5.39	5.64	10.52	33.00	-22.48
	1860	H	16.31	5.4	5.64	16.55	33.00	-16.45
18900	1880	V	10.1	5.41	5.63	10.32	33.00	-22.68
	1880	H	16.84	5.43	5.61	***17.02**	33.00	-15.98
19100	1900	V	9.33	5.46	5.57	9.44	33.00	-23.56
	1900	H	16	5.47	5.57	16.10	33.00	-16.90

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	1860	V	17.42	5.39	5.65	17.68	33.00	-15.32
	1860	H	11.71	5.39	5.65	11.97	33.00	-21.03
18900	1880	V	18.12	5.42	5.61	***18.31**	33.00	-14.69
	1880	H	11.34	5.42	5.61	11.53	33.00	-21.47
19100	1900	V	17.35	5.46	5.58	17.47	33.00	-15.53
	1900	H	10.95	5.46	5.58	11.07	33.00	-21.93

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.

7.5OUT OF BAND EMISSION AT ANTENNA TERMINALS

LIMIT

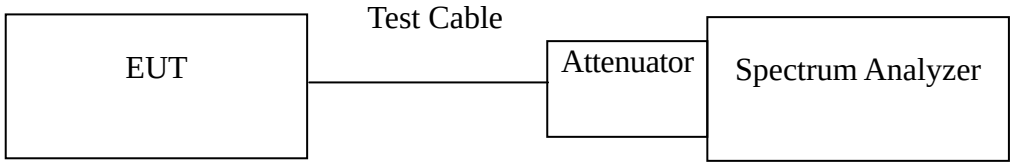
According to FCC §2.1051, FCC §22.917, FCC §24.238(a). RSS-132 (4.5.2), RSS-133 (6.6).

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 lease 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 lease 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

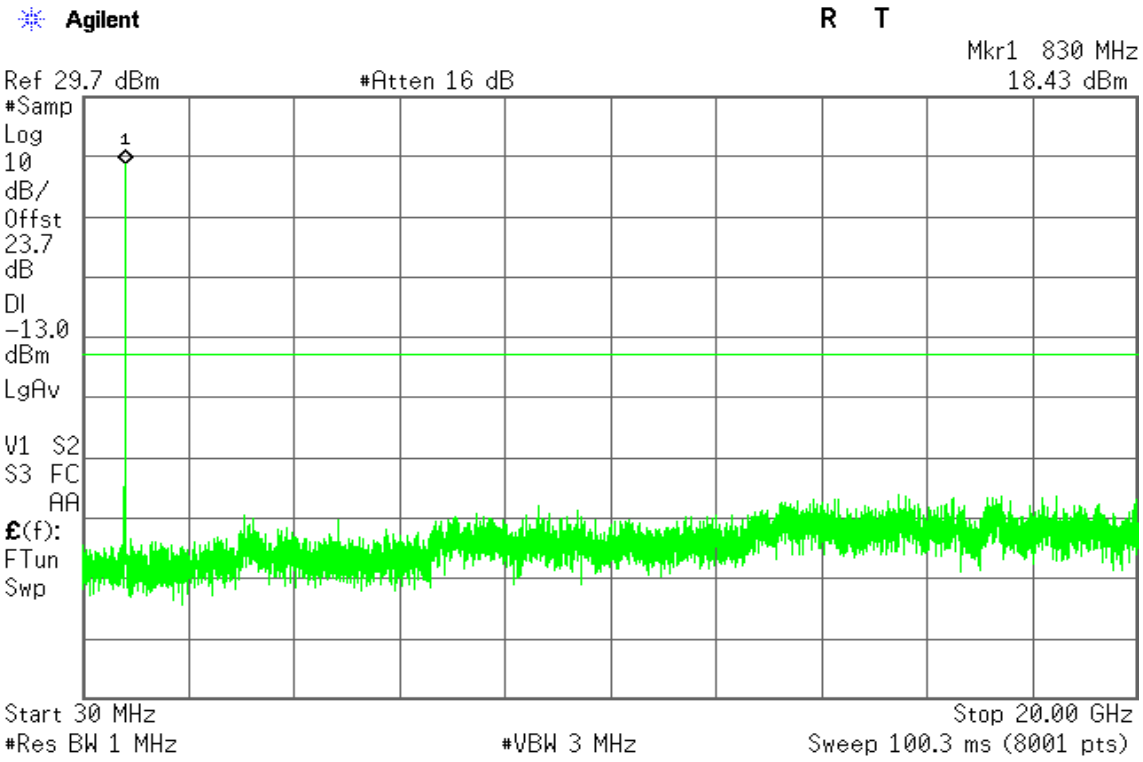


Figure 7-2: Out of Band emission at antenna terminals – CH Mid

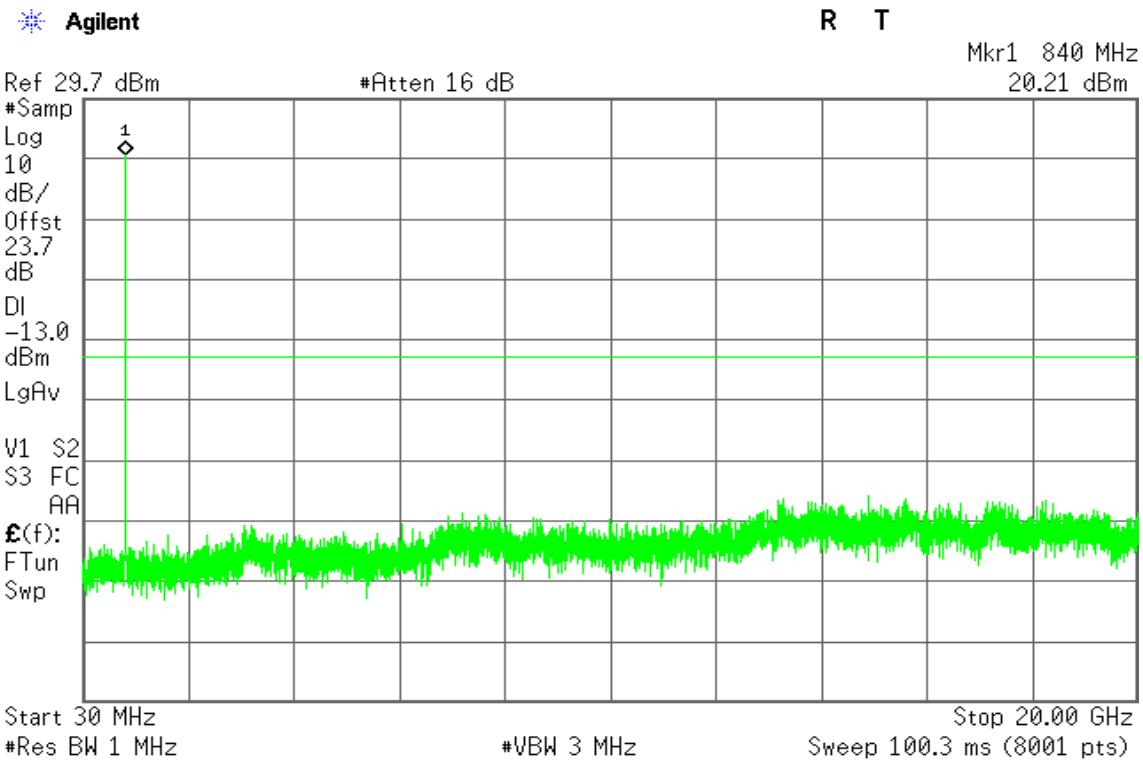
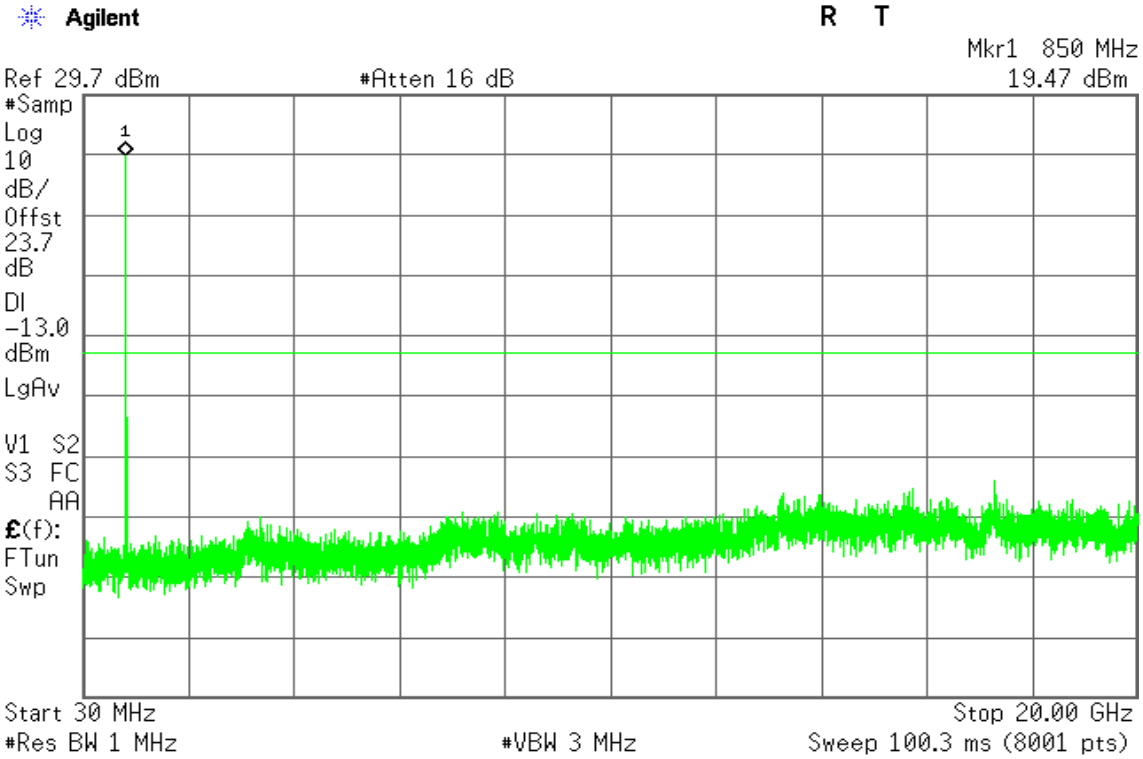


Figure 7-3: Out of Band emission at antenna terminals – CH High



LTE Band 5

Channel Bandwidth: 5MHz / 16QAM

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

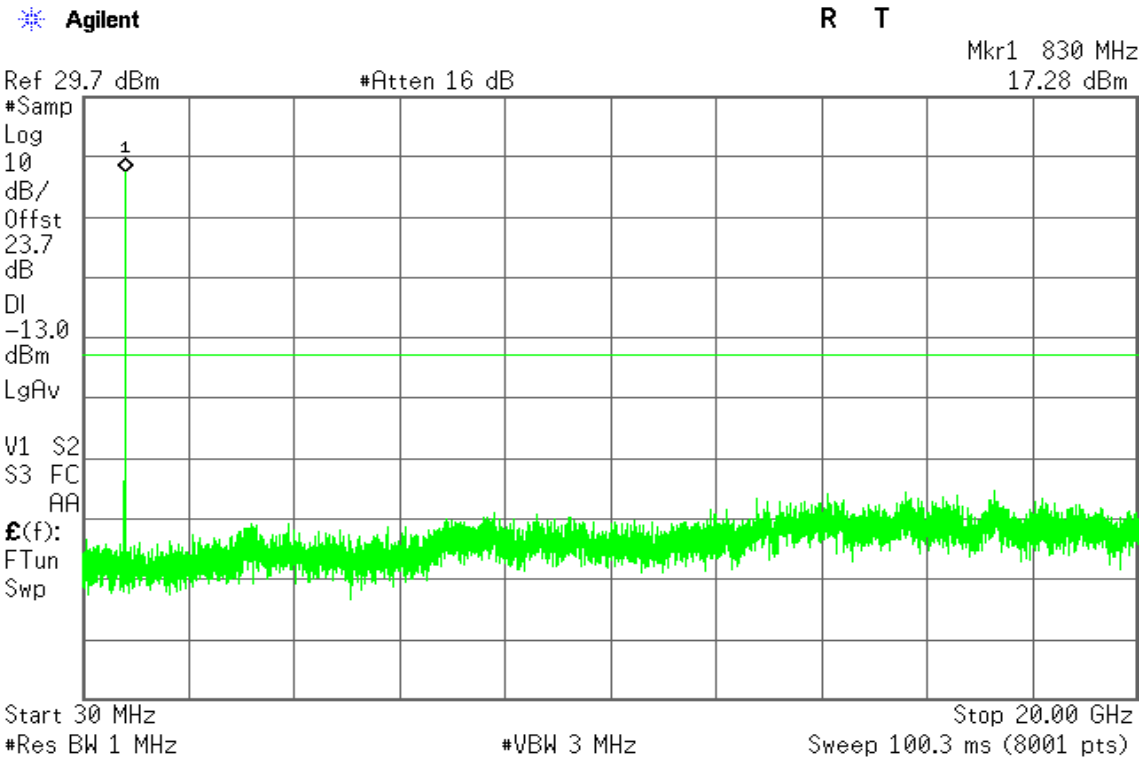


Figure 8-2: Out of Band emission at antenna terminals – CH Mid

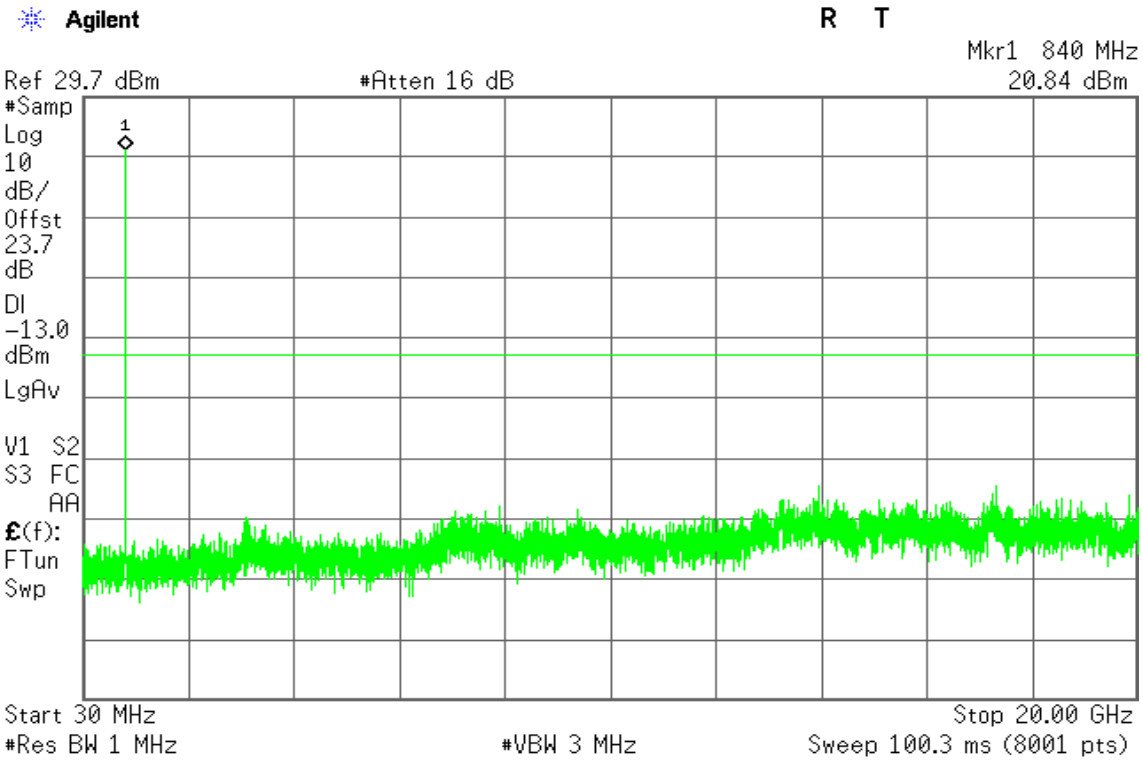
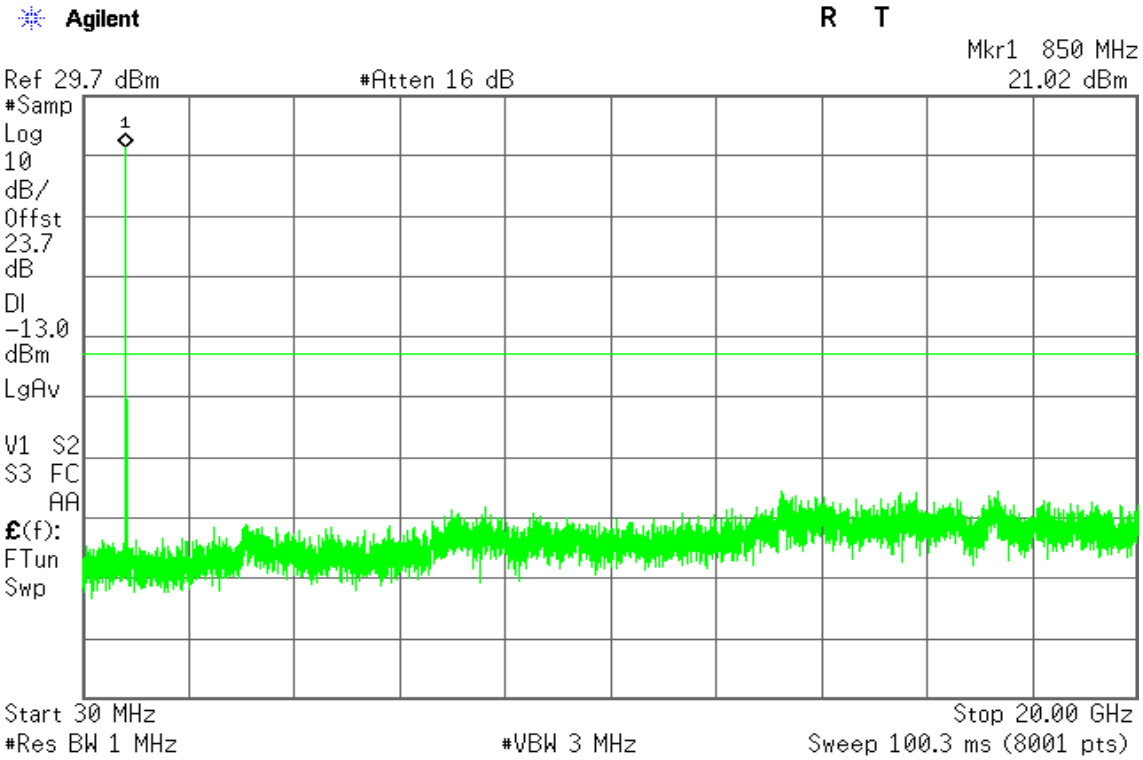


