FCC RF Test Report

CUSTOMER	:	Sierra Wireless Inc.
EQUIPMENT	:	Radio Module
BRAND NAME	:	AirPrime
MODEL NAME	:	EM7511
FCC ID	:	N7NEM75S
STANDARD	:	FCC 47 CFR Part 2, 90
CLASSIFICATION	:	PCS Licensed Transmitter (PCB)

This is a variant report. The product was received on Mar. 05, 2018 and completely tested on Mar. 12, 2018. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI / TIA-603-E and shown 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 INC., the test report shall not be reproduced except in full.

Reviewed by: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager

Testing Laboratory
1190

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG830505	Rev. 01	Initial issue of report	Mar. 16, 2018

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.4	§2.1046	Conducted Output Power	Reporting only	PASS	-
3.5	-	Peak-to-Average Ratio	<13dB	N/A	Reporting only
3.6	§2.1049	Occupied Bandwidth	Reporting only	PASS	-
3.7	§2.1053 §90.543 (e)(2)	Conducted Band Edge Measurement	Refer standard	PASS	-
3.8	§2.1051 §90.210(n)	Emission Mask	Mask B	PASS	-
3.9	§2.1053 §90.543 (e)(3)	Conducted Spurious Emission	< $43+10\log_{10}$(P[Watts])	PASS	-
3.10	§2.1055 §90.539 (e)	Frequency Stability Temperature & Voltage	< ±1.25 ppm	PASS	-
4.4	§2.1053 §90.543 (e)(3) §90.543 (f)	Radiated Spurious Emission	< $43+10\log_{10}$(P[Watts])	PASS	Under limit 16.96 dB at 1584.000 MHz

1 General Description

1.1 Customer

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

1.2 Manufacturer

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

1.3 Product Feature of Equipment Under Test

LTE

1.4 Modification of EUT

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

1.5 Testing Site

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and the FCC designation No. TW1190 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC Test.

Test Site	SPORTON INTERNATIONAL INC.	
Test Site Location	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978	
Test Site No.	**Sporton Site No.**	
	TH05-HY	03CH07-HY

1.6 Applied Standards

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

- 47 CFR Part 2, Part 90(R)
- ANSI / TIA-603-E
- FCC KDB 971168 Measurement Guidance of License Digital Systems v03

Remark: All test items were verified and recorded according to the standards and without any deviation during the test.

2 Test Configuration of Equipment Under Test

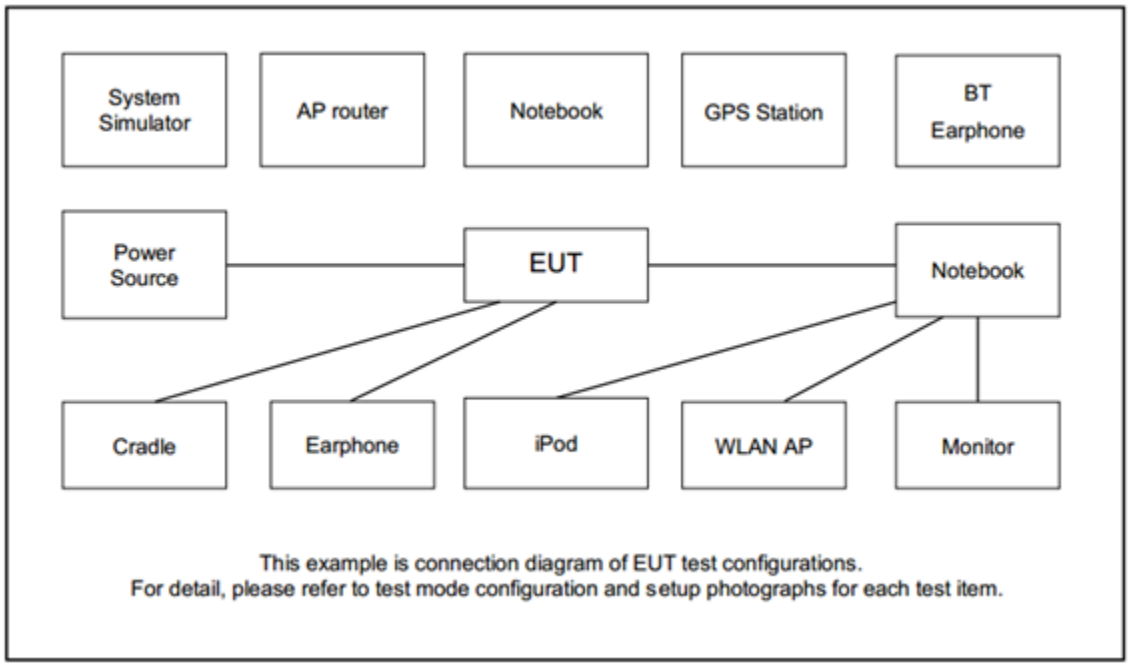
2.1 Test Mode

Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 Power Meas. License Digital Systems v03 with maximum output power.

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

Conducted Test Cases	Band	Bandwidth (MHz)						Modulation			RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	64QAM	1	Half	Full	L	M	H
Max. Output Power	14	-	-	v	v	-	-	v	v	v	v	v	v	v	v	v
Peak-to-Average Ratio	14				v			v	v	v	v		v		v	
26dB and 99% Bandwidth	14	-	-	v	v	-	-	v	v	v			v	v	v	v
Conducted Band Edge	14	-	-	v	v	-	-	v	v	v	v		v	v		v
Emission Mask	14	-	-	v	v	-	-	v	v	v	v		v	v	v	v
Conducted Spurious Emission	14	-	-	v	v	-	-	v	v	v	v			v	v	v
Frequency Stability	14	-	-		v	-	-	v					v		v	
Radiated Spurious Emission	14		Worst Case											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.	System Simulator	Anritsu	MT8820C	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 and attenuator factor 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 derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.5 dB and 10dB attenuator.

Example :

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).

= 4.5 + 10 = 14.5 (dB)

2.5 Frequency List of Low/Middle/High Channels

LTE Band 14 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
10	Channel	-	23330	-
	Frequency	-	793	-
5	Channel	23305	23330	23355
	Frequency	790.5	793	795.5

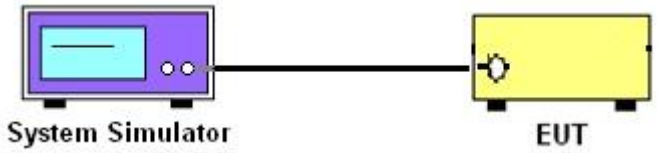
3 Conducted Test Items

3.1 Measuring Instruments

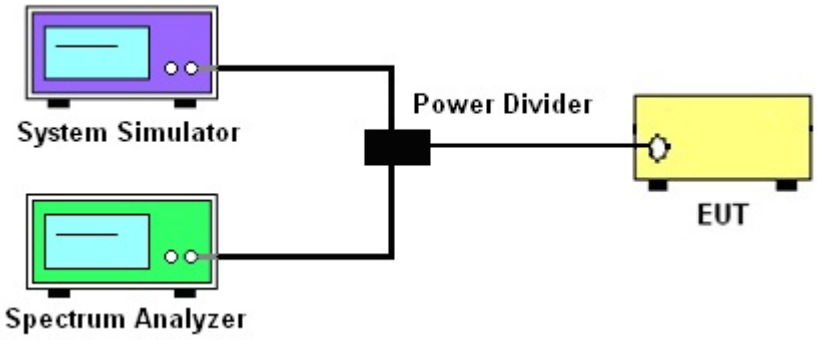
The measuring equipment is listed in the section 5 of this test report

3.2 Test Setup

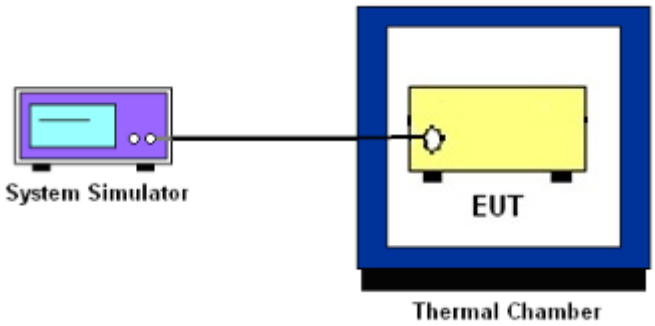
3.2.1 Conducted Output Power



3.2.2 Peak-to-Average Ratio, Occupied Bandwidth, Conducted Band-Edge, Emission Mask, 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 Measurement

3.4.1 Description of the Conducted Output Power 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 ERP of mobile transmitters must not exceed 3 Watts for LTE Band 14.

