FCC RF Test Report

APPLICANT	:	Motorola Mobility LLC
EQUIPMENT	:	Mobile Cellular Phone
BRAND NAME	:	Motorola
MODEL NAME	:	9845, 9850
FCC ID	:	IHDT56VF4
STANDARD	:	47 CFR Part 2, 22(H), 27(M)
CLASSIFICATION	:	PCS Licensed Transmitter Held to Ear (PCE)

The product was received on Oct. 08, 2016 and completely tested on Nov. 04, 2016. We, SPORTON INTERNATIONAL (KUNSHAN) INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA / EIA-603-D-2010 and the testing has shown the tested sample to be in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL (KUNSHAN) INC., the test report shall not be reproduced except in full.

James Huang

Prepared by: James Huang / Manager

Approved by: Jones Tsai / Manager

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TABLE OF CONTENTS

REVISION HISTORY **4**

SUMMARY OF TEST RESULT **5**

1 GENERAL DESCRIPTION **6**

1.1 Applicant 6
1.2 Manufacturer 6
1.3 Product Feature of Equipment Under Test 6
1.4 Product Specification of Equipment Under Test 7
1.5 Specification of Accessory 7
1.6 Modification of EUT 7
1.7 Re-use of Measured Data 8
1.8 Maximum EIRP Power, Frequency Tolerance, and Emission Designator 9
1.9 Testing Location 10
1.10 Applicable Standards 10

2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST **11**

2.1 Test Mode 11
2.2 Connection Diagram of Test System 12
2.3 Support Unit used in test configuration and system 13
2.4 Measurement Results Explanation Example 13
2.5 Frequency List of Low/Middle/High Channels 14

3 CONDUCTED TEST ITEMS **15**

3.1 Measuring Instruments 15
3.2 Test Setup 15
3.3 Test Result of Conducted Test 15
3.4 Conducted Output Power and EIRP 16
3.5 Peak-to-Average Ratio 17
3.6 Occupied Bandwidth 18
3.7 Conducted Band Edge 19
3.8 Conducted Spurious Emission 20
3.9 Frequency Stability 21

4 RADIATED TEST ITEMS **22**

4.1 Measuring Instruments 22
4.2 Test Setup 22
4.3 Test Result of Radiated Test 22
4.4 Radiated Spurious Emission 23

5 LIST OF MEASURING EQUIPMENT **24**

6 UNCERTAINTY OF EVALUATION **25**

APPENDIX A. TEST RESULTS OF CONDUCTED TEST

APPENDIX B. TEST RESULTS OF RADIATED TEST

APPENDIX C. TEST SETUP PHOTOGRAPHS

APPENDIX D. ORIGINAL REPORT

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG693004-03B	Rev. 01	Initial issue of report	Nov. 29, 2016

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.4	§2.1046	Conducted Output Power	Reporting Only	PASS	-
	§27.50(h)(2)	Equivalent Isotropic Radiated Power (Band 38)	EIRP < 2Watt	PASS	
3.5	N/A	Peak-to-Average Ratio	<13 dB	PASS	-
3.6	§2.1049	Occupied Bandwidth	Reporting Only	PASS	-
3.7	§27.53(m)(4)	Conducted Band Edge Measurement (Band 38)	§27.53(m)(4)	PASS	-
3.8	§2.1051 §27.53(m)(4)	Conducted Spurious Emission (Band 38)	< $55+10\log_{10}$(P[Watts])	PASS	-
3.9	§2.1055 §27.54	Frequency Stability Temperature & Voltage	Within Authorized Band	PASS	-
4.4	§2.1053 §27.53(m)(4)	Radiated Spurious Emission (Band 38)	< $55+10\log_{10}$(P[Watts])	PASS	Under limit 28.41 dB at 7772.000 MHz

1 General Description

1.1 Applicant

Motorola Mobility LLC
222 W, Merchandise Mart Plaza, Chicago IL 60654 USA

1.2 Manufacturer

Motorola Mobility LLC
222 W, Merchandise Mart Plaza, Chicago IL 60654 USA

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Cellular Phone
Brand Name	Motorola
Model Name	9845, 9850
FCC ID	IHDT56VF4
EUT supports Radios application	GSM/GPRS/EGPRS/WCDMA/HSPA/ HSPA+(16QAM uplink is not supported)/DC-HSDPA/LTE WLAN2.4GHz 802.11b/g/n HT20 WLAN5GHz 802.11a/n HT20/HT40 Bluetooth v3.0+EDR Bluetooth v4.0/4.2 LE
IMEI Code	Conducted: 351865080013650/351865080013668 Radiation: 351865080013791/351865080013809
HW Version	DVT2(V5.0)
SW Version	cedric-userdebug 7.0 NPP25.73 270 intcfg,test-keys
EUT Stage	Identical Prototype

Remark: There are two types of EUT sample 1 and sample 2, the differences between two samples are only for SIM slot, sample 1(model name: 9845) is dual SIM slot, sample 2(model name: 9850) is single SIM slot. According to the difference, the sample 1 to perform full test.

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	LTE Band 5 : 824.7 MHz ~ 848.3 MHz LTE Band 7 : 2502.5 MHz ~ 2567.5 MHz LTE Band 38 : 2572.5MHz ~ 2617.5MHz
Rx Frequency	LTE Band 5 : 869.7 MHz ~ 893.3 MHz LTE Band 7 : 2622.5MHz ~ 2687.5 MHz LTE Band 38 : 2572.5MHz ~ 2617.5MHz
Bandwidth	LTE Band 5 : 1.4MHz / 3MHz / 5MHz / 10MHz LTE Band 7 : 5MHz/ 10MHz / 15MHz / 20MHz LTE Band 38 : 5MHz / 10MHz / 15MHz / 20MHz
Maximum Output Power to Antenna	LTE Band 38 : 23.89 dBm
Antenna Gain	LTE Band 38 : -0.77 dBi
Type of Modulation	QPSK / 16QAM

1.5 Specification of Accessory

Specification of Accessory				
AC Adapter	**Brand Name**	Motorola (Acbel)	**Model Name**	C-P35
	Power Rating	I/P: 100-240 Vac, 300mA, O/P: 5.2Vdc, 2000mA		
Battery	**Brand Name**	Motorola (ATL)	**Model Name**	GK40
	Power Rating	3.8Vdc,2685/2800mAh (Min/Typ)	**Type**	Li-ion
Earphone	**Brand Name**	Motorola	**Model Name**	SJYN1181B
	Signal Line Type	1.2 meter, non-shielded cable, without ferrite core		
USB Cable	**Brand Name**	Motorola (Liqi)	**Model Name**	L25W-051000100AL
	Signal Line Type	1.0 meter, non-shielded cable, without ferrite core		

1.6 Modification of EUT

No modifications are made to the EUT during all test items.

1.7 Re-use of Measured Data

1.7.1 Introduction Section

This application re-uses data collected on a similar device. The subject device of this application (Model: 9845, 9850, FCC ID: IHDT56VF4) is electrically identical to the reference device (Model: 9369, 9847, FCC ID: IHDT56VF2) for the portions of the circuitry corresponding to the data being re-used, as treated by KDB Publication 178919 D01.

1.7.2 Difference Section

For details concerning the similarity with respect to component placement, mechanical/electrical design etc., some difference of population/depopulation to enable support of different cellular bands, please refer to the Operational Description.

The re-used RF data includes the following bands provided in Appendix D (Sporton RF Report No. FG693004B for the reference device Model: 9369, 9847, FCC ID: IHDT56VF2):

1.7.3 Spot Check Verification Data Section

In order to confirm hardware similarity of the subject device with the reference device, spot check measurements were performed on the subject device for radiated spurious emission, Conducted Band-edge and Conducted spurious emission, the test result were consistent with FCC ID: IHDT56VF2.

The difference between previous and current is only adding the test data of LTE Band 38 (2572.5 MHz ~ 2617.5 MHz) is a new band, so we choose to complete testing of this band only.

Assertions concerning the similarity of these devices are based on representations by the applicant. The applicant accepts full responsibility for the validity of the similarity claim, and for the determination that verification test data are sufficient to support it.

1.7.4 Reference detail Section:

Equipment Class	Reference FCC ID	Folder Test/RF Exposure	Report Title/Section
PCE	IHDT56VF2	Part22H.24E.27L.27M.27H (FG693004B)	All sections applicable for LTE Band 5/7.

1.8 Maximum EIRP Power, Frequency Tolerance, and Emission Designator

LTE Band 38		QPSK			16QAM		
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)
5	2572.5 ~ 2617.5	4M50G7D	-	0.1837	4M50W7D	-	0.1483
10	2575.0 ~ 2615.0	9M03G7D	0.0031	0.1832	9M01W7D	-	0.1346
15	2577.5 ~ 2612.5	13M5G7D	-	0.1862	13M5W7D	-	0.1466
20	2580.0 ~ 2610.0	18M3G7D	-	0.2051	18M4W7D	-	0.1355

1.9 Testing Location

Test Site	SPORTON INTERNATIONAL (KUNSHAN) INC.		
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P. R. China TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958		
Test Site No.	**Sporton Site No.**		**FCC Registration No.**
	TH01-KS	03CH03-KS	306251

1.10 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR Part 2, 22(H), 27(M)
- ANSI / TIA / EIA-603-D-2010
- FCC KDB 971168 D01 Power Meas. License Digital Systems v02r02
- FCC KDB 412172 D01 Determining ERP and EIRP v01r01

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

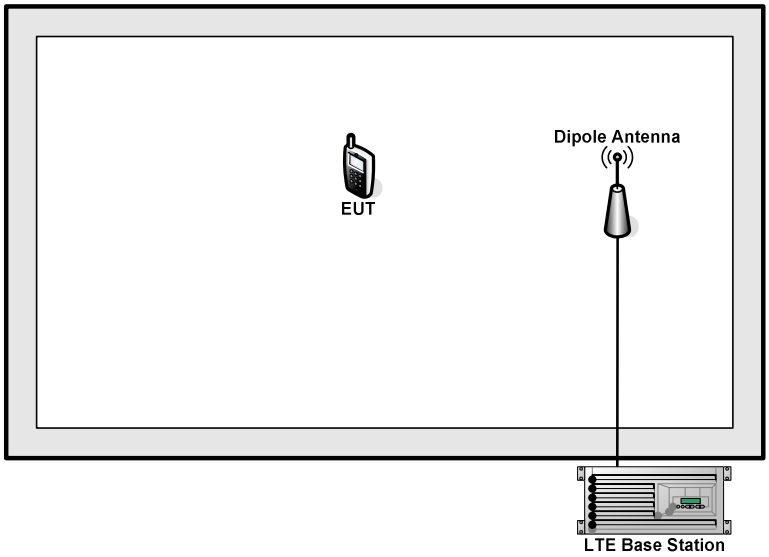
2.1 Test Mode

Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 Power Meas. License Digital Systems v02r02 with maximum output power.

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes to find the maximum emission.

Test Items	Band	Bandwidth (MHz)						Modulation		RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	1	Half	Full	L	M	H
Max. Output Power	38	-	-	v	v	v	v	v	v	v	v	v	v	v	v
Peak-to-Average Ratio	38	-	-				v	v	v	v		v	v	v	v
26dB and 99% Bandwidth	38	-	-	v	v	v	v	v	v			v	v	v	v
Conducted Band Edge	38	-	-	v	v	v	v	v	v	v		v	v		v
Conducted Spurious Emission	38	-	-	v	v	v	v	v	v	v			v	v	v
Frequency Stability	38	-	-		v			v				v		v	
E.I.R.P.	38	-	-	v	v	v	v	v	v	v			v	v	v
Radiated Spurious Emission	38	-	-	v	v	v	v	v		v				v	
Note	1. The mark "**v** " means that this configuration is chosen for testing 2. The mark "-" means that this bandwidth is not supported. 3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.														

2.2 Connection Diagram of Test System



2.3 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	LTE Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m
2.	DC Power Supply	GW INSTEK	GPS-3030D	N/A	N/A	Unshielded, 1.8 m

2.4 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

The spectrum analyzer offset is RF cable loss.

Offset = RF cable loss.

Following shows an offset computation example with cable loss 5.5 dB.

Example :

Offset(dB) = RF cable loss(dB).

= 5.5 (dB)

2.5 Frequency List of Low/Middle/High Channels

LTE Band 38 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
20	Channel	37850	38000	38150
	Frequency	2580	2595	2610
15	Channel	37825	38000	38175
	Frequency	2577.5	2595	2612.5
10	Channel	37800	38000	38200
	Frequency	2575	2595	2615
5	Channel	37775	38000	38225
	Frequency	2572.5	2595	2617.5

3 Conducted Test Items

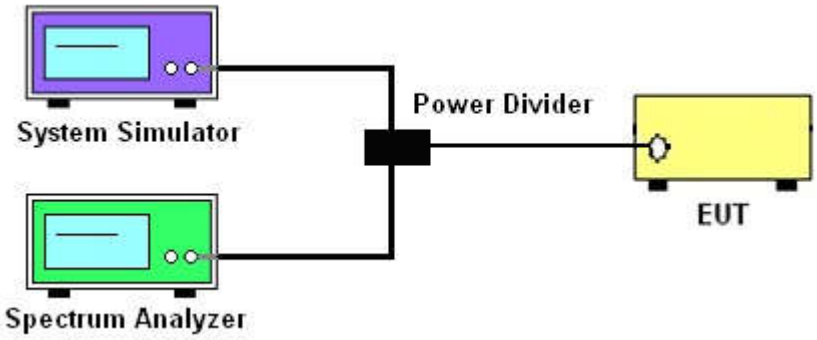
3.1 Measuring Instruments

See list of measuring instruments of this test report.

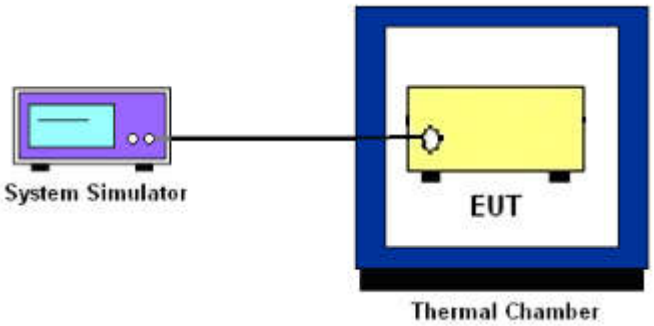
3.2 Test Setup

3.2.1 Conducted Output Power

3.2.2 Peak-to-Average Ratio, Occupied Bandwidth ,Conducted Band-Edge and Conducted Spurious Emission



3.2.3 Frequency Stability



3.3 Test Result of Conducted Test

Please refer to Appendix A.

3.4 Conducted Output Power and EIRP

3.4.1 Description of the Conducted Output Power Measurement and EIRP Measurement

A system simulator was used to establish communication with the EUT. Its parameters were set to force the EUT transmitting at maximum output power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

The EIRP of mobile transmitters must not exceed 2 Watts for Band 38.

According to KDB 412172 D01 Power Approach,

EIRP = $P_T + G_T – L_C$, ERP = EIRP -2.15, where

P_T = transmitter output power in dBm

G_T = gain of the transmitting antenna in dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in dB

3.4.2 Test Procedures

1. The transmitter output port was connected to the system simulator.
2. Set EUT at maximum power through the system simulator.
3. Select lowest, middle, and highest channels for each band and different modulation.
4. Measure and record the power level from the system simulator.

3.5 Peak-to-Average Ratio

3.5.1 Description of the PAR Measurement

Power Complementary Cumulative Distribution Function (CCDF) curves provide a means for characterizing the power peaks of a digitally modulated signal on a statistical basis. A CCDF curve depicts the probability of the peak signal amplitude exceeding the average power level. Most contemporary measurement instrumentation include the capability to produce CCDF curves for an input signal provided that the instrument's resolution bandwidth can be set wide enough to accommodate the entire input signal bandwidth. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

3.5.2 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 5.7.1.
2. The EUT was connected to spectrum and system simulator via a power divider.
3. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
4. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.
5. Record the deviation as Peak to Average Ratio.

3.6 Occupied Bandwidth

3.6.1 Description of Occupied Bandwidth Measurement

The occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean transmitted power.

The 26 dB emission bandwidth is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated 26 dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth equal to approximately 1.0% of the emission bandwidth.

3.6.2 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 4.2.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be between two and five times the anticipated OBW.
4. The nominal resolution bandwidth (RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW.
5. Set the detection mode to peak, and the trace mode to max hold.
6. Determine the reference value: Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace. (this is the reference value)
7. Determine the “-26 dB down amplitude” as equal to (Reference Value – X).
8. Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the “–X dB down amplitude” determined in step 6. If a marker is below this “-X dB down amplitude” value it shall be placed as close as possible to this value. The OBW is the positive frequency difference between the two markers.
9. Use the 99 % power bandwidth function of the spectrum analyzer and report the measured bandwidth.

3.7 Conducted Band Edge

3.7.1 Description of Conducted Band Edge Measurement

27.53(m)(4)

For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

3.7.2 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 6.0.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The band edges of low and high channels for the highest RF powers were measured.
4. Set RBW >= 1% EBW in the 1MHz band immediately outside and adjacent to the band edge.
5. Beyond the 1 MHz band from the band edge, RBW=1MHz was used.
6. Set spectrum analyzer with RMS detector.
7. Offset has included the duty factor for LTE Band 38. Duty factor =10 log (1/x), where x is the measured duty cycle.
8. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
9. Checked that all the results comply with the emission limit line.

   Example:

   The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)

   = P(W)- [43 + 10log(P)] (dB)

   = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB) = -13dBm.
10. For LTE Band 38, the other 40 dB, and 55 dB have additionally applied same calculation above.

3.8 Conducted Spurious Emission

3.8.1 Description of Conducted Spurious Emission Measurement

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

For Band 38:

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 55 + 10 log (P) dB.

It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th harmonic.

3.8.2 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 6.0.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
4. The middle channel for the highest RF power within the transmitting frequency was measured.
5. The conducted spurious emission for the whole frequency range was taken.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz.
7. Set spectrum analyzer with RMS detector.
8. Offset has included the duty factor for LTE Band 38. Duty factor =10 log (1/x), where x is the measured duty cycle.
9. Taking the record of maximum spurious emission.
10. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
11. The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [43 + 10log(P)] (dB)
    = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
    = -13dBm.
12. For Band 38
    The limit line is derived from 55 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [55+ 10log(P)] (dB)
    = [30+ 10log(P)] (dBm) - [55+ 10log(P)] (dB)
    = -25dBm.

3.9 Frequency Stability

3.9.1 Description of Frequency Stability Measurement

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5ppm) of the center frequency.

3.9.2 Test Procedures for Temperature Variation

1. The testing follows FCC KDB 971168 v02r02 Section 9.0.
2. The EUT was set up in the thermal chamber and connected with the system simulator.
3. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
4. With power OFF, the temperature was raised in 10°C step up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

3.9.3 Test Procedures for Voltage Variation

1. The testing follows FCC KDB 971168 v02r02 Section 9.0.
2. The EUT was placed in a temperature chamber at 20±5° C and connected with the system simulator.
3. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value measured at the input to the EUT.
4. The variation in frequency was measured for the worst case.

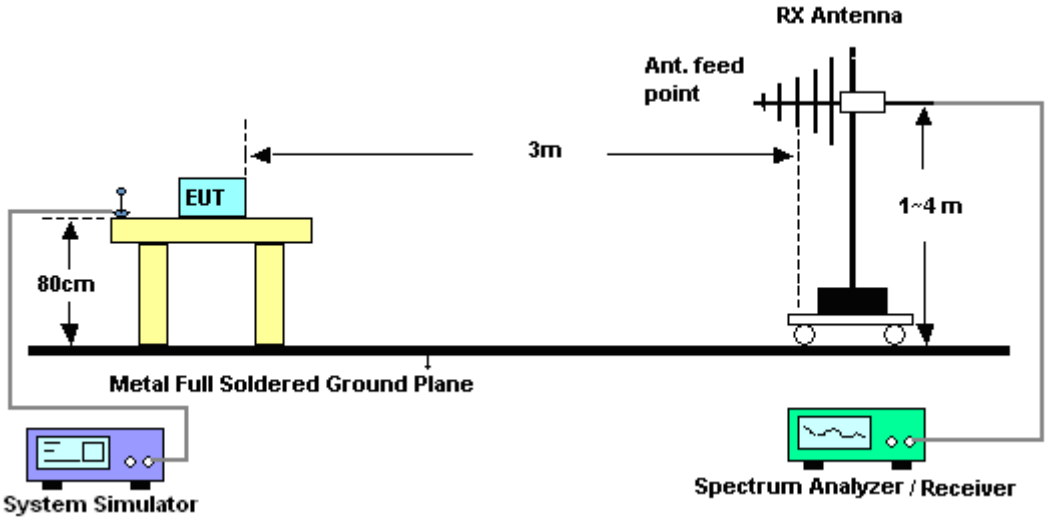
4 Radiated Test Items

4.1 Measuring Instruments

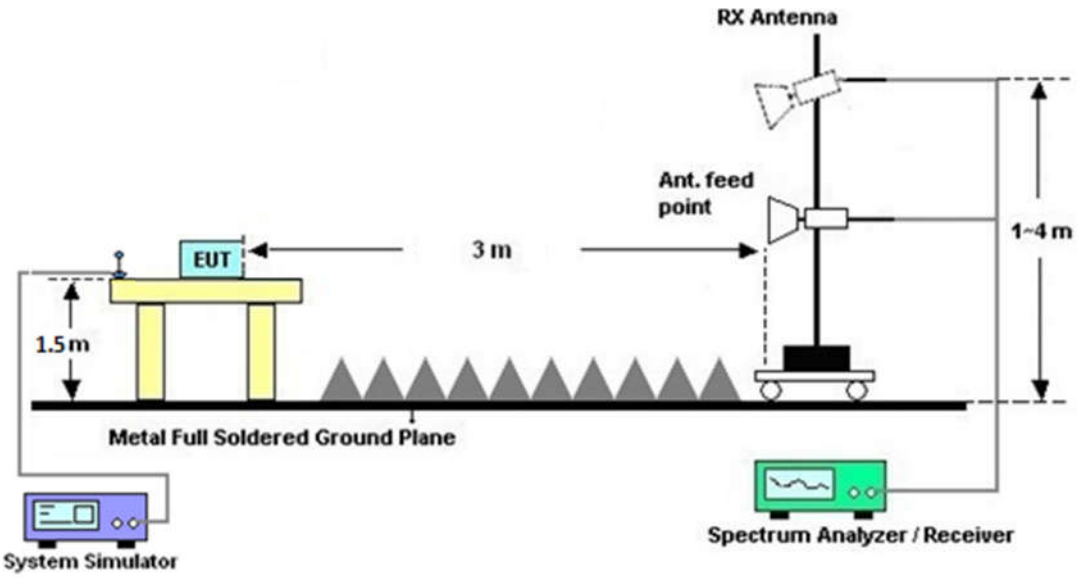
See list of measuring instruments of this test report.

4.2 Test Setup

4.2.1 For radiated test from 30MHz to 1GHz



4.2.2 For radiated test above 1GHz



4.3 Test Result of Radiated Test

Please refer to Appendix B.

4.4 Radiated Spurious Emission

4.4.1 Description of Radiated Spurious Emission

The radiated spurious emission was measured by substitution method according to ANSI / TIA / EIA-603-D-2010. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

For Band 38

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 55 + 10 log (P) dB.