Figure 8-3: Out of Band emission at antenna terminals – CH High



LTE Band 5

Channel Bandwidth: 10MHz / QPSK

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

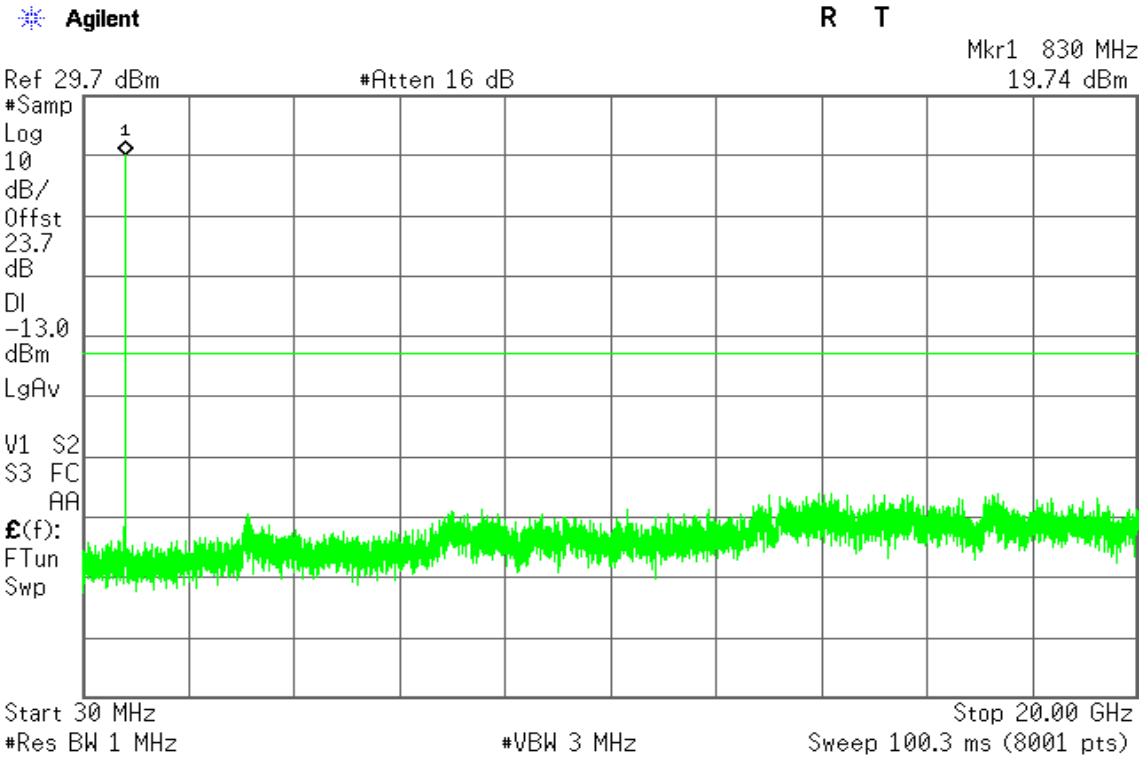


Figure 9-2: Out of Band emission at antenna terminals – CH Mid

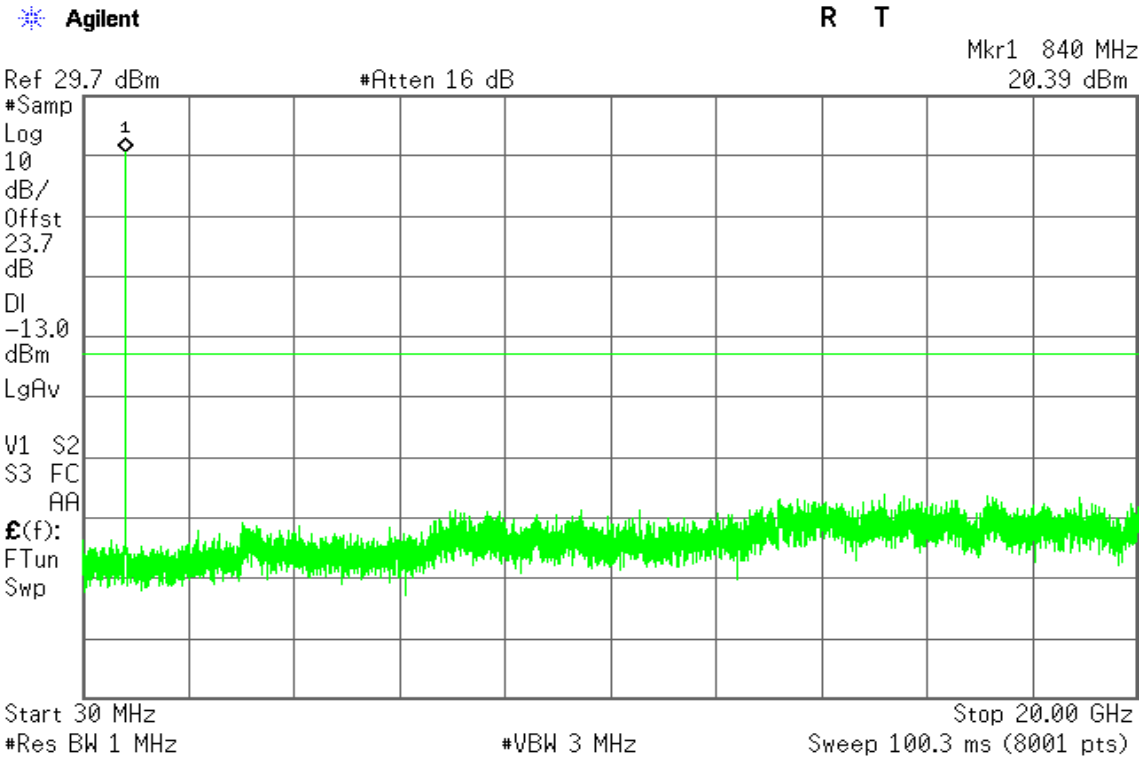


Figure 9-3: Out of Band emission at antenna terminals – CH High

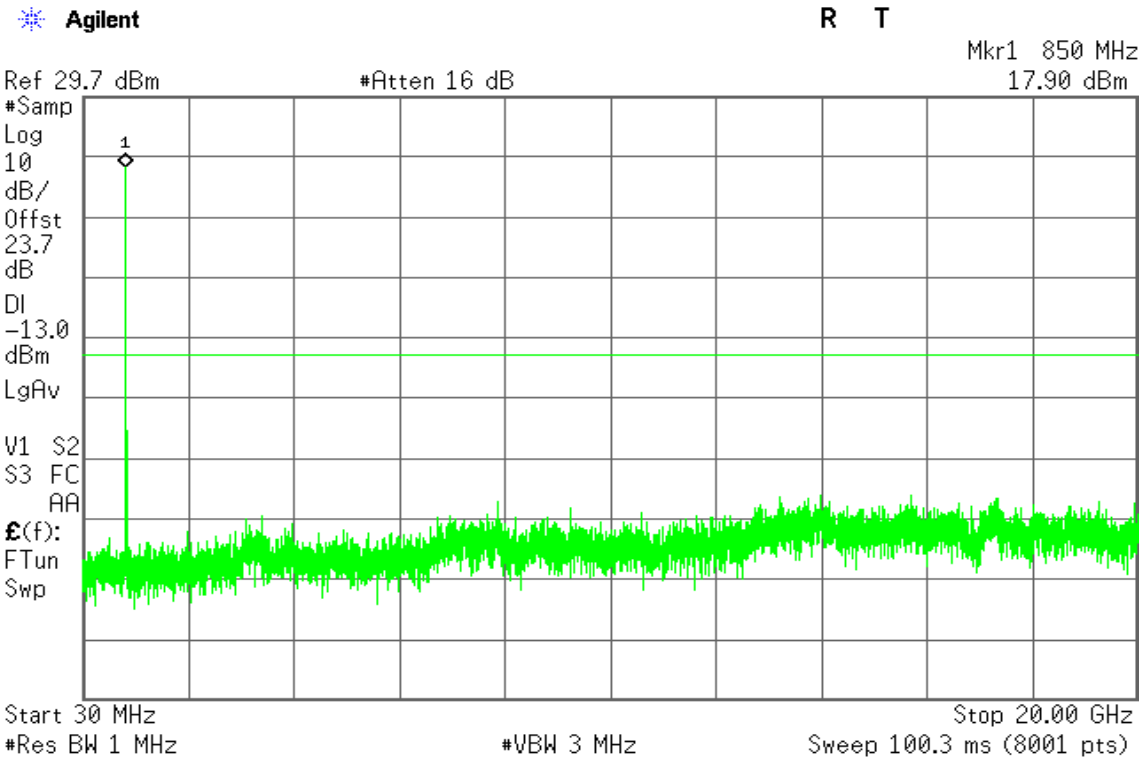


Figure 10-1: Band Edge emissions – CH Low

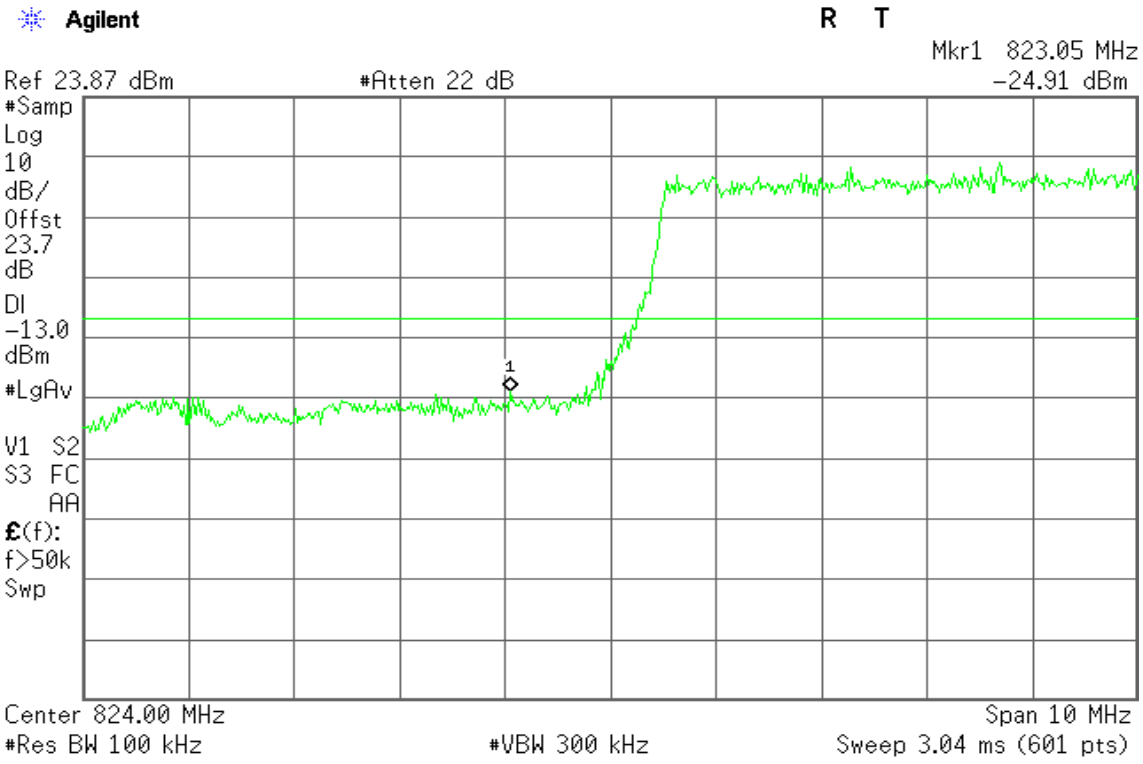
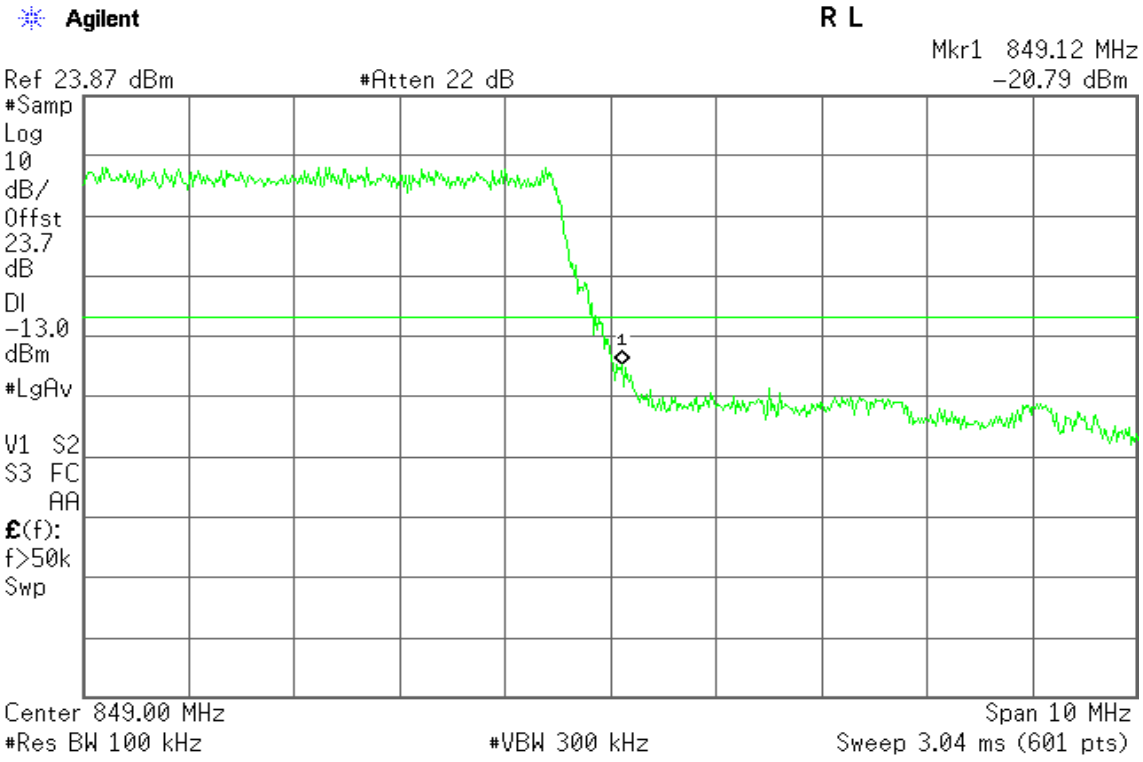