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

The testing follows FCC KDB 971168 v03 Section 5.7.1

1. The EUT was connected to spectrum and system simulator via a power divider.
2. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
3. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.
4. 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

The testing follows FCC KDB 971168 v03 Section 4.2.

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. 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.
3. 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.
4. Set the detection mode to peak, and the trace mode to max hold.
5. 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)
6. Determine the “-26 dB down amplitude” as equal to (Reference Value – X).
7. 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.
8. 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

90.543(e)

(1) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than 76 + 10 log (P) dB in a 6.25 kHz band segment, for base and fixed stations.

(2) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations.

(3) On any frequency between 775-788 MHz, above 805 MHz, and below 758 MHz, by at least 43 + 10 log (P) dB.

3.7.2 Test Procedures

The testing follows FCC KDB 971168 v03 Section 6.0.

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. The band edges of low and high channels for the highest RF powers were measured.
3. Set RBW >= 1% EBW in the 1MHz band immediately outside and adjacent to the band edge.
4. Beyond the 1 MHz band from the band edge, RBW=1MHz was used.
5. Set spectrum analyzer with RMS detector.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
7. Checked that all the results comply with the emission limit line.
   The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)

3.8 Emission Mask

3.8.1 Description of Emissions Mask Measurement

Transmitters designed must meet the emission mask comply with the emission mask provisions of FCC Part 90.210(n).

3.8.2 Test Procedures

The testing follows FCC KDB 971168 v03 Section 6.0.

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. The power of the modulated signal was measured on a spectrum analyzer using an RMS and 10 second sweep time in order to maximize the level.
3. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

3.9 Conducted Spurious Emission

3.9.1 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.

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

3.9.2 Test Procedures

The testing follows FCC KDB 971168 v03 Section 6.0.

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. 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.
3. The middle channel for the highest RF power within the transmitting frequency was measured.
4. The conducted spurious emission for the whole frequency range was taken.
5. Make the measurement with the spectrum analyzer's, for under 1GHz RBW = 100kHz, VBW = 300kHz and for above 1GHz RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
6. Set spectrum analyzer with RMS detector.
7. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
8. The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)

3.10 Frequency Stability Measurement

3.10.1 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 ±1.25 ppm of the center frequency.

3.10.2 Test Procedures for Temperature Variation

The testing follows FCC KDB 971168 v03 Section 9.0.

1. The EUT was set up in the thermal chamber and connected with the system simulator.
2. 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.
3. 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.

3.10.3 Test Procedures for Voltage Variation

The testing follows FCC KDB 971168 v03 Section 9.0.

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

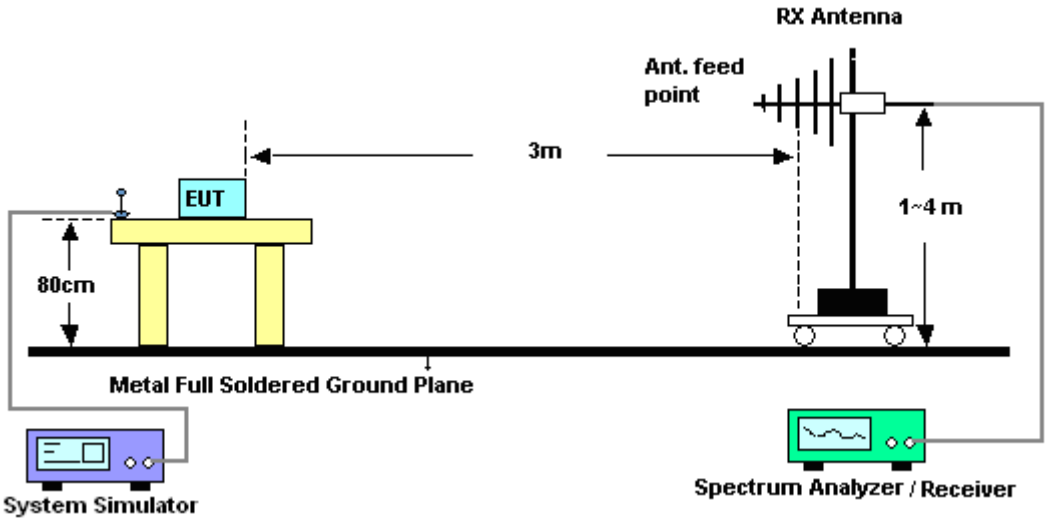
4 Radiated Test Items

4.1 Measuring Instruments

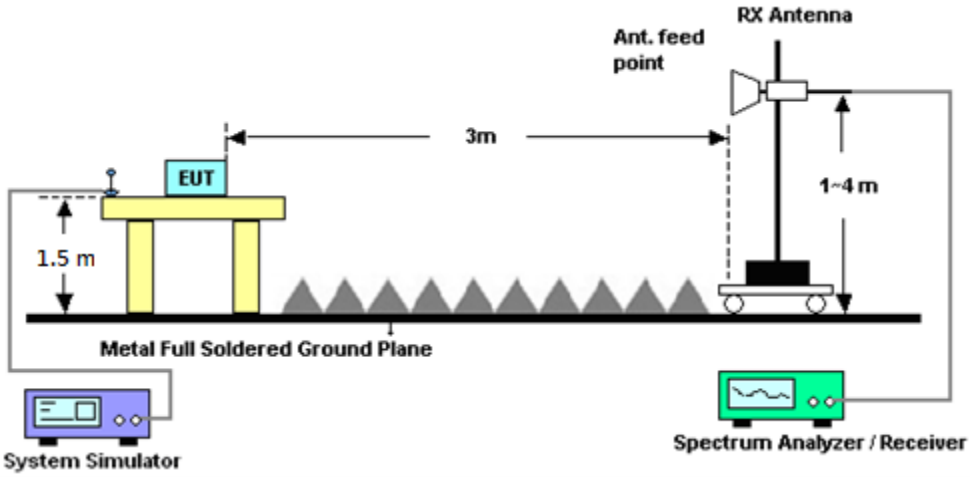
See list of measuring instruments of this test report.

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 Measurement

4.4.1 Description of Radiated Spurious Emission

The radiated spurious emission was measured by substitution method according to ANSI / TIA-603-E. 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 operations in the 758-775 MHz and 788-805 MHz bands, all emissions including harmonics in the band 1559–1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

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

4.4.2 Test Procedures

The testing follows FCC KDB 971168 v03 Section 5.8 and ANSI / TIA-603-E Section 2.2.12.