The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

4.4.2 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 5.8 and ANSI / TIA-603-D-2010 Section 2.2.12.
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
9. Taking the record of output power at antenna port.
10. Repeat step 7 to step 8 for another polarization.
11. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
    The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [43 + 10log(P)] (dB)
    = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
    = -13dBm.
12. For Band 38:
    The limit line is derived from 55 + 10log(P)dB below the transmitter power P(Watts)
    EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
    ERP (dBm) = EIRP - 2.15

5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Aug. 09, 2016	Oct. 23, 2016~ Nov. 04, 2016	Aug. 08, 2017	Conducted (TH01-KS)
Thermal Chamber	Ten Billion	TTC-B3S	TBN-960502	-40~+150°C	Oct. 13, 2016	Oct. 23, 2016~ Nov. 04, 2016	Oct. 12, 2017	Conducted (TH01-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150244	10Hz~44GHz	Apr. 22, 2016	Oct. 23, 2016	Apr. 21, 2017	Radiation (03CH03-KS)
Bilog Antenna	TeseQ	CBL6112D	35406	25MHz~2GHz	Apr. 16, 2016	Oct. 23, 2016	Apr. 15, 2017	Radiation (03CH03-KS)
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1356	1GHz~18GHz	Apr. 16, 2016	Oct. 23, 2016	Apr. 15, 2017	Radiation (03CH03-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA170249	15GHz~40GHz	Mar. 03, 2016	Oct. 23, 2016	Mar. 02, 2017	Radiation (03CH03-KS)
Amplifier	SONOMA	310N	187289	9kHz~1GHz	Aug. 09, 2016	Oct. 23, 2016	Aug. 08, 2017	Radiation (03CH03-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Oct. 13, 2016	Oct. 23, 2016	Oct. 12, 2017	Radiation (03CH03-KS)
Amplifier	MITEQ	TTA1840-35 -HG	1887435	18GHz~40GHz	Jan. 20, 2016	Oct. 23, 2016	Jan. 19, 2017	Radiation (03CH03-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Oct. 23, 2016	NCR	Radiation (03CH03-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Oct. 23, 2016	NCR	Radiation (03CH03-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Oct. 23, 2016	NCR	Radiation (03CH03-KS)

NCR: No Calibration Required

6 Uncertainty of Evaluation

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.5dB

Uncertainty of Radiated Emission Measurement (1GHz ~ 18GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.5dB

Uncertainty of Radiated Emission Measurement (18GHz ~ 40GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.6dB

Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power)

LTE Band 38 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
20	1	0	QPSK	23.23	23.06	23.21
20	1	49		23.89	23.44	23.66
20	1	99		23.14	22.95	22.90
20	50	0		22.29	22.24	22.19
20	50	24		22.29	22.19	22.17
20	50	50		22.39	22.31	22.20
20	100	0		22.34	22.18	22.22
20	1	0	16-QAM	21.95	21.69	21.97
20	1	49		22.09	21.90	21.86
20	1	99		21.77	21.97	21.88
20	50	0		21.31	21.45	21.48
20	50	24		21.31	21.28	21.44
20	50	50		21.48	21.48	21.27
20	100	0		21.28	21.15	21.31
15	1	0	QPSK	23.21	23.16	23.27
15	1	37		23.47	23.24	23.32
15	1	74		23.19	23.00	22.93
15	36	0		22.51	22.45	22.47
15	36	20		22.53	22.21	22.18
15	36	39		22.40	22.20	22.47
15	75	0		22.33	22.24	22.47
15	1	0	16-QAM	22.26	21.96	22.43
15	1	37		22.42	22.16	21.77
15	1	74		21.86	22.14	21.96
15	36	0		21.36	21.30	21.30
15	36	20		21.47	21.26	21.23
15	36	39		21.37	21.26	21.30
15	75	0		21.42	21.63	21.26

LTE Band 38 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
10	1	0	QPSK	23.27	23.13	23.07
10	1	25		23.40	23.25	23.29
10	1	49		23.23	22.95	23.00
10	25	0		22.48	22.24	22.37
10	25	12		22.39	22.55	22.48
10	25	25		22.29	22.21	22.24
10	50	0		22.28	22.22	22.19
10	1	0	16-QAM	22.02	21.86	21.95
10	1	25		22.06	21.90	21.84
10	1	49		22.00	22.06	21.90
10	25	0		21.49	21.62	21.68
10	25	12		21.70	21.52	21.45
10	25	25		21.76	21.51	21.55
10	50	0		21.50	21.33	21.28
5	1	0	QPSK	23.34	23.00	23.00
5	1	12		23.41	23.14	23.33
5	1	24		23.13	22.89	22.89
5	12	0		22.44	22.12	22.39
5	12	7		22.50	22.13	22.44
5	12	13		22.43	22.20	22.38
5	25	0		22.33	22.14	22.46
5	1	0	16-QAM	22.48	22.19	21.60
5	1	12		22.31	21.94	22.26
5	1	24		22.33	22.17	21.88
5	12	0		21.45	21.16	21.12
5	12	7		21.46	21.27	21.01
5	12	13		21.44	21.24	21.21
5	25	0		21.62	21.37	21.46

EIRP

LTE Band 38 (G_T - L_C = -0.77 dBi) QPSK						
Bandwidth	5M			10M		
Channel	37775	38000	38225	37800	38000	38200
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)
Frequency (MHz)	2572.5	2595	2617.5	2575	2595	2615
Conducted Power (dBm)	23.41	23.14	23.33	23.40	23.25	23.29
Conducted Power (Watts)	0.22	0.21	0.22	0.22	0.21	0.21
EIRP(dBm)	22.64	22.37	22.56	22.63	22.48	22.52
EIRP(Watts)	0.1837	0.1726	0.1803	0.1832	0.1770	0.1786

LTE Band 38 (G_T - L_C = -0.77 dBi) QPSK						
Bandwidth	15M			20M		
Channel	37825	38000	38175	37850	38000	38150
	(Low)	(Mid)	(High)	(Low)	(Mid)	(Mid)
Frequency (MHz)	2577.5	2595	2612.5	2580	2595	2610
Conducted Power (dBm)	23.47	23.24	23.32	23.89	23.44	23.66
Conducted Power (Watts)	0.22	0.21	0.21	0.24	0.22	0.23
EIRP(dBm)	22.70	22.47	22.55	23.12	22.67	22.89
EIRP(Watts)	0.1862	0.1766	0.1799	0.2051	0.1849	0.1945

LTE Band 38 (G_T - L_C = -0.77 dBi) 16QAM						
Bandwidth	5M			10M		
Channel	37775	38000	38225	37800	38000	38200
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)
Frequency (MHz)	2572.5	2595	2617.5	2575	2595	2615
Conducted Power (dBm)	22.48	22.19	21.60	22.00	22.06	21.90
Conducted Power (Watts)	0.18	0.17	0.14	0.16	0.16	0.15
EIRP(dBm)	21.71	21.42	20.83	21.23	21.29	21.13
EIRP(Watts)	0.1483	0.1387	0.1211	0.1327	0.1346	0.1297

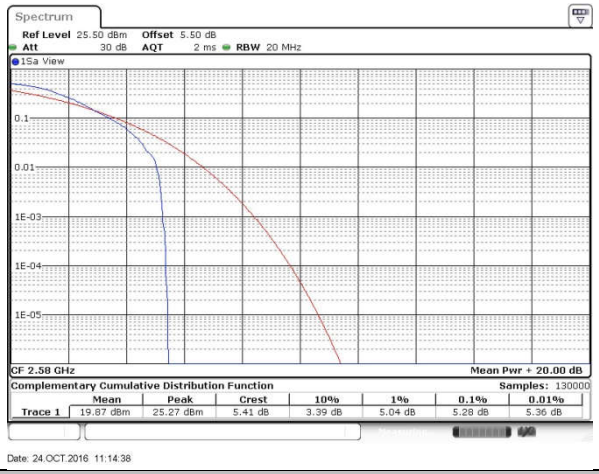
LTE Band 38 (G_T - L_C = -0.77 dBi) 16QAM						
Bandwidth	15M			20M		
Channel	37825	38000	38175	37850	38000	38150
	(Low)	(Mid)	(High)	(Low)	(Mid)	(Mid)
Frequency (MHz)	2577.5	2595	2612.5	2580	2595	2610
Conducted Power (dBm)	22.26	21.96	22.43	22.09	21.90	21.86
Conducted Power (Watts)	0.17	0.16	0.17	0.16	0.15	0.15
EIRP(dBm)	21.49	21.19	21.66	21.32	21.13	21.09
EIRP(Watts)	0.1409	0.1315	0.1466	0.1355	0.1297	0.1285

Peak-to-Average Ratio

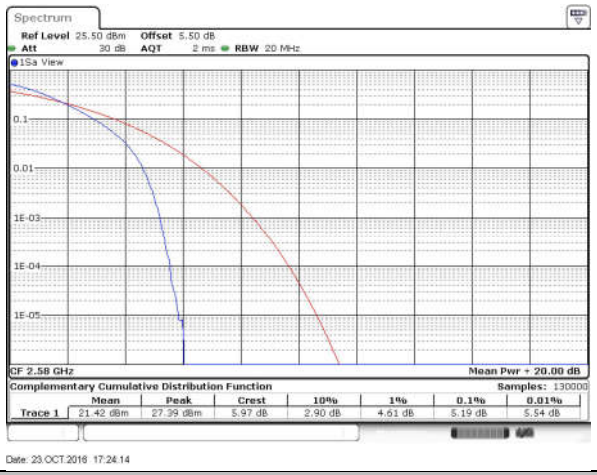
Mode	LTE Band 38 / 20MHz				
Mod.	QPSK		16QAM		Limit: 13dB
RB Size	1RB	Full RB	1RB	Full RB	Result
Lowest CH	5.28	5.19	6.46	6.58	PASS
Middle CH	5.45	6.12	6.84	6.00	
Highest CH	5.42	5.80	6.49	6.17	

LTE Band 38 / 20MHz / QPSK

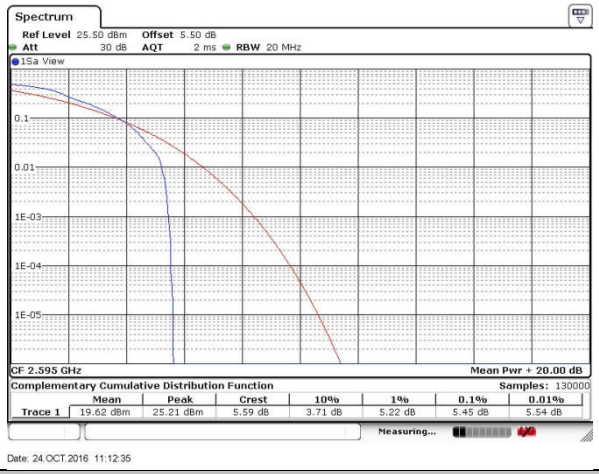
Lowest Channel / 1RB



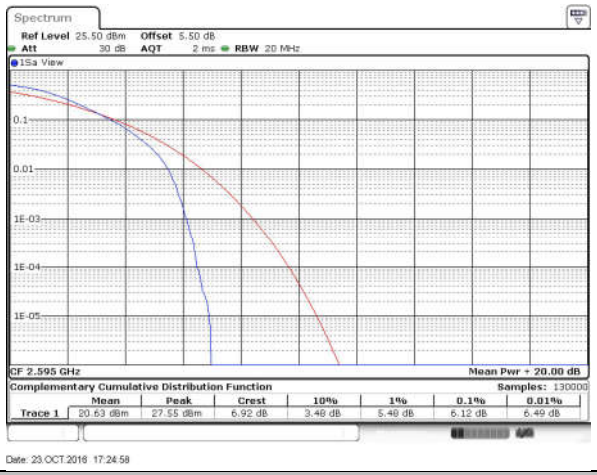
Lowest Channel / Full RB



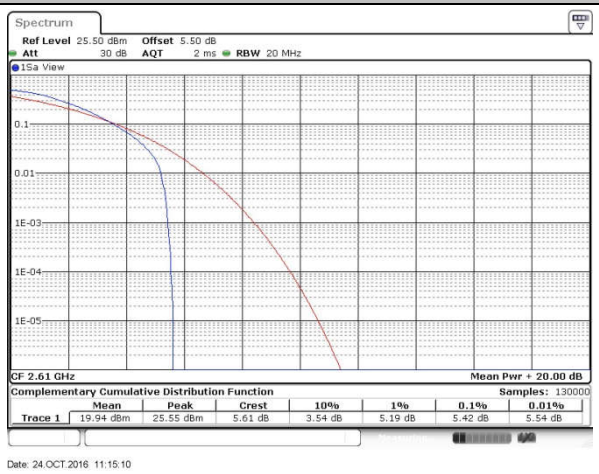
Middle Channel / 1RB



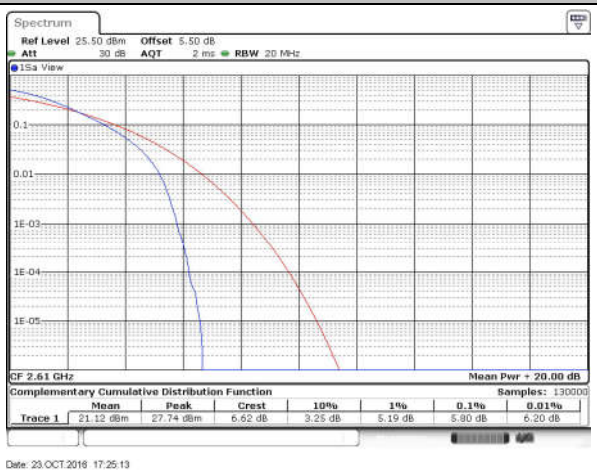
Middle Channel / Full RB



Highest Channel / 1RB

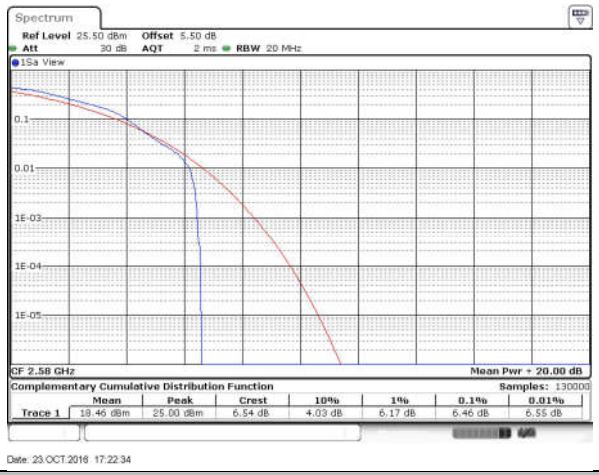


Highest Channel / Full RB

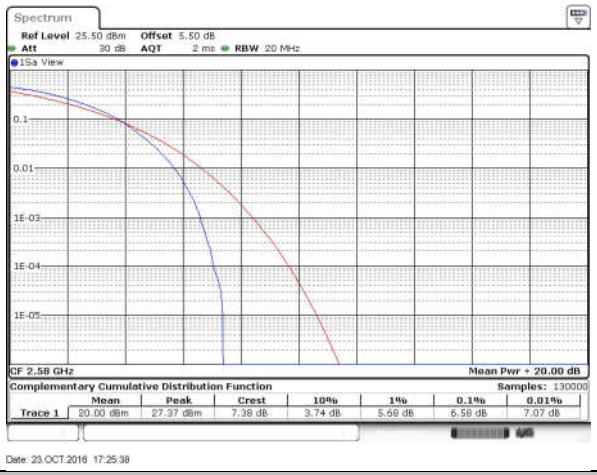


LTE Band 38 / 20MHz / 16QAM

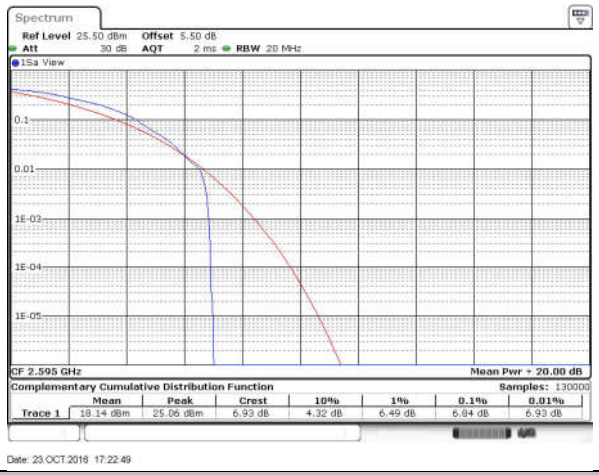
Lowest Channel / 1RB



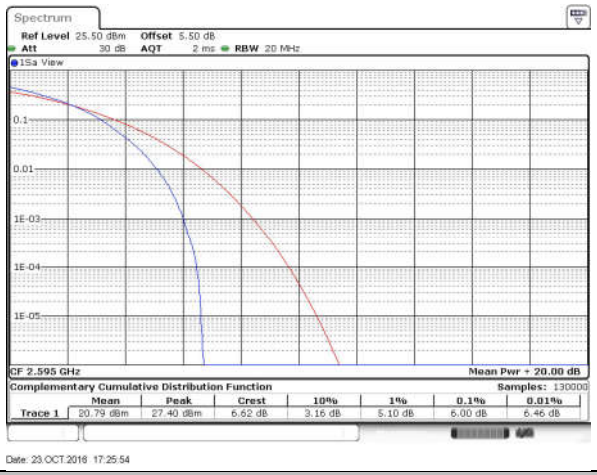
Lowest Channel / Full RB



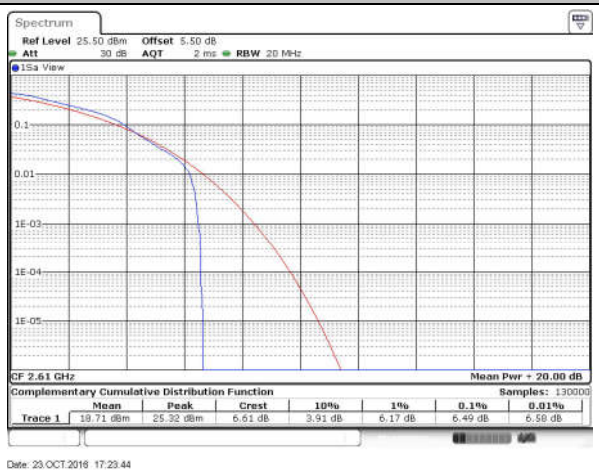
Middle Channel / 1RB



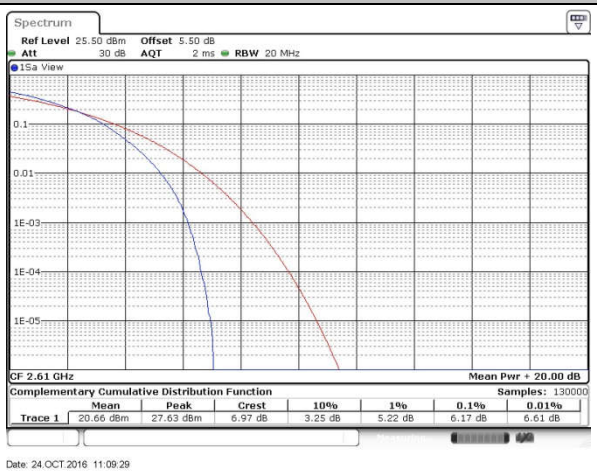
Middle Channel / Full RB



Highest Channel / 1RB



Highest Channel / Full RB

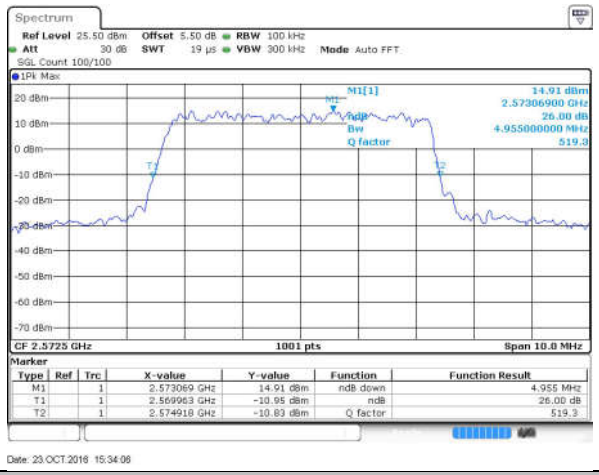


26dB Bandwidth

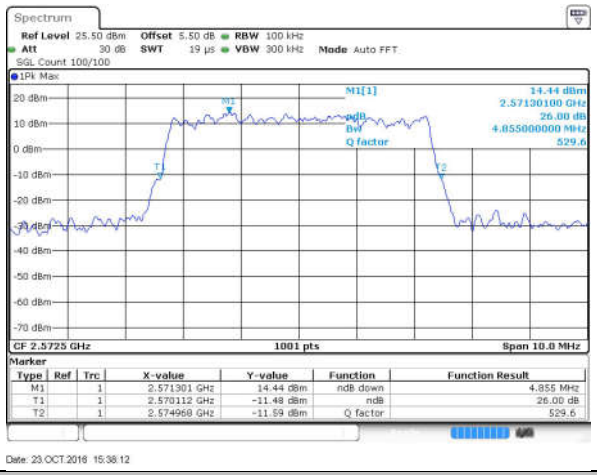
Mode	LTE Band 38 : 26dB BW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	-	-	-	-	4.96	4.86	9.73	9.61	14.24	14.12	20.14	20.22
Middle CH	-	-	-	-	4.91	4.79	9.63	9.71	14.39	14.30	20.02	19.94
Highest CH	-	-	-	-	4.84	4.74	9.81	9.59	14.39	14.21	20.02	20.30