Figure 10-2: Band Edge emissions – CH High



LTE Band 5

Channel Bandwidth: 10MHz / 16QAM

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

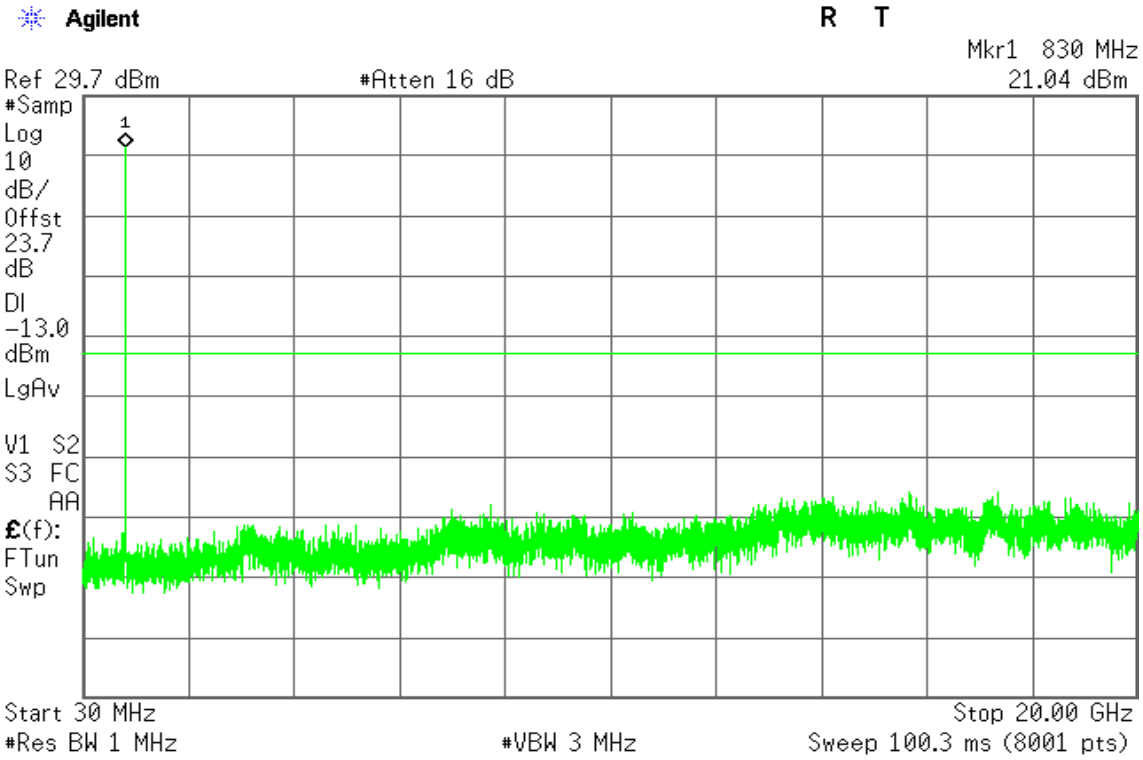


Figure 11-2: Out of Band emission at antenna terminals – CH Mid

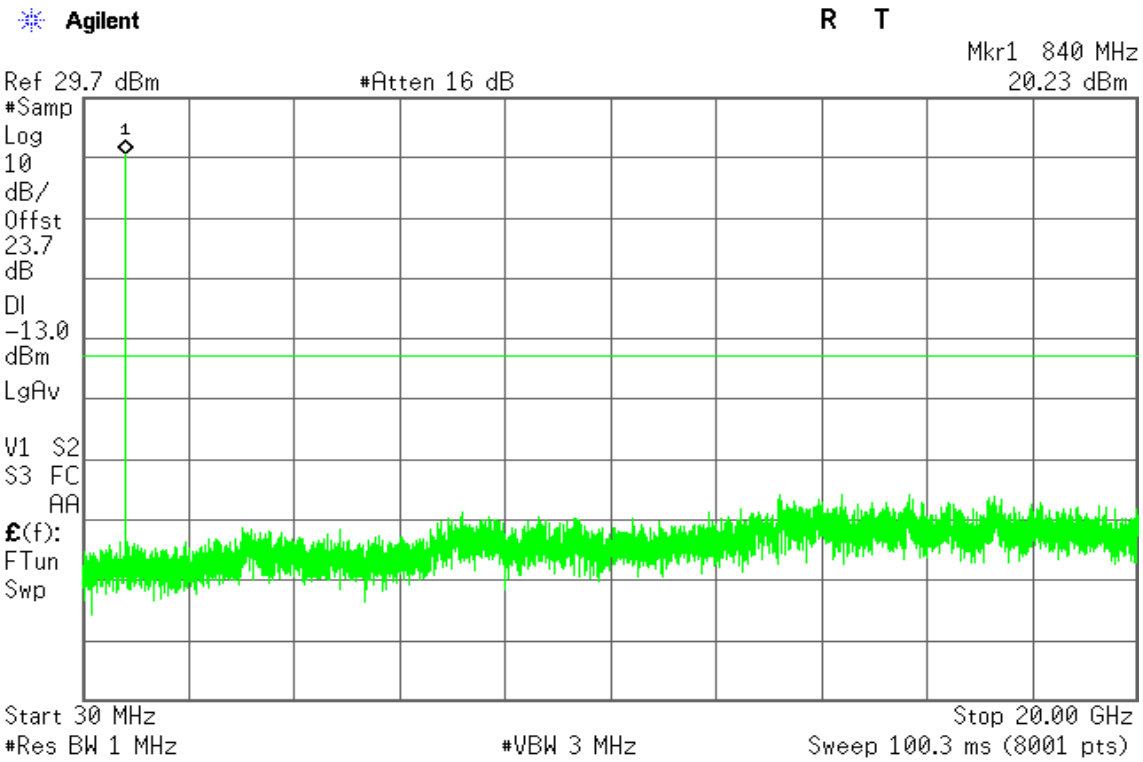


Figure 11-3: Out of Band emission at antenna terminals – CH High

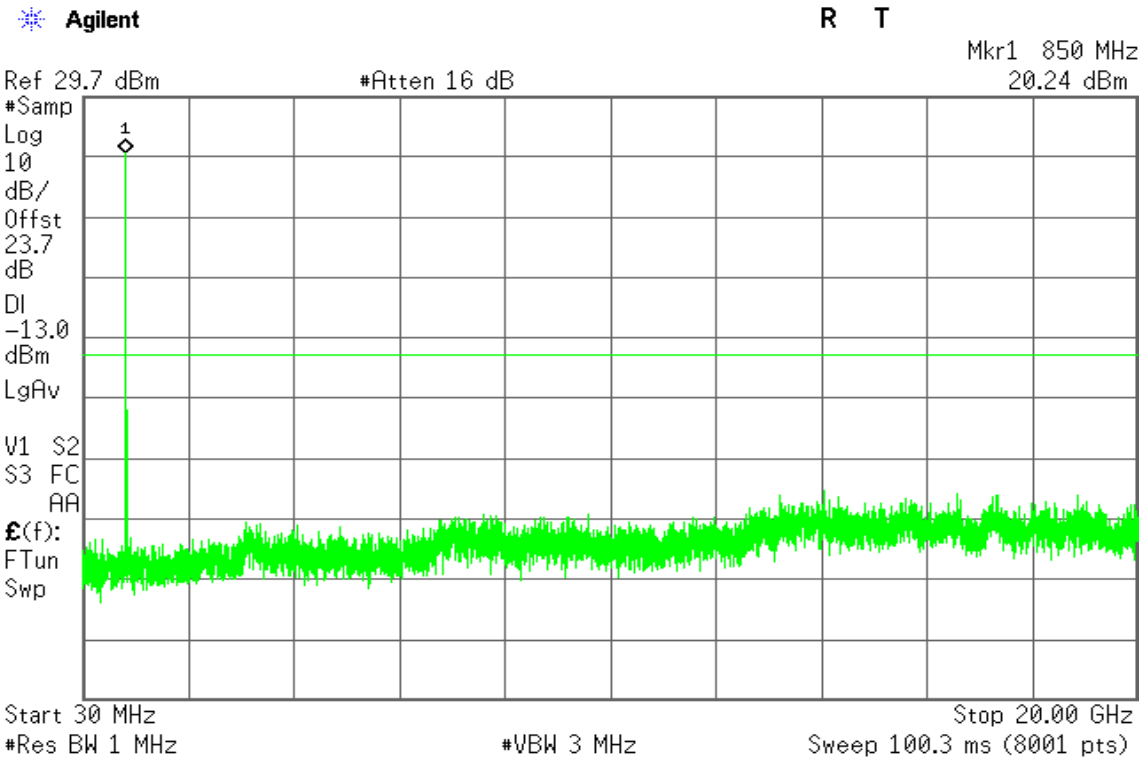


Figure 12-1: Band Edge emissions – CH Low

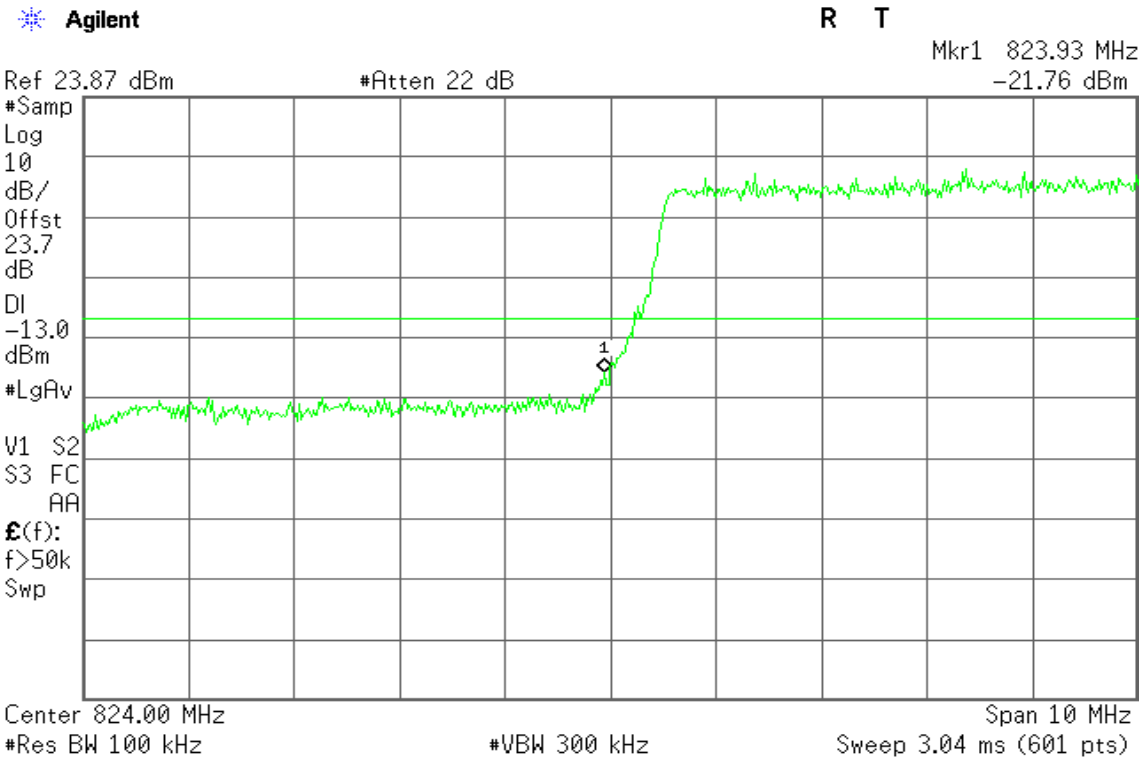
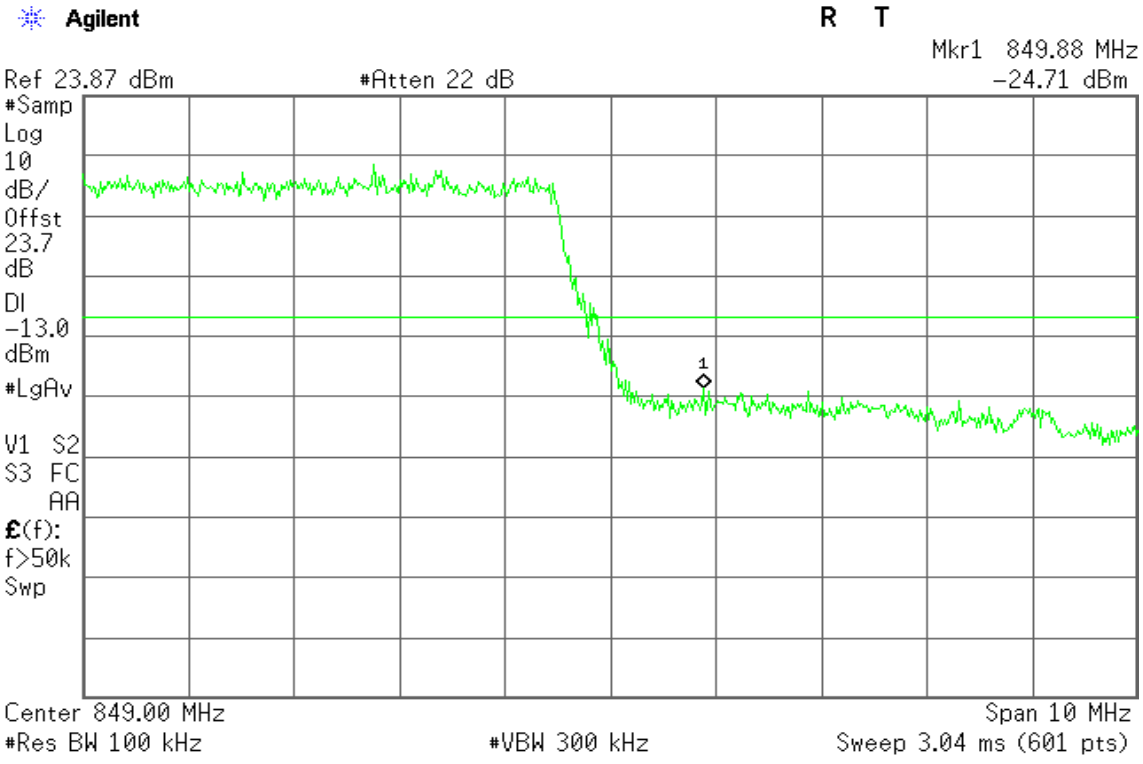


Figure 12-2: Band Edge emissions – CH High



LTE Band 2

Channel Bandwidth: 5MHz / QPSK

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

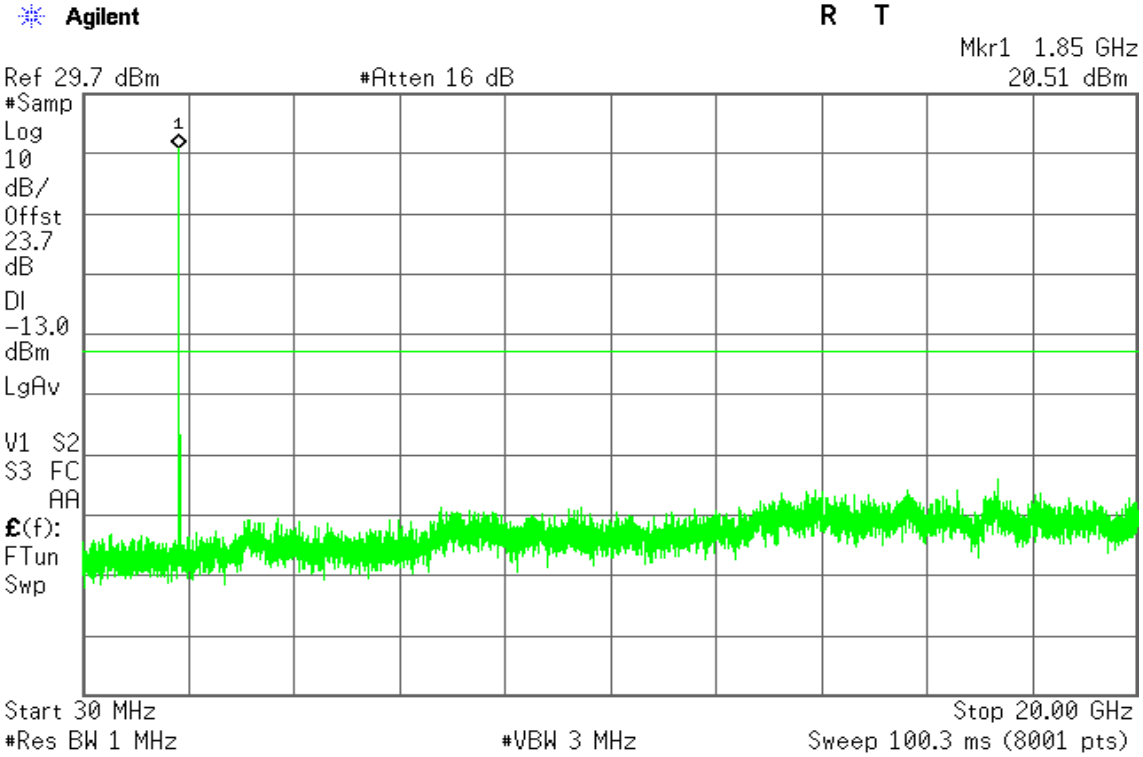


Figure 13-2: Out of Band emission at antenna terminals – CH Mid

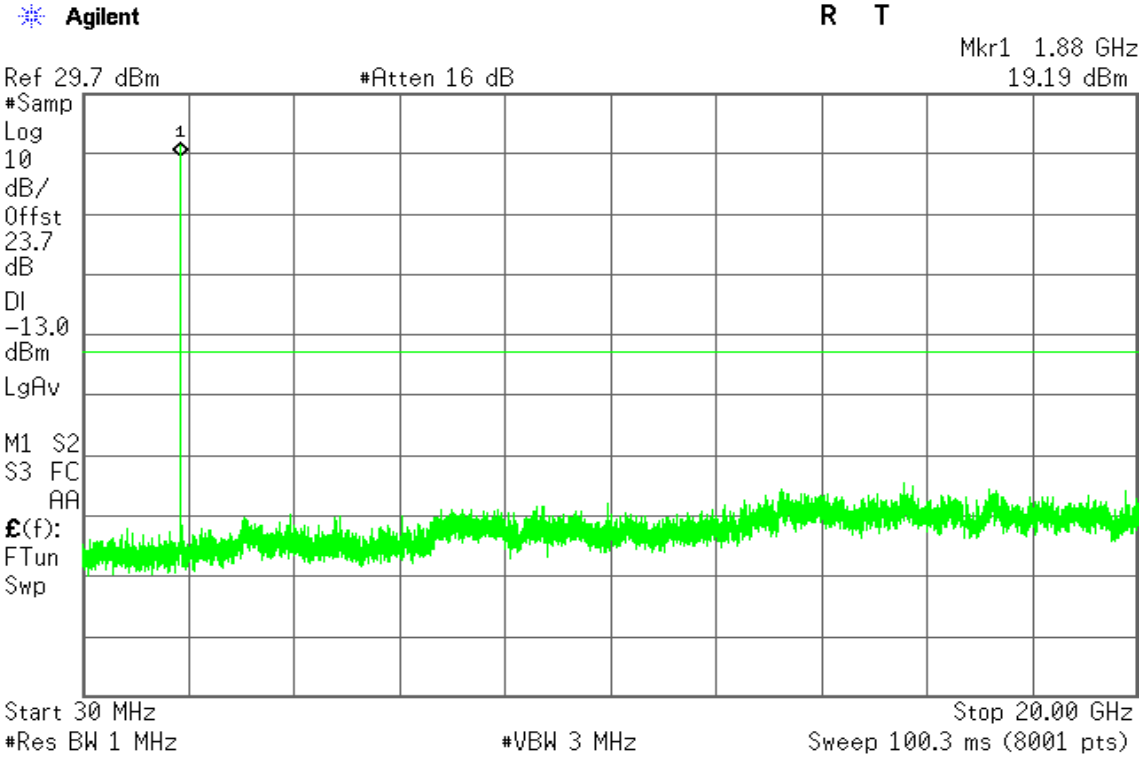
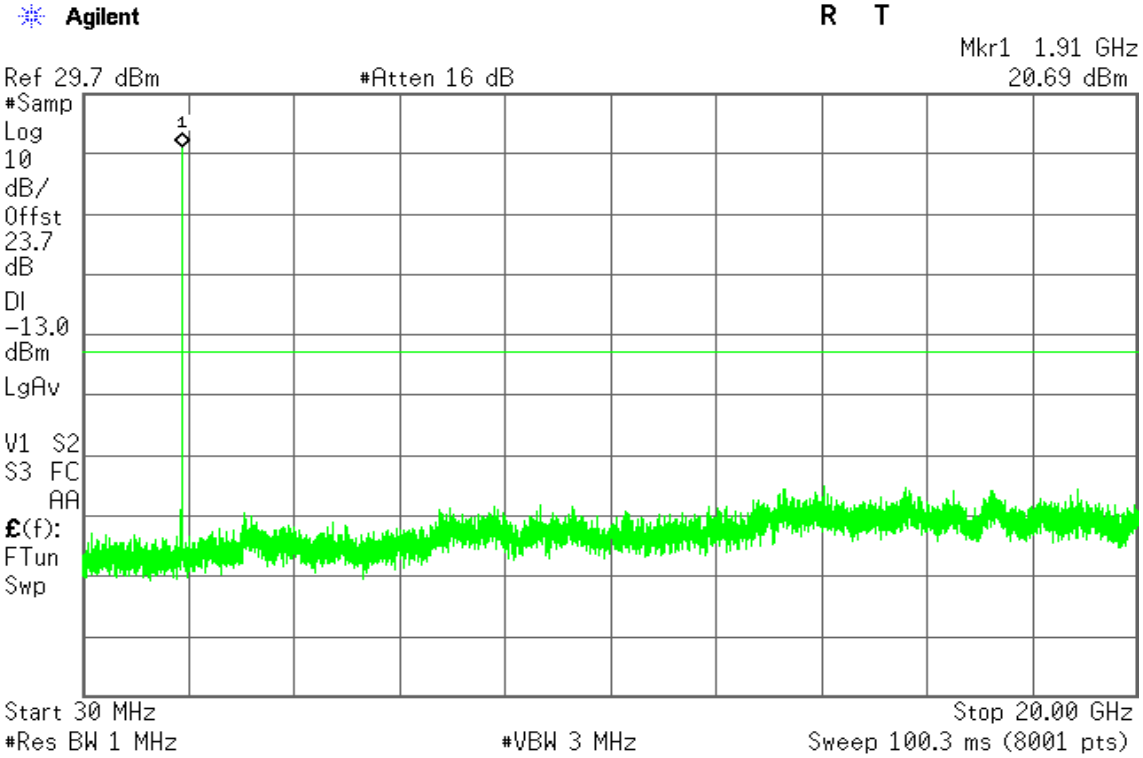


Figure 13-3: Out of Band emission at antenna terminals – CH High



LTE Band 2

Channel Bandwidth: 5MHz / 16QAM

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

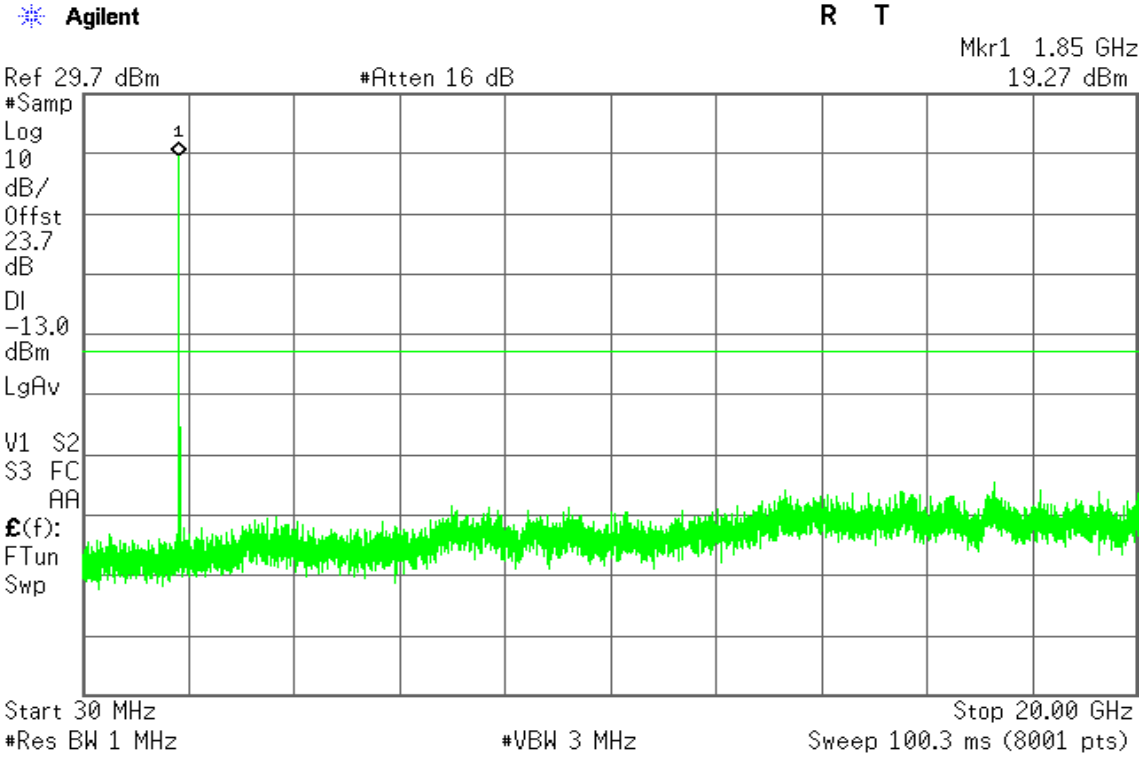


Figure 14-2: Out of Band emission at antenna terminals – CH Mid

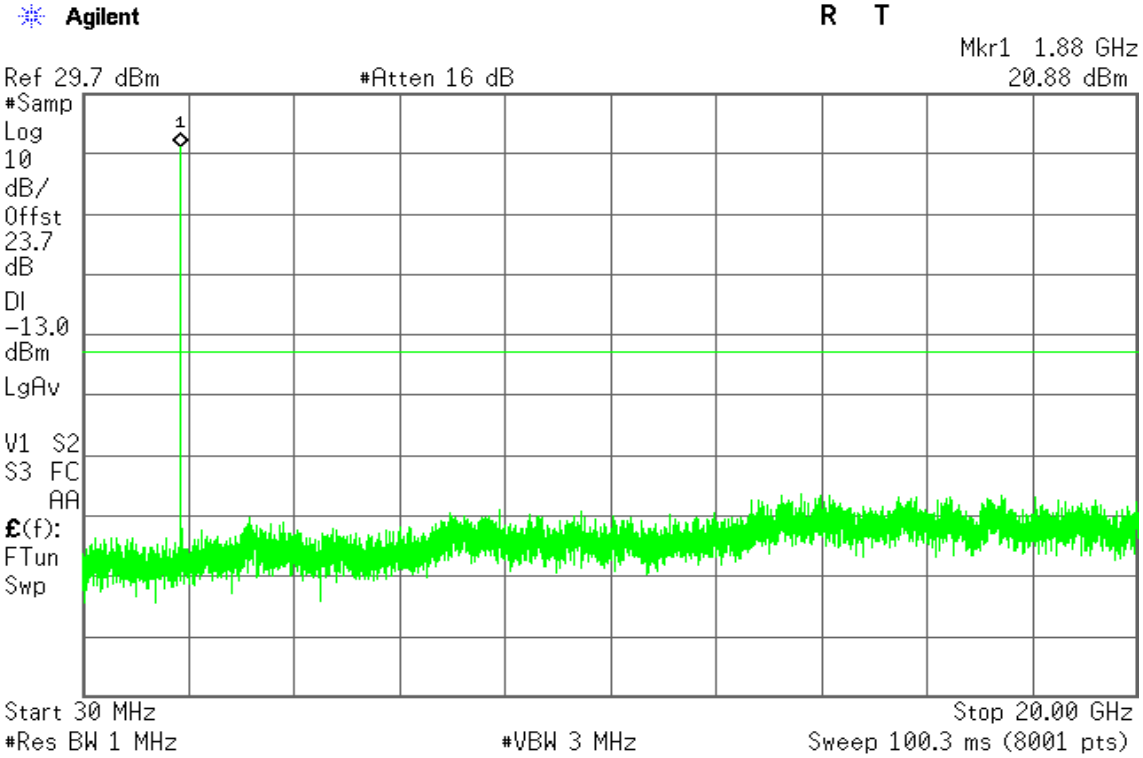
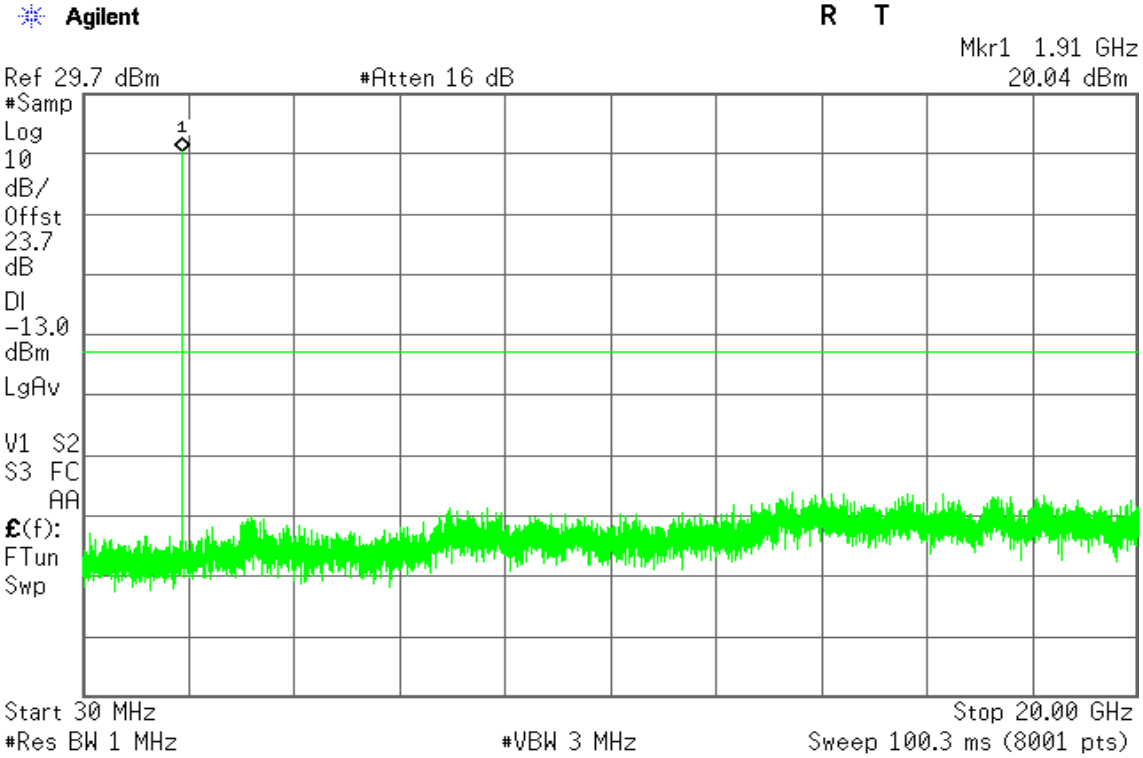