1. 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.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. 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.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, Sweep = 500ms, Taking the record of maximum spurious emission.
6. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
8. Taking the record of output power at antenna port.
9. Repeat step 7 to step 8 for another polarization.
10. 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)

5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
LTE Base Station	Anritsu	MT8820C	6201432821	GSM/GPRS /WCDMA/LTE	Oct. 13, 2017	Mar. 05, 2018 ~ Mar. 09, 2018	Oct. 12, 2018	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSV40	101397	10Hz~40GHz	Nov. 07, 2017	Mar. 05, 2018 ~ Mar. 09, 2018	Nov. 06, 2018	Conducted (TH05-HY)
Temperature Chamber	ESPEC	SH-641	92013720	-30℃~70℃	Aug. 28, 2017	Mar. 05, 2018 ~ Mar. 09, 2018	Aug. 27, 2018	Conducted (TH05-HY)
Programmable Power Supply	GW Instek	PSS-2005	EL890001	1V~20V 0.5A~5A	Oct. 06, 2017	Mar. 05, 2018 ~ Mar. 09, 2018	Oct. 05, 2018	Conducted (TH05-HY)
Coupler	Warison	1-18GHz 20dB 25WSMA Directional Coupler	#B	1G~18GHz	Dec. 04, 2017	Mar. 05, 2018 ~ Mar. 09, 2018	Dec. 03, 2018	Conducted (TH05-HY)
Bilog Antenna	TESEQ	CBL 6111D&00800 N1D01N-06	35419&03	30MHz to 1GHz	Dec. 18, 2017	Mar. 12, 2018	Dec. 17, 2018	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 23, 2017	Mar. 12, 2018	Aug. 22, 2018	Radiation (03CH07-HY)
Preamplifier	COM-POWER	PA-103A	161241	10MHz-1GHz	Mar. 14, 2017	Mar. 12, 2018	Mar. 13, 2018	Radiation (03CH07-HY)
Preamplifier	Agilent	8449B	3008A02362	1GHz~ 26.5GHz	Oct. 30, 2017	Mar. 12, 2018	Oct. 29, 2018	Radiation (03CH07-HY)
Spectrum Analyzer	Agilent	N9010A	MY53470118	10Hz~44GHz	Apr. 17, 2017	Mar. 12, 2018	Apr. 16, 2018	Radiation (03CH07-HY)
Antenna Mast	Max-Full	MFA520BS	N/A	1m~4m	N/A	Mar. 12, 2018	N/A	Radiation (03CH07-HY)
Turn Table	ChainTek	Chaintek 3000	N/A	0~360 Degree	N/A	Mar. 12, 2018	N/A	Radiation (03CH07-HY)
Horn Antenna	ESCO	3117	00143261	1GHz~18GHz	Dec. 27, 2017	Mar. 12, 2018	Dec. 26, 2018	Radiation (03CH07-HY)
Signal Generator	Anritsu	MG3694C	163401	0.1Hz~40GHz	Jan. 15, 2018	Mar. 12, 2018	Jan. 14, 2019	Radiation (03CH07-HY)
EMI Test Receiver	Agilent	N9038A(MXE)	MY53290053	20Hz to 26.5GHz	Jan. 16, 2018	Mar. 12, 2018	Jan. 15, 2019	Radiation (03CH07-HY)

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))	3.36

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	3.70

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	3.98

Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power)

LTE Band 14 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
10	1	0	QPSK	-	**23.62**	-
10	1	25		-	23.58	-
10	1	49		-	23.43	-
10	25	0		-	22.62	-
10	25	12		-	22.60	-
10	25	25		-	22.75	-
10	50	0		-	22.66	-
10	1	0	16-QAM	-	22.84	-
10	1	25		-	22.77	-
10	1	49		-	22.98	-
10	25	0		-	21.54	-
10	25	12		-	21.56	-
10	25	25		-	21.70	-
10	50	0		-	21.66	-
10	1	0	64-QAM	-	21.91	-
10	1	25		-	21.87	-
10	1	49		-	22.00	-
10	25	0		-	20.60	-
10	25	12		-	20.62	-
10	25	25		-	20.74	-
10	50	0		-	20.66	-
5	1	0	QPSK	23.56	23.55	23.44
5	1	12		23.50	23.51	23.47
5	1	24		23.51	23.61	23.56
5	12	0		22.60	22.60	22.58
5	12	7		22.64	22.59	22.60
5	12	13		22.62	22.67	22.64
5	25	0		22.57	22.57	22.66
5	1	0	16-QAM	22.83	22.81	22.72
5	1	12		22.81	22.79	22.79
5	1	24		22.78	22.87	22.83
5	12	0		21.63	21.60	21.59
5	12	7		21.67	21.61	21.62
5	12	13		21.58	21.66	21.63
5	25	0		21.60	21.58	21.67
5	1	0	64-QAM	21.78	21.75	21.63
5	1	12		21.71	21.68	21.69
5	1	24		21.72	21.80	21.75
5	12	0		20.68	20.67	20.65
5	12	7		20.68	20.68	20.64
5	12	13		20.65	20.72	20.71
5	25	0		20.64	20.61	20.70

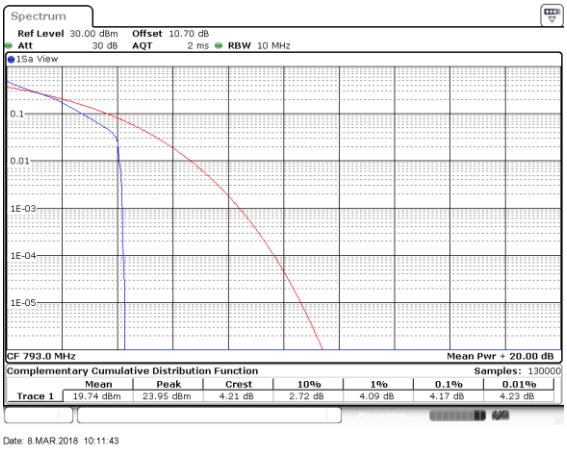
LTE Band 14

Peak-to-Average Ratio

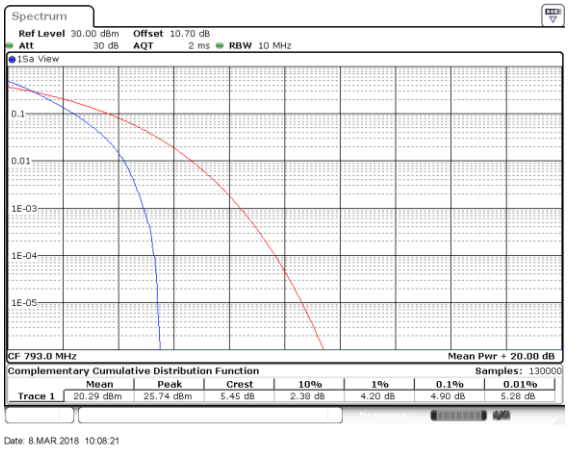
Mode	LTE Band 14 / 10MHz				
Mod.	QPSK		16QAM		Limit: 13dB
RB Size	1RB	Full RB	1RB	Full RB	Result
Lowest CH	-	-	-	-	PASS
Middle CH	4.17	4.9	5.01	5.86	
Highest CH	-	-	-	-	
Mode	LTE Band 14 / 10MHz				
Mod.	64QAM				Limit: 13dB
RB Size	1RB	Full RB			Result
Lowest CH	-	-	-	-	PASS
Middle CH	5.91	6.32	-	-	
Highest CH	-	-	-	-	