LTE Band 38

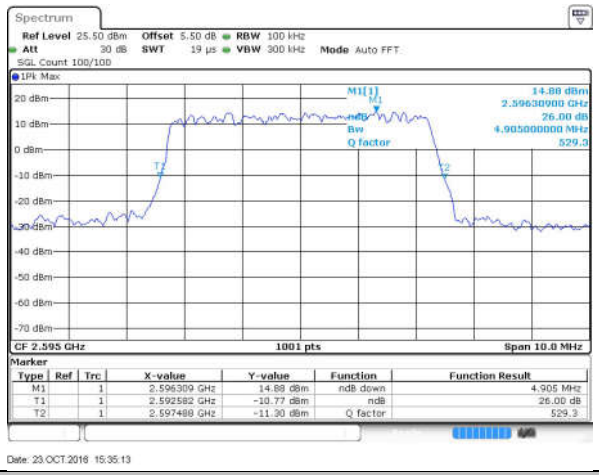
Lowest Channel / 5MHz / QPSK



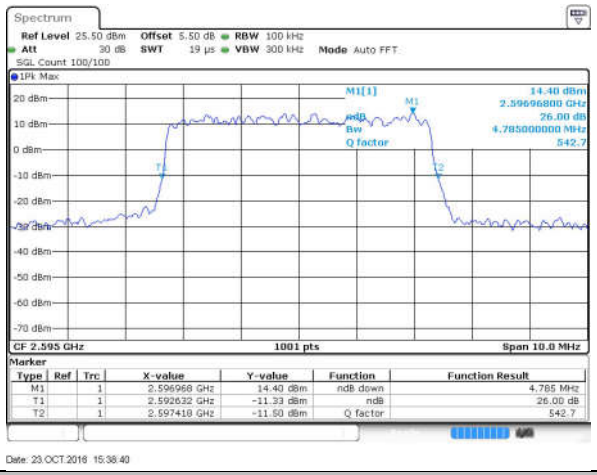
Lowest Channel / 5MHz / 16QAM



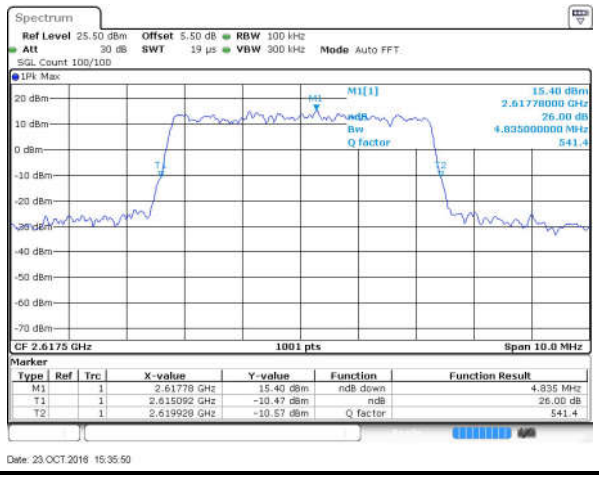
Middle Channel / 5MHz / QPSK



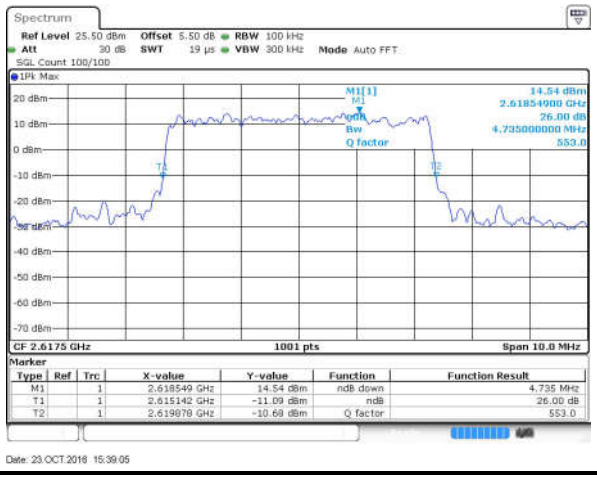
Middle Channel / 5MHz / 16QAM



Highest Channel / 5MHz / QPSK

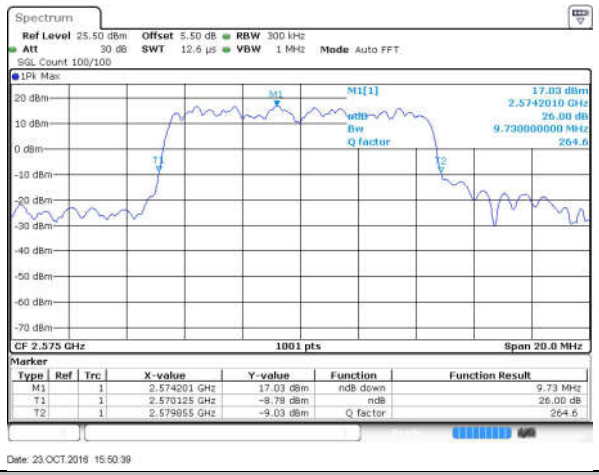


Highest Channel / 5MHz / 16QAM

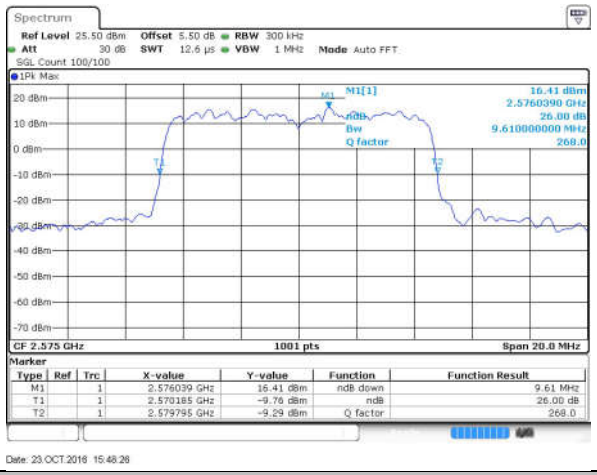


LTE Band 38

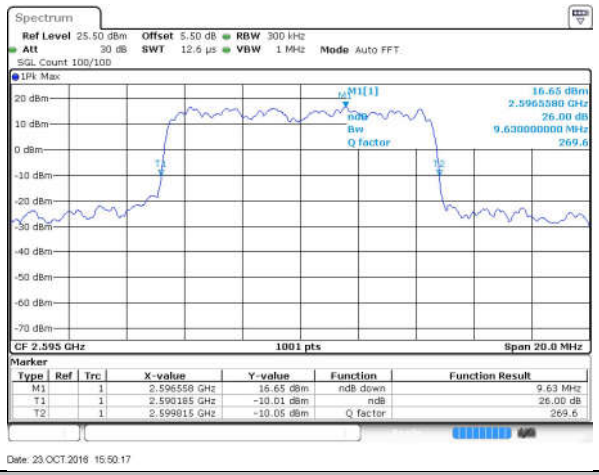
Lowest Channel / 10MHz / QPSK



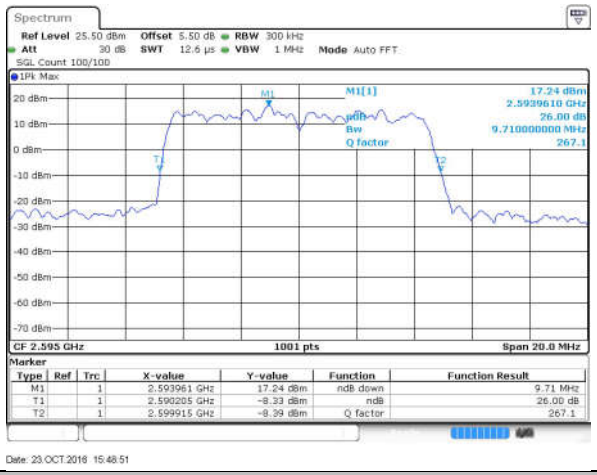
Lowest Channel / 10MHz / 16QAM



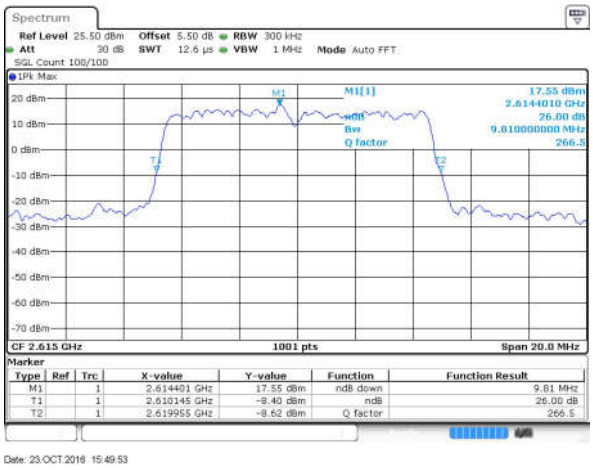
Middle Channel / 10MHz / QPSK



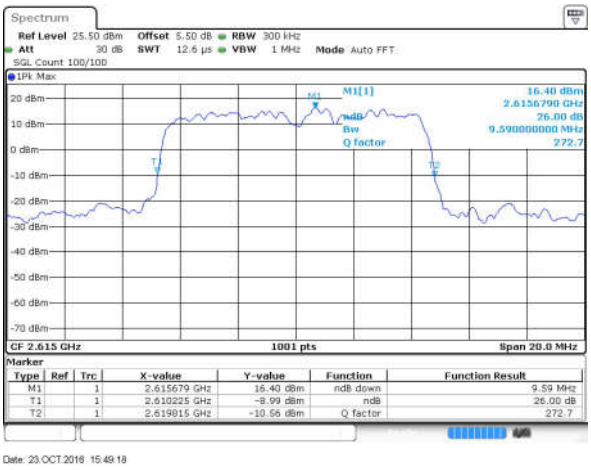
Middle Channel / 10MHz / 16QAM



Highest Channel / 10MHz / QPSK

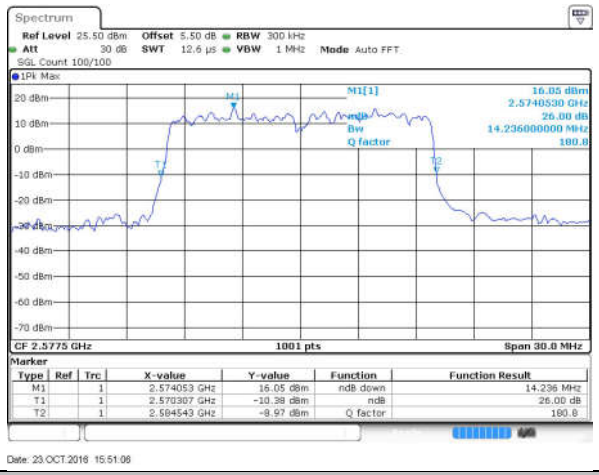


Highest Channel / 10MHz / 16QAM

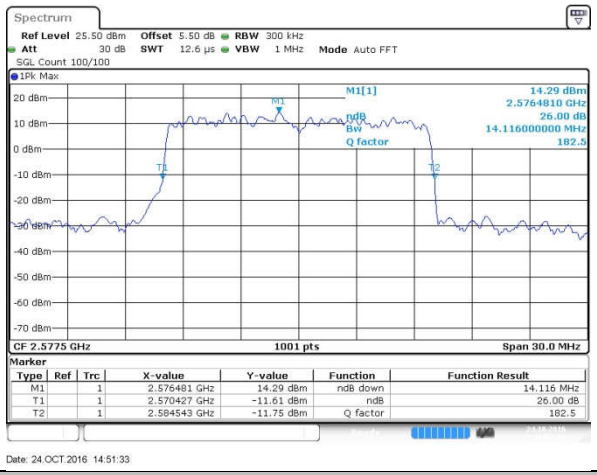


LTE Band 38

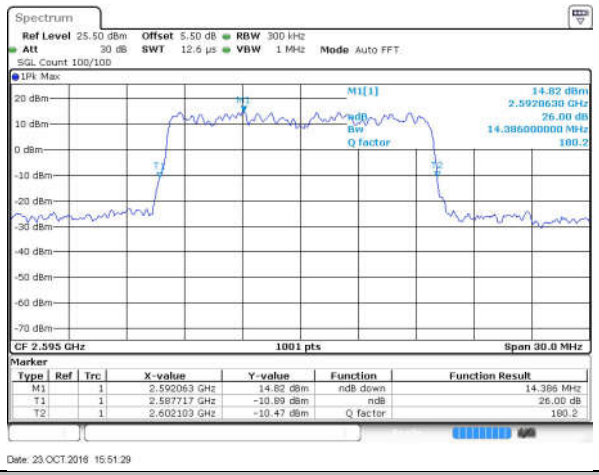
Lowest Channel / 15MHz / QPSK



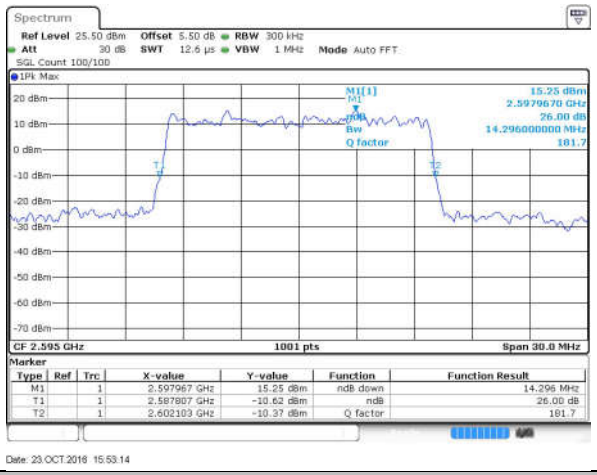
Lowest Channel / 15MHz / 16QAM



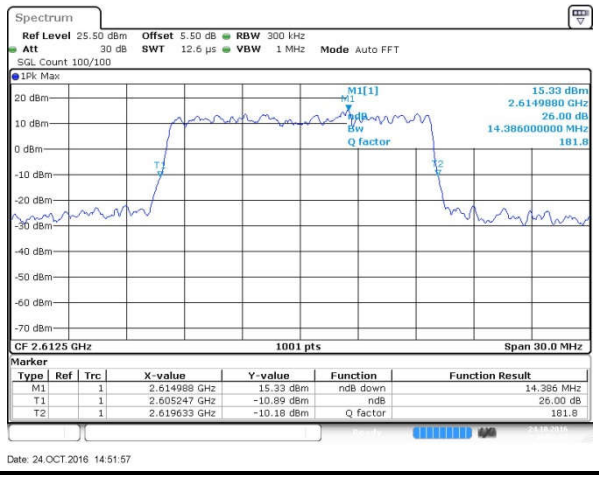
Middle Channel / 15MHz / QPSK



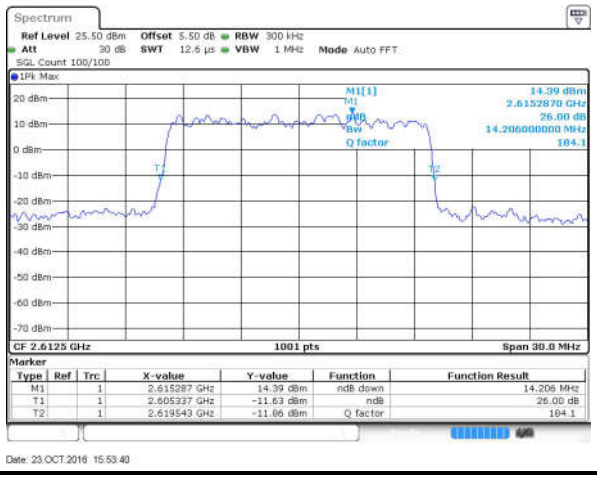
Middle Channel / 15MHz / 16QAM



Highest Channel / 15MHz / QPSK

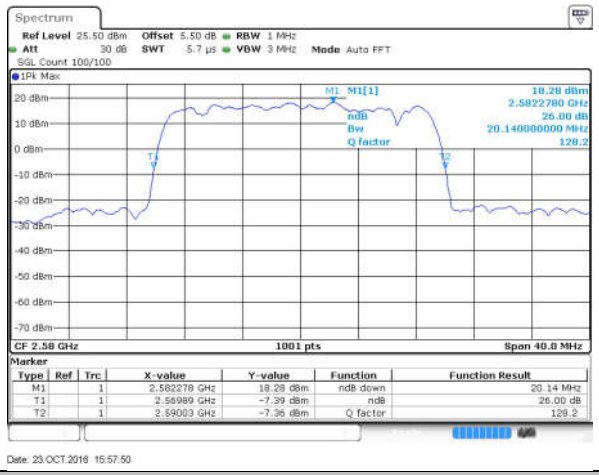


Highest Channel / 15MHz / 16QAM

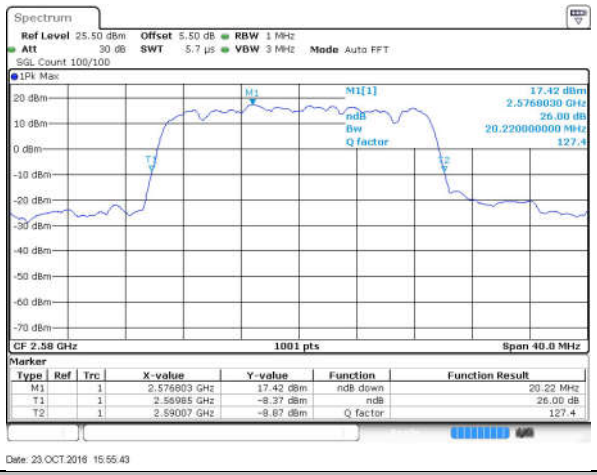


LTE Band 38

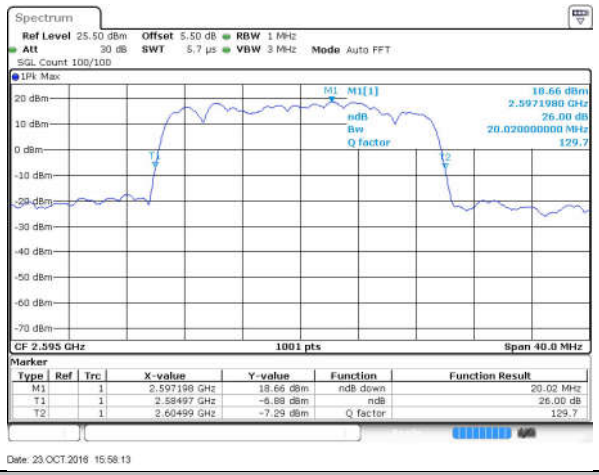
Lowest Channel / 20MHz / QPSK



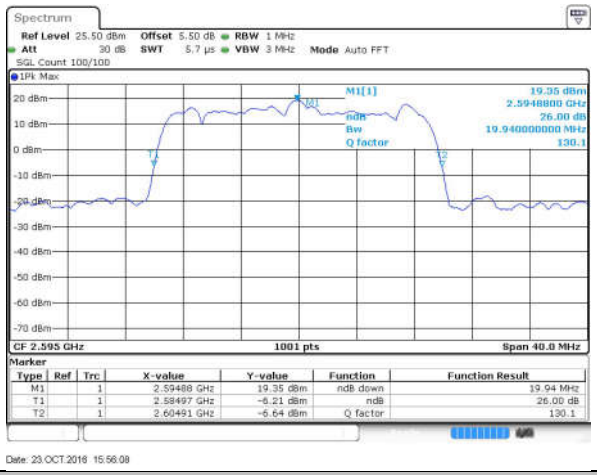
Lowest Channel / 20MHz / 16QAM



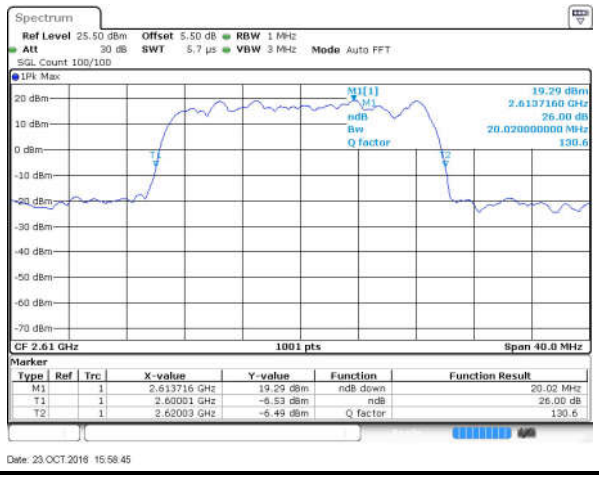
Middle Channel / 20MHz / QPSK



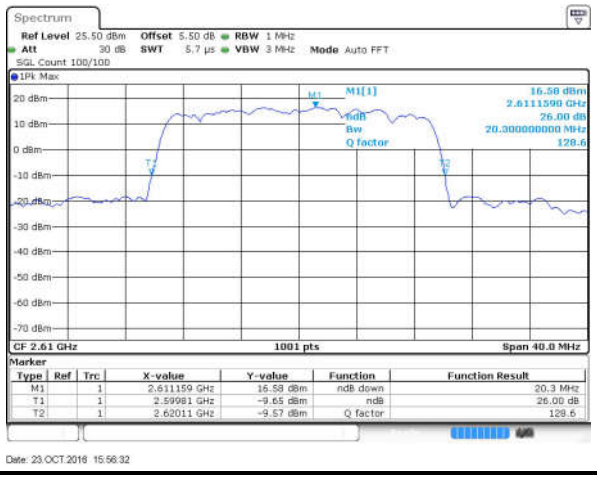
Middle Channel / 20MHz / 16QAM



Highest Channel / 20MHz / QPSK



Highest Channel / 20MHz / 16QAM

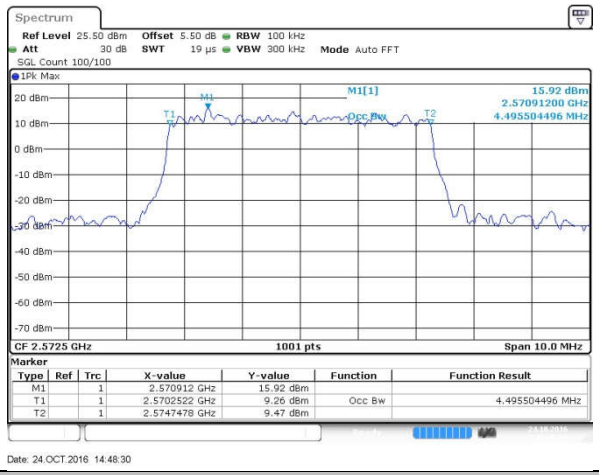


Occupied Bandwidth

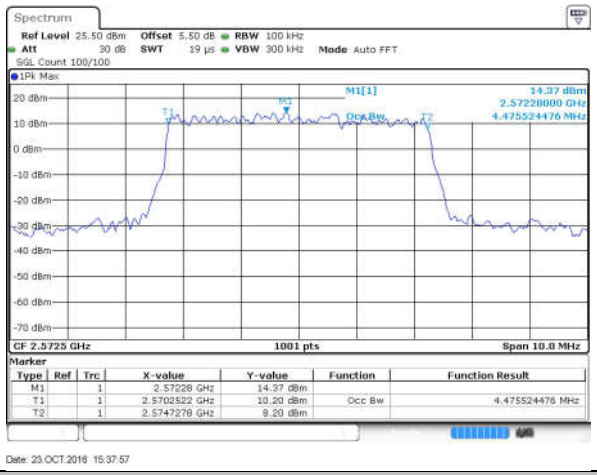
Mode	LTE Band 38 : 99%OBW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	-	-	-	-	4.50	4.48	8.97	8.95	13.37	13.40	18.34	18.22
Middle CH	-	-	-	-	4.47	4.50	9.01	8.95	13.43	13.46	18.34	18.38
Highest CH	-	-	-	-	4.47	4.48	9.03	9.01	13.52	13.34	18.18	18.34