Figure 14-3: Out of Band emission at antenna terminals – CH High



LTE Band 2

Channel Bandwidth: 10MHz / QPSK

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

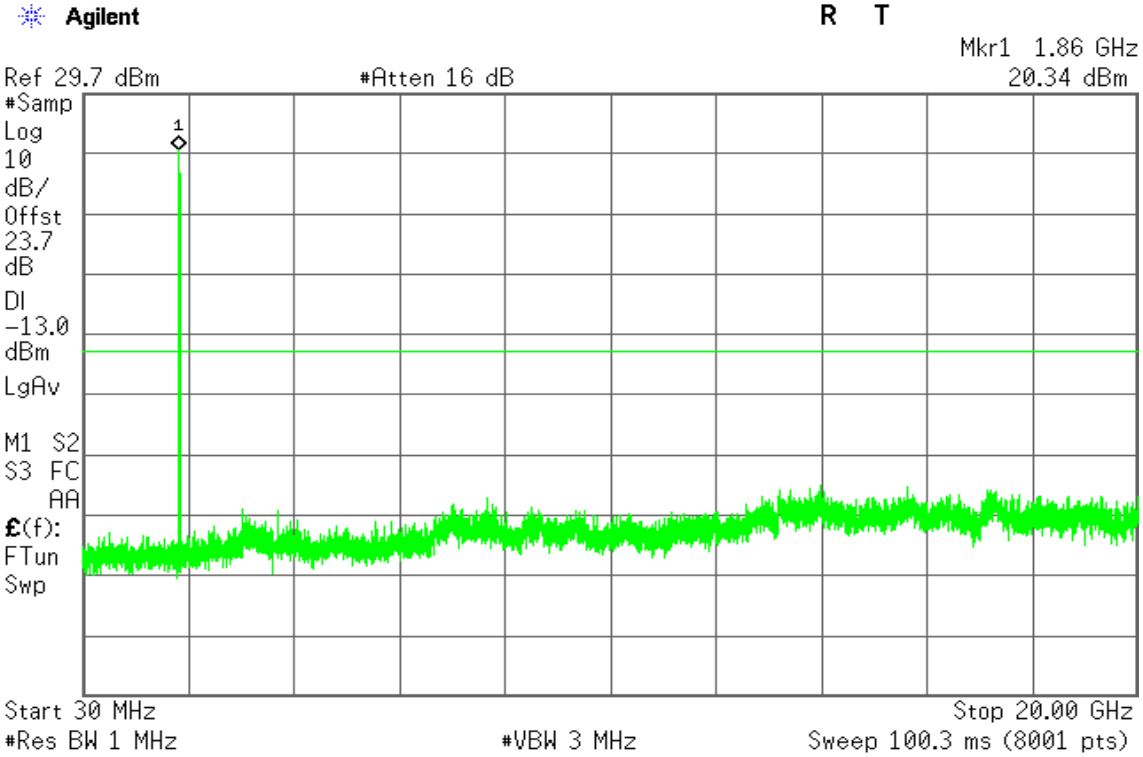


Figure 15-2: Out of Band emission at antenna terminals – CH Mid

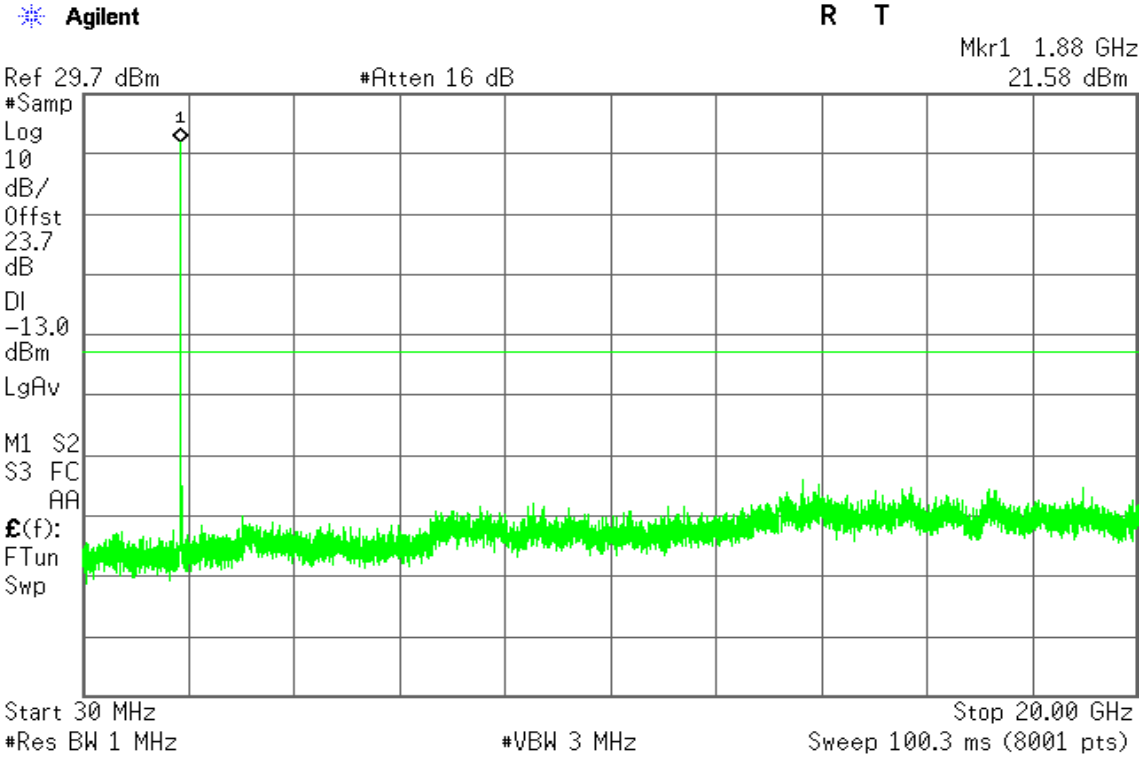
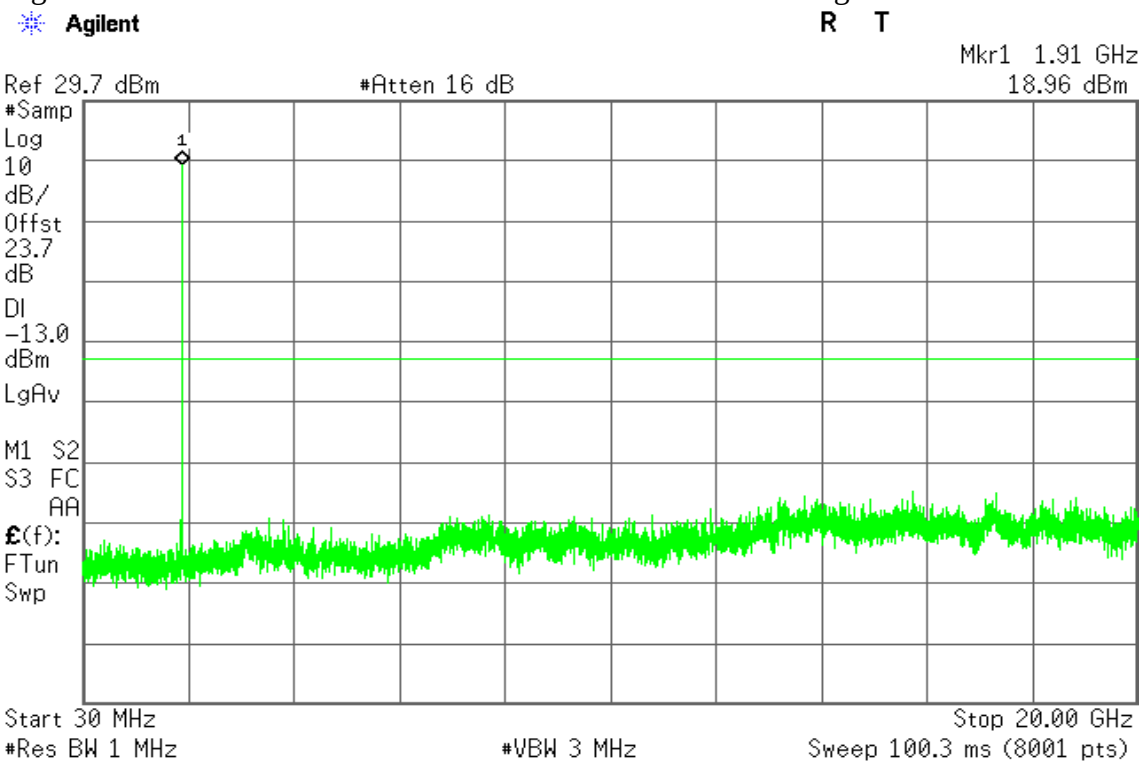


Figure 15-3: Out of Band emission at antenna terminals – CH High



LTE Band 2

Channel Bandwidth: 10MHz / 16QAM

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

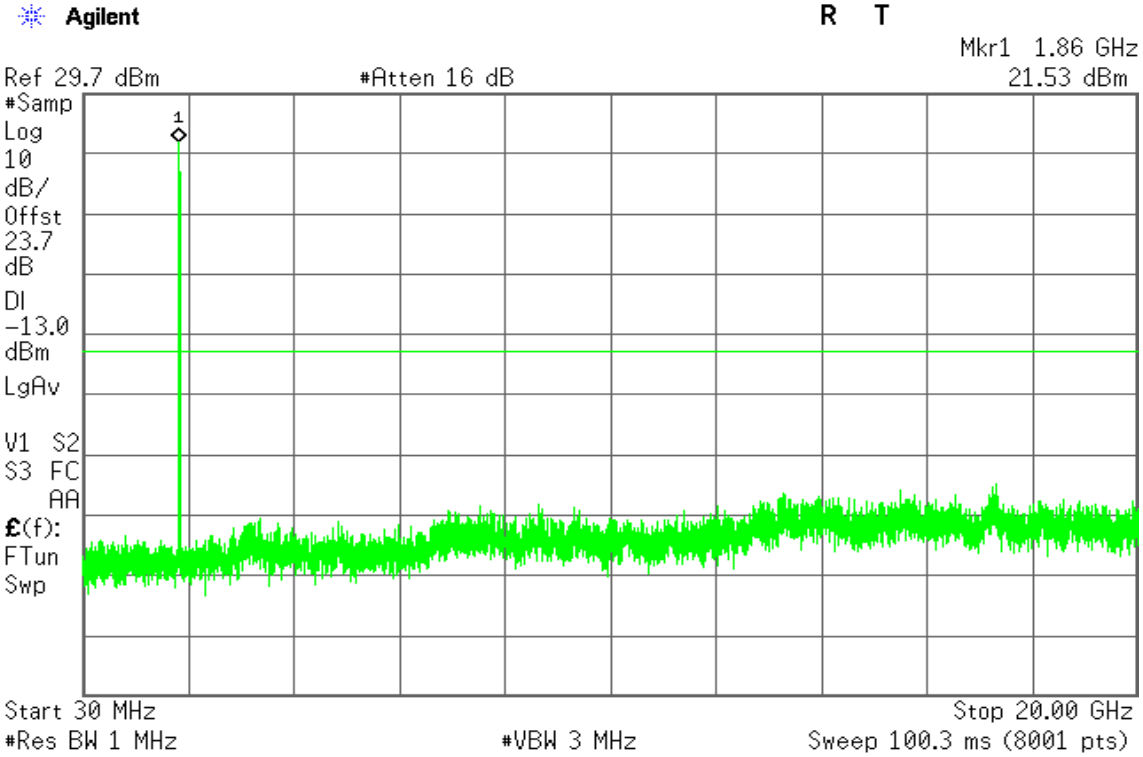


Figure 16-2: Out of Band emission at antenna terminals – CH Mid

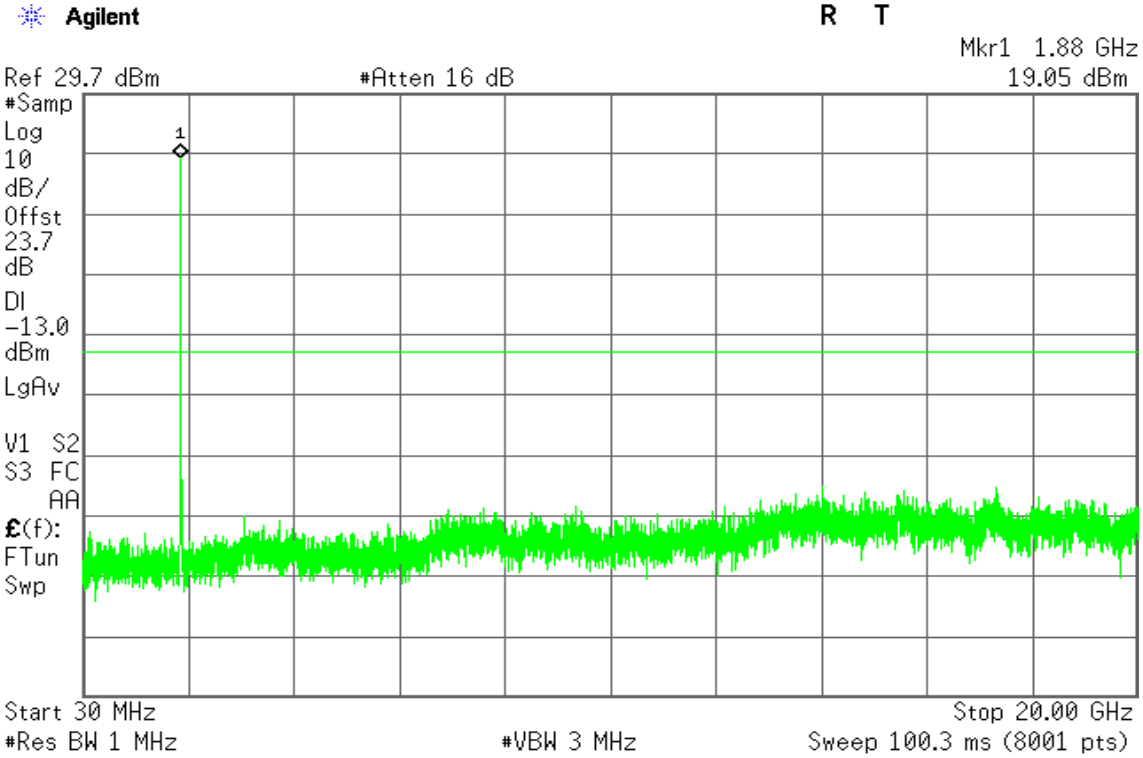
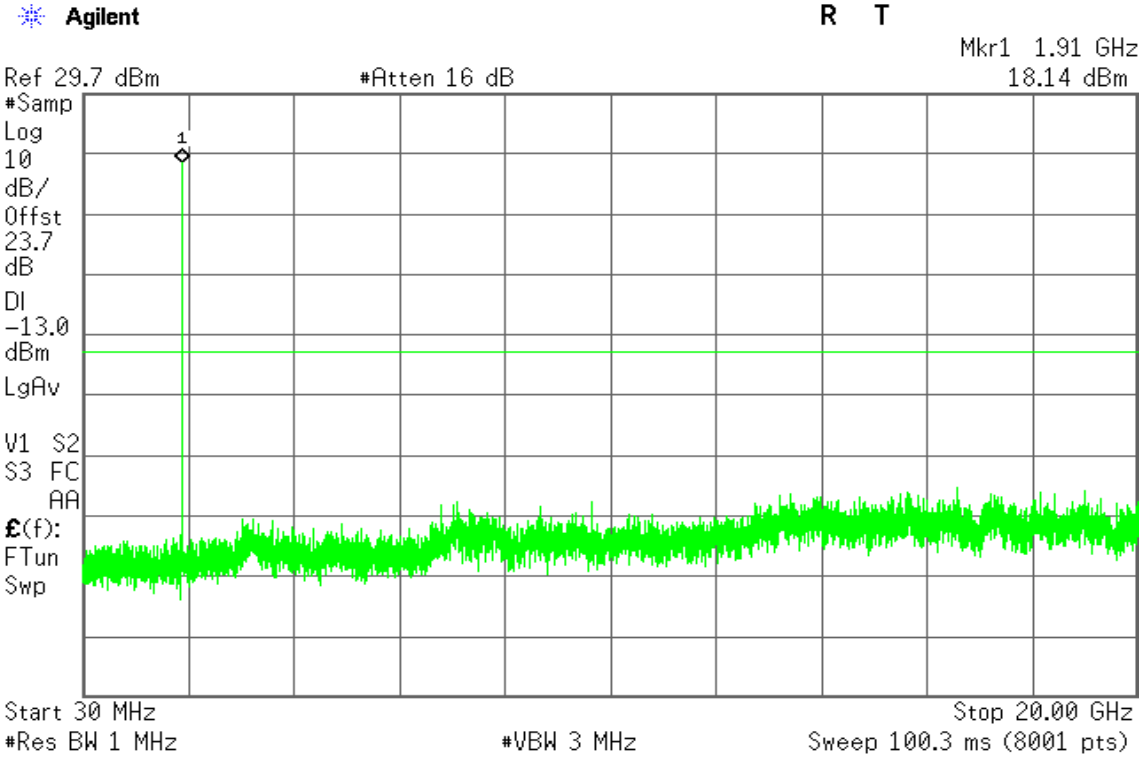