LTE Band 14 / 10MHz / QPSK

Middle Channel / 1RB

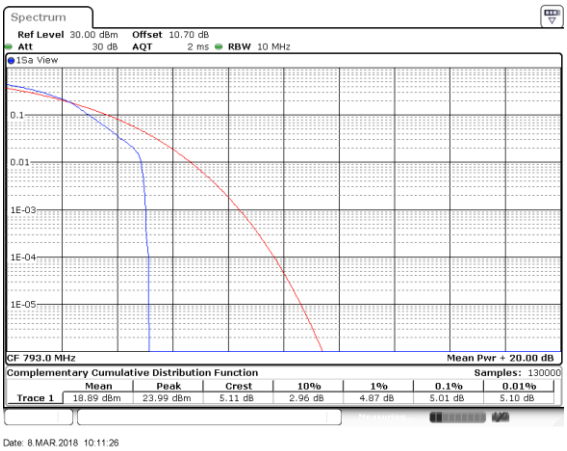


Middle Channel / Full RB

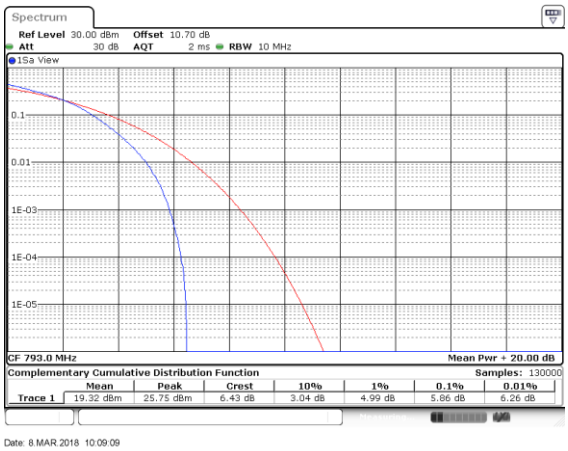


LTE Band 14 / 10MHz / 16QAM

Middle Channel / 1RB

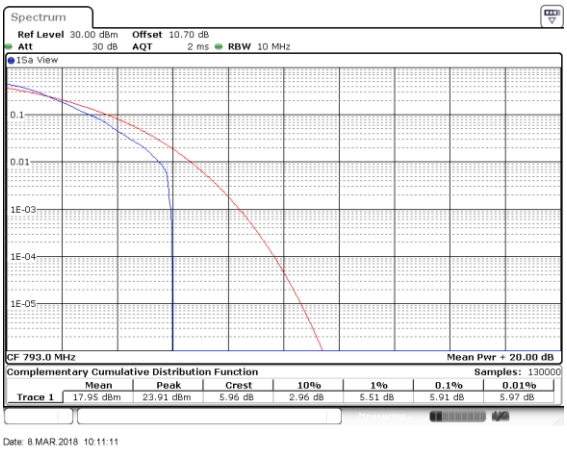


Middle Channel / Full RB

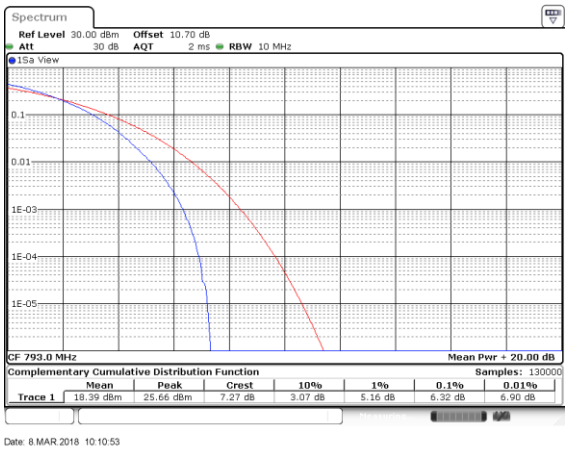


LTE Band 14 / 10MHz / 64QAM

Middle Channel / 1RB



Middle Channel / Full RB

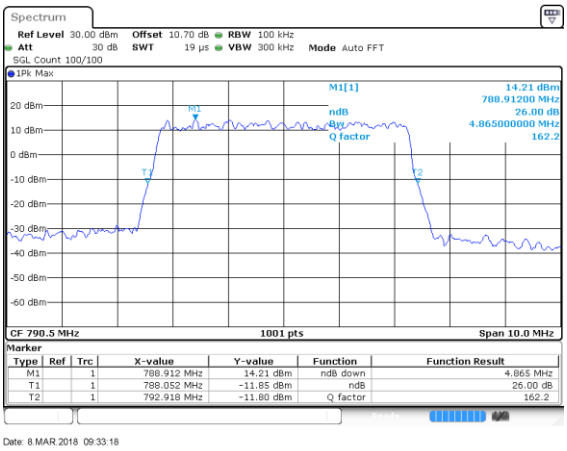


26dB Bandwidth

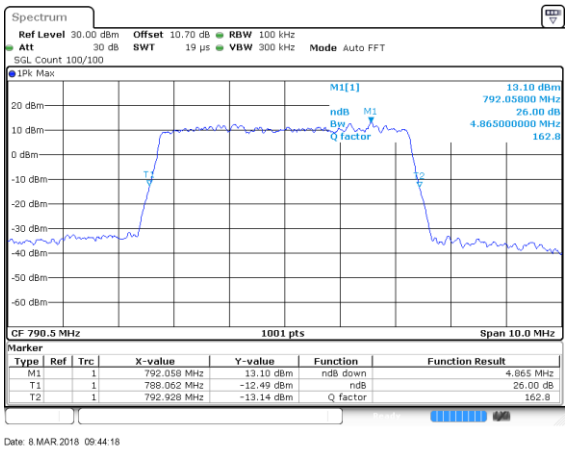
Mode	LTE Band 14 : 26dB BW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	-	-	-	-	4.87	4.87	-	-	-	-	-	-
Middle CH	-	-	-	-	4.9	4.85	9.79	9.83	-	-	-	-
Highest CH	-	-	-	-	4.87	4.94	-	-	-	-	-	-
Mode	LTE Band 14 : 26dB BW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	64QAM		64QAM		64QAM		64QAM		64QAM		64QAM	
Lowest CH	-	-	-	-	4.94	-	-	-	-	-	-	-
Middle CH	-	-	-	-	5	-	9.77	-	-	-	-	-
Highest CH	-	-	-	-	4.9	-	-	-	-	-	-	-