LTE Band 38

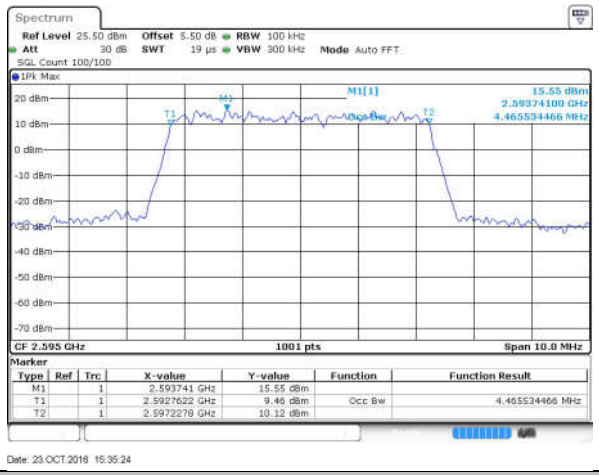
Lowest Channel / 5MHz / QPSK



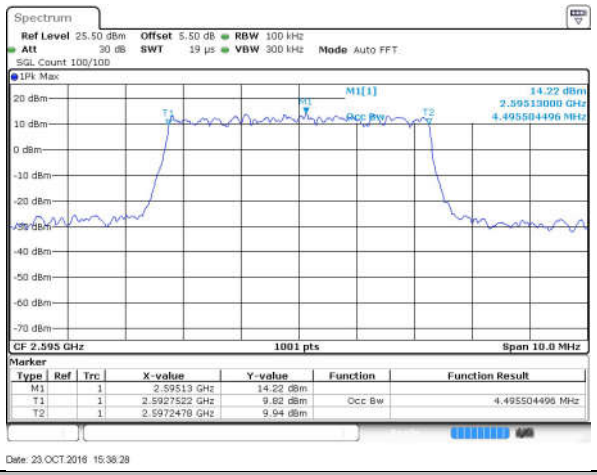
Lowest Channel / 5MHz / 16QAM



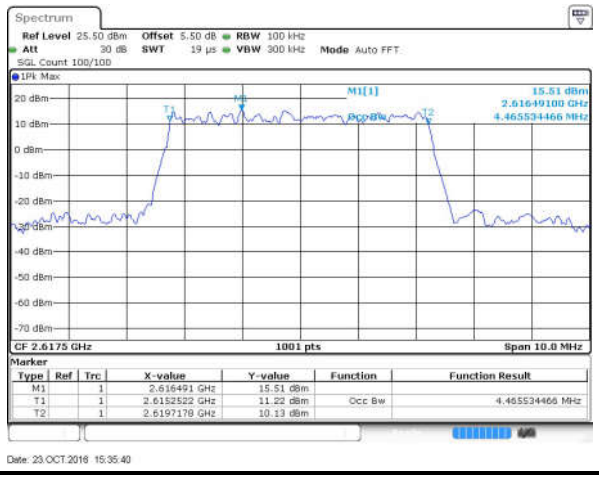
Middle Channel / 5MHz / QPSK



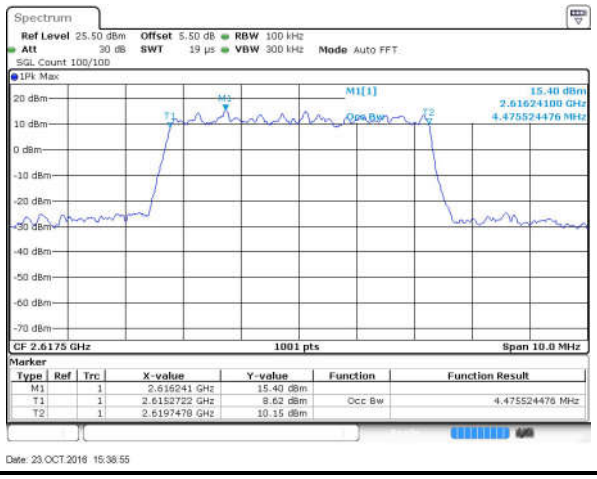
Middle Channel / 5MHz / 16QAM



Highest Channel / 5MHz / QPSK

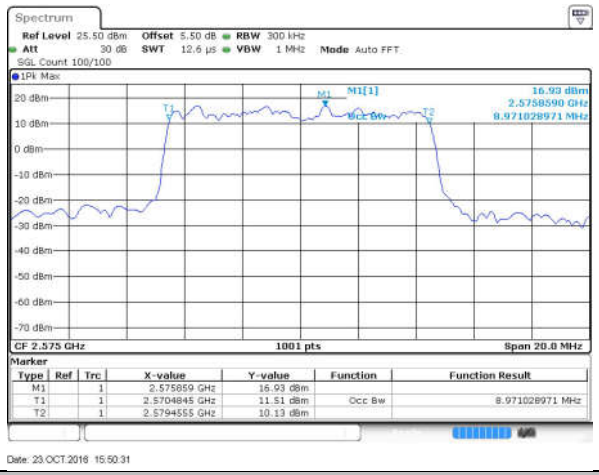


Highest Channel / 5MHz / 16QAM

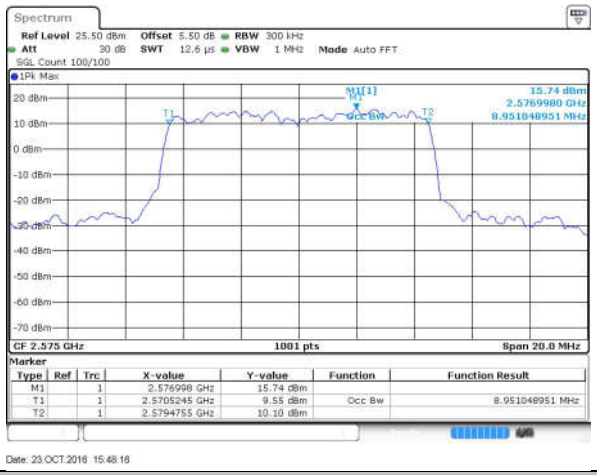


LTE Band 38

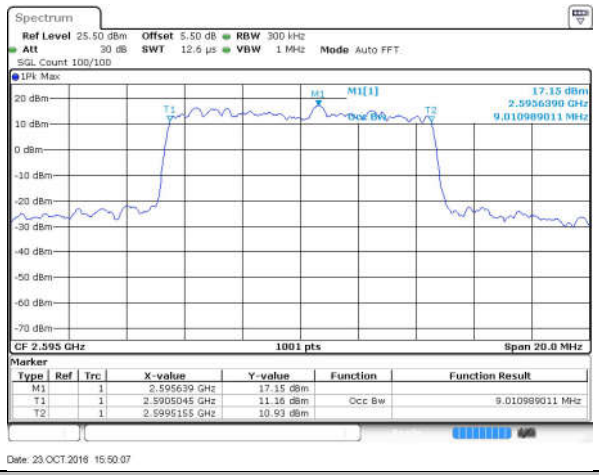
Lowest Channel / 10MHz / QPSK



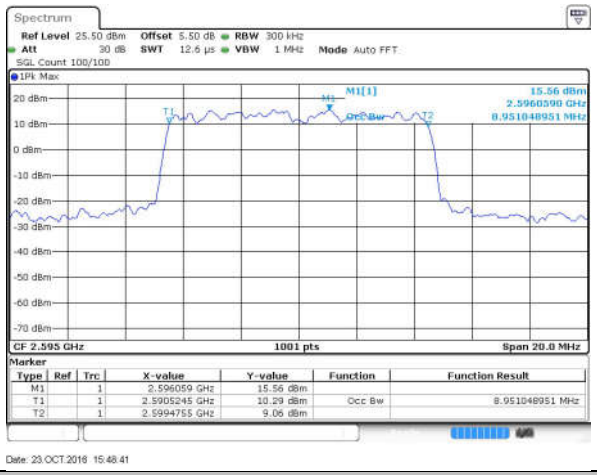
Lowest Channel / 10MHz / 16QAM



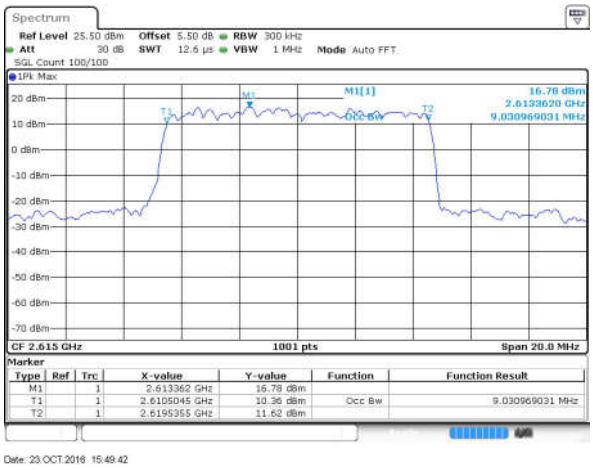
Middle Channel / 10MHz / QPSK



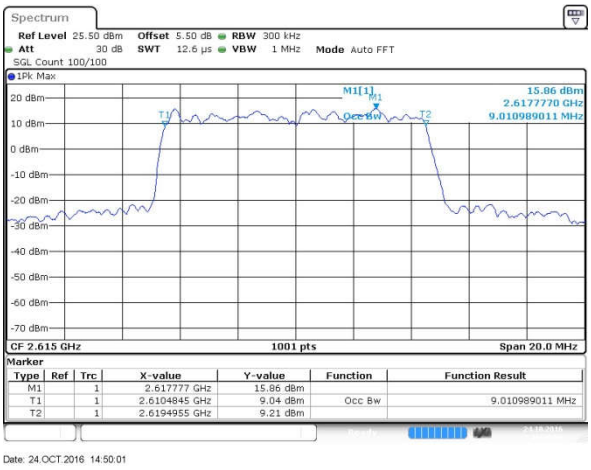
Middle Channel / 10MHz / 16QAM



Highest Channel / 10MHz / QPSK

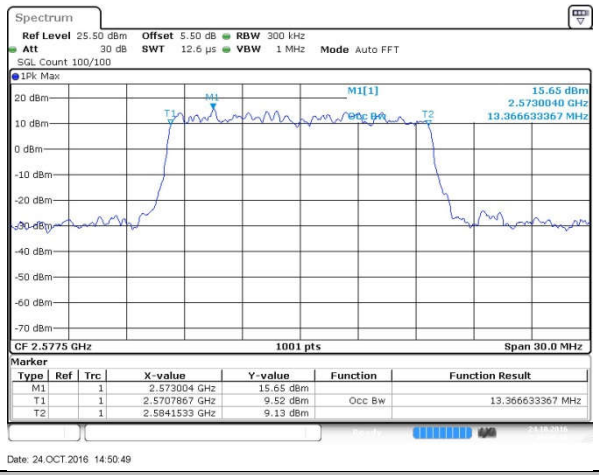


Highest Channel / 10MHz / 16QAM

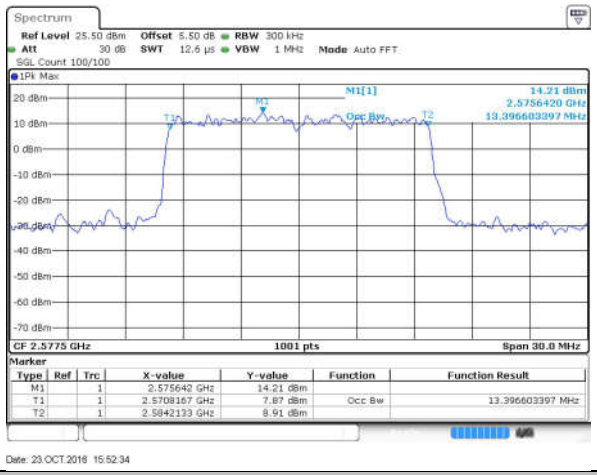


LTE Band 38

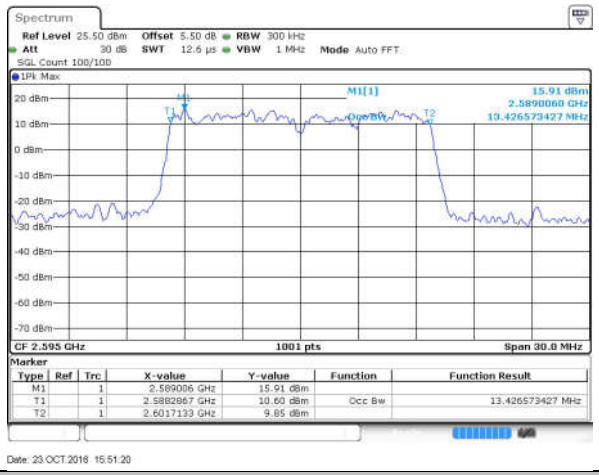
Lowest Channel / 15MHz / QPSK



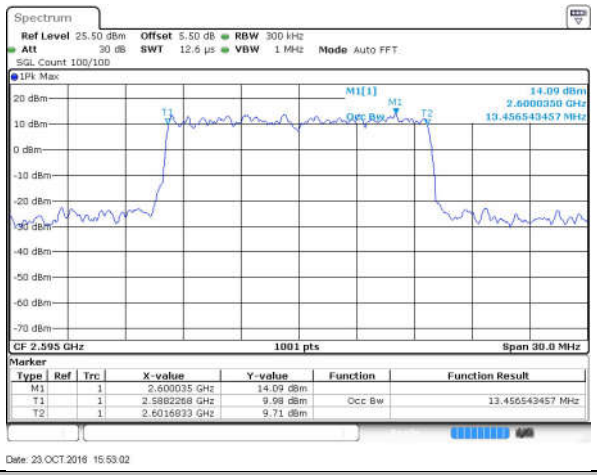
Lowest Channel / 15MHz / 16QAM



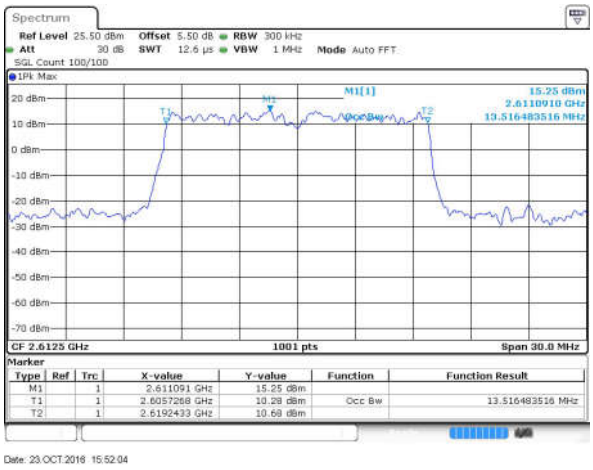
Middle Channel / 15MHz / QPSK



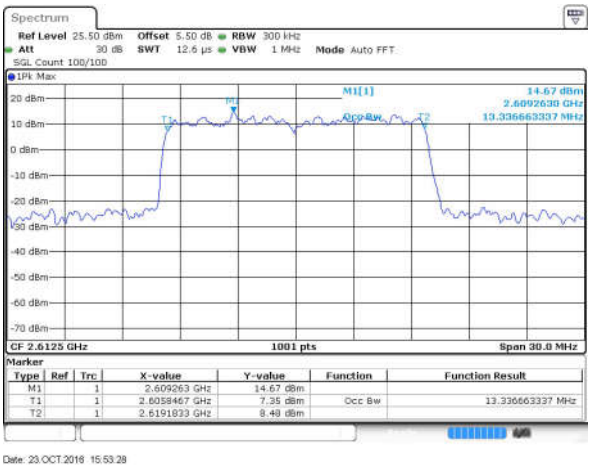
Middle Channel / 15MHz / 16QAM



Highest Channel / 15MHz / QPSK

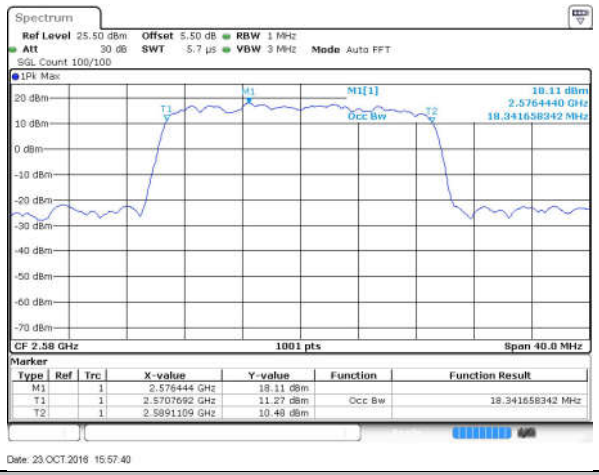


Highest Channel / 15MHz / 16QAM

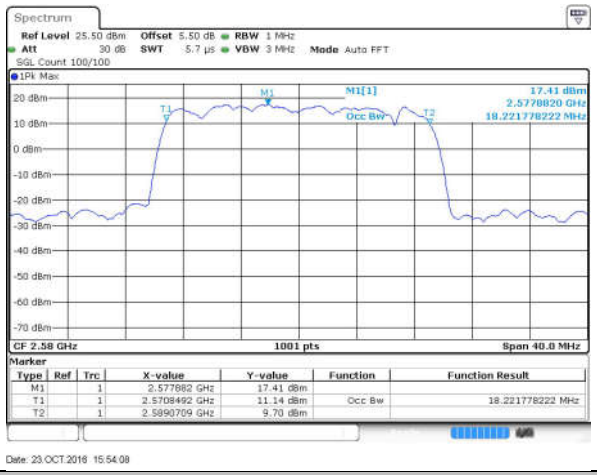


LTE Band 38

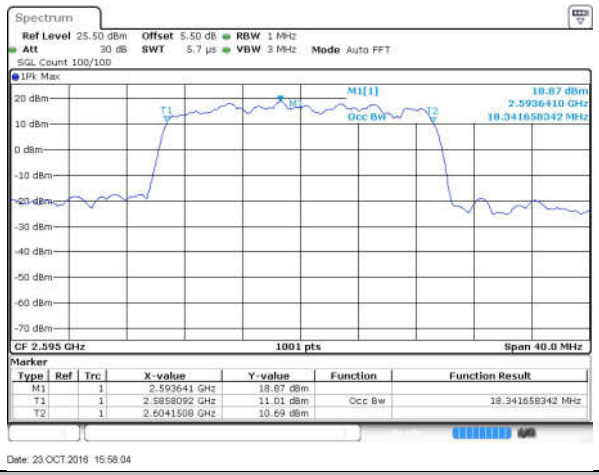
Lowest Channel / 20MHz / QPSK



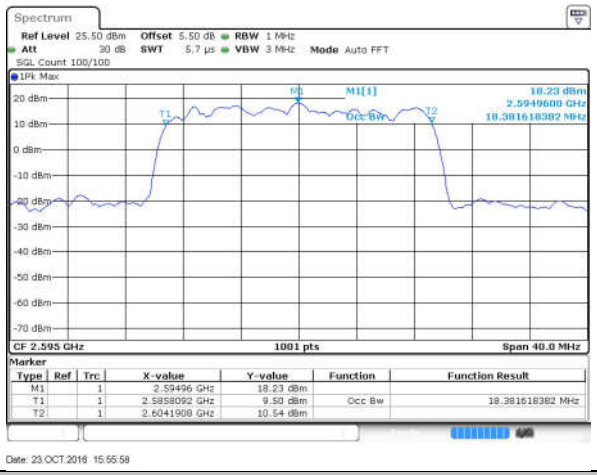
Lowest Channel / 20MHz / 16QAM



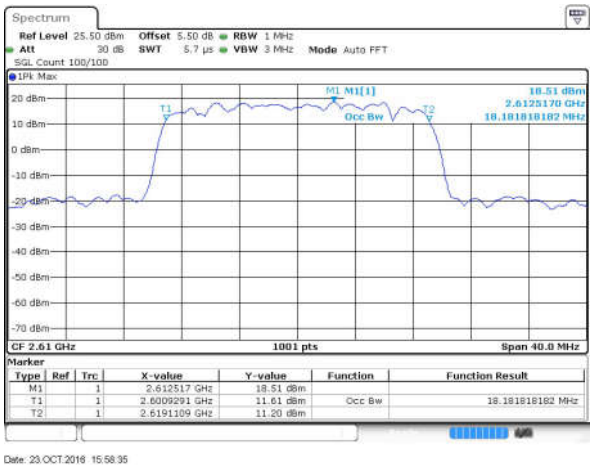
Middle Channel / 20MHz / QPSK



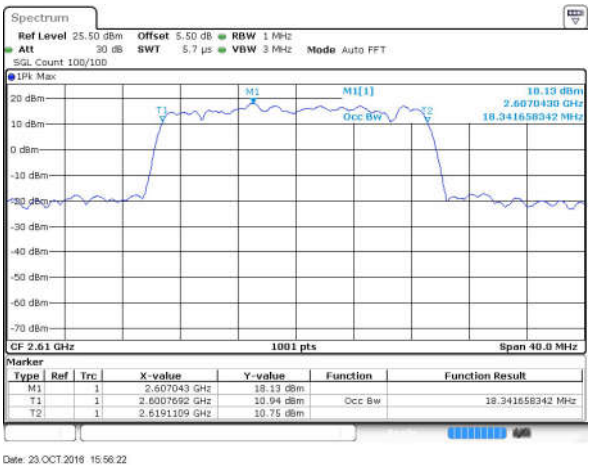
Middle Channel / 20MHz / 16QAM



Highest Channel / 20MHz / QPSK



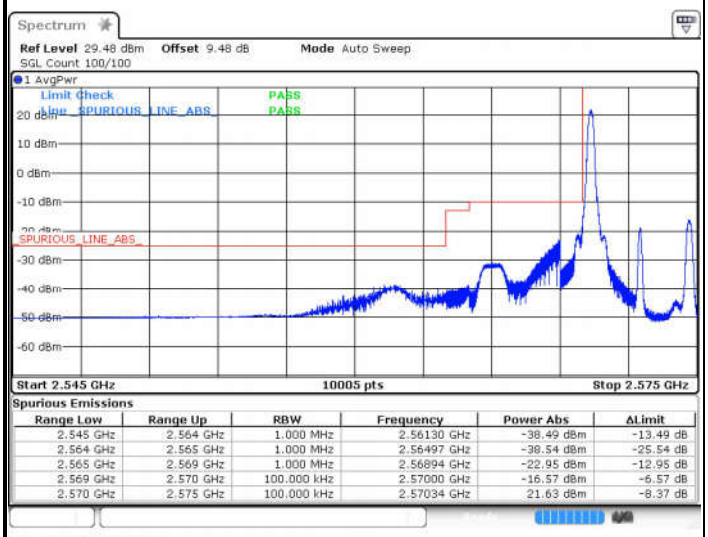
Highest Channel / 20MHz / 16QAM



Conducted Band Edge

LTE Band 38 / 5MHz / QPSK

Lowest Band Edge / 1 RB

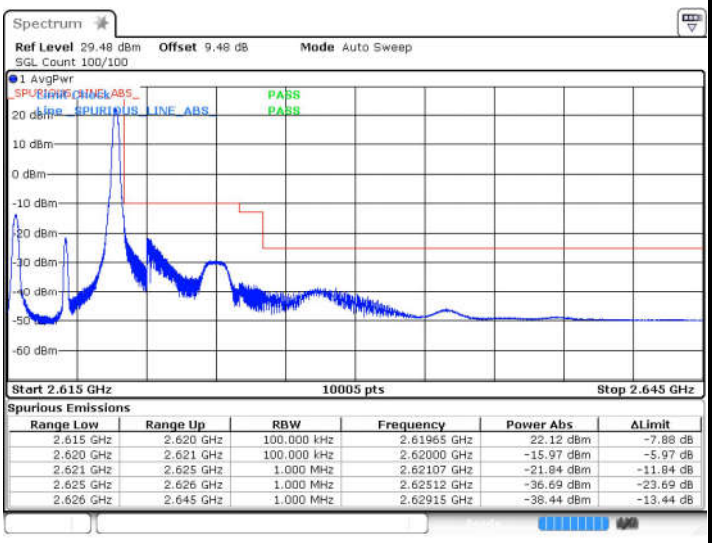


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.545 GHz	2.564 GHz	1.000 MHz	2.56130 GHz	-38.49 dBm	-13.49 dB
2.564 GHz	2.565 GHz	1.000 MHz	2.56497 GHz	-38.54 dBm	-25.54 dB
2.565 GHz	2.569 GHz	1.000 MHz	2.56894 GHz	-22.95 dBm	-12.95 dB
2.569 GHz	2.570 GHz	100.000 kHz	2.57000 GHz	-16.57 dBm	-6.57 dB
2.570 GHz	2.575 GHz	100.000 kHz	2.57034 GHz	21.63 dBm	-8.37 dB

Date: 23.OCT.2016 16:20:29

Highest Band Edge / 1 RB

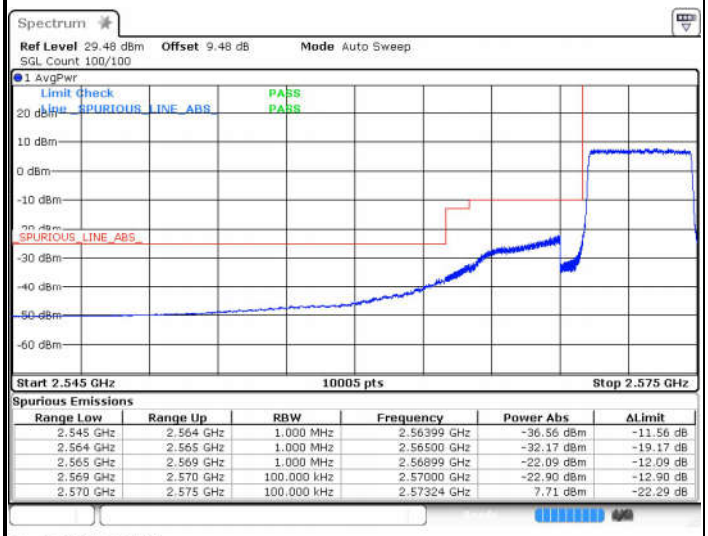


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.615 GHz	2.620 GHz	100.000 kHz	2.61965 GHz	22.12 dBm	-7.88 dB
2.620 GHz	2.621 GHz	100.000 kHz	2.62000 GHz	-15.97 dBm	-5.97 dB
2.621 GHz	2.625 GHz	1.000 MHz	2.62107 GHz	-21.84 dBm	-11.84 dB
2.625 GHz	2.626 GHz	1.000 MHz	2.62512 GHz	-36.69 dBm	-23.69 dB
2.626 GHz	2.645 GHz	1.000 MHz	2.62915 GHz	-38.44 dBm	-13.44 dB

Date: 23.OCT.2016 16:47:31

Lowest Band Edge / Full RB

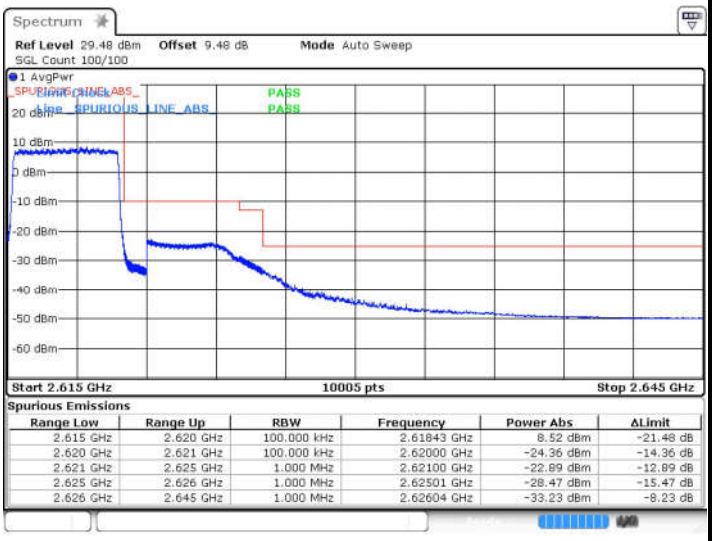


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.545 GHz	2.564 GHz	1.000 MHz	2.56399 GHz	-36.56 dBm	-11.56 dB
2.564 GHz	2.565 GHz	1.000 MHz	2.56500 GHz	-32.17 dBm	-19.17 dB
2.565 GHz	2.569 GHz	1.000 MHz	2.56899 GHz	-22.09 dBm	-12.09 dB
2.569 GHz	2.570 GHz	100.000 kHz	2.57000 GHz	-22.90 dBm	-12.90 dB
2.570 GHz	2.575 GHz	100.000 kHz	2.57324 GHz	7.71 dBm	-22.29 dB

Date: 23.OCT.2016 16:23:57

Highest Band Edge / Full RB



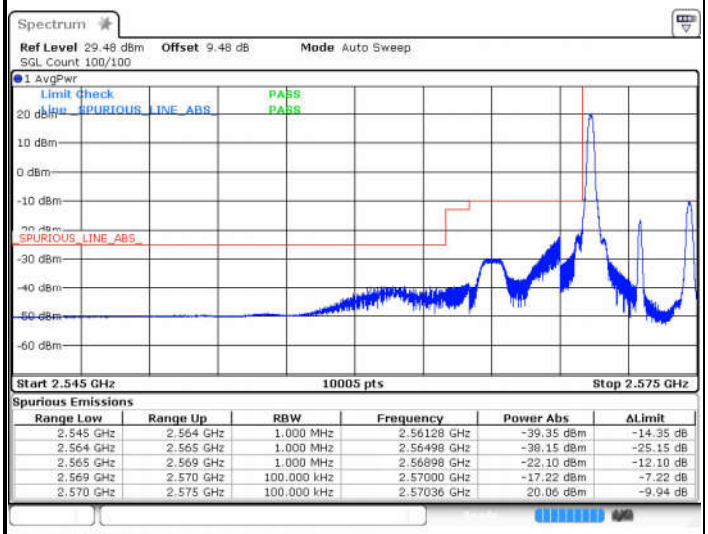
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.615 GHz	2.620 GHz	100.000 kHz	2.61843 GHz	8.52 dBm	-21.48 dB
2.620 GHz	2.621 GHz	100.000 kHz	2.62000 GHz	-24.36 dBm	-14.36 dB
2.621 GHz	2.625 GHz	1.000 MHz	2.62100 GHz	-22.89 dBm	-12.89 dB
2.625 GHz	2.626 GHz	1.000 MHz	2.62501 GHz	-28.47 dBm	-15.47 dB
2.626 GHz	2.645 GHz	1.000 MHz	2.62604 GHz	-33.23 dBm	-8.23 dB

Date: 23.OCT.2016 16:42:09

LTE Band 38 / 5MHz / 16QAM

Lowest Band Edge / 1RB

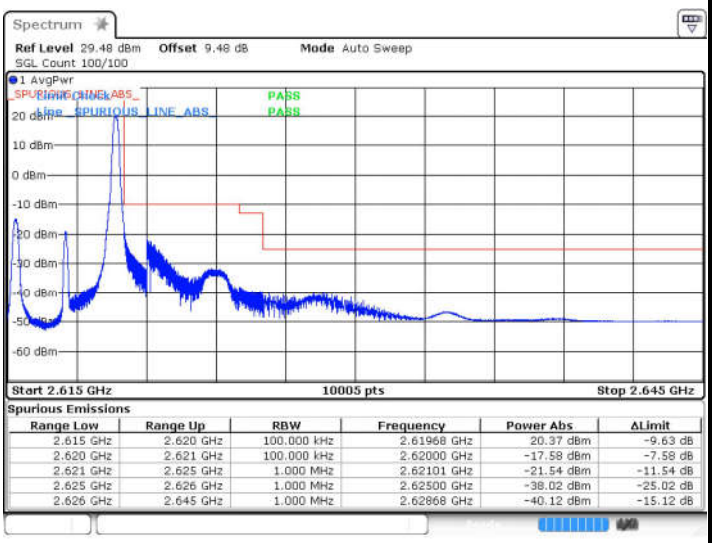


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.545 GHz	2.564 GHz	1.000 MHz	2.56128 GHz	-39.35 dBm	-14.35 dB
2.564 GHz	2.565 GHz	1.000 MHz	2.56498 GHz	-38.15 dBm	-25.15 dB
2.565 GHz	2.569 GHz	1.000 MHz	2.56898 GHz	-22.10 dBm	-12.10 dB
2.569 GHz	2.570 GHz	100.000 kHz	2.57000 GHz	-17.22 dBm	-7.22 dB
2.570 GHz	2.575 GHz	100.000 kHz	2.57036 GHz	20.06 dBm	-9.94 dB

Date: 23.OCT.2016 16:35:15

Highest Band Edge / 1 RB

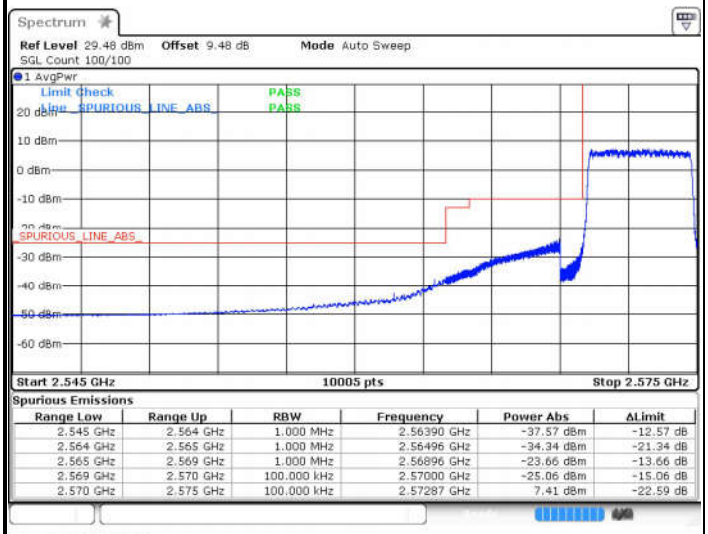


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.615 GHz	2.620 GHz	100.000 kHz	2.61968 GHz	20.37 dBm	-9.63 dB
2.620 GHz	2.621 GHz	100.000 kHz	2.62000 GHz	-17.58 dBm	-7.58 dB
2.621 GHz	2.625 GHz	1.000 MHz	2.62101 GHz	-21.54 dBm	-11.54 dB
2.625 GHz	2.626 GHz	1.000 MHz	2.62500 GHz	-38.02 dBm	-25.02 dB
2.626 GHz	2.645 GHz	1.000 MHz	2.62868 GHz	-40.12 dBm	-15.12 dB