Figure 16-3: Out of Band emission at antenna terminals – CH High



LTE Band 2

Channel Bandwidth: 20MHz / QPSK

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

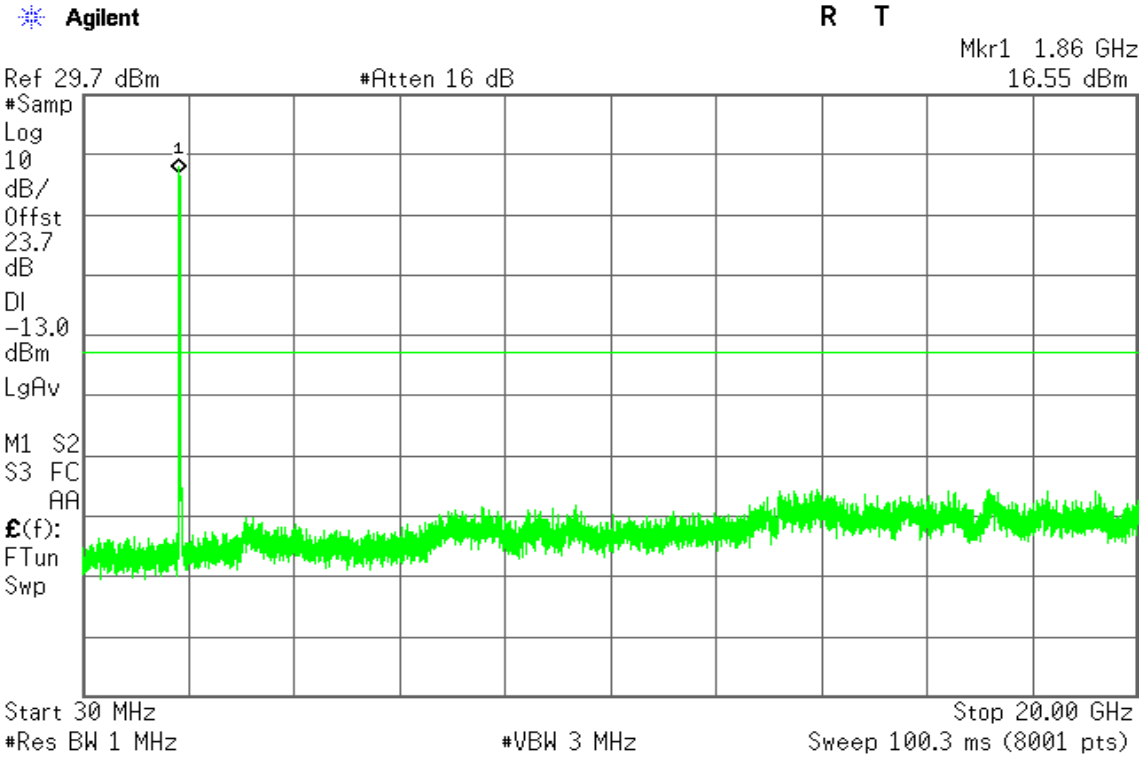


Figure 17-2: Out of Band emission at antenna terminals – CH Mid

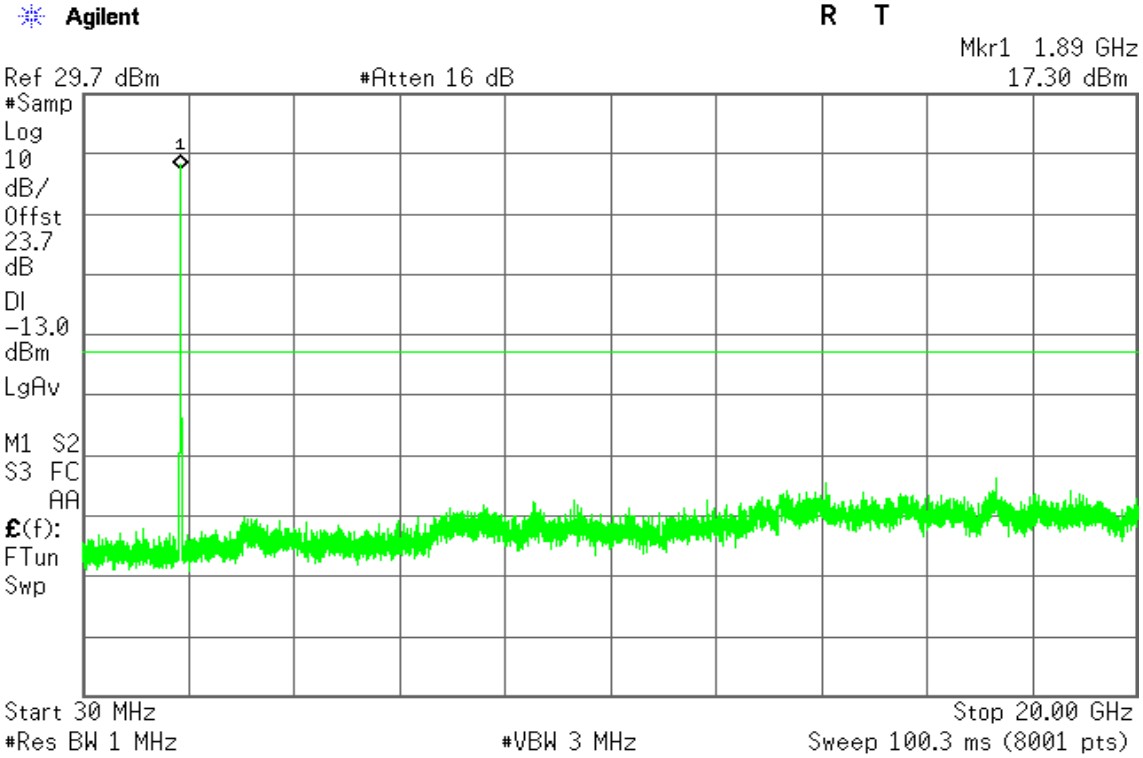


Figure 17-3: Out of Band emission at antenna terminals – CH High

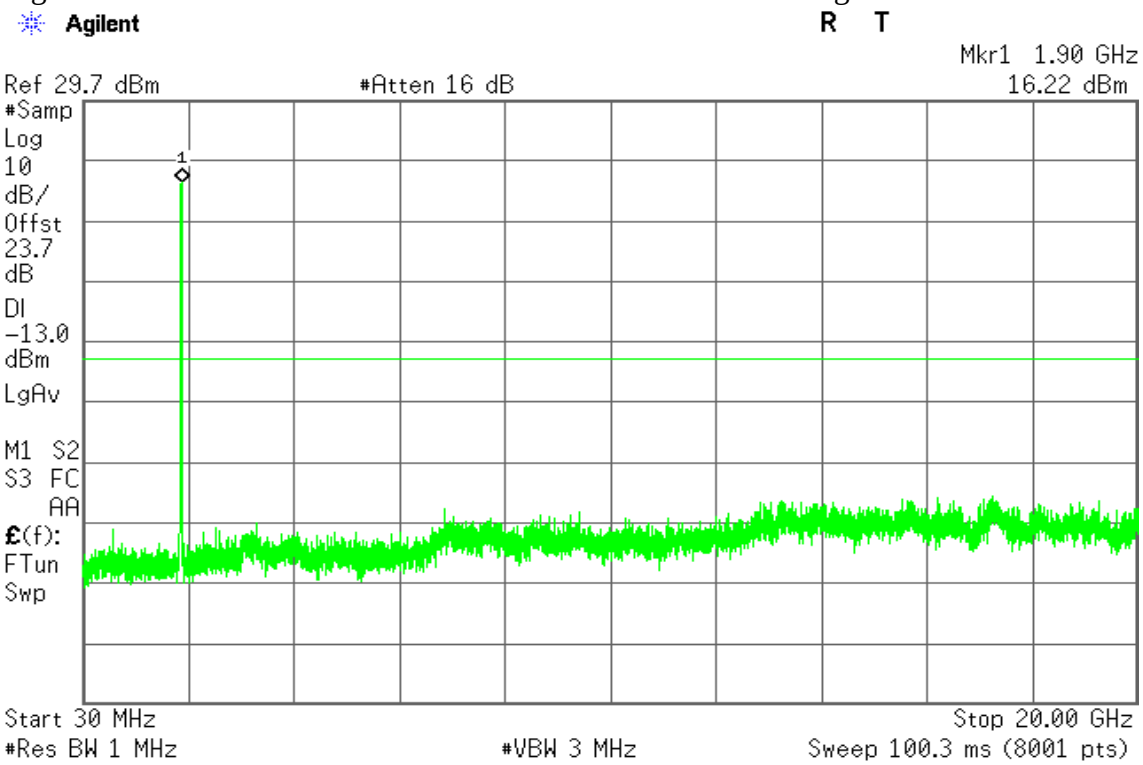


Figure 18-1: Band Edge emissions – CH Low

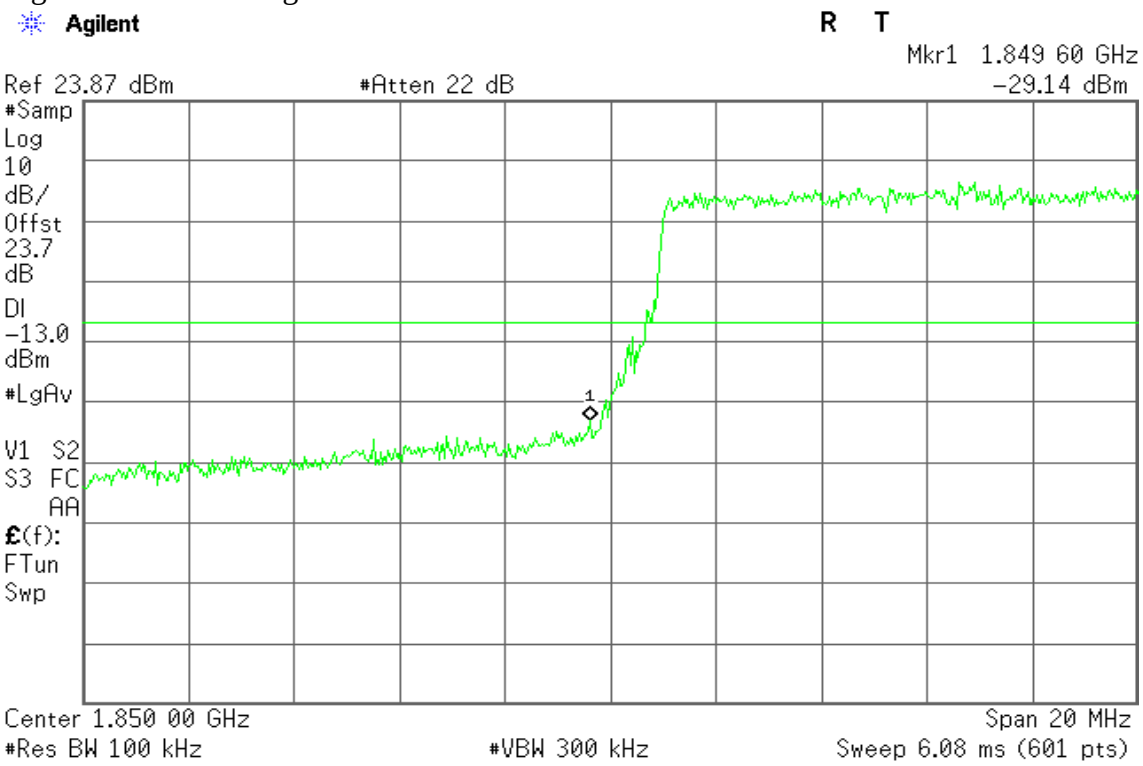
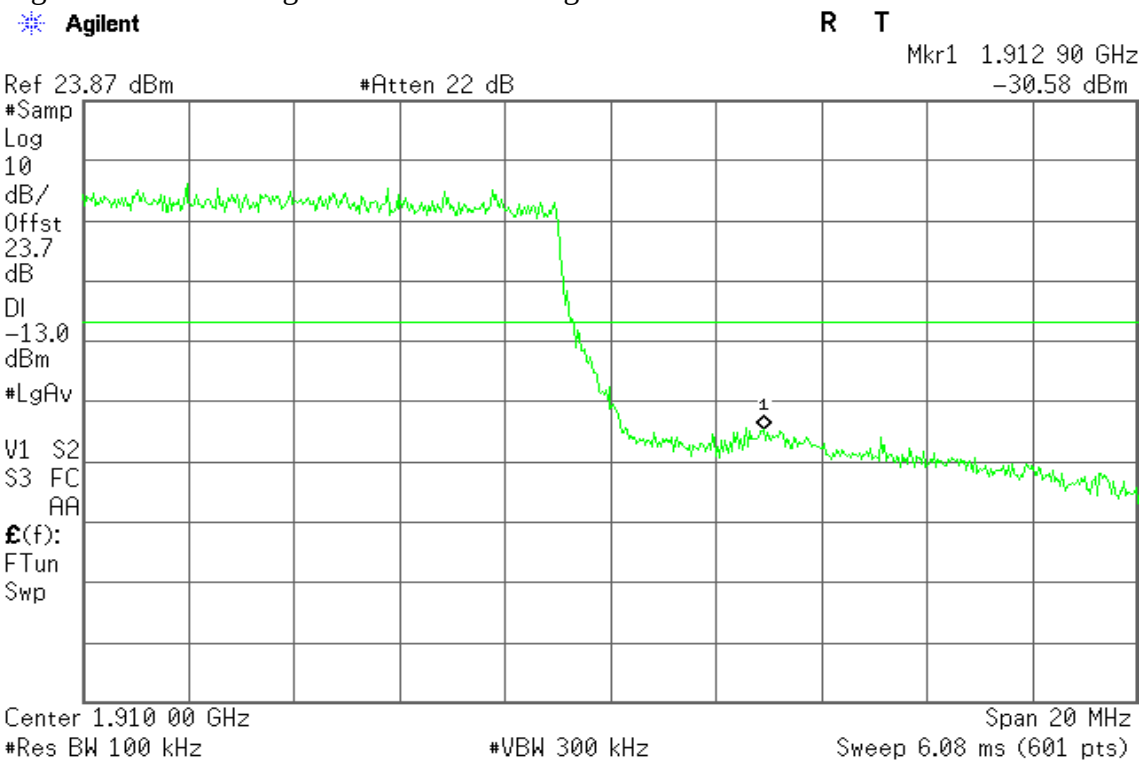