LTE Band 14

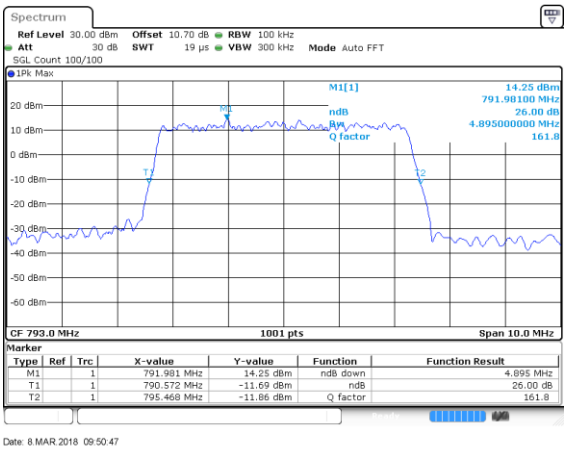
Lowest Channel / 5MHz / QPSK



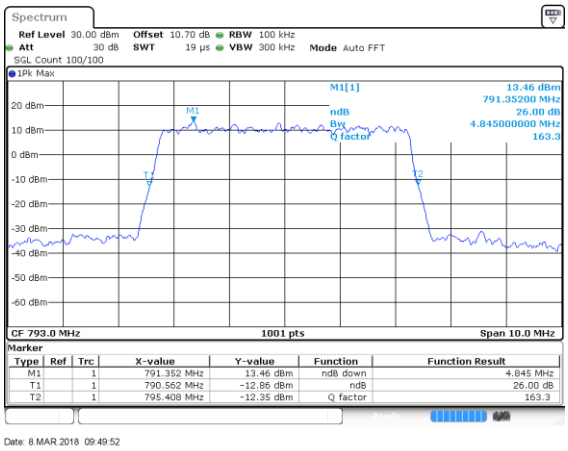
Lowest Channel / 5MHz / 16QAM



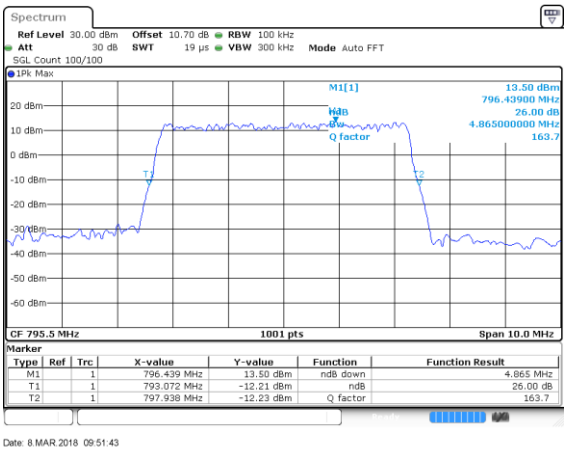
Middle Channel / 5MHz / QPSK



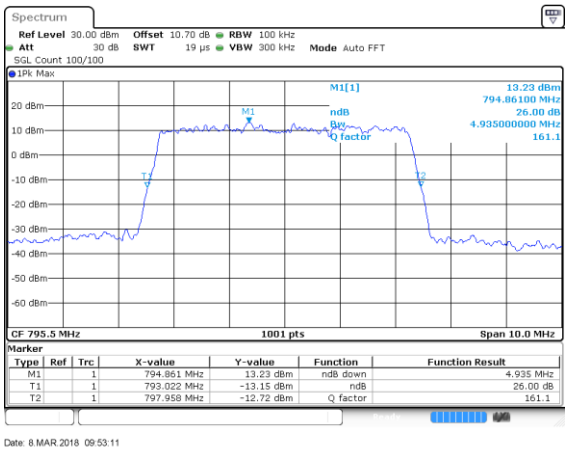
Middle Channel / 5MHz / 16QAM

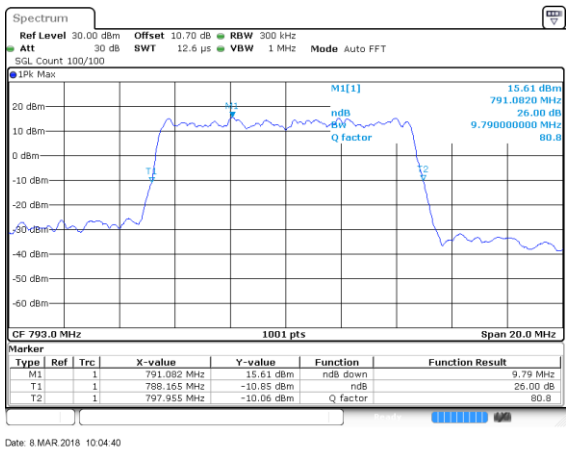
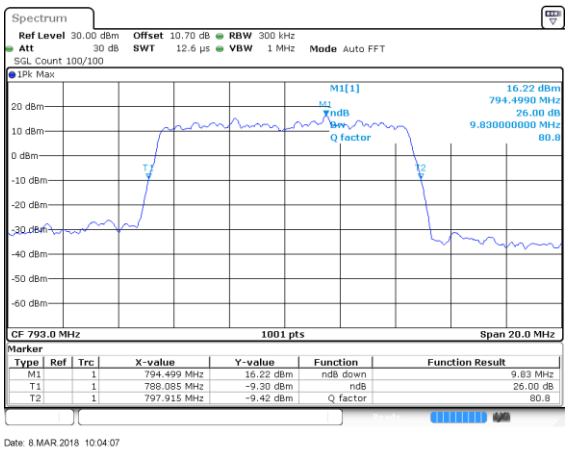


Highest Channel / 5MHz / QPSK



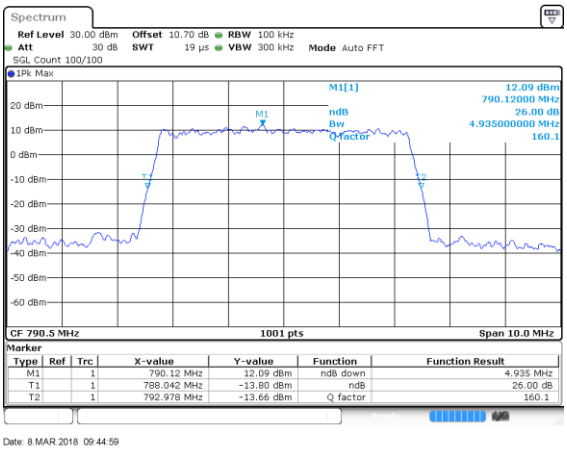
Highest Channel / 5MHz / 16QAM



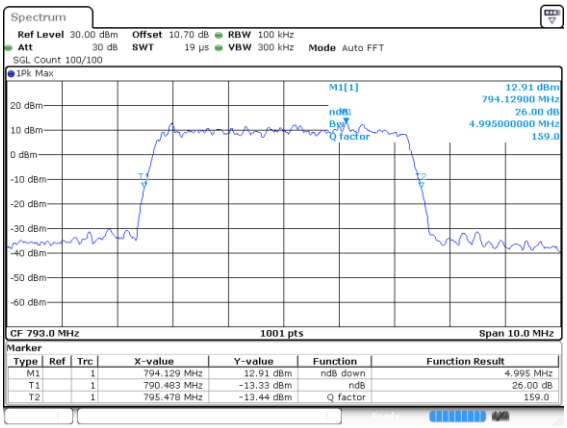
LTE Band 14	
Middle Channel / 10MHz / QPSK	**Middle Channel / 10MHz / 16QAM**
	

LTE Band 14

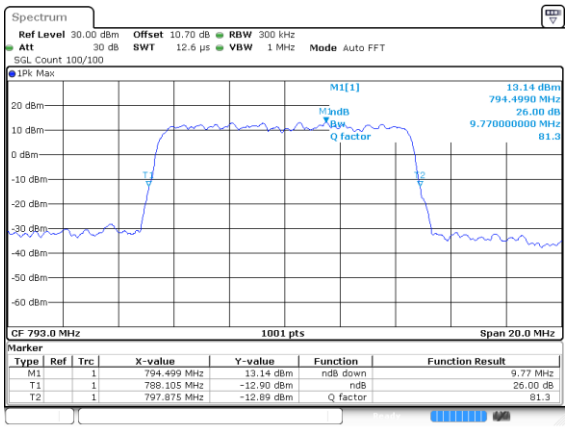
Lowest Channel / 5MHz / 64QAM



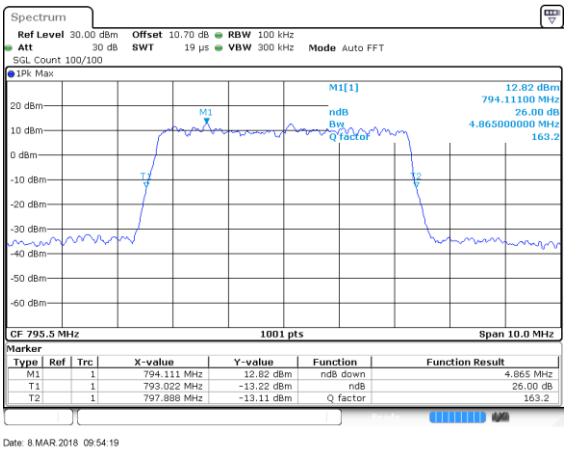
Middle Channel / 5MHz / 64QAM



Middle Channel / 10MHz / 64QAM



Highest Channel / 5MHz / 64QAM

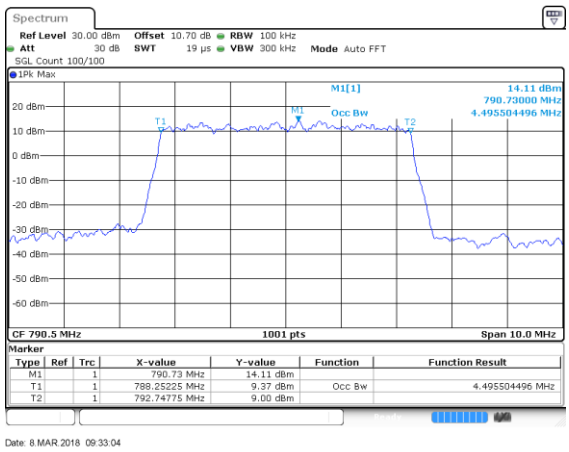


Occupied Bandwidth

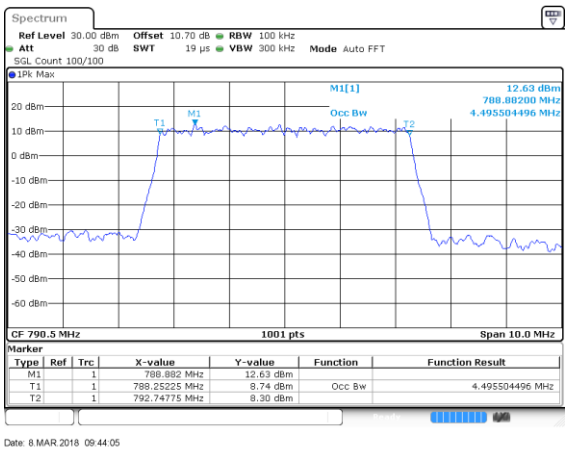
Mode	LTE Band 14 : 99%OBW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	-	-	-	-	4.5	4.5	-	-	-	-	-	-
Middle CH	-	-	-	-	4.53	4.5	9.03	9.03	-	-	-	-
Highest CH	-	-	-	-	4.5	4.5	-	-	-	-	-	-
Mode	LTE Band 14 : 99%OBW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	64QAM		64QAM		64QAM		64QAM		64QAM		64QAM	
Lowest CH	-	-	-	-	4.5	-	-	-	-	-	-	-
Middle CH	-	-	-	-	4.51	-	9.05	-	-	-	-	-
Highest CH	-	-	-	-	4.5	-	-	-	-	-	-	-