Date: 23.OCT.2016 16:52:35

Lowest Band Edge / Full RB

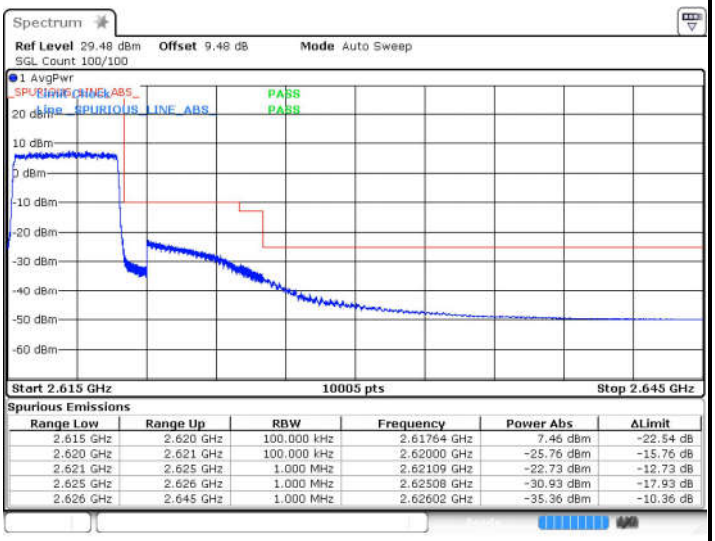


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.545 GHz	2.564 GHz	1.000 MHz	2.56390 GHz	-37.57 dBm	-12.57 dB
2.564 GHz	2.565 GHz	1.000 MHz	2.56496 GHz	-34.34 dBm	-21.34 dB
2.565 GHz	2.569 GHz	1.000 MHz	2.56896 GHz	-23.66 dBm	-13.66 dB
2.569 GHz	2.570 GHz	100.000 kHz	2.57000 GHz	-25.06 dBm	-15.06 dB
2.570 GHz	2.575 GHz	100.000 kHz	2.57287 GHz	7.41 dBm	-22.59 dB

Date: 23.OCT.2016 16:37:53

Highest Band Edge / Full RB



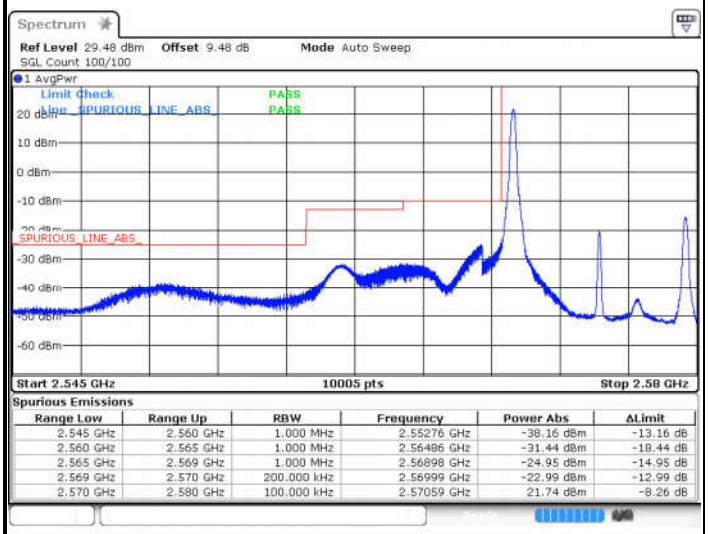
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.615 GHz	2.620 GHz	100.000 kHz	2.61764 GHz	7.46 dBm	-22.54 dB
2.620 GHz	2.621 GHz	100.000 kHz	2.62000 GHz	-25.76 dBm	-15.76 dB
2.621 GHz	2.625 GHz	1.000 MHz	2.62109 GHz	-22.73 dBm	-12.73 dB
2.625 GHz	2.626 GHz	1.000 MHz	2.62508 GHz	-30.93 dBm	-17.93 dB
2.626 GHz	2.645 GHz	1.000 MHz	2.62602 GHz	-35.36 dBm	-10.36 dB

Date: 23.OCT.2016 16:54:09

LTE Band 38 / 10MHz / QPSK

Lowest Band Edge / 1 RB

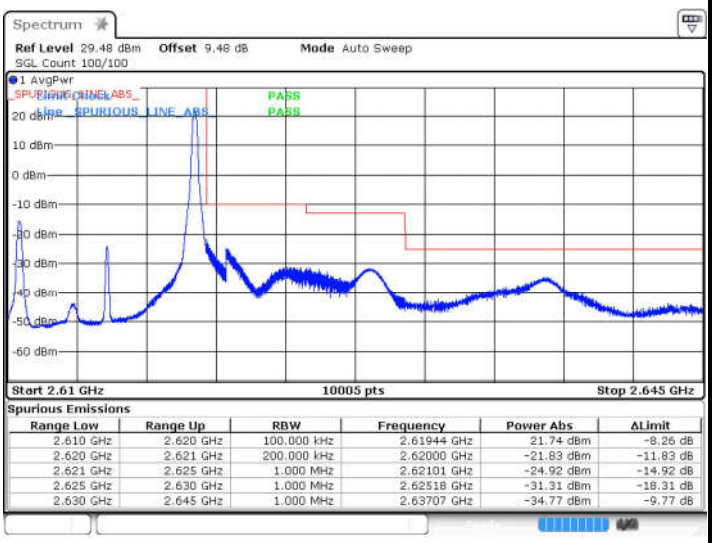


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.545 GHz	2.560 GHz	1.000 MHz	2.55276 GHz	-38.16 dBm	-13.16 dB
2.560 GHz	2.565 GHz	1.000 MHz	2.56486 GHz	-31.44 dBm	-18.44 dB
2.565 GHz	2.569 GHz	1.000 MHz	2.56898 GHz	-24.95 dBm	-14.95 dB
2.569 GHz	2.570 GHz	200.000 kHz	2.56999 GHz	-22.99 dBm	-12.99 dB
2.570 GHz	2.580 GHz	100.000 kHz	2.57059 GHz	21.74 dBm	-8.26 dB

Date: 23.OCT.2016 19:40:45

Highest Band Edge / 1 RB

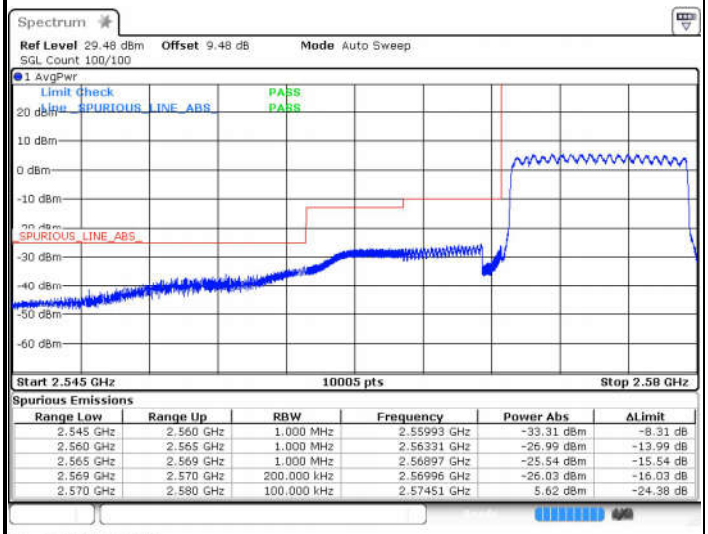


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.610 GHz	2.620 GHz	100.000 kHz	2.61944 GHz	21.74 dBm	-8.26 dB
2.620 GHz	2.621 GHz	200.000 kHz	2.62000 GHz	-21.83 dBm	-11.83 dB
2.621 GHz	2.625 GHz	1.000 MHz	2.62101 GHz	-24.92 dBm	-14.92 dB
2.625 GHz	2.630 GHz	1.000 MHz	2.62518 GHz	-31.31 dBm	-18.31 dB
2.630 GHz	2.645 GHz	1.000 MHz	2.63707 GHz	-34.77 dBm	-9.77 dB

Date: 23.OCT.2016 18:41:34

Lowest Band Edge / Full RB

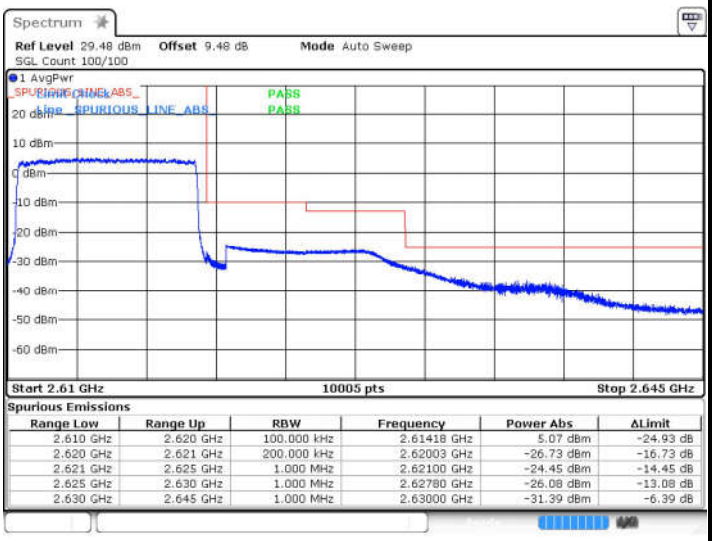


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.545 GHz	2.560 GHz	1.000 MHz	2.55993 GHz	-33.31 dBm	-8.31 dB
2.560 GHz	2.565 GHz	1.000 MHz	2.56331 GHz	-26.99 dBm	-13.99 dB
2.565 GHz	2.569 GHz	1.000 MHz	2.56897 GHz	-25.54 dBm	-15.54 dB
2.569 GHz	2.570 GHz	200.000 kHz	2.56996 GHz	-26.03 dBm	-16.03 dB
2.570 GHz	2.580 GHz	100.000 kHz	2.57451 GHz	5.62 dBm	-24.38 dB

Date: 23.OCT.2016 18:24:50

Highest Band Edge / Full RB



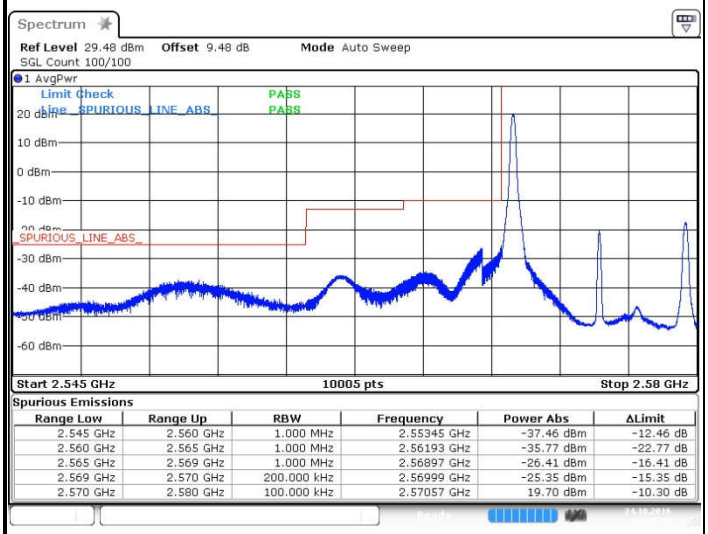
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.610 GHz	2.620 GHz	100.000 kHz	2.61418 GHz	5.07 dBm	-24.93 dB
2.620 GHz	2.621 GHz	200.000 kHz	2.62003 GHz	-26.73 dBm	-16.73 dB
2.621 GHz	2.625 GHz	1.000 MHz	2.62100 GHz	-24.45 dBm	-14.45 dB
2.625 GHz	2.630 GHz	1.000 MHz	2.62780 GHz	-26.08 dBm	-13.08 dB
2.630 GHz	2.645 GHz	1.000 MHz	2.63000 GHz	-31.39 dBm	-6.39 dB

Date: 23.OCT.2016 19:04:26

LTE Band 38 / 10MHz / 16QAM

Lowest Band Edge / 1 RB

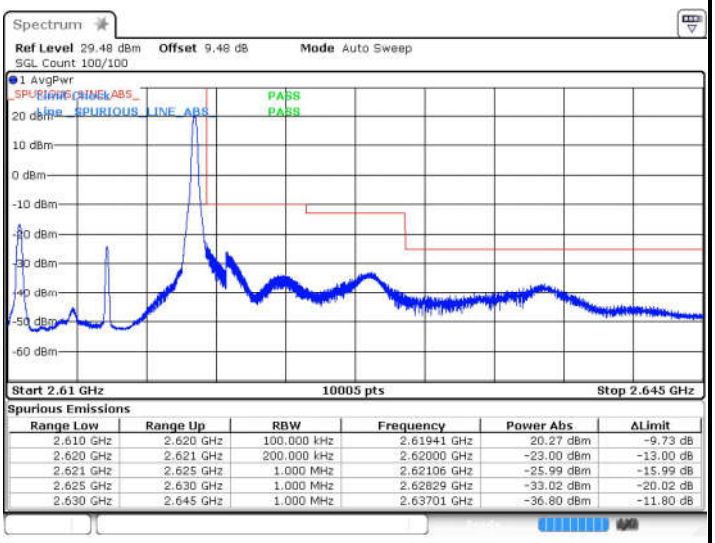


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.545 GHz	2.560 GHz	1.000 MHz	2.55345 GHz	-37.46 dBm	-12.46 dB
2.560 GHz	2.565 GHz	1.000 MHz	2.56193 GHz	-35.77 dBm	-22.77 dB
2.565 GHz	2.569 GHz	1.000 MHz	2.56897 GHz	-26.41 dBm	-16.41 dB
2.569 GHz	2.570 GHz	200.000 kHz	2.56999 GHz	-25.35 dBm	-15.35 dB
2.570 GHz	2.580 GHz	100.000 kHz	2.57057 GHz	19.70 dBm	-10.30 dB

Date: 24.OCT.2016 15:18:18

Highest Band Edge / 1 RB

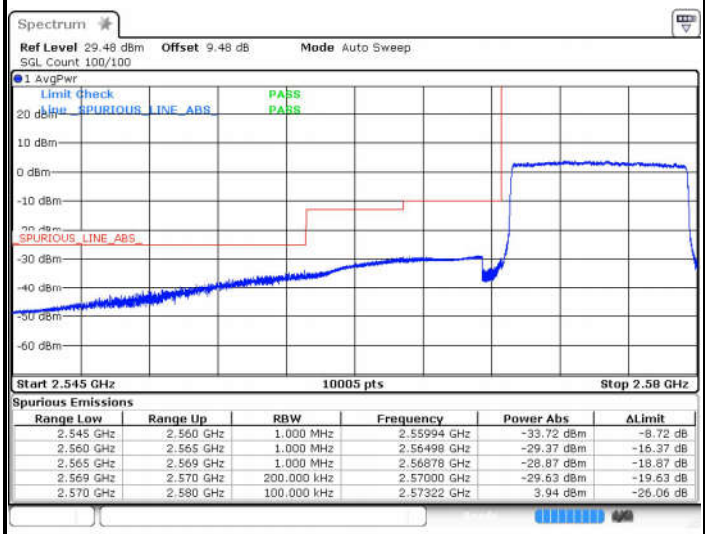


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.610 GHz	2.620 GHz	100.000 kHz	2.61941 GHz	20.27 dBm	-9.73 dB
2.620 GHz	2.621 GHz	200.000 kHz	2.62000 GHz	-23.00 dBm	-13.00 dB
2.621 GHz	2.625 GHz	1.000 MHz	2.62106 GHz	-25.99 dBm	-15.99 dB
2.625 GHz	2.630 GHz	1.000 MHz	2.62829 GHz	-33.02 dBm	-20.02 dB
2.630 GHz	2.645 GHz	1.000 MHz	2.63701 GHz	-36.80 dBm	-11.80 dB

Date: 23.OCT.2016 18:49:49

Lowest Band Edge / Full RB

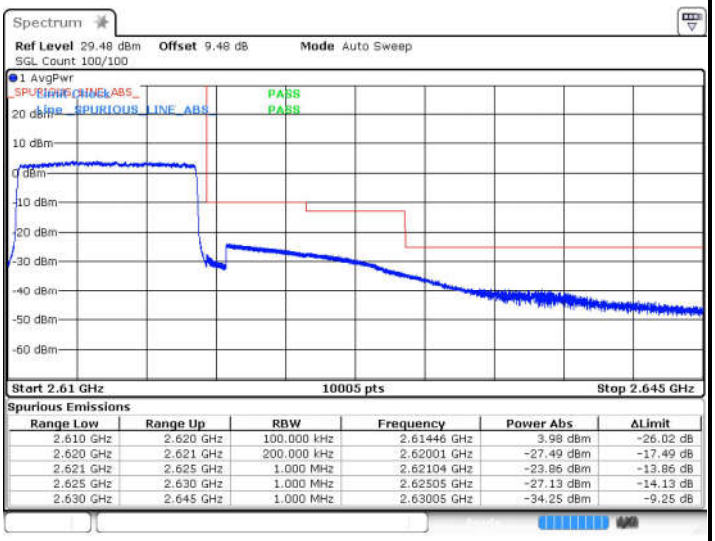


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.545 GHz	2.560 GHz	1.000 MHz	2.55994 GHz	-33.72 dBm	-8.72 dB
2.560 GHz	2.565 GHz	1.000 MHz	2.56498 GHz	-29.37 dBm	-16.37 dB
2.565 GHz	2.569 GHz	1.000 MHz	2.56878 GHz	-28.87 dBm	-18.87 dB
2.569 GHz	2.570 GHz	200.000 kHz	2.57000 GHz	-29.63 dBm	-19.63 dB
2.570 GHz	2.580 GHz	100.000 kHz	2.57322 GHz	3.94 dBm	-26.06 dB

Date: 23.OCT.2016 18:30:13

Highest Band Edge / Full RB



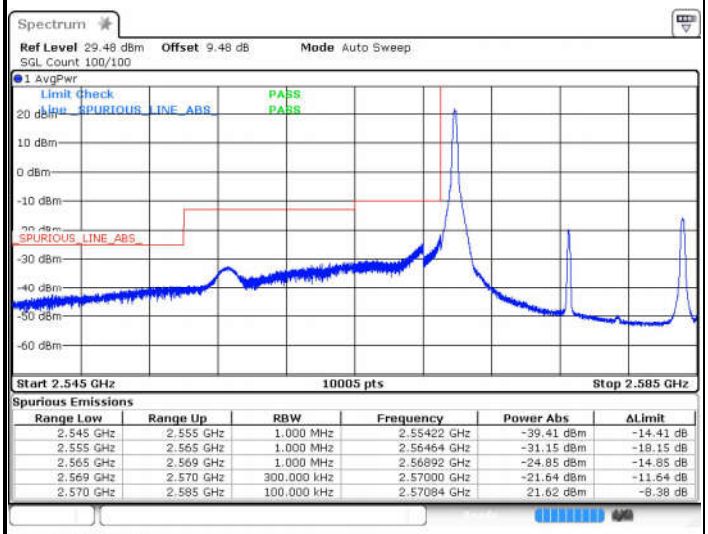
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.610 GHz	2.620 GHz	100.000 kHz	2.61446 GHz	3.98 dBm	-26.02 dB
2.620 GHz	2.621 GHz	200.000 kHz	2.62001 GHz	-27.49 dBm	-17.49 dB
2.621 GHz	2.625 GHz	1.000 MHz	2.62104 GHz	-23.86 dBm	-13.86 dB
2.625 GHz	2.630 GHz	1.000 MHz	2.62505 GHz	-27.13 dBm	-14.13 dB
2.630 GHz	2.645 GHz	1.000 MHz	2.63005 GHz	-34.25 dBm	-9.25 dB

Date: 23.OCT.2016 19:08:26

LTE Band 38 / 15MHz / QPSK

Lowest Band Edge / 1 RB

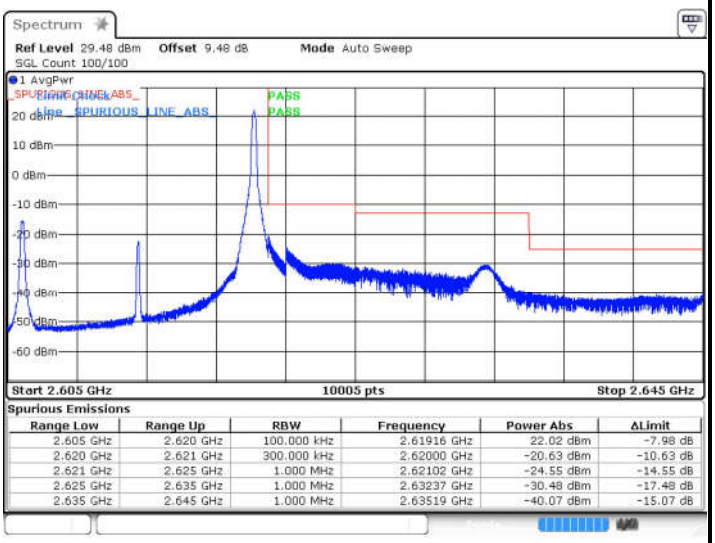


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.545 GHz	2.555 GHz	1.000 MHz	2.55422 GHz	-39.41 dBm	-14.41 dB
2.555 GHz	2.565 GHz	1.000 MHz	2.56464 GHz	-31.15 dBm	-18.15 dB
2.565 GHz	2.569 GHz	1.000 MHz	2.56892 GHz	-24.85 dBm	-14.85 dB
2.569 GHz	2.570 GHz	300.000 kHz	2.57000 GHz	-21.64 dBm	-11.64 dB
2.570 GHz	2.585 GHz	100.000 kHz	2.57084 GHz	21.62 dBm	-8.38 dB

Date: 23.OCT.2016 19:49:48

Highest Band Edge / 1 RB

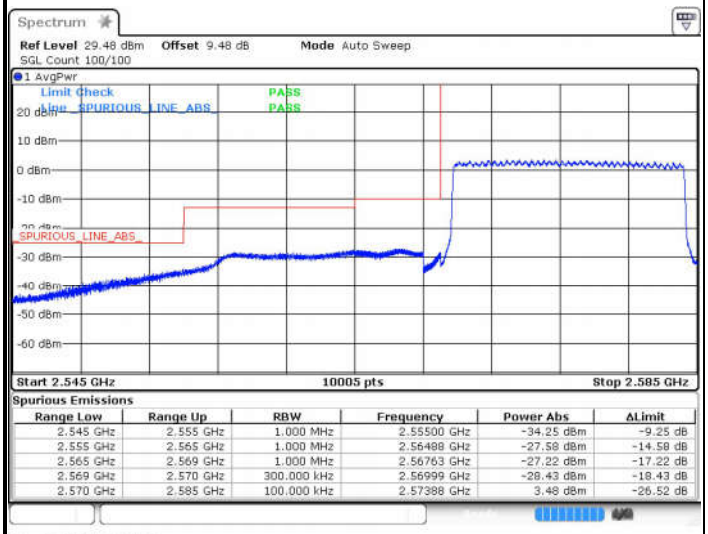


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.605 GHz	2.620 GHz	100.000 kHz	2.61916 GHz	22.02 dBm	-7.98 dB
2.620 GHz	2.621 GHz	300.000 kHz	2.62000 GHz	-20.63 dBm	-10.63 dB
2.621 GHz	2.625 GHz	1.000 MHz	2.62102 GHz	-24.55 dBm	-14.55 dB
2.625 GHz	2.635 GHz	1.000 MHz	2.63237 GHz	-30.48 dBm	-17.48 dB
2.635 GHz	2.645 GHz	1.000 MHz	2.63519 GHz	-40.07 dBm	-15.07 dB

Date: 23.OCT.2016 20:30:55

Lowest Band Edge / Full RB

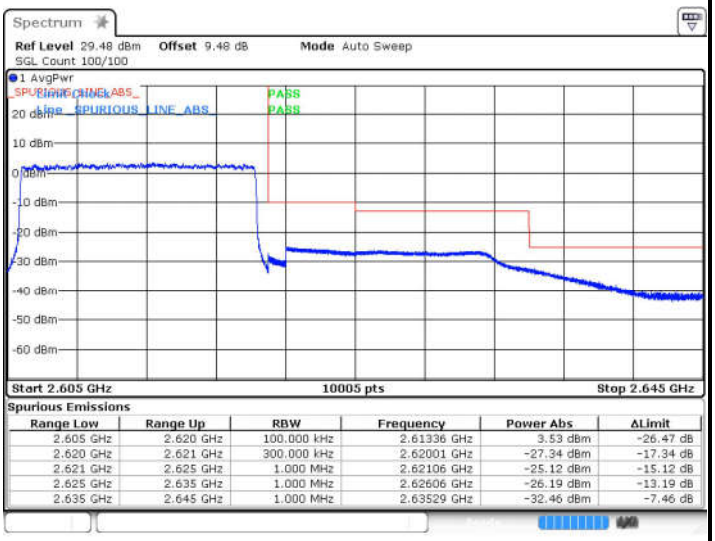


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.545 GHz	2.555 GHz	1.000 MHz	2.55500 GHz	-34.25 dBm	-9.25 dB
2.555 GHz	2.565 GHz	1.000 MHz	2.56488 GHz	-27.58 dBm	-14.58 dB
2.565 GHz	2.569 GHz	1.000 MHz	2.56763 GHz	-27.22 dBm	-17.22 dB
2.569 GHz	2.570 GHz	300.000 kHz	2.56999 GHz	-28.43 dBm	-18.43 dB
2.570 GHz	2.585 GHz	100.000 kHz	2.57388 GHz	3.48 dBm	-26.52 dB

Date: 23.OCT.2016 20:02:09

Highest Band Edge / Full RB



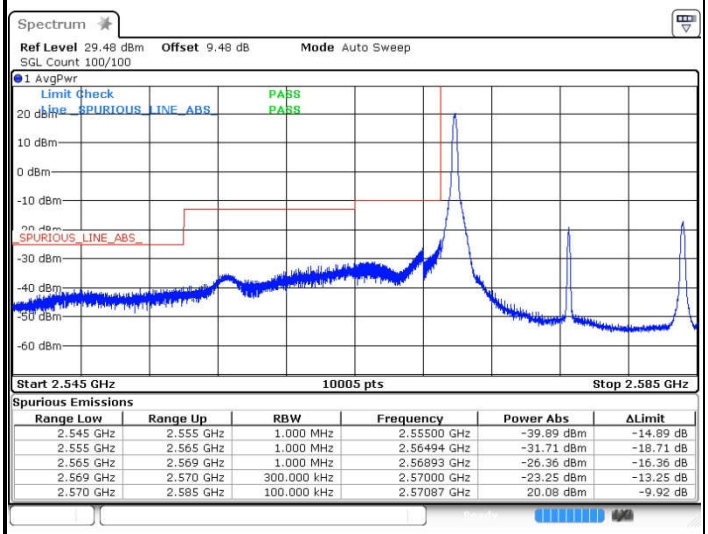
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.605 GHz	2.620 GHz	100.000 kHz	2.61336 GHz	3.53 dBm	-26.47 dB
2.620 GHz	2.621 GHz	300.000 kHz	2.62001 GHz	-27.34 dBm	-17.34 dB
2.621 GHz	2.625 GHz	1.000 MHz	2.62106 GHz	-25.12 dBm	-15.12 dB
2.625 GHz	2.635 GHz	1.000 MHz	2.62606 GHz	-26.19 dBm	-13.19 dB
2.635 GHz	2.645 GHz	1.000 MHz	2.63529 GHz	-32.46 dBm	-7.46 dB