Figure 18-2: Band Edge emissions – CH High



LTE Band 2

Channel Bandwidth: 20MHz / 16QAM

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

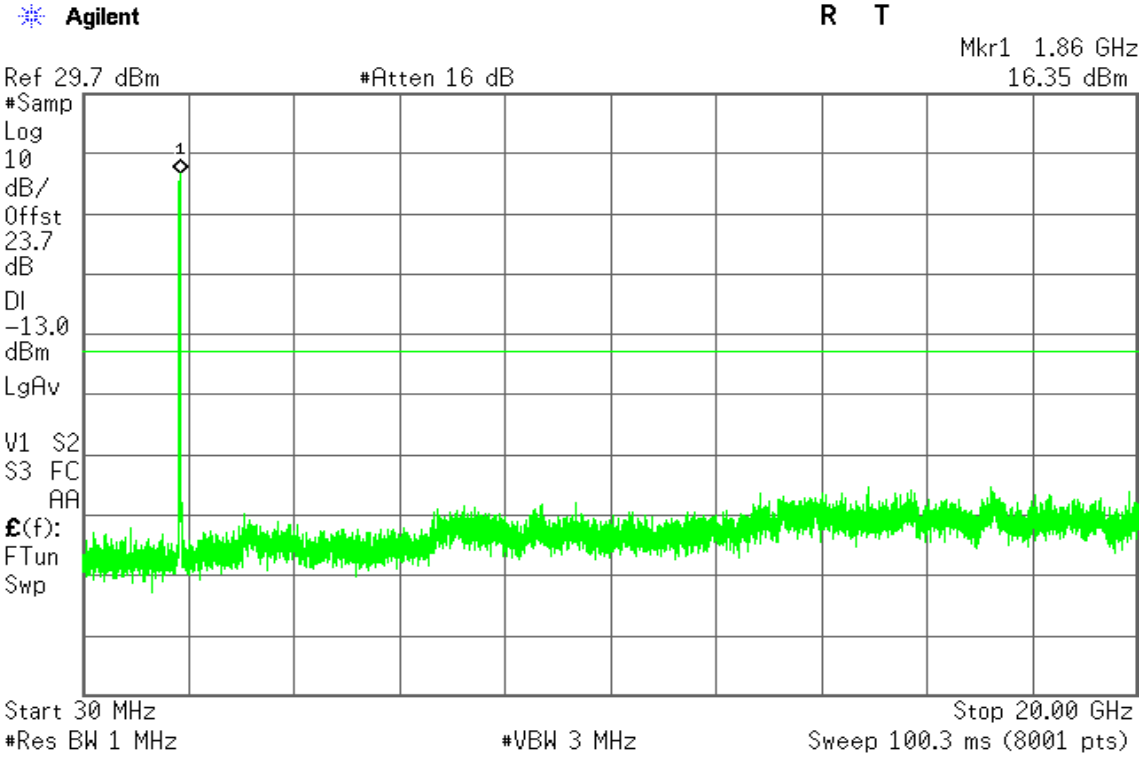


Figure 19-2: Out of Band emission at antenna terminals – CH Mid

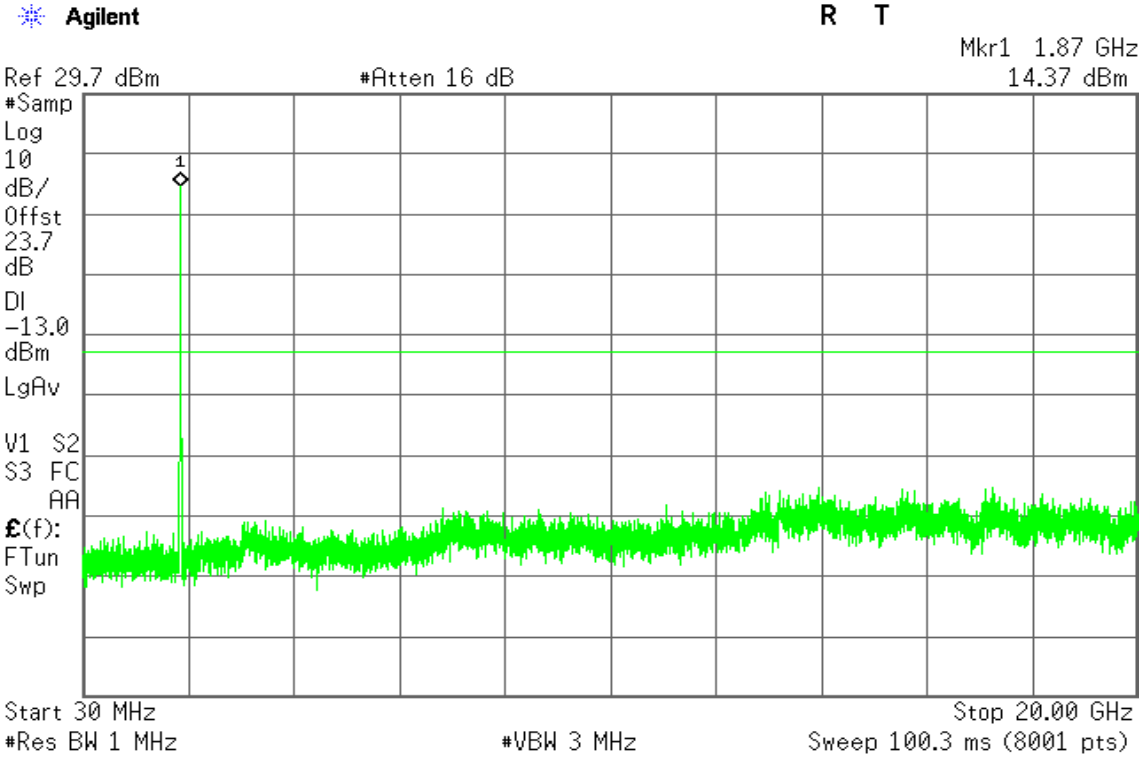


Figure 19-3: Out of Band emission at antenna terminals – CH High

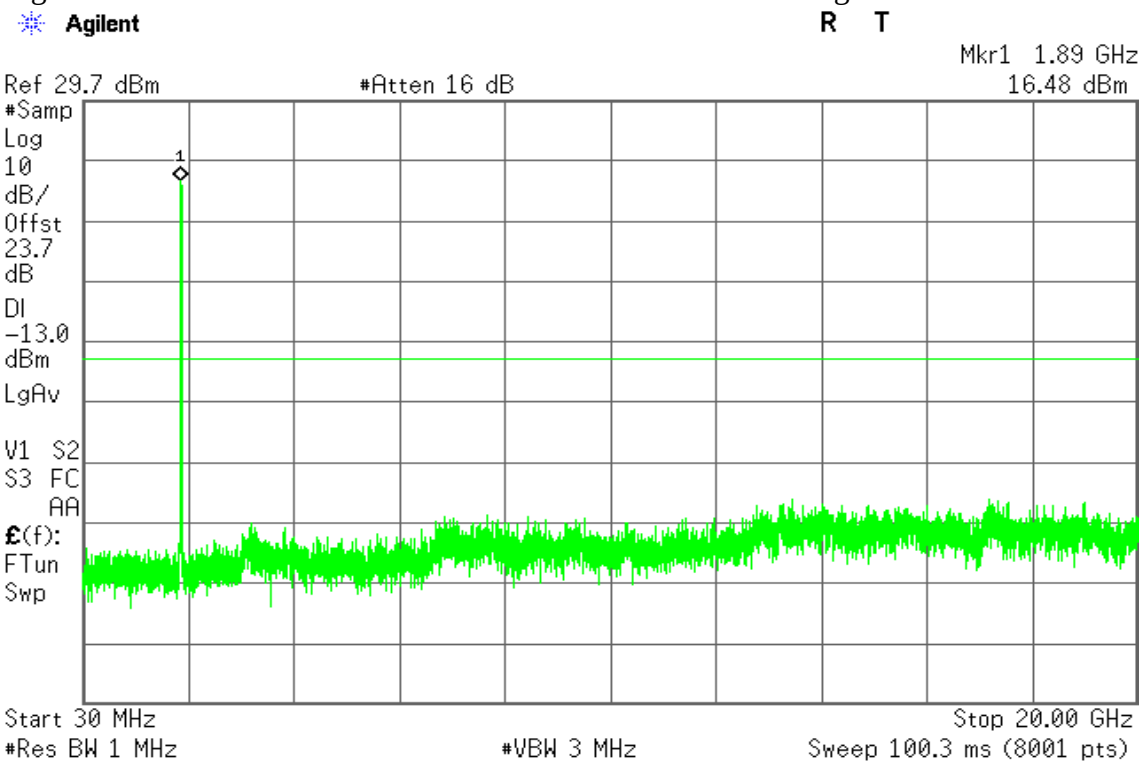


Figure 20-1: Band Edge emissions – CH Low

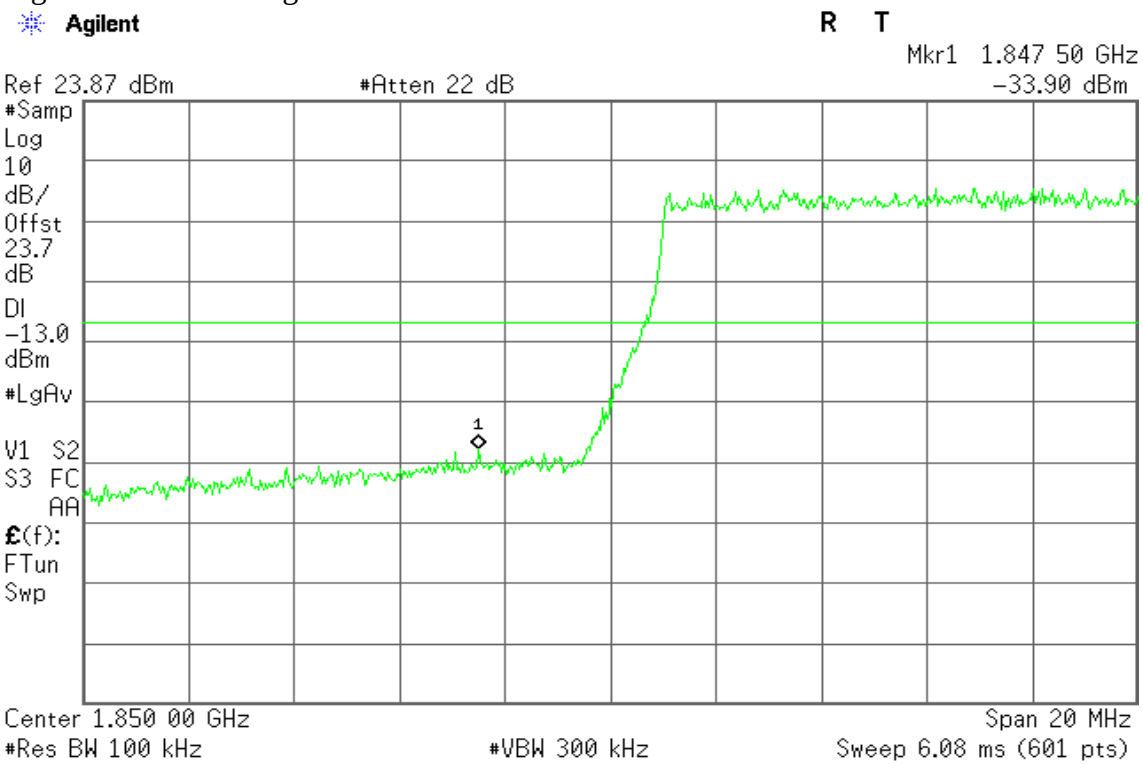
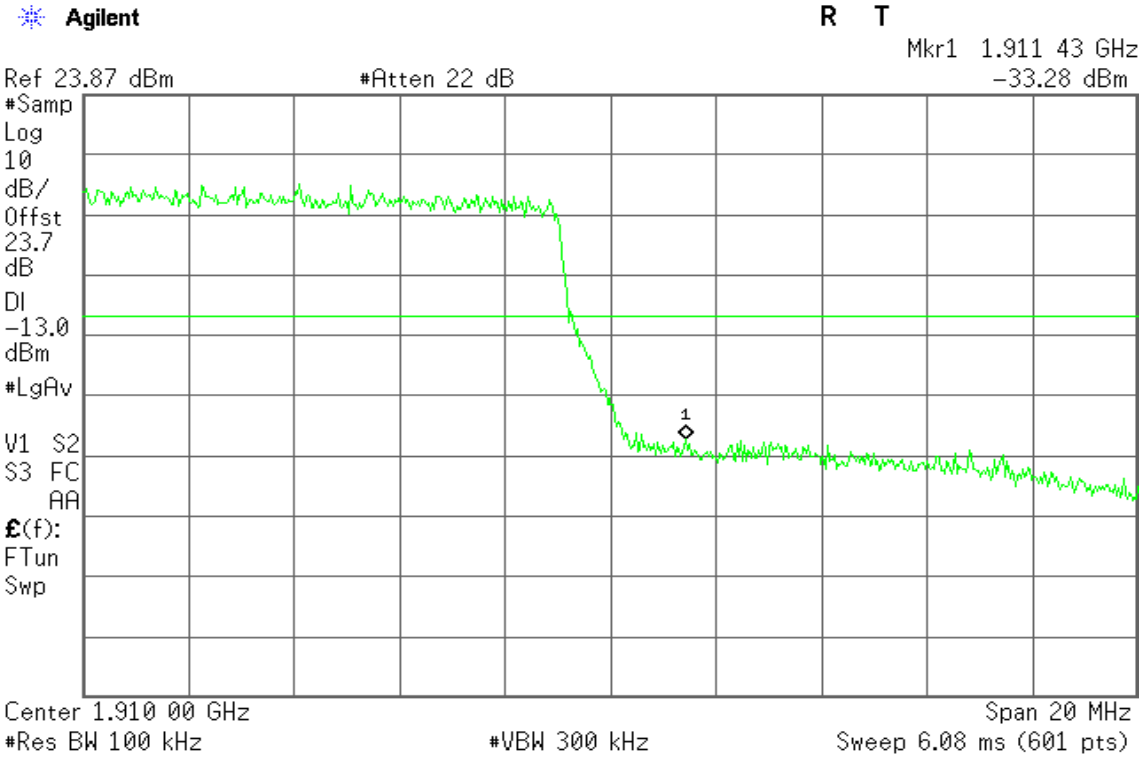


Figure 20-2: Band Edge emissions – CH High



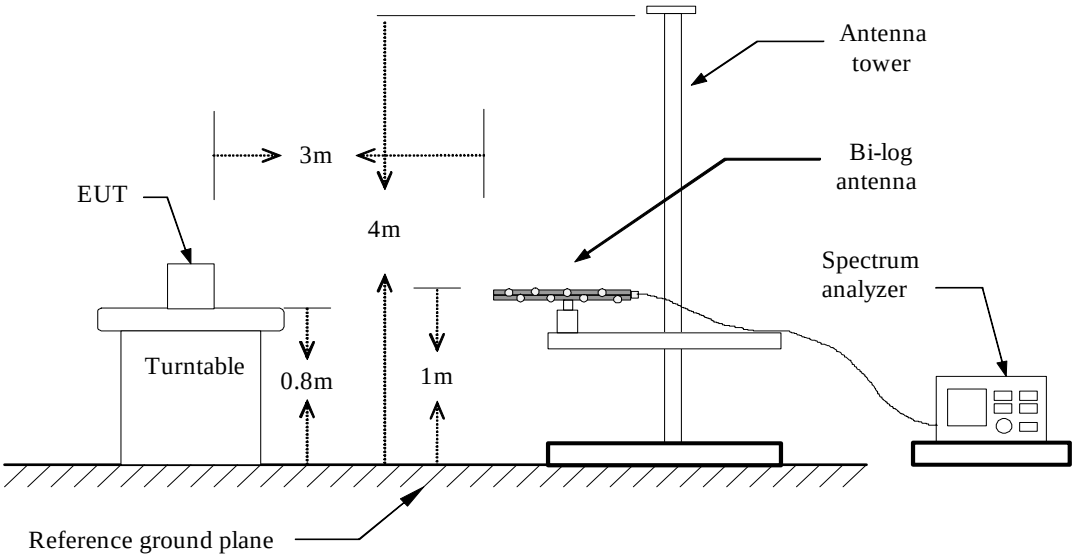
7.6FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

LIMIT

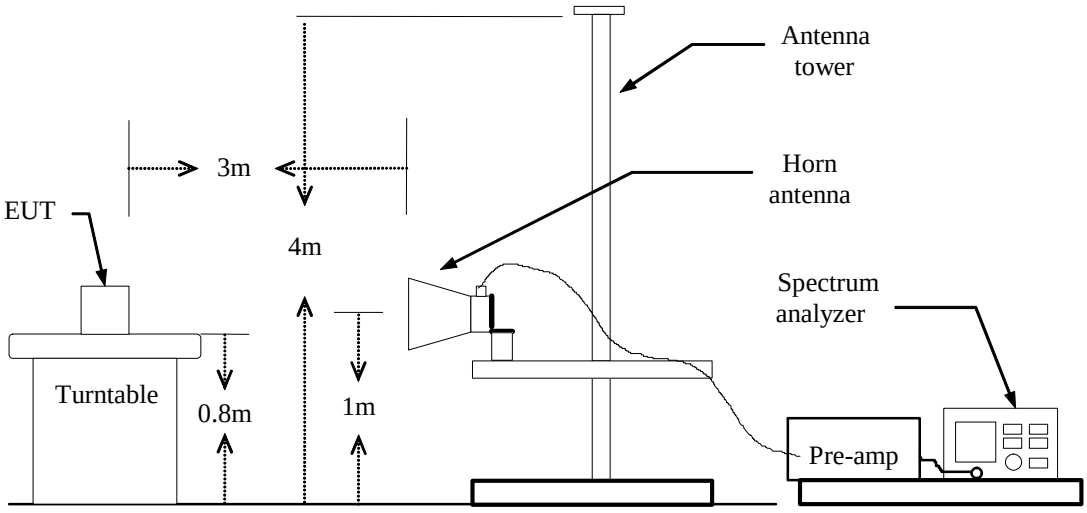
According to FCC §2.1053, RSS-132 (4.6) & RSS-133 (6.5).

Test Configuration

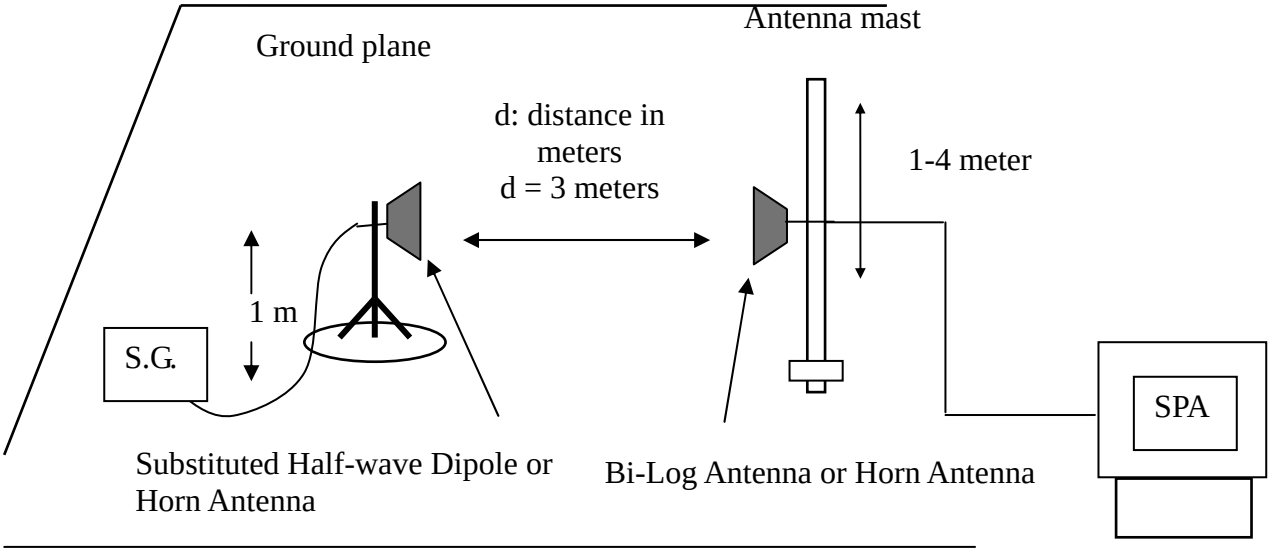
Below 1 GHz



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.

ERP = S.G. output (dBm) + Antenna Gain (dBd) – Cable (dB)

EIRP = S.G. output (dBm) + Antenna Gain (dBi) – 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:** May 4, 2014

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)
84.3200	-66.53	1.07	0.39	-67.21	-13.00	-54.21	V
150.2800	-74.04	1.43	0.71	-74.76	-13.00	-61.76	V
306.4500	-85.35	2.12	5.73	-81.74	-13.00	-68.74	V
360.7700	-82.28	2.27	5.71	-78.84	-13.00	-65.84	V
485.9000	-83.61	2.65	5.66	-80.60	-13.00	-67.60	V
562.5300	-82.74	2.85	6.01	-79.58	-13.00	-66.58	V
71.7100	-66.69	0.97	-1.61	-69.27	-13.00	-56.27	H
138.6400	-60.3	1.39	-0.38	-62.07	-13.00	-49.07	H
243.4000	-80.82	1.82	5.43	-77.21	-13.00	-64.21	H
342.3400	-77.36	2.18	5.8	-73.74	-13.00	-60.74	H
481.0500	-79.58	2.64	5.52	-76.70	-13.00	-63.70	H
612.9700	-78.69	2.94	6.23	-75.40	-13.00	-62.40	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:** May 4, 2014

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)
48.4300	-71.51	0.79	-5.83	-78.13	-13.00	-65.13	V
161.9200	-75.45	1.5	1.61	-75.34	-13.00	-62.34	V
268.6200	-85.91	1.97	5.17	-82.71	-13.00	-69.71	V
342.3400	-81.61	2.18	5.8	-77.99	-13.00	-64.99	V
459.7100	-84.05	2.6	5.88	-80.77	-13.00	-67.77	V
565.4400	-83.34	2.86	6.04	-80.16	-13.00	-67.16	V
71.7100	-66.87	0.97	-1.61	-69.45	-13.00	-56.45	H
138.6400	-60.61	1.39	-0.38	-62.38	-13.00	-49.38	H
243.4000	-81.79	1.82	5.43	-78.18	-13.00	-65.18	H
342.3400	-78.8	2.18	5.8	-75.18	-13.00	-62.18	H
402.4800	-80.26	2.41	5.97	-76.70	-13.00	-63.70	H
459.7100	-80.17	2.6	5.88	-76.89	-13.00	-63.89	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:** May 4, 2014

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)
84.3200	-70.76	1.07	0.39	-71.44	-13.00	-58.44	V
138.6400	-67.42	1.39	-0.38	-69.19	-13.00	-56.19	V
174.5300	-77.55	1.59	3	-76.14	-13.00	-63.14	V
203.6300	-84.39	1.65	3.94	-82.10	-13.00	-69.10	V
342.3400	-81.15	2.18	5.8	-77.53	-13.00	-64.53	V
448.0700	-84.99	2.58	5.74	-81.83	-13.00	-68.83	V
191.9900	-79.18	1.62	3.79	-77.01	-13.00	-64.01	H
240.4900	-81.75	1.81	5.34	-78.22	-13.00	-65.22	H
342.3400	-78.33	2.18	5.8	-74.71	-13.00	-61.71	H
516.9400	-80.98	2.7	6.07	-77.61	-13.00	-64.61	H
670.2000	-80.25	3.07	6.3	-77.02	-13.00	-64.02	H
772.0500	-78.66	3.28	6.32	-75.62	-13.00	-62.62	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:** May 4, 2014

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)
101.7800	-61.68	1.16	-0.64	-63.48	-13.00	-50.48	V
138.6400	-67.02	1.39	-0.38	-68.79	-13.00	-55.79	V
303.5400	-84.49	2.11	5.67	-80.93	-13.00	-67.93	V
360.7700	-80.45	2.27	5.71	-77.01	-13.00	-64.01	V
450.9800	-79.66	2.59	5.74	-76.51	-13.00	-63.51	V
529.5500	-80.53	2.75	6	-77.28	-13.00	-64.28	V
48.4300	-52.36	0.79	-5.83	-58.98	-13.00	-45.98	H
138.6400	-60.18	1.39	-0.38	-61.95	-13.00	-48.95	H
342.3400	-74.26	2.18	5.8	-70.64	-13.00	-57.64	H
382.1100	-75.95	2.31	5.99	-72.27	-13.00	-59.27	H
499.4800	-75.19	2.7	5.89	-72.00	-13.00	-59.00	H
N/A							

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:** May 4, 2014

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)
101.7800	-63.15	1.16	-0.64	-64.95	-13.00	-51.95	V
138.6400	-66.79	1.39	-0.38	-68.56	-13.00	-55.56	V
349.1300	-80.53	2.22	5.8	-76.95	-13.00	-63.95	V
448.0700	-80.63	2.58	5.74	-77.47	-13.00	-64.47	V
552.8300	-81.8	2.82	6.14	-78.48	-13.00	-65.48	V
721.6100	-82.77	3.17	6.49	-79.45	-13.00	-66.45	V
48.4300	-52.53	0.79	-5.83	-59.15	-13.00	-46.15	H
78.5000	-57.96	1.03	-0.43	-59.42	-13.00	-46.42	H
138.6400	-60.61	1.39	-0.38	-62.38	-13.00	-49.38	H
342.3400	-74.93	2.18	5.8	-71.31	-13.00	-58.31	H
499.4800	-76.78	2.7	5.89	-73.59	-13.00	-60.59	H
616.8500	-78.27	2.94	6.16	-75.05	-13.00	-62.05	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:** May 4, 2014

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)
101.7800	-63.4	1.16	-0.64	-65.20	-13.00	-52.20	V
174.5300	-73.58	1.59	3	-72.17	-13.00	-59.17	V
222.0600	-81.5	1.77	5.34	-77.93	-13.00	-64.93	V
345.2500	-80.24	2.2	5.8	-76.64	-13.00	-63.64	V
448.0700	-80.72	2.58	5.74	-77.56	-13.00	-64.56	V
552.8300	-83.3	2.82	6.14	-79.98	-13.00	-66.98	V
78.5000	-57.5	1.03	-0.43	-58.96	-13.00	-45.96	H
138.6400	-59.64	1.39	-0.38	-61.41	-13.00	-48.41	H
342.3400	-73.88	2.18	5.8	-70.26	-13.00	-57.26	H
415.0900	-77.7	2.45	5.86	-74.29	-13.00	-61.29	H
519.8500	-77.51	2.7	6.1	-74.11	-13.00	-61.11	H
601.3300	-77.53	2.91	6.39	-74.05	-13.00	-61.05	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:** May 4, 2014

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)
138.6400	-66.88	1.39	-0.38	-68.65	-13.00	-55.65	V
174.5300	-78.47	1.59	3	-77.06	-13.00	-64.06	V
342.3400	-81.44	2.18	5.8	-77.82	-13.00	-64.82	V
448.0700	-83.64	2.58	5.74	-80.48	-13.00	-67.48	V
552.8300	-84.16	2.82	6.14	-80.84	-13.00	-67.84	V
658.5600	-83.72	3.05	6.3	-80.47	-13.00	-67.47	V
71.7100	-67.81	0.97	-1.61	-70.39	-13.00	-57.39	H
138.6400	-59.64	1.39	-0.38	-61.41	-13.00	-48.41	H
342.3400	-78.46	2.18	5.8	-74.84	-13.00	-61.84	H
390.8400	-79.82	2.32	6	-76.14	-13.00	-63.14	H
559.6200	-80.66	2.84	6.03	-77.47	-13.00	-64.47	H
687.6600	-80.09	3.12	6.5	-76.71	-13.00	-63.71	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:** May 4, 2014

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)
101.7800	-69.16	1.16	-0.64	-70.96	-13.00	-57.96	V
138.6400	-67	1.39	-0.38	-68.77	-13.00	-55.77	V
254.0700	-86.25	1.86	5.66	-82.45	-13.00	-69.45	V
342.3400	-80.91	2.18	5.8	-77.29	-13.00	-64.29	V
439.3400	-83.85	2.53	5.9	-80.48	-13.00	-67.48	V
552.8300	-84	2.82	6.14	-80.68	-13.00	-67.68	V
35.8200	-58.97	0.69	-16.52	-76.18	-13.00	-63.18	H
71.7100	-68.09	0.97	-1.61	-70.67	-13.00	-57.67	H
138.6400	-59.63	1.39	-0.38	-61.40	-13.00	-48.40	H
342.3400	-78.38	2.18	5.8	-74.76	-13.00	-61.76	H
402.4800	-80.32	2.41	5.97	-76.76	-13.00	-63.76	H
612.9700	-79.02	2.94	6.23	-75.73	-13.00	-62.73	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:** May 4, 2014