LTE Band 14

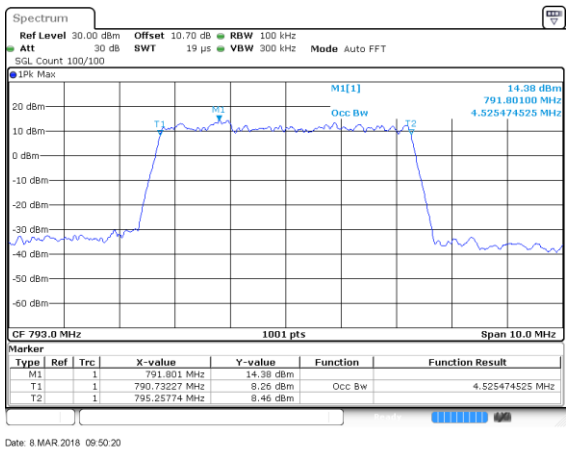
Lowest Channel / 5MHz / QPSK



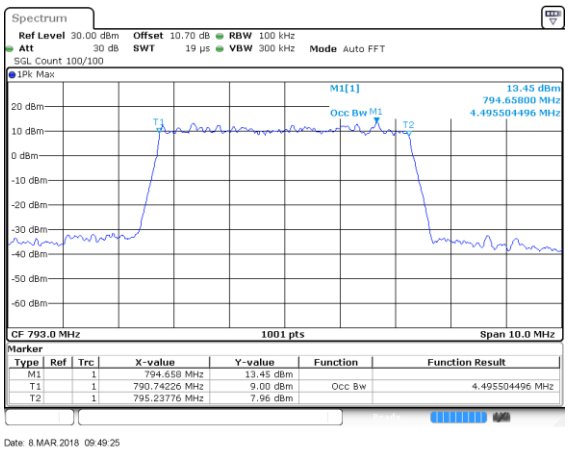
Lowest Channel / 5MHz / 16QAM



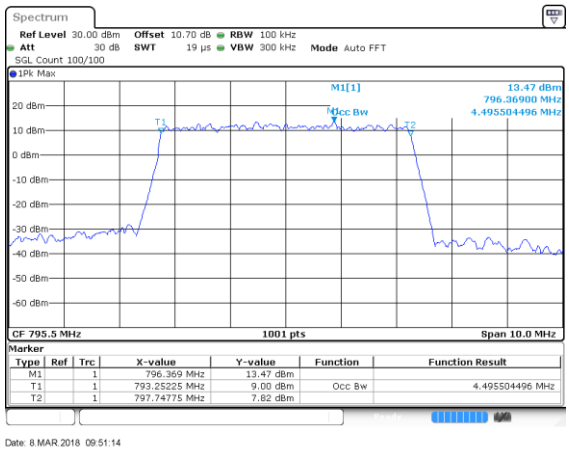
Middle Channel / 5MHz / QPSK



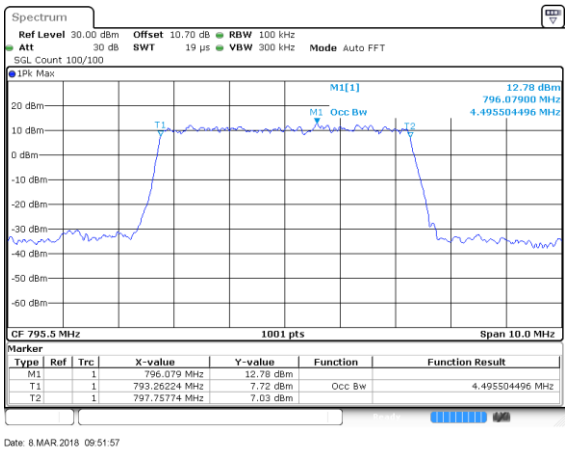
Middle Channel / 5MHz / 16QAM

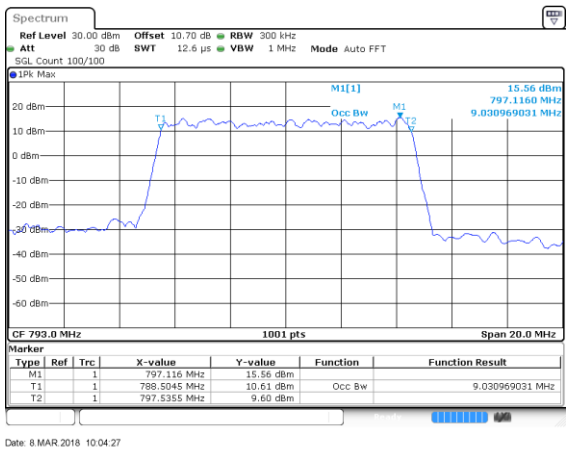
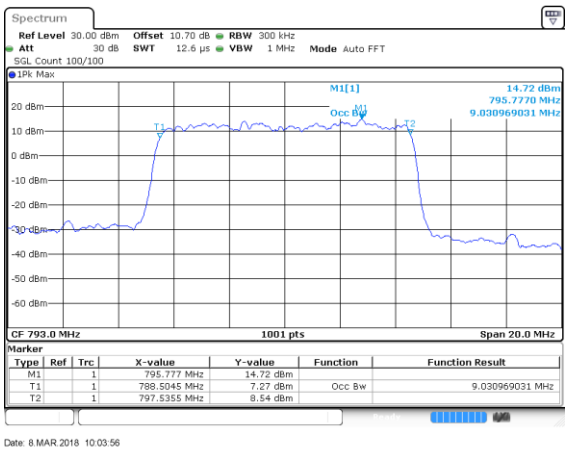


Highest Channel / 5MHz / QPSK



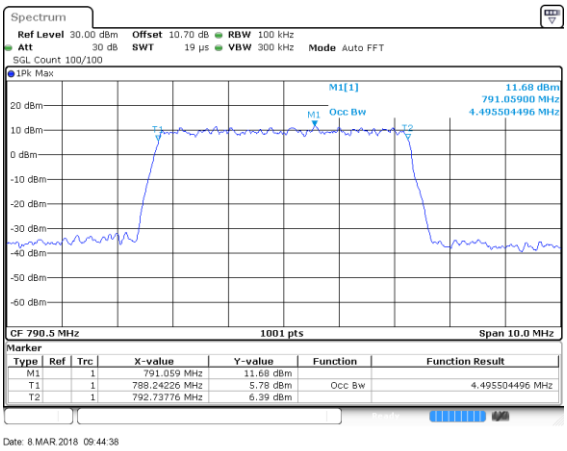
Highest Channel / 5MHz / 16QAM



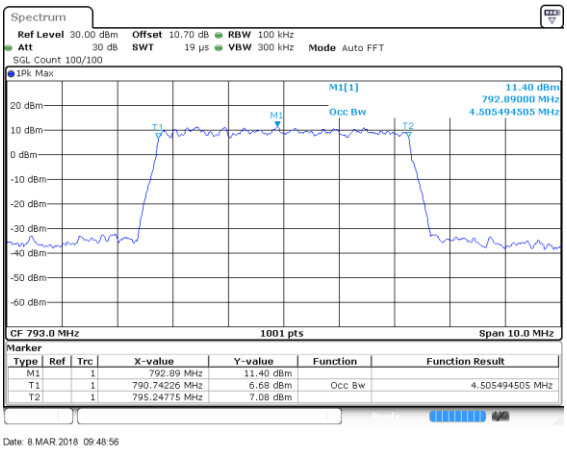
LTE Band 14	
Middle Channel / 10MHz / QPSK	**Middle Channel / 10MHz / 16QAM**
	