Date: 23.OCT.2016 20:18:20

LTE Band 38 / 15MHz / 16QAM

Lowest Band Edge / 1 RB

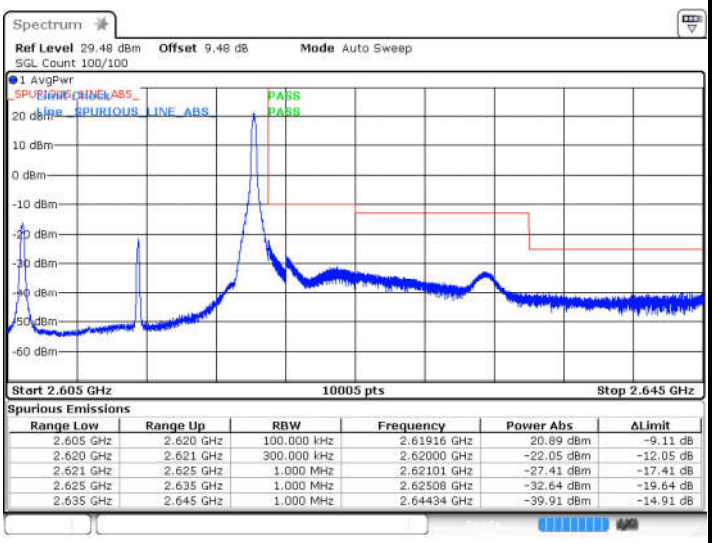


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.545 GHz	2.555 GHz	1.000 MHz	2.55500 GHz	-39.89 dBm	-14.89 dB
2.555 GHz	2.565 GHz	1.000 MHz	2.56494 GHz	-31.71 dBm	-18.71 dB
2.565 GHz	2.569 GHz	1.000 MHz	2.56893 GHz	-26.36 dBm	-16.36 dB
2.569 GHz	2.570 GHz	300.000 kHz	2.57000 GHz	-23.25 dBm	-13.25 dB
2.570 GHz	2.585 GHz	100.000 kHz	2.57087 GHz	20.08 dBm	-9.92 dB

Date: 24.OCT.2016 10:04:23

Highest Band Edge / 1 RB

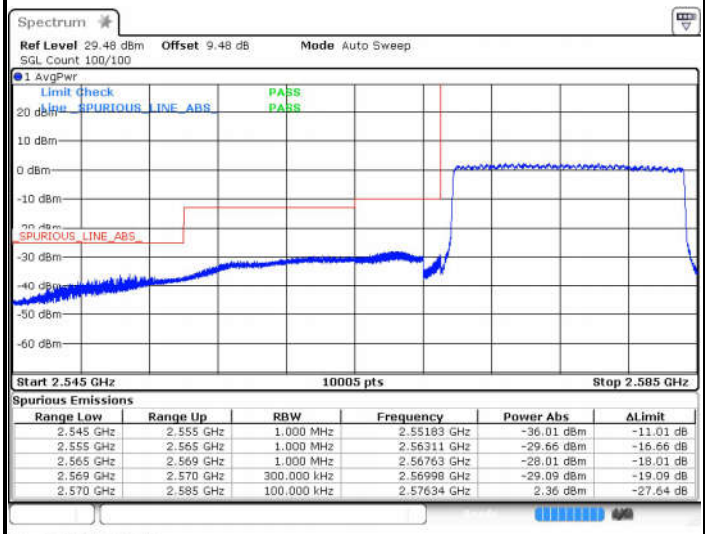


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.605 GHz	2.620 GHz	100.000 kHz	2.61916 GHz	20.89 dBm	-9.11 dB
2.620 GHz	2.621 GHz	300.000 kHz	2.62000 GHz	-22.05 dBm	-12.05 dB
2.621 GHz	2.625 GHz	1.000 MHz	2.62101 GHz	-27.41 dBm	-17.41 dB
2.625 GHz	2.635 GHz	1.000 MHz	2.62508 GHz	-32.64 dBm	-19.64 dB
2.635 GHz	2.645 GHz	1.000 MHz	2.64434 GHz	-39.91 dBm	-14.91 dB

Date: 23.OCT.2016 20:38:51

Lowest Band Edge / Full RB

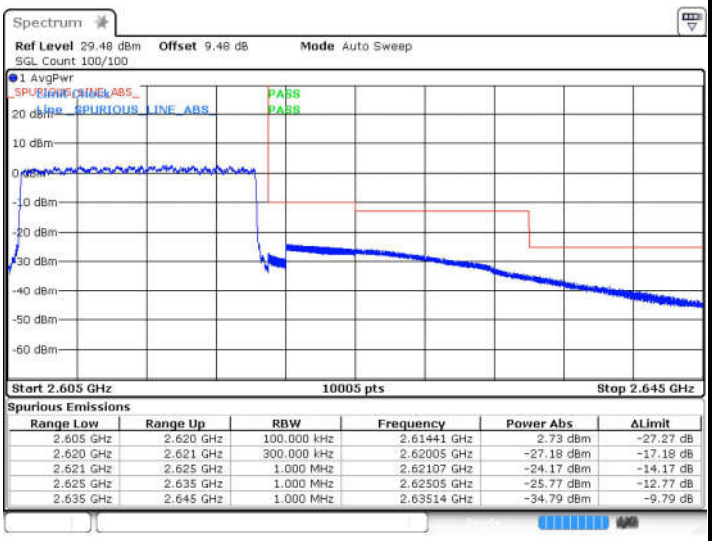


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.545 GHz	2.555 GHz	1.000 MHz	2.55183 GHz	-36.01 dBm	-11.01 dB
2.555 GHz	2.565 GHz	1.000 MHz	2.56311 GHz	-29.66 dBm	-16.66 dB
2.565 GHz	2.569 GHz	1.000 MHz	2.56763 GHz	-28.01 dBm	-18.01 dB
2.569 GHz	2.570 GHz	300.000 kHz	2.56998 GHz	-29.09 dBm	-19.09 dB
2.570 GHz	2.585 GHz	100.000 kHz	2.57634 GHz	2.36 dBm	-27.64 dB

Date: 23.OCT.2016 20:09:59

Highest Band Edge / Full RB



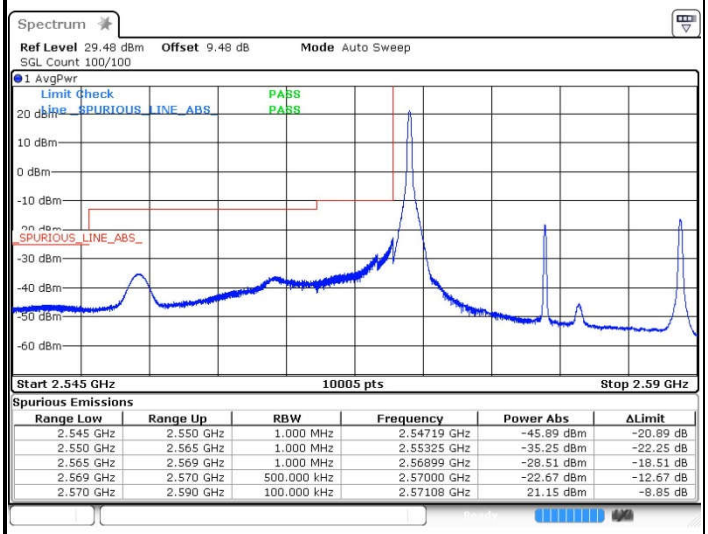
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.605 GHz	2.620 GHz	100.000 kHz	2.61441 GHz	2.73 dBm	-27.27 dB
2.620 GHz	2.621 GHz	300.000 kHz	2.62005 GHz	-27.18 dBm	-17.18 dB
2.621 GHz	2.625 GHz	1.000 MHz	2.62107 GHz	-24.17 dBm	-14.17 dB
2.625 GHz	2.635 GHz	1.000 MHz	2.62505 GHz	-25.77 dBm	-12.77 dB
2.635 GHz	2.645 GHz	1.000 MHz	2.63514 GHz	-34.79 dBm	-9.79 dB

Date: 23.OCT.2016 20:22:32

LTE Band 38 / 20MHz / QPSK

Lowest Band Edge / 1 RB

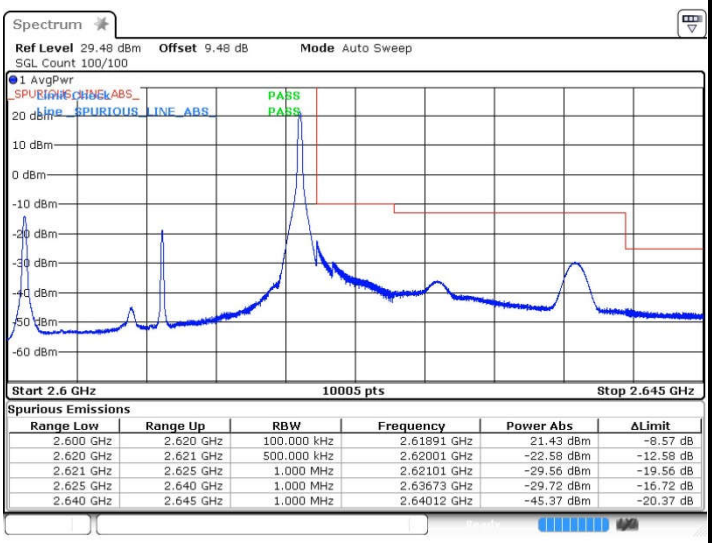


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.545 GHz	2.550 GHz	1.000 MHz	2.54719 GHz	-45.89 dBm	-20.89 dB
2.550 GHz	2.565 GHz	1.000 MHz	2.55325 GHz	-35.25 dBm	-22.25 dB
2.565 GHz	2.569 GHz	1.000 MHz	2.56899 GHz	-28.51 dBm	-18.51 dB
2.569 GHz	2.570 GHz	500.000 kHz	2.57000 GHz	-22.67 dBm	-12.67 dB
2.570 GHz	2.590 GHz	100.000 kHz	2.57108 GHz	21.15 dBm	-8.85 dB

Date: 24.OCT.2016 10:20:21

Highest Band Edge / 1 RB

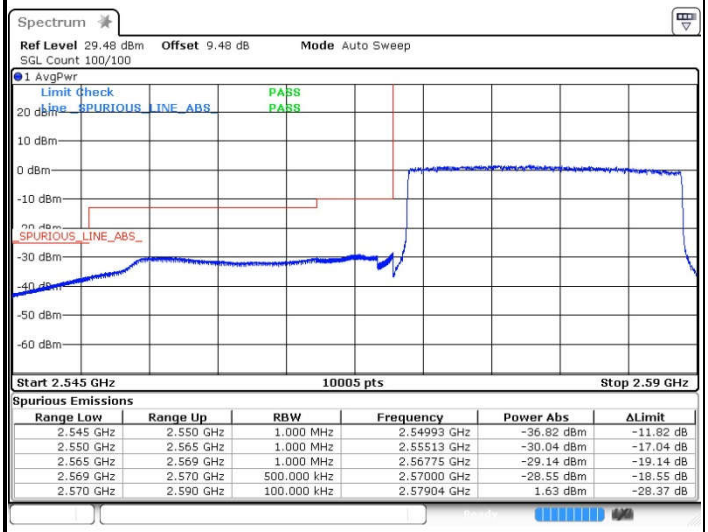


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.600 GHz	2.620 GHz	100.000 kHz	2.61891 GHz	21.43 dBm	-8.57 dB
2.620 GHz	2.621 GHz	500.000 kHz	2.62001 GHz	-22.58 dBm	-12.58 dB
2.621 GHz	2.625 GHz	1.000 MHz	2.62101 GHz	-29.56 dBm	-19.56 dB
2.625 GHz	2.640 GHz	1.000 MHz	2.63673 GHz	-29.72 dBm	-16.72 dB
2.640 GHz	2.645 GHz	1.000 MHz	2.64012 GHz	-45.37 dBm	-20.37 dB

Date: 24.OCT.2016 10:53:48

Lowest Band Edge / Full RB

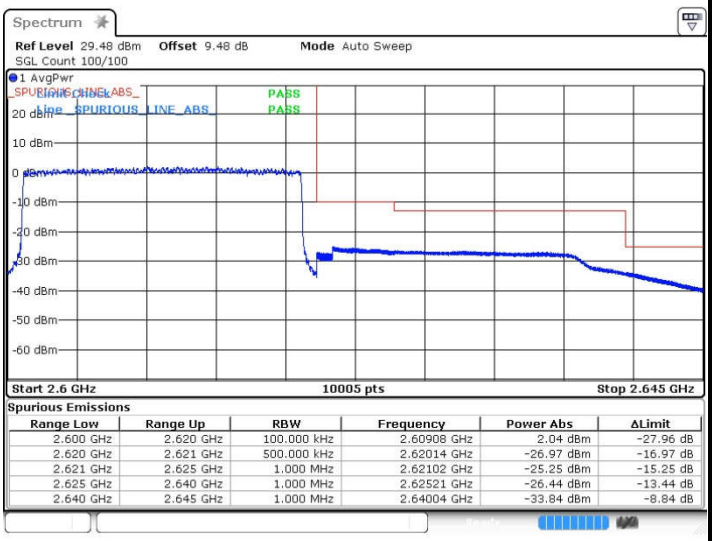


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.545 GHz	2.550 GHz	1.000 MHz	2.54993 GHz	-36.82 dBm	-11.82 dB
2.550 GHz	2.565 GHz	1.000 MHz	2.55513 GHz	-30.04 dBm	-17.04 dB
2.565 GHz	2.569 GHz	1.000 MHz	2.56775 GHz	-29.14 dBm	-19.14 dB
2.569 GHz	2.570 GHz	500.000 kHz	2.57000 GHz	-28.55 dBm	-18.55 dB
2.570 GHz	2.590 GHz	100.000 kHz	2.57904 GHz	1.63 dBm	-28.37 dB

Date: 24.OCT.2016 10:32:17

Highest Band Edge / Full RB



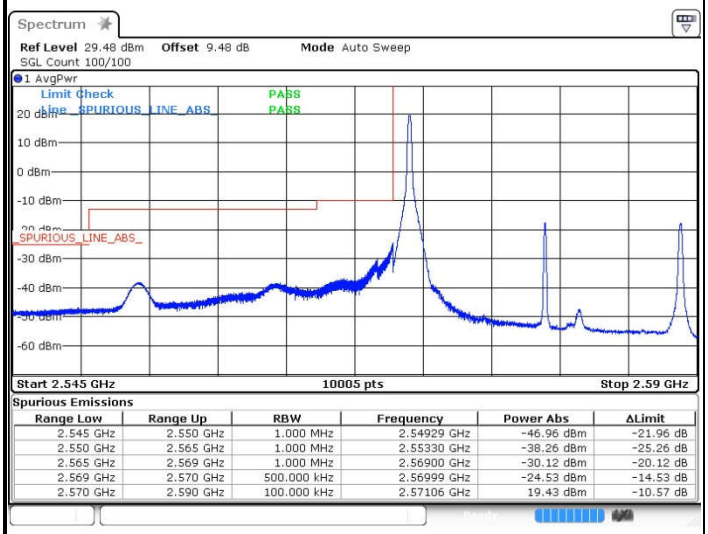
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.600 GHz	2.620 GHz	100.000 kHz	2.60908 GHz	2.04 dBm	-27.96 dB
2.620 GHz	2.621 GHz	500.000 kHz	2.62014 GHz	-26.97 dBm	-16.97 dB
2.621 GHz	2.625 GHz	1.000 MHz	2.62102 GHz	-25.25 dBm	-15.25 dB
2.625 GHz	2.640 GHz	1.000 MHz	2.62521 GHz	-26.44 dBm	-13.44 dB
2.640 GHz	2.645 GHz	1.000 MHz	2.64004 GHz	-33.84 dBm	-8.84 dB

Date: 24.OCT.2016 10:40:11

LTE Band 38 / 20MHz / 16QAM

Lowest Band Edge / 1 RB

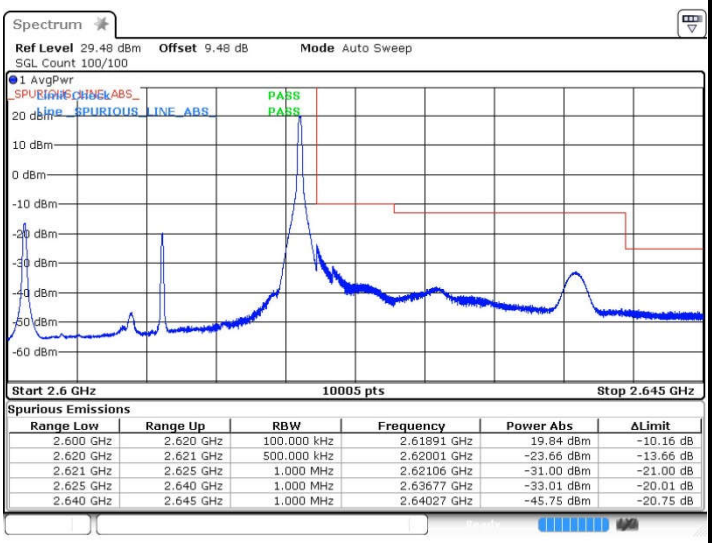


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.545 GHz	2.550 GHz	1.000 MHz	2.54929 GHz	-46.96 dBm	-21.96 dB
2.550 GHz	2.565 GHz	1.000 MHz	2.55330 GHz	-38.26 dBm	-25.26 dB
2.565 GHz	2.569 GHz	1.000 MHz	2.56900 GHz	-30.12 dBm	-20.12 dB
2.569 GHz	2.570 GHz	500.000 kHz	2.56999 GHz	-24.53 dBm	-14.53 dB
2.570 GHz	2.590 GHz	100.000 kHz	2.57106 GHz	19.43 dBm	-10.57 dB

Date: 24.OCT.2016 10:28:03

Highest Band Edge / 1 RB

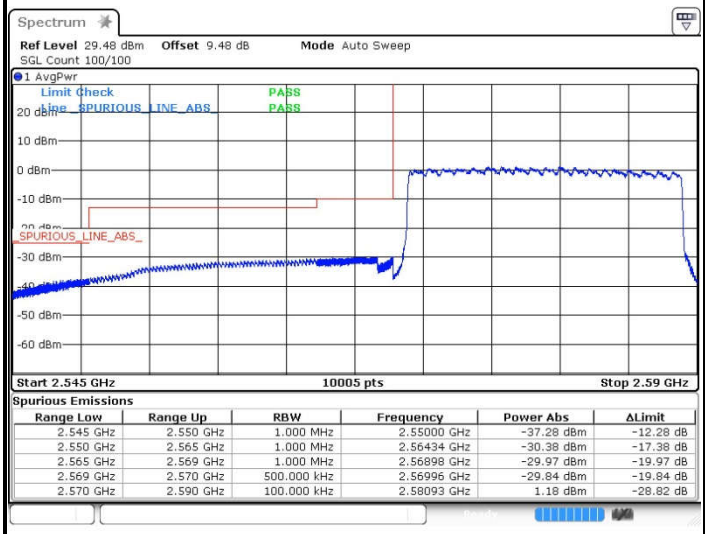


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.600 GHz	2.620 GHz	100.000 kHz	2.61891 GHz	19.84 dBm	-10.16 dB
2.620 GHz	2.621 GHz	500.000 kHz	2.62001 GHz	-23.66 dBm	-13.66 dB
2.621 GHz	2.625 GHz	1.000 MHz	2.62106 GHz	-31.00 dBm	-21.00 dB
2.625 GHz	2.640 GHz	1.000 MHz	2.63677 GHz	-33.01 dBm	-20.01 dB
2.640 GHz	2.645 GHz	1.000 MHz	2.64027 GHz	-45.75 dBm	-20.75 dB

Date: 24.OCT.2016 11:02:00

Lowest Band Edge / Full RB

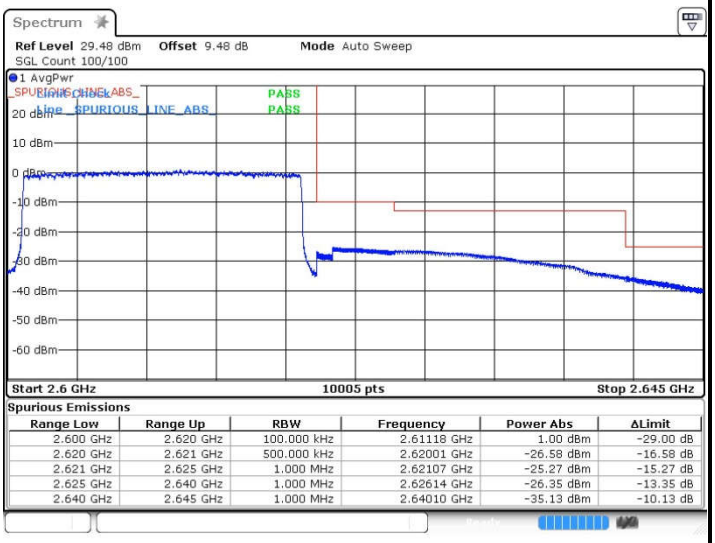


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.545 GHz	2.550 GHz	1.000 MHz	2.55000 GHz	-37.28 dBm	-12.28 dB
2.550 GHz	2.565 GHz	1.000 MHz	2.56434 GHz	-30.38 dBm	-17.38 dB
2.565 GHz	2.569 GHz	1.000 MHz	2.56898 GHz	-29.97 dBm	-19.97 dB
2.569 GHz	2.570 GHz	500.000 kHz	2.56996 GHz	-29.84 dBm	-19.84 dB
2.570 GHz	2.590 GHz	100.000 kHz	2.58093 GHz	1.18 dBm	-28.82 dB

Date: 24.OCT.2016 10:35:48

Highest Band Edge / Full RB



Spurious Emissions

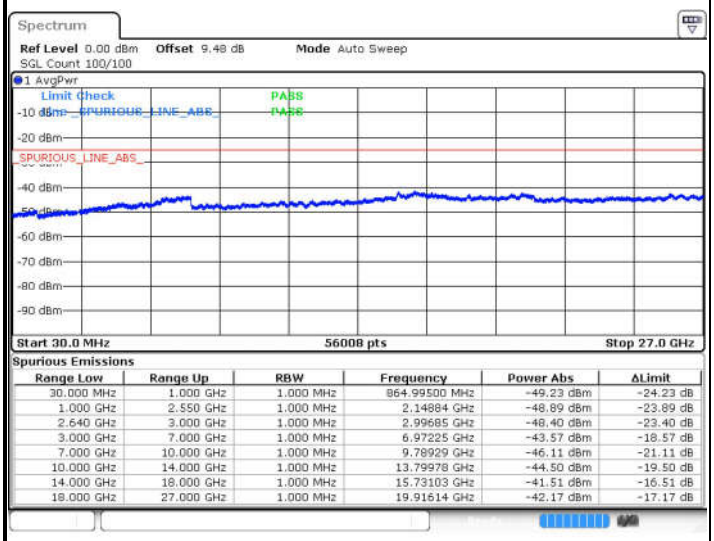
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.600 GHz	2.620 GHz	100.000 kHz	2.61118 GHz	1.00 dBm	-29.00 dB
2.620 GHz	2.621 GHz	500.000 kHz	2.62001 GHz	-26.58 dBm	-16.58 dB
2.621 GHz	2.625 GHz	1.000 MHz	2.62107 GHz	-25.27 dBm	-15.27 dB
2.625 GHz	2.640 GHz	1.000 MHz	2.62614 GHz	-26.35 dBm	-13.35 dB
2.640 GHz	2.645 GHz	1.000 MHz	2.64010 GHz	-35.13 dBm	-10.13 dB

Date: 24.OCT.2016 10:44:06

Conducted Spurious Emission

LTE Band 38 / 5MHz

Lowest Channel / QPSK

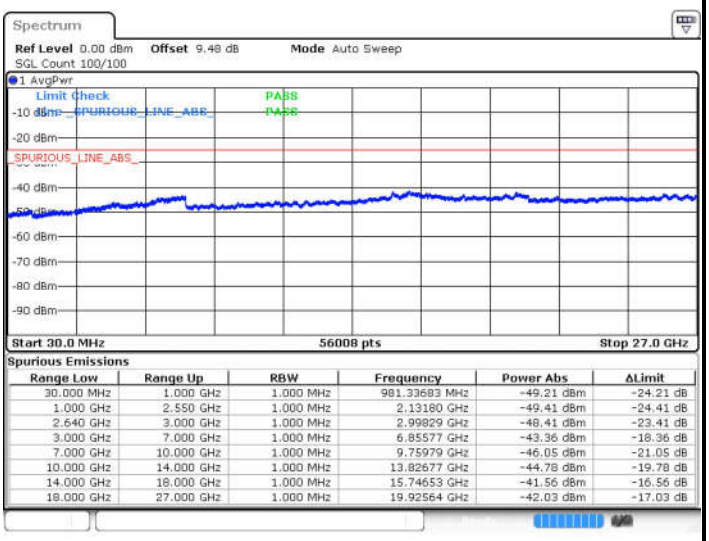


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	864.99500 MHz	-49.23 dBm	-24.23 dB
1.000 GHz	2.550 GHz	1.000 MHz	2.14884 GHz	-48.89 dBm	-23.89 dB
2.640 GHz	3.000 GHz	1.000 MHz	2.99685 GHz	-48.40 dBm	-23.40 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.97225 GHz	-43.57 dBm	-18.57 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.78929 GHz	-46.11 dBm	-21.11 dB
10.000 GHz	14.000 GHz	1.000 MHz	13.79978 GHz	-44.50 dBm	-19.50 dB
14.000 GHz	18.000 GHz	1.000 MHz	15.73103 GHz	-41.51 dBm	-16.51 dB
18.000 GHz	27.000 GHz	1.000 MHz	19.91614 GHz	-42.17 dBm	-17.17 dB