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)
101.7800	-63.73	1.16	-0.64	-65.53	-13.00	-52.53	V
138.6400	-66.21	1.39	-0.38	-67.98	-13.00	-54.98	V
174.5300	-74.31	1.59	3	-72.90	-13.00	-59.90	V
222.0600	-82.2	1.77	5.34	-78.63	-13.00	-65.63	V
342.3400	-81.36	2.18	5.8	-77.74	-13.00	-64.74	V
448.0700	-79.79	2.58	5.74	-76.63	-13.00	-63.63	V
71.7100	-67.44	0.97	-1.61	-70.02	-13.00	-57.02	H
150.2800	-64.48	1.43	0.71	-65.20	-13.00	-52.20	H
240.4900	-81.77	1.81	5.34	-78.24	-13.00	-65.24	H
342.3400	-78.82	2.18	5.8	-75.20	-13.00	-62.20	H
393.7500	-79.43	2.34	5.99	-75.78	-13.00	-62.78	H
589.6900	-80	2.89	6.19	-76.70	-13.00	-63.70	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:** May 4, 2014

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)
101.7800	-64.24	1.16	-0.64	-66.04	-13.00	-53.04	V
174.5300	-73.23	1.59	3	-71.82	-13.00	-58.82	V
268.6200	-83.57	1.97	5.17	-80.37	-13.00	-67.37	V
349.1300	-80.6	2.22	5.8	-77.02	-13.00	-64.02	V
448.0700	-80.46	2.58	5.74	-77.30	-13.00	-64.30	V
529.5500	-80.49	2.75	6	-77.24	-13.00	-64.24	V
78.5000	-58.04	1.03	-0.43	-59.50	-13.00	-46.50	H
138.6400	-59.98	1.39	-0.38	-61.75	-13.00	-48.75	H
297.7200	-80.38	2.08	5.55	-76.91	-13.00	-63.91	H
342.3400	-73.43	2.18	5.8	-69.81	-13.00	-56.81	H
382.1100	-75.57	2.31	5.99	-71.89	-13.00	-58.89	H
516.9400	-76.7	2.7	6.07	-73.33	-13.00	-60.33	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:** May 4, 2014

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)
101.7800	-64.29	1.16	-0.64	-66.09	-13.00	-53.09	V
161.9200	-71.95	1.5	1.61	-71.84	-13.00	-58.84	V
234.6700	-85.49	1.8	5.38	-81.91	-13.00	-68.91	V
345.2500	-80.2	2.2	5.8	-76.60	-13.00	-63.60	V
448.0700	-79.86	2.58	5.74	-76.70	-13.00	-63.70	V
516.9400	-80.93	2.7	6.07	-77.56	-13.00	-64.56	V
48.4300	-52.84	0.79	-5.83	-59.46	-13.00	-46.46	H
138.6400	-59.24	1.39	-0.38	-61.01	-13.00	-48.01	H
342.3400	-74.31	2.18	5.8	-70.69	-13.00	-57.69	H
415.0900	-77.55	2.45	5.86	-74.14	-13.00	-61.14	H
516.9400	-77.98	2.7	6.07	-74.61	-13.00	-61.61	H
589.6900	-77.03	2.89	6.19	-73.73	-13.00	-60.73	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:** May 4, 2014

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)
138.6400	-66.53	1.39	-0.38	-68.30	-13.00	-55.30	V
171.6200	-74.07	1.57	2.69	-72.95	-13.00	-59.95	V
222.0600	-83	1.77	5.34	-79.43	-13.00	-66.43	V
342.3400	-80.74	2.18	5.8	-77.12	-13.00	-64.12	V
448.0700	-79.47	2.58	5.74	-76.31	-13.00	-63.31	V
619.7600	-83.25	2.94	6.11	-80.08	-13.00	-67.08	V
48.4300	-53.03	0.79	-5.83	-59.65	-13.00	-46.65	H
78.5000	-58.07	1.03	-0.43	-59.53	-13.00	-46.53	H
138.6400	-59.2	1.39	-0.38	-60.97	-13.00	-47.97	H
222.0600	-78.97	1.77	5.34	-75.40	-13.00	-62.40	H
342.3400	-74.39	2.18	5.8	-70.77	-13.00	-57.77	H
601.3300	-77.16	2.91	6.39	-73.68	-13.00	-60.68	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:** May 4, 2014

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)
101.7800	-64.69	1.16	-0.64	-66.49	-13.00	-53.49	V
138.6400	-68.15	1.39	-0.38	-69.92	-13.00	-56.92	V
171.6200	-71.67	1.57	2.69	-70.55	-13.00	-57.55	V
354.9500	-82.16	2.25	5.75	-78.66	-13.00	-65.66	V
448.0700	-80.11	2.58	5.74	-76.95	-13.00	-63.95	V
528.5800	-82.24	2.75	6.01	-78.98	-13.00	-65.98	V
71.7100	-68.43	0.97	-1.61	-71.01	-13.00	-58.01	H
138.6400	-58.83	1.39	-0.38	-60.60	-13.00	-47.60	H
240.4900	-81.28	1.81	5.34	-77.75	-13.00	-64.75	H
342.3400	-76.8	2.18	5.8	-73.18	-13.00	-60.18	H
390.8400	-79.27	2.32	6	-75.59	-13.00	-62.59	H
733.2500	-76.11	3.19	6.31	-72.99	-13.00	-59.99	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:** May 4, 2014

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)
78.5000	-67.41	1.03	-0.43	-68.87	-13.00	-55.87	V
138.6400	-65.05	1.39	-0.38	-66.82	-13.00	-53.82	V
171.6200	-73.54	1.57	2.69	-72.42	-13.00	-59.42	V
342.3400	-81.77	2.18	5.8	-78.15	-13.00	-65.15	V
448.0700	-80.34	2.58	5.74	-77.18	-13.00	-64.18	V
733.2500	-78.84	3.19	6.31	-75.72	-13.00	-62.72	V
71.7100	-69.11	0.97	-1.61	-71.69	-13.00	-58.69	H
138.6400	-58.66	1.39	-0.38	-60.43	-13.00	-47.43	H
342.3400	-78.64	2.18	5.8	-75.02	-13.00	-62.02	H
402.4800	-80.56	2.41	5.97	-77.00	-13.00	-64.00	H
595.5100	-80.01	2.9	6.31	-76.60	-13.00	-63.60	H
769.1400	-76.54	3.27	6.39	-73.42	-13.00	-60.42	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.*

Operation Mode: Tx / High channel **Test Date:** May 4, 2014

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)
101.7800	-63.81	1.16	-0.64	-65.61	-13.00	-52.61	V
171.6200	-72.76	1.57	2.69	-71.64	-13.00	-58.64	V
345.2500	-81.67	2.2	5.8	-78.07	-13.00	-65.07	V
448.0700	-79.85	2.58	5.74	-76.69	-13.00	-63.69	V
745.8600	-78.11	3.2	6.1	-75.21	-13.00	-62.21	V
913.6700	-78.29	3.57	6.6	-75.26	-13.00	-62.26	V
48.4300	-60.42	0.79	-5.83	-67.04	-13.00	-54.04	H
84.3200	-72.67	1.07	0.39	-73.35	-13.00	-60.35	H
138.6400	-58.34	1.39	-0.38	-60.11	-13.00	-47.11	H
342.3400	-79.12	2.18	5.8	-75.50	-13.00	-62.50	H
617.8200	-79.72	2.94	6.14	-76.52	-13.00	-63.52	H
697.3600	-77.19	3.11	6.42	-73.88	-13.00	-60.88	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:** May 4, 2014

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)
78.5000	-68.07	1.03	-0.43	-69.53	-13.00	-56.53	V
101.7800	-63.87	1.16	-0.64	-65.67	-13.00	-52.67	V
138.6400	-65.38	1.39	-0.38	-67.15	-13.00	-54.15	V
342.3400	-82.09	2.18	5.8	-78.47	-13.00	-65.47	V
448.0700	-79.58	2.58	5.74	-76.42	-13.00	-63.42	V
733.2500	-78.72	3.19	6.31	-75.60	-13.00	-62.60	V
48.4300	-51.92	0.79	-5.83	-58.54	-13.00	-45.54	H
78.5000	-58.67	1.03	-0.43	-60.13	-13.00	-47.13	H
138.6400	-58.61	1.39	-0.38	-60.38	-13.00	-47.38	H
342.3400	-75.46	2.18	5.8	-71.84	-13.00	-58.84	H
499.4800	-77.09	2.7	5.89	-73.90	-13.00	-60.90	H
733.2500	-73.75	3.19	6.31	-70.63	-13.00	-57.63	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:** May 4, 2014

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)
84.3200	-69.49	1.07	0.39	-70.17	-13.00	-57.17	V
138.6400	-65.44	1.39	-0.38	-67.21	-13.00	-54.21	V
171.6200	-74.13	1.57	2.69	-73.01	-13.00	-60.01	V
321.9700	-83.55	2.18	5.7	-80.03	-13.00	-67.03	V
369.5000	-84.22	2.3	5.8	-80.72	-13.00	-67.72	V
450.9800	-81.99	2.59	5.74	-78.84	-13.00	-65.84	V
48.4300	-52.02	0.79	-5.83	-58.64	-13.00	-45.64	H
78.5000	-58.49	1.03	-0.43	-59.95	-13.00	-46.95	H
138.6400	-58.48	1.39	-0.38	-60.25	-13.00	-47.25	H
342.3400	-74.1	2.18	5.8	-70.48	-13.00	-57.48	H
354.9500	-77.14	2.25	5.75	-73.64	-13.00	-60.64	H
733.2500	-73.73	3.19	6.31	-70.61	-13.00	-57.61	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:** May 4, 2014

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)
48.4300	-68.96	0.79	-5.83	-75.58	-13.00	-62.58	V
101.7800	-63.96	1.16	-0.64	-65.76	-13.00	-52.76	V
138.6400	-66.14	1.39	-0.38	-67.91	-13.00	-54.91	V
171.6200	-73.9	1.57	2.69	-72.78	-13.00	-59.78	V
345.2500	-81.45	2.2	5.8	-77.85	-13.00	-64.85	V
673.1100	-81.04	3.08	6.36	-77.76	-13.00	-64.76	V
78.5000	-58.91	1.03	-0.43	-60.37	-13.00	-47.37	H
138.6400	-58.79	1.39	-0.38	-60.56	-13.00	-47.56	H
150.2800	-64.5	1.43	0.71	-65.22	-13.00	-52.22	H
342.3400	-74.62	2.18	5.8	-71.00	-13.00	-58.00	H
529.5500	-79.29	2.75	6	-76.04	-13.00	-63.04	H
733.2500	-74.19	3.19	6.31	-71.07	-13.00	-58.07	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 4 / channel bandwidth: 10MHz / QPSK

Operation Mode:	Tx / Low channel	**Test Date:**	May 4, 2014
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)
101.7800	-64.37	1.16	-0.64	-66.17	-13.00	-53.17	V
138.6400	-68.56	1.39	-0.38	-70.33	-13.00	-57.33	V
150.2800	-76.57	1.43	0.71	-77.29	-13.00	-64.29	V
345.2500	-84.26	2.2	5.8	-80.66	-13.00	-67.66	V
484.9300	-84.81	2.65	5.63	-81.83	-13.00	-68.83	V
628.4900	-84.73	2.97	6.18	-81.52	-13.00	-68.52	V
78.5000	-60.76	1.03	-0.43	-62.22	-13.00	-49.22	H
138.6400	-60.31	1.39	-0.38	-62.08	-13.00	-49.08	H
342.3400	-75.31	2.18	5.8	-71.69	-13.00	-58.69	H
564.4700	-78.7	2.86	6.03	-75.53	-13.00	-62.53	H
721.6100	-77.76	3.17	6.49	-74.44	-13.00	-61.44	H
769.1400	-74.08	3.27	6.39	-70.96	-13.00	-57.96	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:** May 4, 2014

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)
78.5000	-71.53	1.03	-0.43	-72.99	-13.00	-59.99	V
138.6400	-65.77	1.39	-0.38	-67.54	-13.00	-54.54	V
171.6200	-74.93	1.57	2.69	-73.81	-13.00	-60.81	V
330.7000	-82.56	2.16	5.71	-79.01	-13.00	-66.01	V
516.9400	-85.18	2.7	6.07	-81.81	-13.00	-68.81	V
731.3100	-83.42	3.18	6.37	-80.23	-13.00	-67.23	V
78.5000	-58.67	1.03	-0.43	-60.13	-13.00	-47.13	H
138.6400	-58.6	1.39	-0.38	-60.37	-13.00	-47.37	H
171.6200	-67.54	1.57	2.69	-66.42	-13.00	-53.42	H
342.3400	-74.18	2.18	5.8	-70.56	-13.00	-57.56	H
645.9500	-79.18	3.02	6.21	-75.99	-13.00	-62.99	H
733.2500	-74.17	3.19	6.31	-71.05	-13.00	-58.05	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:** May 4, 2014

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)
84.3200	-71.79	1.07	0.39	-72.47	-13.00	-59.47	V
138.6400	-66.01	1.39	-0.38	-67.78	-13.00	-54.78	V
171.6200	-75.76	1.57	2.69	-74.64	-13.00	-61.64	V
319.0600	-83.64	2.17	5.71	-80.10	-13.00	-67.10	V
402.4800	-87.21	2.41	5.97	-83.65	-13.00	-70.65	V
516.9400	-84.15	2.7	6.07	-80.78	-13.00	-67.78	V
78.5000	-59.85	1.03	-0.43	-61.31	-13.00	-48.31	H
138.6400	-59.57	1.39	-0.38	-61.34	-13.00	-48.34	H
321.9700	-80.62	2.18	5.7	-77.10	-13.00	-64.10	H
379.2000	-78.11	2.31	5.98	-74.44	-13.00	-61.44	H
601.3300	-77.02	2.91	6.39	-73.54	-13.00	-60.54	H
733.2500	-77.09	3.19	6.31	-73.97	-13.00	-60.97	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 4 / channel bandwidth: 10MHz / 16QAM

Operation Mode:	Tx / Low channel	**Test Date:**	May 4, 2014
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)
78.5000	-69.02	1.03	-0.43	-70.48	-13.00	-57.48	V
138.6400	-65.6	1.39	-0.38	-67.37	-13.00	-54.37	V
171.6200	-73.42	1.57	2.69	-72.30	-13.00	-59.30	V
342.3400	-82	2.18	5.8	-78.38	-13.00	-65.38	V
448.0700	-82.93	2.58	5.74	-79.77	-13.00	-66.77	V
733.2500	-78.96	3.19	6.31	-75.84	-13.00	-62.84	V
78.5000	-58.71	1.03	-0.43	-60.17	-13.00	-47.17	H
138.6400	-58.45	1.39	-0.38	-60.22	-13.00	-47.22	H
171.6200	-69.19	1.57	2.69	-68.07	-13.00	-55.07	H
342.3400	-74.56	2.18	5.8	-70.94	-13.00	-57.94	H
516.9400	-78.92	2.7	6.07	-75.55	-13.00	-62.55	H
589.6900	-76.8	2.89	6.19	-73.50	-13.00	-60.50	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 / Middle channel **Test Date:** May 4, 2014

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)
101.7800	-63.61	1.16	-0.64	-65.41	-13.00	-52.41	V
171.6200	-74.38	1.57	2.69	-73.26	-13.00	-60.26	V
366.5900	-80.82	2.29	5.77	-77.34	-13.00	-64.34	V
448.0700	-79.69	2.58	5.74	-76.53	-13.00	-63.53	V
619.7600	-81.12	2.94	6.11	-77.95	-13.00	-64.95	V
733.2500	-77.77	3.19	6.31	-74.65	-13.00	-61.65	V
48.4300	-51.87	0.79	-5.83	-58.49	-13.00	-45.49	H
78.5000	-59.01	1.03	-0.43	-60.47	-13.00	-47.47	H
138.6400	-58.65	1.39	-0.38	-60.42	-13.00	-47.42	H
342.3400	-74.99	2.18	5.8	-71.37	-13.00	-58.37	H
472.3200	-78.44	2.62	5.72	-75.34	-13.00	-62.34	H
769.1400	-73.18	3.27	6.39	-70.06	-13.00	-57.06	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:** May 4, 2014

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)
84.3200	-71.79	1.07	0.39	-72.47	-13.00	-59.47	V
138.6400	-66.01	1.39	-0.38	-67.78	-13.00	-54.78	V
171.6200	-75.76	1.57	2.69	-74.64	-13.00	-61.64	V
345.2500	-83.31	2.2	5.8	-79.71	-13.00	-66.71	V
449.0400	-84.82	2.59	5.72	-81.69	-13.00	-68.69	V
766.2300	-81.92	3.25	6.36	-78.81	-13.00	-65.81	V
78.5000	-58.34	1.03	-0.43	-59.80	-13.00	-46.80	H
138.6400	-58.21	1.39	-0.38	-59.98	-13.00	-46.98	H
342.3400	-74.6	2.18	5.8	-70.98	-13.00	-57.98	H
529.5500	-77.09	2.75	6	-73.84	-13.00	-60.84	H
589.6900	-78.14	2.89	6.19	-74.84	-13.00	-61.84	H
733.2500	-74.86	3.19	6.31	-71.74	-13.00	-58.74	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:** May 4, 2014

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)
84.3200	-73.15	1.07	0.39	-73.83	-13.00	-60.83	V
101.7800	-68.27	1.16	-0.64	-70.07	-13.00	-57.07	V
138.6400	-66	1.39	-0.38	-67.77	-13.00	-54.77	V
171.6200	-74.57	1.57	2.69	-73.45	-13.00	-60.45	V
342.3400	-81.35	2.18	5.8	-77.73	-13.00	-64.73	V
435.4600	-83.55	2.51	5.86	-80.20	-13.00	-67.20	V
48.4300	-51.99	0.79	-5.83	-58.61	-13.00	-45.61	H
78.5000	-58.11	1.03	-0.43	-59.57	-13.00	-46.57	H
138.6400	-59.23	1.39	-0.38	-61.00	-13.00	-48.00	H
342.3400	-74.81	2.18	5.8	-71.19	-13.00	-58.19	H
499.4800	-76.57	2.7	5.89	-73.38	-13.00	-60.38	H
769.1400	-76.01	3.27	6.39	-72.89	-13.00	-59.89	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:** May 4, 2014

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)
138.6400	-66.45	1.39	-0.38	-68.22	-13.00	-55.22	V
180.3500	-82.26	1.61	3.62	-80.25	-13.00	-67.25	V
342.3400	-82.19	2.18	5.8	-78.57	-13.00	-65.57	V
448.0700	-83.57	2.58	5.74	-80.41	-13.00	-67.41	V
685.7200	-81.18	3.11	6.5	-77.79	-13.00	-64.79	V
733.2500	-78.85	3.19	6.31	-75.73	-13.00	-62.73	V
243.4000	-79.15	1.82	5.43	-75.54	-13.00	-62.54	H
342.3400	-78.81	2.18	5.8	-75.19	-13.00	-62.19	H
492.6900	-79.53	2.68	5.82	-76.39	-13.00	-63.39	H
644.0100	-79.74	3.02	6.17	-76.59	-13.00	-63.59	H
745.8600	-75.3	3.2	6.1	-72.40	-13.00	-59.40	H
837.0400	-77.61	3.4	6.37	-74.64	-13.00	-61.64	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:** May 4, 2014

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)
101.7800	-68.4	1.16	-0.64	-70.20	-13.00	-57.20	V
138.6400	-66.3	1.39	-0.38	-68.07	-13.00	-55.07	V
297.7200	-85.72	2.08	5.55	-82.25	-13.00	-69.25	V
439.3400	-83.94	2.53	5.9	-80.57	-13.00	-67.57	V
596.4800	-82.83	2.9	6.33	-79.40	-13.00	-66.40	V
685.7200	-81.46	3.11	6.5	-78.07	-13.00	-65.07	V
138.6400	-58.24	1.39	-0.38	-60.01	-13.00	-47.01	H
150.2800	-64.35	1.43	0.71	-65.07	-13.00	-52.07	H
243.4000	-79.95	1.82	5.43	-76.34	-13.00	-63.34	H
461.6500	-81.57	2.6	5.86	-78.31	-13.00	-65.31	H
745.8600	-75.35	3.2	6.1	-72.45	-13.00	-59.45	H
839.9500	-77.51	3.41	6.4	-74.52	-13.00	-61.52	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:** May 4, 2014