LTE Band 14

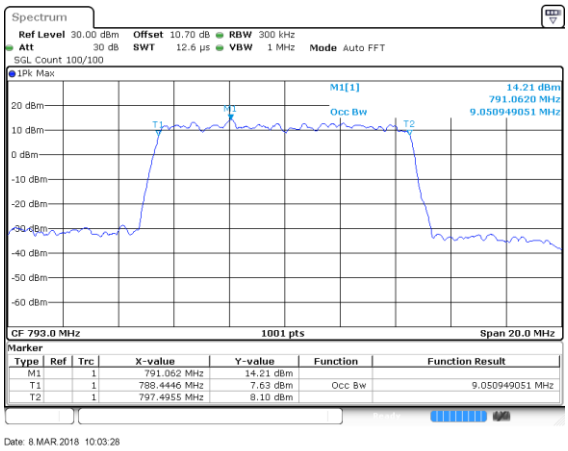
Lowest Channel / 5MHz / 64QAM



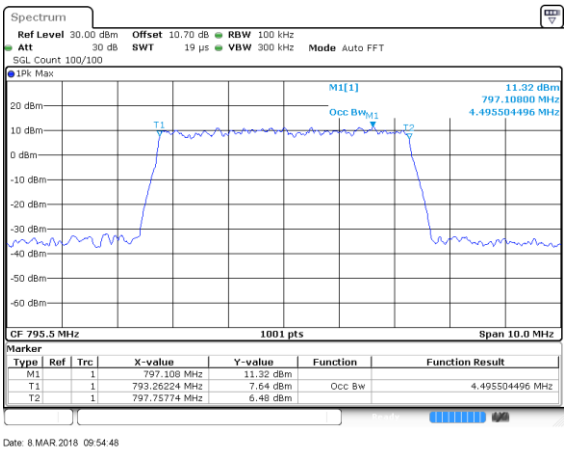
Middle Channel / 5MHz / 64QAM



Middle Channel / 10MHz / 64QAM



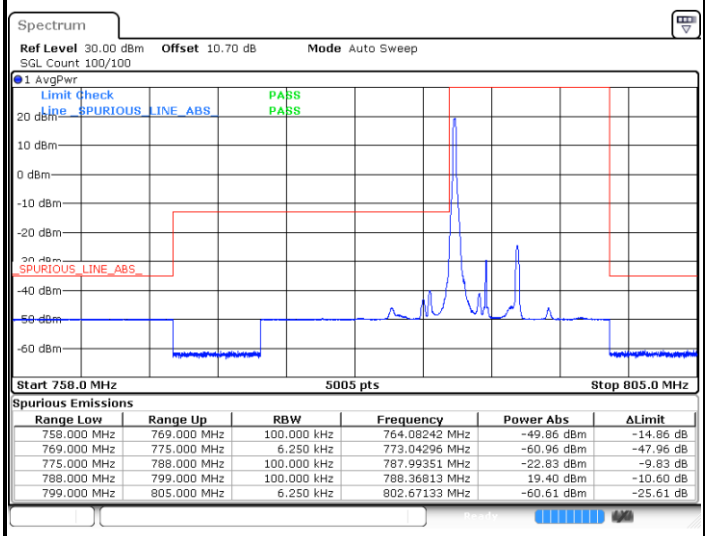
Highest Channel / 5MHz / 64QAM



Conducted Band Edge

LTE Band 14 / 5MHz / QPSK

Lowest Band Edge / 1 RB

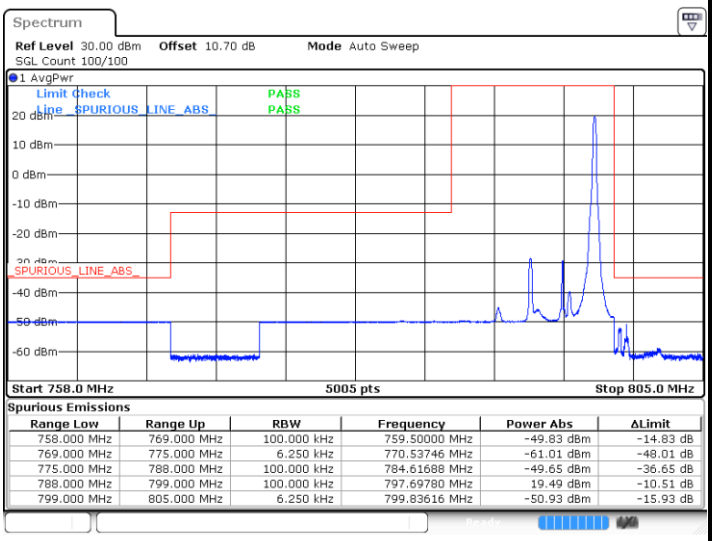


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	764.08242 MHz	-49.86 dBm	-14.86 dB
769.000 MHz	775.000 MHz	6.250 kHz	773.04296 MHz	-60.96 dBm	-47.96 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-22.83 dBm	-9.83 dB
788.000 MHz	799.000 MHz	100.000 kHz	788.36813 MHz	19.40 dBm	-10.60 dB
799.000 MHz	805.000 MHz	6.250 kHz	802.67133 MHz	-60.61 dBm	-25.61 dB

Date: 8.MAR.2018 11:44:52

Highest Band Edge / 1 RB

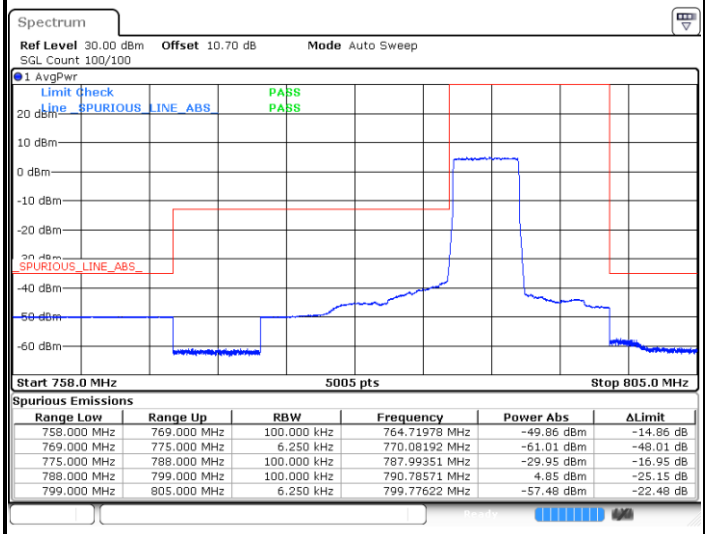


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	759.50000 MHz	-49.83 dBm	-14.83 dB
769.000 MHz	775.000 MHz	6.250 kHz	770.53746 MHz	-61.01 dBm	-48.01 dB
775.000 MHz	788.000 MHz	100.000 kHz	784.61688 MHz	-49.65 dBm	-36.65 dB
788.000 MHz	799.000 MHz	100.000 kHz	797.69780 MHz	19.49 dBm	-10.51 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.83616 MHz	-50.93 dBm	-15.93 dB