Date: 23.OCT.2016 16:58:31

Lowest Channel / 16QAM

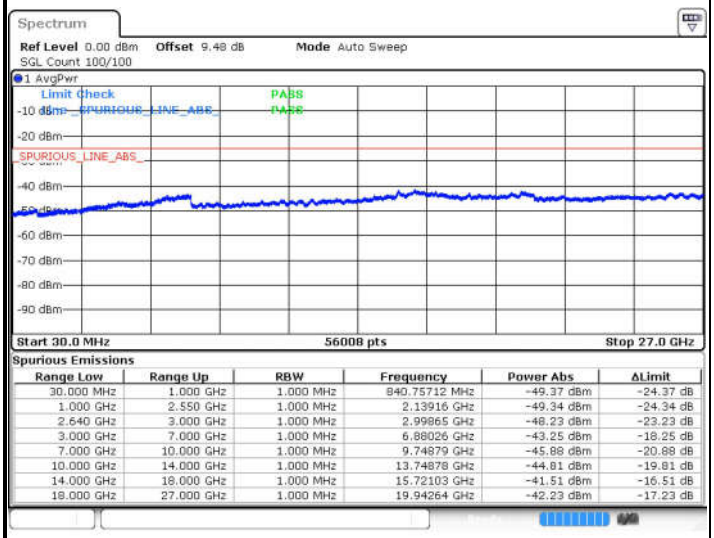


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	981.33683 MHz	-49.21 dBm	-24.21 dB
1.000 GHz	2.550 GHz	1.000 MHz	2.13180 GHz	-49.41 dBm	-24.41 dB
2.640 GHz	3.000 GHz	1.000 MHz	2.99829 GHz	-48.41 dBm	-23.41 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.85577 GHz	-43.36 dBm	-18.36 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.75979 GHz	-46.05 dBm	-21.05 dB
10.000 GHz	14.000 GHz	1.000 MHz	13.82677 GHz	-44.78 dBm	-19.78 dB
14.000 GHz	18.000 GHz	1.000 MHz	15.74653 GHz	-41.56 dBm	-16.56 dB
18.000 GHz	27.000 GHz	1.000 MHz	19.92564 GHz	-42.03 dBm	-17.03 dB

Date: 23.OCT.2016 16:55:56

Middle Channel / QPSK

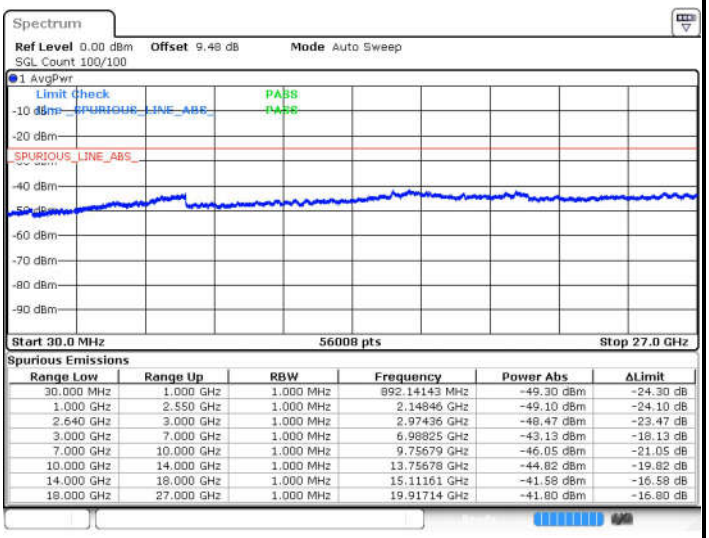


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	840.75712 MHz	-49.37 dBm	-24.37 dB
1.000 GHz	2.550 GHz	1.000 MHz	2.13916 GHz	-49.34 dBm	-24.34 dB
2.640 GHz	3.000 GHz	1.000 MHz	2.99865 GHz	-48.23 dBm	-23.23 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.88026 GHz	-43.25 dBm	-18.25 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.74879 GHz	-45.88 dBm	-20.88 dB
10.000 GHz	14.000 GHz	1.000 MHz	13.74878 GHz	-44.81 dBm	-19.81 dB
14.000 GHz	18.000 GHz	1.000 MHz	15.72103 GHz	-41.51 dBm	-16.51 dB
18.000 GHz	27.000 GHz	1.000 MHz	19.94264 GHz	-42.23 dBm	-17.23 dB

Date: 23.OCT.2016 16:59:24

Middle Channel / 16QAM



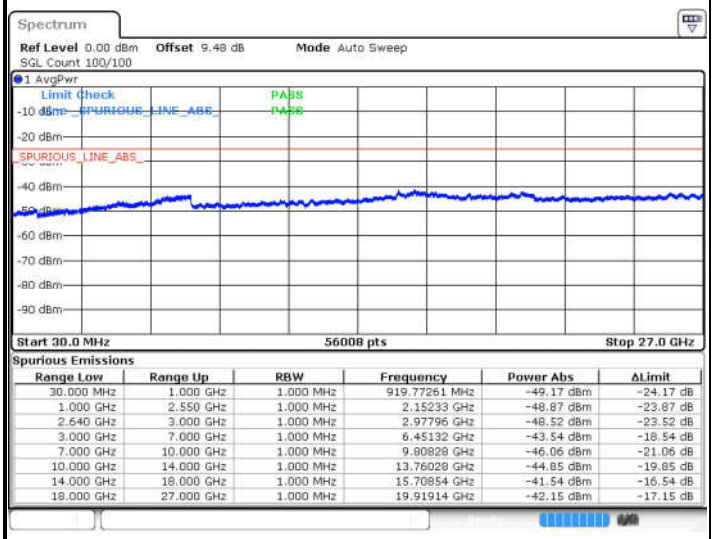
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	892.14143 MHz	-49.30 dBm	-24.30 dB
1.000 GHz	2.550 GHz	1.000 MHz	2.14846 GHz	-49.10 dBm	-24.10 dB
2.640 GHz	3.000 GHz	1.000 MHz	2.97436 GHz	-48.47 dBm	-23.47 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.98825 GHz	-43.13 dBm	-18.13 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.75679 GHz	-46.05 dBm	-21.05 dB
10.000 GHz	14.000 GHz	1.000 MHz	13.75678 GHz	-44.82 dBm	-19.82 dB
14.000 GHz	18.000 GHz	1.000 MHz	15.11161 GHz	-41.58 dBm	-16.58 dB
18.000 GHz	27.000 GHz	1.000 MHz	19.91714 GHz	-41.80 dBm	-16.80 dB

Date: 23.OCT.2016 16:56:47

LTE Band 38 / 5MHz

Highest Channel / QPSK

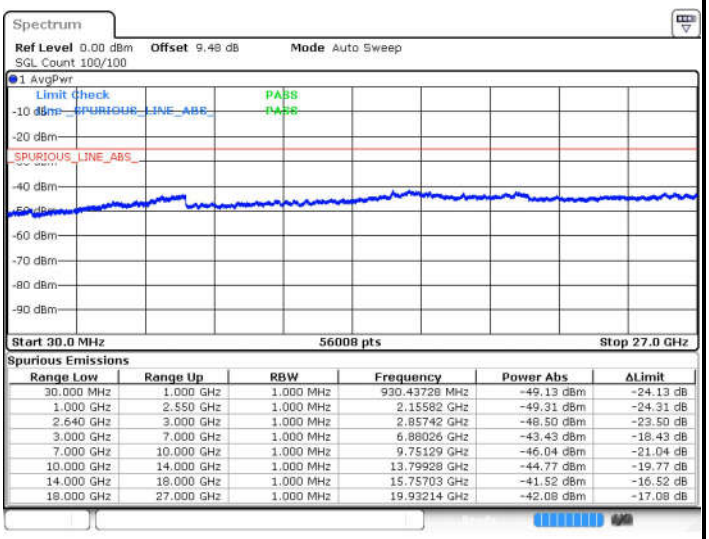


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	919.77261 MHz	-49.17 dBm	-24.17 dB
1.000 GHz	2.550 GHz	1.000 MHz	2.15233 GHz	-48.87 dBm	-23.87 dB
2.640 GHz	3.000 GHz	1.000 MHz	2.97796 GHz	-48.52 dBm	-23.52 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.45132 GHz	-43.54 dBm	-18.54 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.80828 GHz	-46.06 dBm	-21.06 dB
10.000 GHz	14.000 GHz	1.000 MHz	13.76028 GHz	-44.85 dBm	-19.85 dB
14.000 GHz	18.000 GHz	1.000 MHz	15.70854 GHz	-41.54 dBm	-16.54 dB
18.000 GHz	27.000 GHz	1.000 MHz	19.91914 GHz	-42.15 dBm	-17.15 dB

Date: 23.OCT.2016 17:00:17

Highest Channel / 16QAM



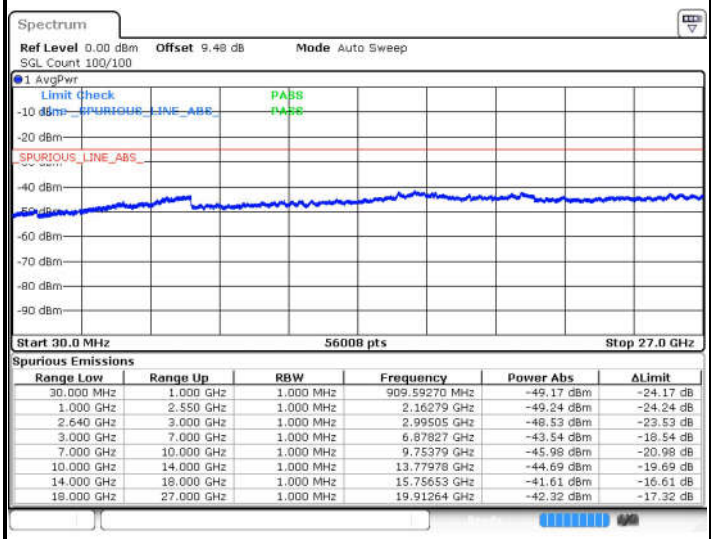
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	930.43728 MHz	-49.13 dBm	-24.13 dB
1.000 GHz	2.550 GHz	1.000 MHz	2.15582 GHz	-49.31 dBm	-24.31 dB
2.640 GHz	3.000 GHz	1.000 MHz	2.85742 GHz	-48.50 dBm	-23.50 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.88026 GHz	-43.43 dBm	-18.43 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.75129 GHz	-46.04 dBm	-21.04 dB
10.000 GHz	14.000 GHz	1.000 MHz	13.79928 GHz	-44.77 dBm	-19.77 dB
14.000 GHz	18.000 GHz	1.000 MHz	15.75703 GHz	-41.52 dBm	-16.52 dB
18.000 GHz	27.000 GHz	1.000 MHz	19.93214 GHz	-42.08 dBm	-17.08 dB

Date: 23.OCT.2016 16:57:38

LTE Band 38 / 10MHz

Lowest Channel / QPSK

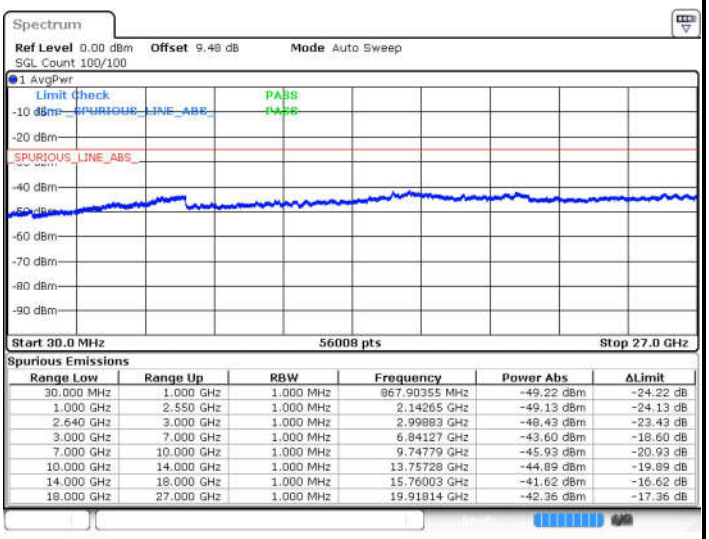


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	909.59270 MHz	-49.17 dBm	-24.17 dB
1.000 GHz	2.550 GHz	1.000 MHz	2.16279 GHz	-49.24 dBm	-24.24 dB
2.640 GHz	3.000 GHz	1.000 MHz	2.99505 GHz	-48.53 dBm	-23.53 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.87827 GHz	-43.54 dBm	-18.54 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.75379 GHz	-45.98 dBm	-20.98 dB
10.000 GHz	14.000 GHz	1.000 MHz	13.77978 GHz	-44.69 dBm	-19.69 dB
14.000 GHz	18.000 GHz	1.000 MHz	15.75653 GHz	-41.61 dBm	-16.61 dB
18.000 GHz	27.000 GHz	1.000 MHz	19.91264 GHz	-42.32 dBm	-17.32 dB

Date: 23.OCT.2016 17:01:17

Lowest Channel / 16QAM



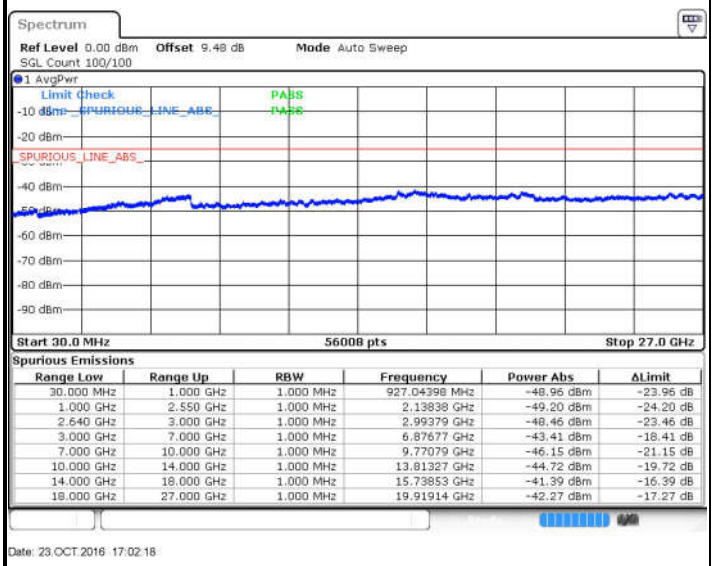
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	867.90355 MHz	-49.22 dBm	-24.22 dB
1.000 GHz	2.550 GHz	1.000 MHz	2.14265 GHz	-49.13 dBm	-24.13 dB
2.640 GHz	3.000 GHz	1.000 MHz	2.99883 GHz	-48.43 dBm	-23.43 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.84127 GHz	-43.60 dBm	-18.60 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.74779 GHz	-45.93 dBm	-20.93 dB
10.000 GHz	14.000 GHz	1.000 MHz	13.75728 GHz	-44.89 dBm	-19.89 dB
14.000 GHz	18.000 GHz	1.000 MHz	15.76003 GHz	-41.62 dBm	-16.62 dB
18.000 GHz	27.000 GHz	1.000 MHz	19.91814 GHz	-42.36 dBm	-17.36 dB

Date: 23.OCT.2016 17:04:26

LTE Band 38 / 10MHz

Middle Channel / QPSK

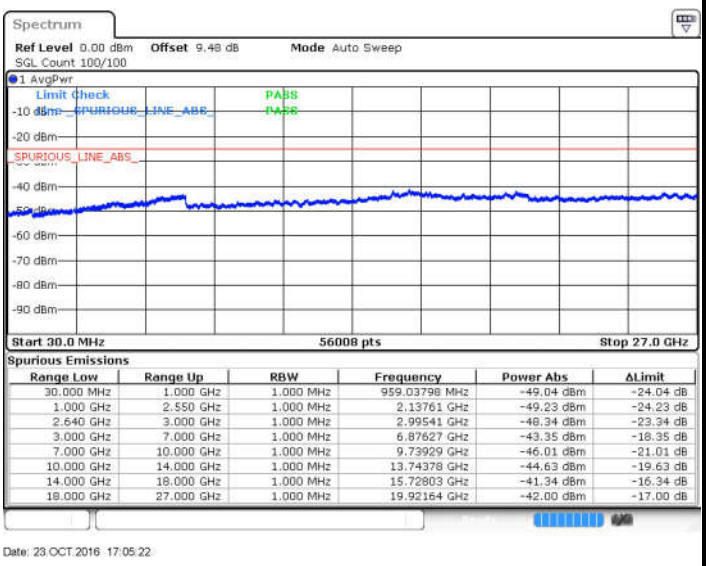


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	927.04398 MHz	-48.96 dBm	-23.96 dB
1.000 GHz	2.550 GHz	1.000 MHz	2.13838 GHz	-49.20 dBm	-24.20 dB
2.640 GHz	3.000 GHz	1.000 MHz	2.99379 GHz	-48.46 dBm	-23.46 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.87677 GHz	-43.41 dBm	-18.41 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.77079 GHz	-46.15 dBm	-21.15 dB
10.000 GHz	14.000 GHz	1.000 MHz	13.81327 GHz	-44.72 dBm	-19.72 dB
14.000 GHz	18.000 GHz	1.000 MHz	15.73853 GHz	-41.39 dBm	-16.39 dB
18.000 GHz	27.000 GHz	1.000 MHz	19.91914 GHz	-42.27 dBm	-17.27 dB

Date: 23.OCT.2016 17:02:18

Middle Channel / 16QAM

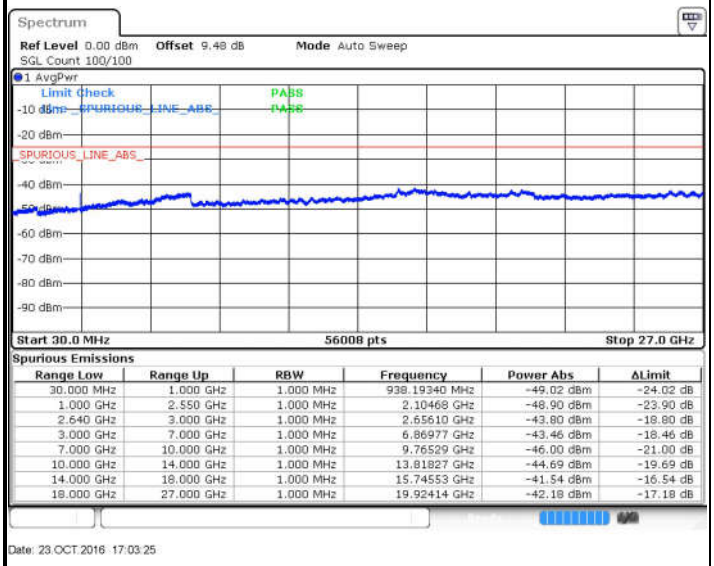


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	959.03798 MHz	-49.04 dBm	-24.04 dB
1.000 GHz	2.550 GHz	1.000 MHz	2.13761 GHz	-49.23 dBm	-24.23 dB
2.640 GHz	3.000 GHz	1.000 MHz	2.99541 GHz	-48.34 dBm	-23.34 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.87627 GHz	-43.35 dBm	-18.35 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.73929 GHz	-46.01 dBm	-21.01 dB
10.000 GHz	14.000 GHz	1.000 MHz	13.74378 GHz	-44.63 dBm	-19.63 dB
14.000 GHz	18.000 GHz	1.000 MHz	15.72803 GHz	-41.34 dBm	-16.34 dB
18.000 GHz	27.000 GHz	1.000 MHz	19.92164 GHz	-42.00 dBm	-17.00 dB

Date: 23.OCT.2016 17:05:22

Highest Channel / QPSK

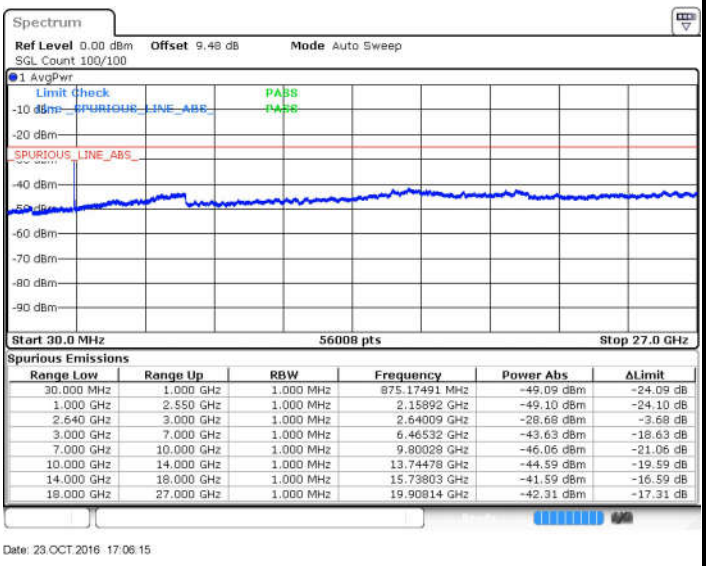


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	938.19340 MHz	-49.02 dBm	-24.02 dB
1.000 GHz	2.550 GHz	1.000 MHz	2.10468 GHz	-48.90 dBm	-23.90 dB
2.640 GHz	3.000 GHz	1.000 MHz	2.65610 GHz	-43.80 dBm	-18.80 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.86977 GHz	-43.46 dBm	-18.46 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.76529 GHz	-46.00 dBm	-21.00 dB
10.000 GHz	14.000 GHz	1.000 MHz	13.81827 GHz	-44.69 dBm	-19.69 dB
14.000 GHz	18.000 GHz	1.000 MHz	15.74553 GHz	-41.54 dBm	-16.54 dB
18.000 GHz	27.000 GHz	1.000 MHz	19.92414 GHz	-42.18 dBm	-17.18 dB

Date: 23.OCT.2016 17:03:25

Highest Channel / 16QAM



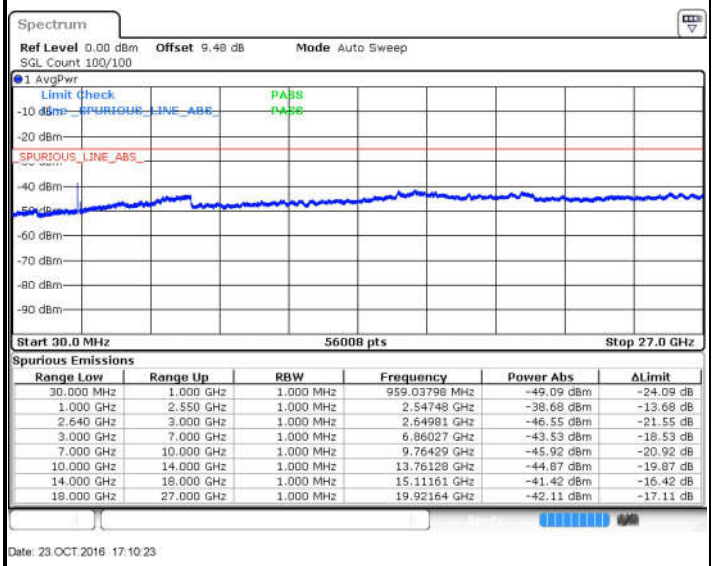
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	875.17491 MHz	-49.09 dBm	-24.09 dB
1.000 GHz	2.550 GHz	1.000 MHz	2.15892 GHz	-49.10 dBm	-24.10 dB
2.640 GHz	3.000 GHz	1.000 MHz	2.64009 GHz	-28.68 dBm	-3.68 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.46532 GHz	-43.63 dBm	-18.63 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.80028 GHz	-46.06 dBm	-21.06 dB
10.000 GHz	14.000 GHz	1.000 MHz	13.74478 GHz	-44.59 dBm	-19.59 dB
14.000 GHz	18.000 GHz	1.000 MHz	15.73803 GHz	-41.59 dBm	-16.59 dB
18.000 GHz	27.000 GHz	1.000 MHz	19.90814 GHz	-42.31 dBm	-17.31 dB

Date: 23.OCT.2016 17:06:15

LTE Band 38 / 15MHz

Lowest Channel / QPSK

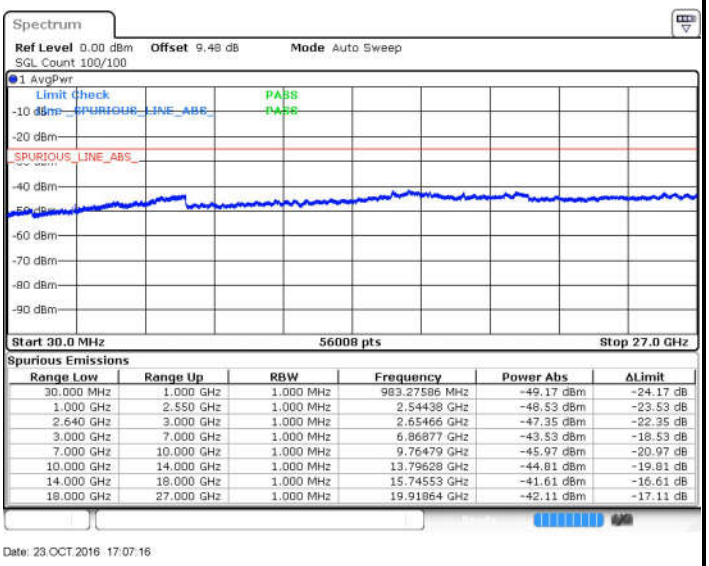


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	959.03798 MHz	-49.09 dBm	-24.09 dB
1.000 GHz	2.550 GHz	1.000 MHz	2.54748 GHz	-38.68 dBm	-13.68 dB
2.640 GHz	3.000 GHz	1.000 MHz	2.64981 GHz	-46.55 dBm	-21.55 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.86027 GHz	-43.53 dBm	-18.53 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.76429 GHz	-45.92 dBm	-20.92 dB
10.000 GHz	14.000 GHz	1.000 MHz	13.76128 GHz	-44.87 dBm	-19.87 dB
14.000 GHz	18.000 GHz	1.000 MHz	15.11161 GHz	-41.42 dBm	-16.42 dB
18.000 GHz	27.000 GHz	1.000 MHz	19.92164 GHz	-42.11 dBm	-17.11 dB