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)
101.7800	-63.71	1.16	-0.64	-65.51	-13.00	-52.51	V
171.6200	-71.74	1.57	2.69	-70.62	-13.00	-57.62	V
342.3400	-81.38	2.18	5.8	-77.76	-13.00	-64.76	V
448.0700	-79.98	2.58	5.74	-76.82	-13.00	-63.82	V
673.1100	-79.11	3.08	6.36	-75.83	-13.00	-62.83	V
745.8600	-79.05	3.2	6.1	-76.15	-13.00	-63.15	V
48.4300	-55.75	0.79	-5.83	-62.37	-13.00	-49.37	H
78.5000	-58.69	1.03	-0.43	-60.15	-13.00	-47.15	H
138.6400	-58.57	1.39	-0.38	-60.34	-13.00	-47.34	H
342.3400	-74.47	2.18	5.8	-70.85	-13.00	-57.85	H
415.0900	-76	2.45	5.86	-72.59	-13.00	-59.59	H
757.5000	-74.42	3.22	6.25	-71.39	-13.00	-58.39	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:** May 4, 2014

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)
138.6400	-65.99	1.39	-0.38	-67.76	-13.00	-54.76	V
174.5300	-76.15	1.59	3	-74.74	-13.00	-61.74	V
342.3400	-81.77	2.18	5.8	-78.15	-13.00	-65.15	V
469.4100	-84.86	2.62	5.79	-81.69	-13.00	-68.69	V
673.1100	-79.95	3.08	6.36	-76.67	-13.00	-63.67	V
883.6000	-80.07	3.48	6.7	-76.85	-13.00	-63.85	V
78.5000	-57.33	1.03	-0.43	-58.79	-13.00	-45.79	H
138.6400	-58.42	1.39	-0.38	-60.19	-13.00	-47.19	H
342.3400	-74.4	2.18	5.8	-70.78	-13.00	-57.78	H
529.5500	-76.99	2.75	6	-73.74	-13.00	-60.74	H
745.8600	-72.93	3.2	6.1	-70.03	-13.00	-57.03	H
859.3500	-76.13	3.43	6.4	-73.16	-13.00	-60.16	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:** May 4, 2014

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)
101.7800	-63.57	1.16	-0.64	-65.37	-13.00	-52.37	V
171.6200	-73.58	1.57	2.69	-72.46	-13.00	-59.46	V
177.4400	-77.75	1.6	3.31	-76.04	-13.00	-63.04	V
319.0600	-84.09	2.17	5.71	-80.55	-13.00	-67.55	V
342.3400	-81.08	2.18	5.8	-77.46	-13.00	-64.46	V
450.9800	-80.64	2.59	5.74	-77.49	-13.00	-64.49	V
71.7100	-68.38	0.97	-1.61	-70.96	-13.00	-57.96	H
342.3400	-78.24	2.18	5.8	-74.62	-13.00	-61.62	H
390.8400	-79.95	2.32	6	-76.27	-13.00	-63.27	H
459.7100	-81.08	2.6	5.88	-77.80	-13.00	-64.80	H
562.5300	-80.61	2.85	6.01	-77.45	-13.00	-64.45	H
625.5800	-79.1	2.96	6.16	-75.90	-13.00	-62.90	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:** May 4, 2014

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)
3961.000	-54.78	8.37	9.36	-53.79	-13.00	-40.79	V
5200.000	-55.53	9.56	10.68	-54.41	-13.00	-41.41	V
N/A							
1966.000	-56.13	5.63	5.46	-56.30	-13.00	-43.30	H
3870.000	-53.82	8.35	9.27	-52.90	-13.00	-39.90	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:** May 4, 2014

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)
1966.000	-53.45	5.63	5.46	-53.62	-13.00	-40.62	V
3912.000	-54.9	8.39	9.31	-53.98	-13.00	-40.98	V
N/A							
4178.000	-54.45	8.48	9.54	-53.39	-13.00	-40.39	H
4654.000	-53.64	9.13	10.05	-52.72	-13.00	-39.72	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.*

Operation Mode: Tx / High channel **Test Date:** May 4, 2014

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)
1966.000	-57.53	5.63	5.46	-57.70	-13.00	-44.70	V
2932.000	-57.94	7.11	7.22	-57.83	-13.00	-44.83	V
N/A							
6733.000	-52.12	11.3	11.58	-51.84	-13.00	-38.84	H
7335.000	-47.04	12.06	12.44	-46.66	-13.00	-33.66	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:** May 4, 2014

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)
2484.000	-55.88	6.32	6.08	-56.12	-13.00	-43.12	V
5228.000	-53.63	9.59	10.69	-52.53	-13.00	-39.53	V
N/A							
1966.000	-55.36	5.63	5.46	-55.53	-13.00	-42.53	H
3975.000	-54.17	8.36	9.38	-53.15	-13.00	-40.15	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:** May 4, 2014

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)
1966.000	-50.13	5.63	5.46	-50.30	-13.00	-37.30	V
4423.000	-53.98	8.7	9.74	-52.94	-13.00	-39.94	V
N/A							
2204.000	-56.55	5.95	5.69	-56.81	-13.00	-43.81	H
4227.000	-53.61	8.52	9.58	-52.55	-13.00	-39.55	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:** May 4, 2014

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)
3807.000	-54.74	8.27	9.21	-53.80	-13.00	-40.80	V
4738.000	-54.25	9.2	10.18	-53.27	-13.00	-40.27	V
N/A							
3611.000	-55.27	8.12	9.01	-54.38	-13.00	-41.38	H
4962.000	-54.01	9.35	10.54	-52.82	-13.00	-39.82	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:** May 4, 2014

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)
4612.000	-54.29	9.13	9.98	-53.44	-13.00	-40.44	V
5466.000	-55.52	9.9	10.79	-54.63	-13.00	-41.63	V
N/A							
4269.000	-53.99	8.57	9.62	-52.94	-13.00	-39.94	H
4983.000	-54.65	9.38	10.57	-53.46	-13.00	-40.46	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:** May 4, 2014

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)
3968.000	-55.09	8.36	9.37	-54.08	-13.00	-41.08	V
4843.000	-55.05	9.29	10.35	-53.99	-13.00	-40.99	V
N/A							
4801.000	-54.23	9.32	10.28	-53.27	-13.00	-40.27	H
7188.000	-47.09	11.85	12.2	-46.74	-13.00	-33.74	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:** May 4, 2014

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)
4388.000	-54.58	8.64	9.71	-53.51	-13.00	-40.51	V
7440.000	-47.47	12.16	12.6	-47.03	-13.00	-34.03	V
N/A							
4045.000	-54.42	8.4	9.44	-53.38	-13.00	-40.38	H
7510.000	-47.26	12.25	12.71	-46.80	-13.00	-33.80	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:** May 4, 2014

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)
1966.000	-54.26	5.63	5.46	-54.43	-13.00	-41.43	V
3548.000	-56.38	7.99	8.95	-55.42	-13.00	-42.42	V
N/A							
1966.000	-54.74	5.63	5.46	-54.91	-13.00	-41.91	H
3926.000	-54.07	8.38	9.33	-53.12	-13.00	-40.12	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.*

Operation Mode: Tx / Middle channel **Test Date:** May 4, 2014

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)
1966.000	-52.34	5.63	5.46	-52.51	-13.00	-39.51	V
3884.000	-55.29	8.37	9.28	-54.38	-13.00	-41.38	V
N/A							
1966.000	-57.06	5.63	5.46	-57.23	-13.00	-44.23	H
3877.000	-53.62	8.36	9.28	-52.70	-13.00	-39.70	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:** May 4, 2014

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)
3863.000	-55.53	8.34	9.26	-54.61	-13.00	-41.61	V
4682.000	-54.49	9.13	10.09	-53.53	-13.00	-40.53	V
N/A							
4045.000	-52.94	8.4	9.44	-51.90	-13.00	-38.90	H
4976.000	-54.05	9.37	10.56	-52.86	-13.00	-39.86	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:**	May 4, 2014
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)
3702.000	-38.71	8.2	9.1	-37.81	-13.00	-24.81	V
7405.000	-39.3	12.1	12.55	-38.85	-13.00	-25.85	V
N/A							
3709.000	-43.67	8.21	9.11	-42.77	-13.00	-29.77	H
4703.000	-53.19	9.14	10.12	-52.21	-13.00	-39.21	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:** May 4, 2014

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)
3765.000	-38.64	8.24	9.16	-37.72	-13.00	-24.72	V
7517.000	-41.06	12.24	12.72	-40.58	-13.00	-27.58	V
N/A							
3765.000	-45.64	8.24	9.16	-44.72	-13.00	-31.72	H
4724.000	-53.32	9.18	10.16	-52.34	-13.00	-39.34	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:** May 4, 2014

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)
3814.000	-37.71	8.28	9.21	-36.78	-13.00	-23.78	V
7629.000	-40.19	12.22	12.83	-39.58	-13.00	-26.58	V
N/A							
3814.000	-45.75	8.28	9.21	-44.82	-13.00	-31.82	H
7335.000	-46.29	12.06	12.44	-45.91	-13.00	-32.91	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.*

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

Operation Mode:	Tx / Low channel	**Test Date:**	May 4, 2014
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)
3702.000	-38.47	8.2	9.1	-37.57	-13.00	-24.57	V
7405.000	-38.75	12.1	12.55	-38.30	-13.00	-25.30	V
N/A							
3702.000	-45.33	8.2	9.1	-44.43	-13.00	-31.43	H
5200.000	-53.76	9.56	10.68	-52.64	-13.00	-39.64	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:** May 4, 2014

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)
3758.000	-39.85	8.23	9.16	-38.92	-13.00	-25.92	V
7524.000	-41.05	12.23	12.72	-40.56	-13.00	-27.56	V
N/A							
3758.000	-46.71	8.23	9.16	-45.78	-13.00	-32.78	H
5067.000	-53.3	9.44	10.63	-52.11	-13.00	-39.11	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:** May 4, 2014

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)
3814.000	-37.49	8.28	9.21	-36.56	-13.00	-23.56	V
6656.000	-51.79	11.27	11.49	-51.57	-13.00	-38.57	V
7629.000	-40.59	12.22	12.83	-39.98	-13.00	-26.98	V
N/A							
3814.000	-45.41	8.28	9.21	-44.48	-13.00	-31.48	H
5718.000	-52.08	10.21	10.84	-51.45	-13.00	-38.45	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:**	May 4, 2014
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)
3716.000	-41.38	8.21	9.12	-40.47	-13.00	-27.47	V
4465.000	-53.57	8.82	9.77	-52.62	-13.00	-39.62	V
N/A							
3716.000	-48	8.21	9.12	-47.09	-13.00	-34.09	H
4318.000	-53.3	8.61	9.65	-52.26	-13.00	-39.26	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:** May 4, 2014

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)
3121.000	-56.08	7.19	7.76	-55.51	-13.00	-42.51	V
3807.000	-48	8.27	9.21	-47.06	-13.00	-34.06	V
N/A							
3758.000	-48.95	8.23	9.16	-48.02	-13.00	-35.02	H
5053.000	-54.19	9.43	10.62	-53.00	-13.00	-40.00	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:** May 4, 2014

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)
3807.000	-40.61	8.27	9.21	-39.67	-13.00	-26.67	V
5718.000	-52.87	10.21	10.84	-52.24	-13.00	-39.24	V
N/A							
2939.000	-55.13	7.1	7.24	-54.99	-13.00	-41.99	H
3758.000	-42.92	8.23	9.16	-41.99	-13.00	-28.99	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:**	May 4, 2014
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)
3709.000	-41.04	8.21	9.11	-40.14	-13.00	-27.14	V
4717.000	-54.4	9.16	10.15	-53.41	-13.00	-40.41	V
N/A							
3709.000	-48.01	8.21	9.11	-47.11	-13.00	-34.11	H
4976.000	-53.43	9.37	10.56	-52.24	-13.00	-39.24	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:** May 4, 2014

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)
3758.000	-41.56	8.23	9.16	-40.63	-13.00	-27.63	V
4864.000	-53.86	9.28	10.38	-52.76	-13.00	-39.76	V
N/A							
3758.000	-48.93	8.23	9.16	-48.00	-13.00	-35.00	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:** May 4, 2014

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)
3814.000	-40.97	8.28	9.21	-40.04	-13.00	-27.04	V
5711.000	-53.19	10.19	10.84	-52.54	-13.00	-39.54	V
N/A							
2967.000	-55.49	7.06	7.31	-55.24	-13.00	-42.24	H
3807.000	-46.75	8.27	9.21	-45.81	-13.00	-32.81	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:** May 4, 2014

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)
3086.000	-56.95	7.15	7.66	-56.44	-13.00	-43.44	V
3716.000	-44.69	8.21	9.12	-43.78	-13.00	-30.78	V
N/A							
3716.000	-49.58	8.21	9.12	-48.67	-13.00	-35.67	H
7363.000	-45.85	12.07	12.48	-45.44	-13.00	-32.44	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:** May 4, 2014

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)
3765.000	-51.14	8.24	9.16	-50.22	-13.00	-37.22	V
N/A							
2988.000	-54.32	7.03	7.37	-53.98	-13.00	-40.98	H
3758.000	-50.59	8.23	9.16	-49.66	-13.00	-36.66	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:** May 4, 2014

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)
3814.000	-43.11	8.28	9.21	-42.18	-13.00	-29.18	V
5711.000	-54.58	10.19	10.84	-53.93	-13.00	-40.93	V
N/A							
3807.000	-49.7	8.27	9.21	-48.76	-13.00	-35.76	H
4374.000	-53.15	8.63	9.7	-52.08	-13.00	-39.08	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:** May 4, 2014

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)
2806.000	-56.93	6.83	6.9	-56.86	-13.00	-43.86	V
3723.000	-44.27	8.21	9.12	-43.36	-13.00	-30.36	V
N/A							
3709.000	-50.46	8.21	9.11	-49.56	-13.00	-36.56	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.*

Operation Mode: Tx / Middle channel **Test Date:** May 4, 2014

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)
2995.000	-56.28	7.02	7.39	-55.91	-13.00	-42.91	V
3758.000	-43.74	8.23	9.16	-42.81	-13.00	-29.81	V
N/A							
3121.000	-56.37	7.19	7.76	-55.80	-13.00	-42.80	H
3758.000	-51.5	8.23	9.16	-50.57	-13.00	-37.57	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 / High channel **Test Date:** May 4, 2014

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)
3142.000	-56.25	7.21	7.83	-55.63	-13.00	-42.63	V
3814.000	-42.43	8.28	9.21	-41.50	-13.00	-28.50	V
N/A							
3814.000	-49.42	8.28	9.21	-48.49	-13.00	-35.49	H
4794.000	-53	9.31	10.27	-52.04	-13.00	-39.04	H
N/A							

Remark:

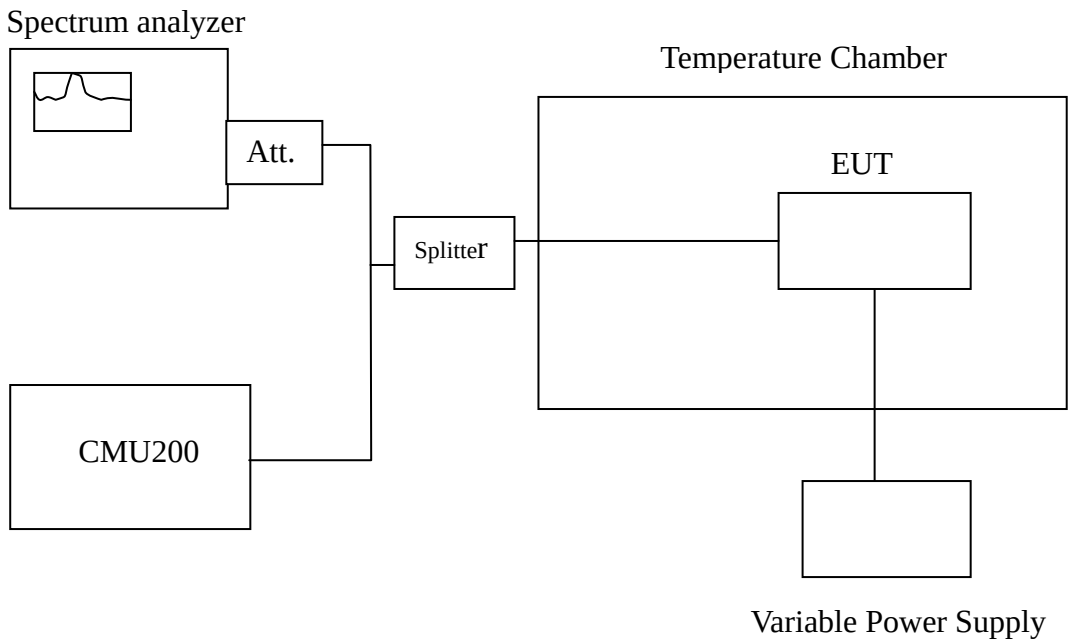
1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered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

7.7FREQUENCY 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 = 2090Hz						
Power Supply Vdc	Environment Temperature (°C)	5M Frequency (Hz)	Delta (Hz)	10M Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.8	50	836499995	4	836499994	-11	2090
	40	836499992	1	836499993	-12	
	30	836499995	4	836499996	-9	
	20	836499991	0	836500005	0	
	10	836499997	6	836499988	-17	
	0	836499995	4	836499995	-10	
	-10	836499992	1	836499994	-11	
	-20	836499996	5	836499998	-7	
	-30	836499990	-1	836499946	-59	

LTE Band 2

Reference Frequency: LTE Band 2 4700 MHz @ 20°C								
Limit: ± 2.5 ppm = 4331Hz								
Power Supply Vdc	Environment Temperature (°C)	5M Frequency (Hz)	Delta (Hz)	10M Frequency (Hz)	Delta (Hz)	20M Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.8	50	1879999998	-4	1879999995	-30	1879999979	-46	4770
	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	

7.8FREQUENCY STABILITY V.S. VOLTAGE MEASUREMENT

LIMIT

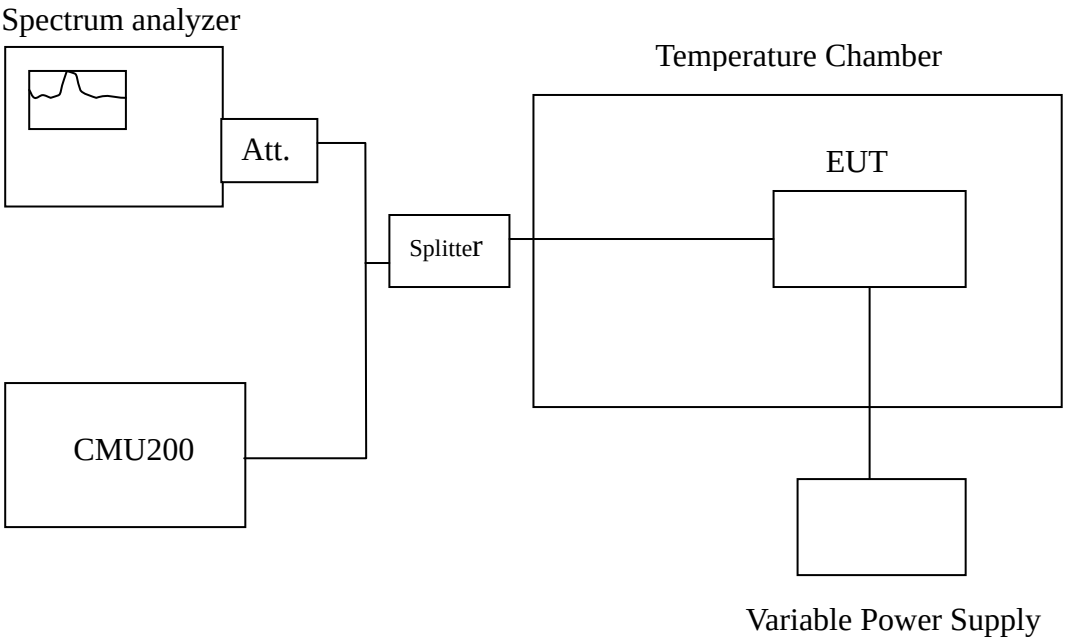
According to FCC §2.1055, FCC §24.235,

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 ±2.5 ppm for mobile stations and ±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 = 1775Hz						
Power Supply Vdc	Environment Temperature (°C)	5M Frequency (Hz)	Delta (Hz)	10M Frequency (Hz)	Delta (Hz)	Limit (Hz)
4.37	20	836499995	4	836500008	3	2090
3.8		836499991	0	836500005	0	
3.23		836500011	20	836500045	40	

LTE Band 2

Reference Frequency: LTE Band 2 4700 MHz @ 20°C								
Limit: ± 2.5 ppm = 4331Hz								
Power Supply Vdc	Environment Temperature (°C)	5M Frequency (Hz)	Delta (Hz)	10M Frequency (Hz)	Delta (Hz)	20M Frequency (Hz)	Delta (Hz)	Limit (Hz)
4.37	20	1880000011	9	1880000005	-20	1880000002	-7	4700
3.8		1880000002	0	1880000025	0	1880000009	0	
3.23		1880000015	13	1880000002	-23	1880000012	3	