Date: 23.OCT.2016 17:10:23

Lowest Channel / 16QAM

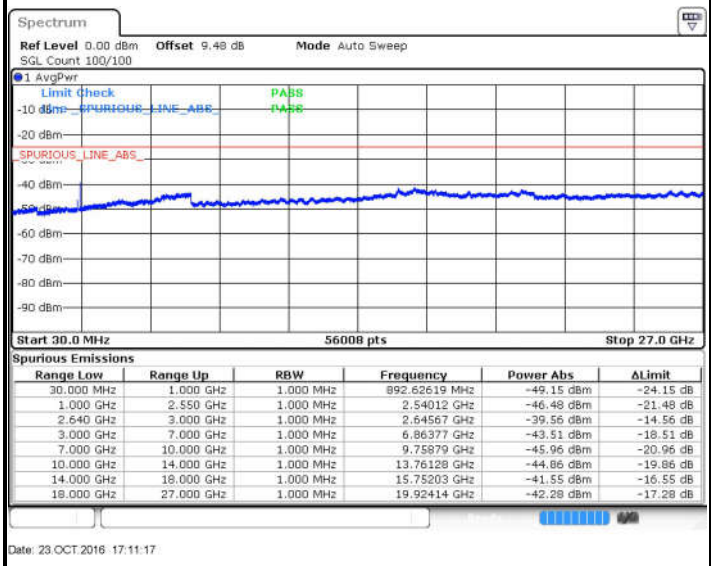


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	983.27586 MHz	-49.17 dBm	-24.17 dB
1.000 GHz	2.550 GHz	1.000 MHz	2.54438 GHz	-48.53 dBm	-23.53 dB
2.640 GHz	3.000 GHz	1.000 MHz	2.65466 GHz	-47.35 dBm	-22.35 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.86877 GHz	-43.53 dBm	-18.53 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.76479 GHz	-45.97 dBm	-20.97 dB
10.000 GHz	14.000 GHz	1.000 MHz	13.79628 GHz	-44.81 dBm	-19.81 dB
14.000 GHz	18.000 GHz	1.000 MHz	15.74553 GHz	-41.61 dBm	-16.61 dB
18.000 GHz	27.000 GHz	1.000 MHz	19.91864 GHz	-42.11 dBm	-17.11 dB

Date: 23.OCT.2016 17:07:16

Middle Channel / QPSK

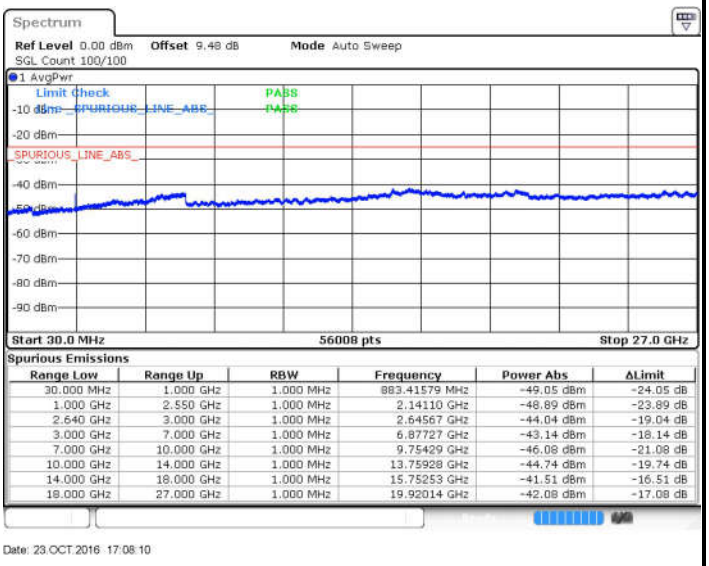


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	892.62619 MHz	-49.15 dBm	-24.15 dB
1.000 GHz	2.550 GHz	1.000 MHz	2.54012 GHz	-46.48 dBm	-21.48 dB
2.640 GHz	3.000 GHz	1.000 MHz	2.64567 GHz	-39.56 dBm	-14.56 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.86377 GHz	-43.51 dBm	-18.51 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.75879 GHz	-45.96 dBm	-20.96 dB
10.000 GHz	14.000 GHz	1.000 MHz	13.76128 GHz	-44.86 dBm	-19.86 dB
14.000 GHz	18.000 GHz	1.000 MHz	15.75203 GHz	-41.55 dBm	-16.55 dB
18.000 GHz	27.000 GHz	1.000 MHz	19.92414 GHz	-42.28 dBm	-17.28 dB

Date: 23.OCT.2016 17:11:17

Middle Channel / 16QAM



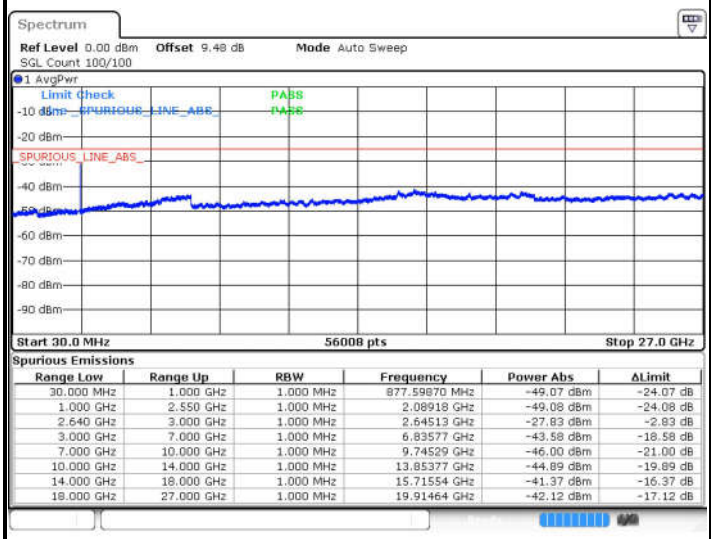
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	883.41579 MHz	-49.05 dBm	-24.05 dB
1.000 GHz	2.550 GHz	1.000 MHz	2.14110 GHz	-48.89 dBm	-23.89 dB
2.640 GHz	3.000 GHz	1.000 MHz	2.64567 GHz	-44.04 dBm	-19.04 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.87727 GHz	-43.14 dBm	-18.14 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.75429 GHz	-46.08 dBm	-21.08 dB
10.000 GHz	14.000 GHz	1.000 MHz	13.75928 GHz	-44.74 dBm	-19.74 dB
14.000 GHz	18.000 GHz	1.000 MHz	15.75253 GHz	-41.51 dBm	-16.51 dB
18.000 GHz	27.000 GHz	1.000 MHz	19.92014 GHz	-42.08 dBm	-17.08 dB

Date: 23.OCT.2016 17:08:10

LTE Band 38 / 15MHz

Highest Channel / QPSK

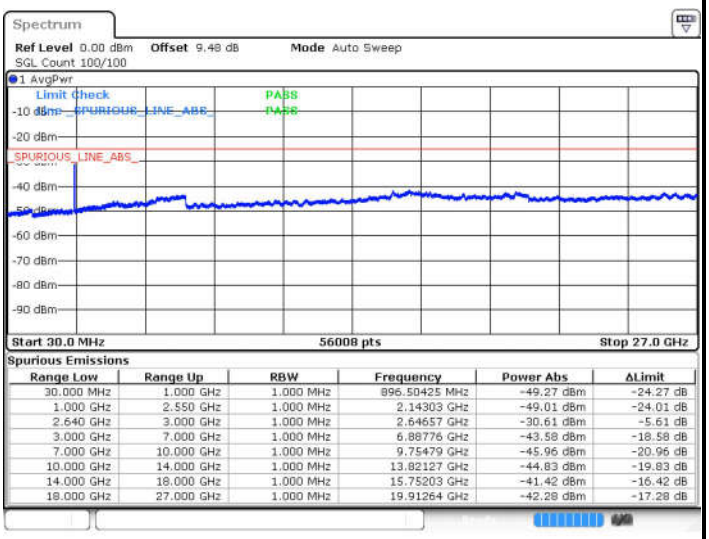


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	877.59870 MHz	-49.07 dBm	-24.07 dB
1.000 GHz	2.550 GHz	1.000 MHz	2.08918 GHz	-49.08 dBm	-24.08 dB
2.640 GHz	3.000 GHz	1.000 MHz	2.64513 GHz	-27.83 dBm	-2.83 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.83577 GHz	-43.58 dBm	-18.58 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.74529 GHz	-46.00 dBm	-21.00 dB
10.000 GHz	14.000 GHz	1.000 MHz	13.85377 GHz	-44.89 dBm	-19.89 dB
14.000 GHz	18.000 GHz	1.000 MHz	15.71554 GHz	-41.37 dBm	-16.37 dB
18.000 GHz	27.000 GHz	1.000 MHz	19.91464 GHz	-42.12 dBm	-17.12 dB

Date: 23.OCT.2016 17:12:17

Highest Channel / 16QAM



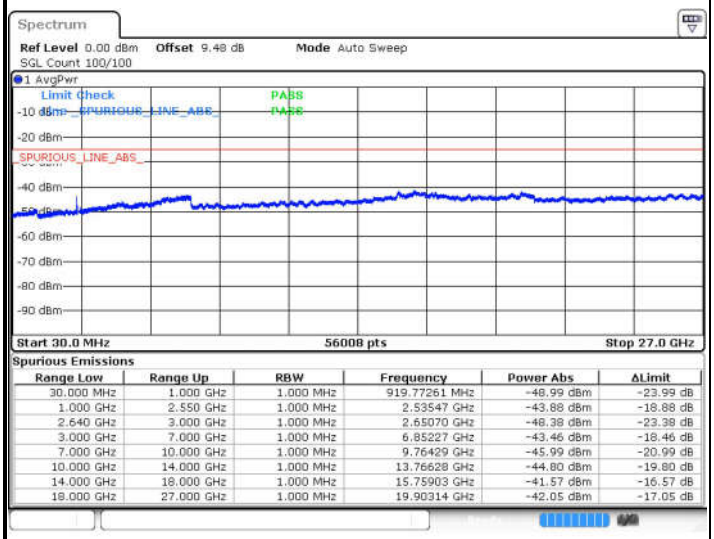
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	896.50425 MHz	-49.27 dBm	-24.27 dB
1.000 GHz	2.550 GHz	1.000 MHz	2.14303 GHz	-49.01 dBm	-24.01 dB
2.640 GHz	3.000 GHz	1.000 MHz	2.64657 GHz	-30.61 dBm	-5.61 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.88776 GHz	-43.58 dBm	-18.58 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.75479 GHz	-45.96 dBm	-20.96 dB
10.000 GHz	14.000 GHz	1.000 MHz	13.82127 GHz	-44.83 dBm	-19.83 dB
14.000 GHz	18.000 GHz	1.000 MHz	15.75203 GHz	-41.42 dBm	-16.42 dB
18.000 GHz	27.000 GHz	1.000 MHz	19.91264 GHz	-42.28 dBm	-17.28 dB

Date: 23.OCT.2016 17:09:03

LTE Band 38 / 20MHz

Lowest Channel / QPSK

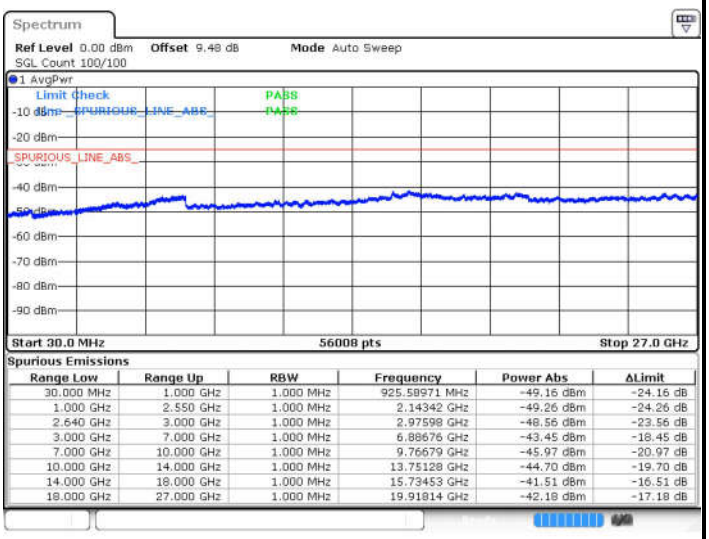


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	919.77261 MHz	-48.99 dBm	-23.99 dB
1.000 GHz	2.550 GHz	1.000 MHz	2.53547 GHz	-43.88 dBm	-18.88 dB
2.640 GHz	3.000 GHz	1.000 MHz	2.65070 GHz	-48.38 dBm	-23.38 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.85227 GHz	-43.46 dBm	-18.46 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.76429 GHz	-45.99 dBm	-20.99 dB
10.000 GHz	14.000 GHz	1.000 MHz	13.76628 GHz	-44.80 dBm	-19.80 dB
14.000 GHz	18.000 GHz	1.000 MHz	15.75903 GHz	-41.57 dBm	-16.57 dB
18.000 GHz	27.000 GHz	1.000 MHz	19.90314 GHz	-42.05 dBm	-17.05 dB

Date: 23.OCT.2016 17:13:17

Lowest Channel / 16QAM



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	925.58971 MHz	-49.16 dBm	-24.16 dB
1.000 GHz	2.550 GHz	1.000 MHz	2.14342 GHz	-49.26 dBm	-24.26 dB
2.640 GHz	3.000 GHz	1.000 MHz	2.97598 GHz	-48.56 dBm	-23.56 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.88676 GHz	-43.45 dBm	-18.45 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.76679 GHz	-45.97 dBm	-20.97 dB
10.000 GHz	14.000 GHz	1.000 MHz	13.75128 GHz	-44.70 dBm	-19.70 dB
14.000 GHz	18.000 GHz	1.000 MHz	15.73453 GHz	-41.51 dBm	-16.51 dB
18.000 GHz	27.000 GHz	1.000 MHz	19.91814 GHz	-42.18 dBm	-17.18 dB

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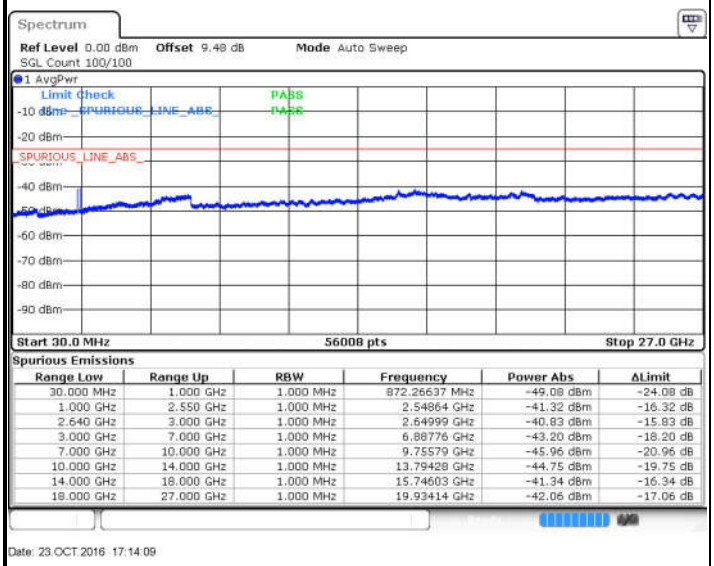
LTE Band 38 / 20MHz

Middle Channel / QPSK



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	872.26637 MHz	-49.08 dBm	-24.08 dB
1.000 GHz	2.550 GHz	1.000 MHz	2.54864 GHz	-41.32 dBm	-16.32 dB
2.640 GHz	3.000 GHz	1.000 MHz	2.64999 GHz	-40.83 dBm	-15.83 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.88776 GHz	-43.20 dBm	-18.20 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.75579 GHz	-45.96 dBm	-20.96 dB
10.000 GHz	14.000 GHz	1.000 MHz	13.79428 GHz	-44.75 dBm	-19.75 dB
14.000 GHz	18.000 GHz	1.000 MHz	15.74603 GHz	-41.34 dBm	-16.34 dB
18.000 GHz	27.000 GHz	1.000 MHz	19.93414 GHz	-42.06 dBm	-17.06 dB

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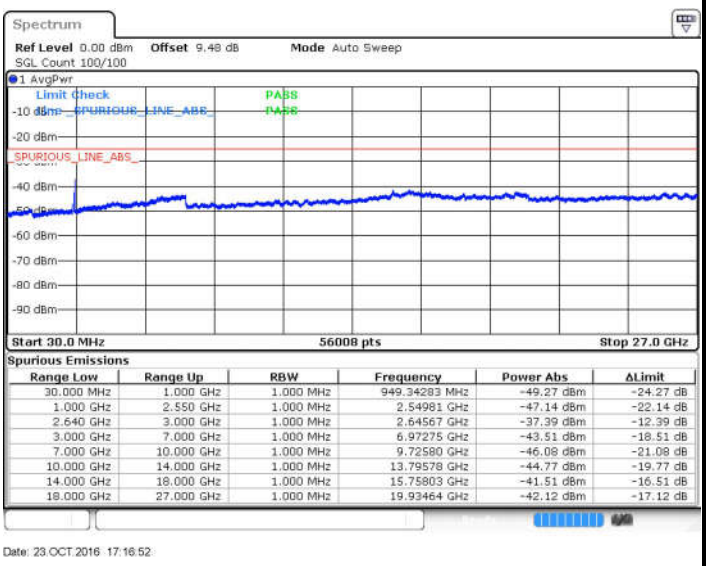
Middle Channel / 16QAM

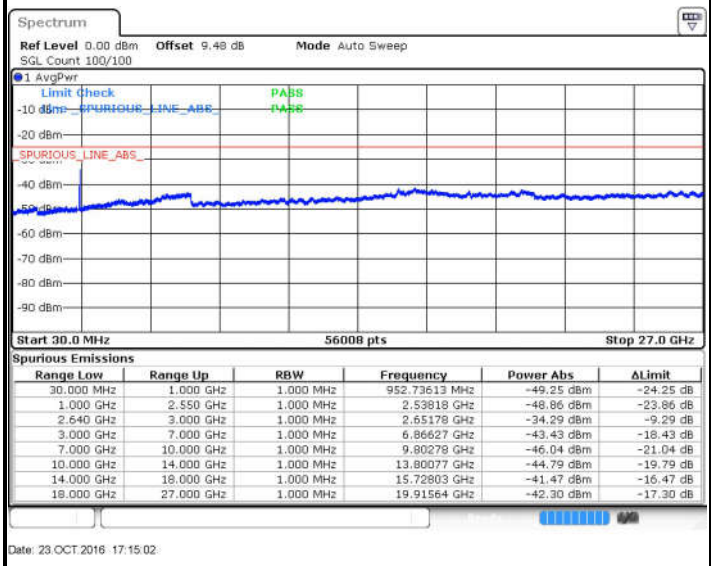


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	949.34283 MHz	-49.27 dBm	-24.27 dB
1.000 GHz	2.550 GHz	1.000 MHz	2.54981 GHz	-47.14 dBm	-22.14 dB
2.640 GHz	3.000 GHz	1.000 MHz	2.64567 GHz	-37.39 dBm	-12.39 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.97275 GHz	-43.51 dBm	-18.51 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.72580 GHz	-46.08 dBm	-21.08 dB
10.000 GHz	14.000 GHz	1.000 MHz	13.79578 GHz	-44.77 dBm	-19.77 dB
14.000 GHz	18.000 GHz	1.000 MHz	15.75803 GHz	-41.51 dBm	-16.51 dB
18.000 GHz	27.000 GHz	1.000 MHz	19.93464 GHz	-42.12 dBm	-17.12 dB

Date: 23.OCT.2016 17:16:52

Highest Channel / QPSK



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	952.73613 MHz	-49.25 dBm	-24.25 dB
1.000 GHz	2.550 GHz	1.000 MHz	2.53818 GHz	-48.86 dBm	-23.86 dB
2.640 GHz	3.000 GHz	1.000 MHz	2.65178 GHz	-34.29 dBm	-9.29 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.86627 GHz	-43.43 dBm	-18.43 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.80278 GHz	-46.04 dBm	-21.04 dB
10.000 GHz	14.000 GHz	1.000 MHz	13.80077 GHz	-44.79 dBm	-19.79 dB
14.000 GHz	18.000 GHz	1.000 MHz	15.72803 GHz	-41.47 dBm	-16.47 dB
18.000 GHz	27.000 GHz	1.000 MHz	19.91564 GHz	-42.30 dBm	-17.30 dB

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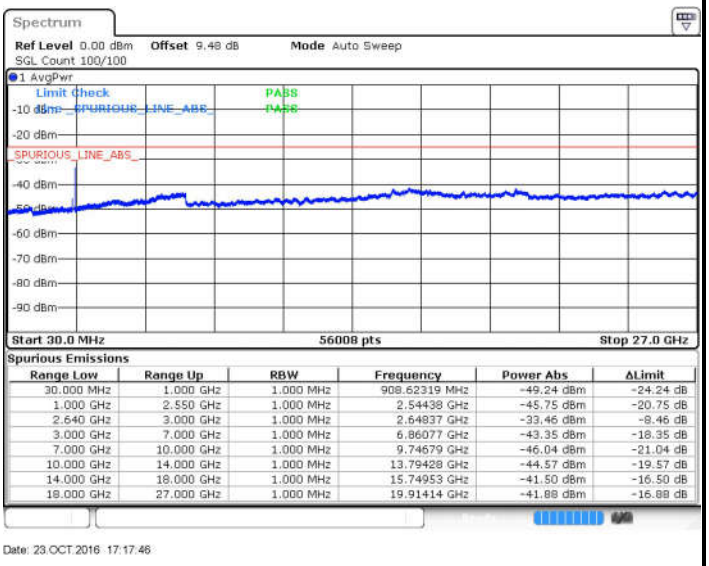
Highest Channel / 16QAM



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	908.62319 MHz	-49.24 dBm	-24.24 dB
1.000 GHz	2.550 GHz	1.000 MHz	2.54438 GHz	-45.75 dBm	-20.75 dB
2.640 GHz	3.000 GHz	1.000 MHz	2.64837 GHz	-33.46 dBm	-8.46 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.86077 GHz	-43.35 dBm	-18.35 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.74679 GHz	-46.04 dBm	-21.04 dB
10.000 GHz	14.000 GHz	1.000 MHz	13.79428 GHz	-44.57 dBm	-19.57 dB
14.000 GHz	18.000 GHz	1.000 MHz	15.74953 GHz	-41.50 dBm	-16.50 dB
18.000 GHz	27.000 GHz	1.000 MHz	19.91414 GHz	-41.88 dBm	-16.88 dB

Date: 23.OCT.2016 17:17:46

Frequency Stability

Test Conditions		LTE Band 38 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 10MHz	Note 2.
		Deviation (ppm)	Result
50	Normal Voltage	0.0031	PASS
40	Normal Voltage	0.0027	
30	Normal Voltage	0.0024	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0007	
0	Normal Voltage	0.0024	
-10	Normal Voltage	0.0023	
-20	Normal Voltage	0.0022	
-30	Normal Voltage	0.0020	
20	Maximum Voltage	0.0008	
20	Normal Voltage	0.0022	
20	Battery End Point	0.0019	

Note:

1. Normal Voltage =3.8 V.；Battery End Point (BEP) =3.4 V.；Maximum Voltage =4.35 V.
2. Note: The frequency fundamental emissions stay within the authorized frequency block.

Appendix B. Test Results of Radiated Test

Radiated Spurious Emission

LTE Band 38 / 5MHz / QPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	5184	-57.76	-25	-32.76	-66.98	-64.32	2.41	8.97	H
	7780	-55.43	-25	-30.43	-69.13	-64.43	2.86	11.86	H
	10368	-58.32	-25	-33.32	-76.67	-67.22	3.21	12.11	H
	5184	-58.59	-25	-33.59	-67.3	-65.15	2.41	8.97	V
	7780	-56.23	-25	-31.23	-70.86	-65.23	2.86	11.86	V
	10368	-57.35	-25	-32.35	-76.75	-66.25	3.21	12.11	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

LTE Band 38 / 10MHz / QPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	5180	-58.07	-25	-33.07	-67.29	-64.63	2.41	8.97	H
	7772	-54.30	-25	-29.30	-68.00	-63.30	2.86	11.86	H
	10359	-58.51	-25	-33.51	-76.86	-67.41	3.21	12.11	H
	5180	-57.73	-25	-32.73	-66.44	-64.29	2.41	8.97	V
	7772	-53.41	-25	-28.41	-68.04	-62.41	2.86	11.86	V
	10359	-57.66	-25	-32.66	-77.06	-66.56	3.21	12.11	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

LTE Band 38 / 15MHz / QPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	5176	-57.77	-25	-32.77	-66.99	-64.33	2.41	8.97	H
	7764	-54.79	-25	-29.79	-68.49	-63.79	2.86	11.86	H
	10350	-58.53	-25	-33.53	-76.88	-67.43	3.21	12.11	H
	5176	-55.31	-25	-30.31	-64.02	-61.87	2.41	8.97	V
	7764	-53.76	-25	-28.76	-68.39	-62.76	2.86	11.86	V
	10350	-57.25	-25	-32.25	-76.65	-66.15	3.21	12.11	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

LTE Band 38 / 20MHz / QPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	5172	-57.82	-25	-32.82	-67.04	-64.38	2.41	8.97	H
	7756	-57.26	-25	-32.26	-70.96	-66.26	2.86	11.86	H
	10341	-58.32	-25	-33.32	-76.67	-67.22	3.21	12.11	H
	5172	-58.58	-25	-33.58	-67.29	-65.14	2.41	8.97	V
	7760	-56.75	-25	-31.75	-71.38	-65.75	2.86	11.86	V
	10341	-56.85	-25	-31.85	-76.25	-65.75	3.21	12.11	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Appendix D. Original Report

Please refer to Sporton report number FG693004B which is issued separately.