Date: 8.MAR.2018 10:28:22

Lowest Band Edge / Full RB

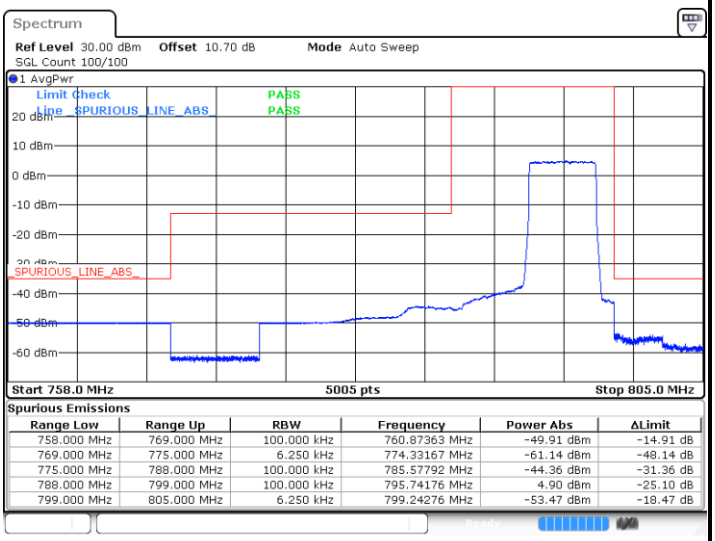


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	764.71978 MHz	-49.86 dBm	-14.86 dB
769.000 MHz	775.000 MHz	6.250 kHz	770.08192 MHz	-61.01 dBm	-48.01 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-29.95 dBm	-16.95 dB
788.000 MHz	799.000 MHz	100.000 kHz	790.78571 MHz	4.85 dBm	-25.15 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.77622 MHz	-57.48 dBm	-22.48 dB

Date: 8.MAR.2018 10:23:26

Highest Band Edge / Full RB



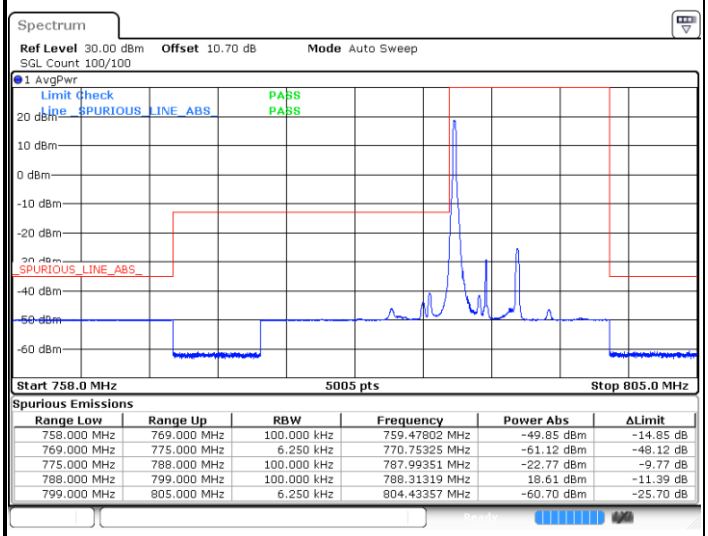
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	760.87363 MHz	-49.91 dBm	-14.91 dB
769.000 MHz	775.000 MHz	6.250 kHz	774.33167 MHz	-61.14 dBm	-48.14 dB
775.000 MHz	788.000 MHz	100.000 kHz	785.57792 MHz	-44.36 dBm	-31.36 dB
788.000 MHz	799.000 MHz	100.000 kHz	795.74176 MHz	4.90 dBm	-25.10 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.24276 MHz	-53.47 dBm	-18.47 dB

Date: 8.MAR.2018 11:52:41

LTE Band 14 / 5MHz / 16QAM

Lowest Band Edge / 1 RB

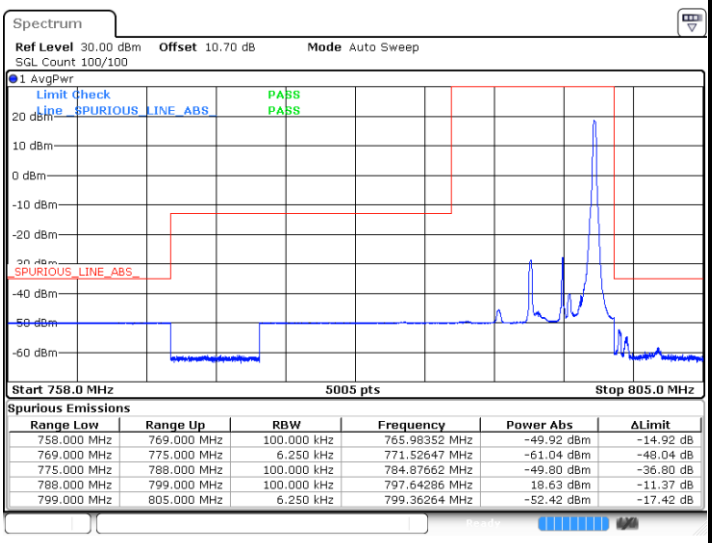


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	759.47802 MHz	-49.85 dBm	-14.85 dB
769.000 MHz	775.000 MHz	6.250 kHz	770.75325 MHz	-61.12 dBm	-48.12 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-22.77 dBm	-9.77 dB
788.000 MHz	799.000 MHz	100.000 kHz	788.31319 MHz	18.61 dBm	-11.39 dB
799.000 MHz	805.000 MHz	6.250 kHz	804.43357 MHz	-60.70 dBm	-25.70 dB

Date: 8.MAR.2018 10:15:31

Highest Band Edge / 1 RB

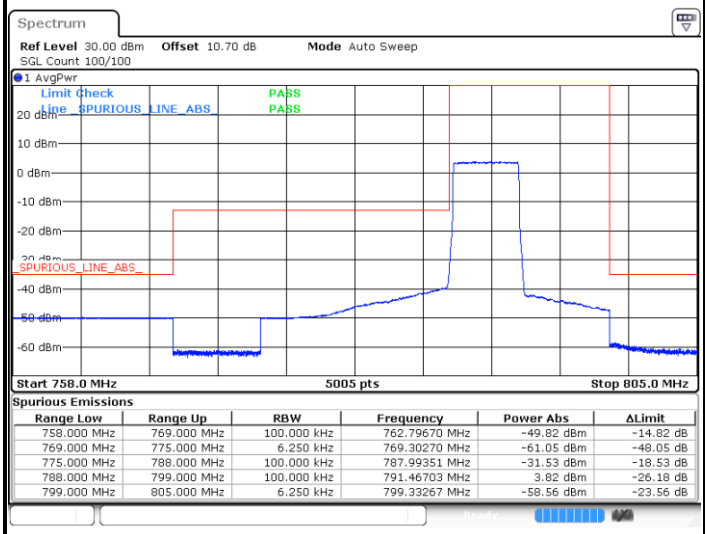


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	765.98352 MHz	-49.92 dBm	-14.92 dB
769.000 MHz	775.000 MHz	6.250 kHz	771.52647 MHz	-61.04 dBm	-48.04 dB
775.000 MHz	788.000 MHz	100.000 kHz	784.87662 MHz	-49.80 dBm	-36.80 dB
788.000 MHz	799.000 MHz	100.000 kHz	797.64286 MHz	18.63 dBm	-11.37 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.36264 MHz	-52.42 dBm	-17.42 dB

Date: 8.MAR.2018 11:41:28

Lowest Band Edge / Full RB

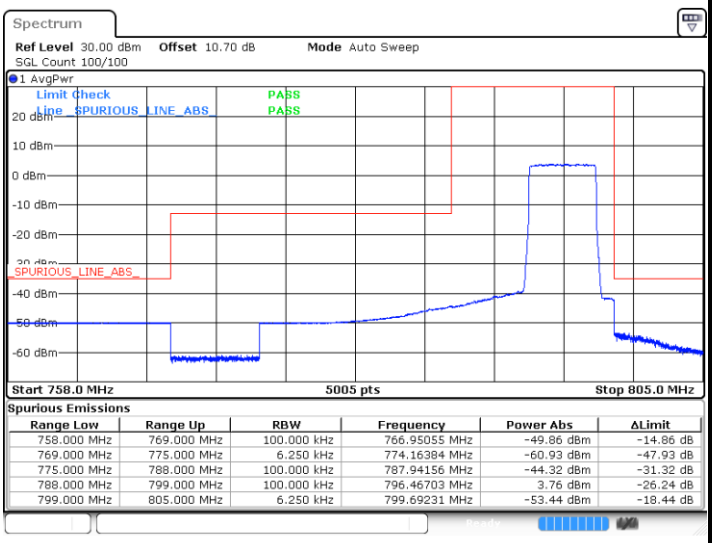


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	762.79670 MHz	-49.82 dBm	-14.82 dB
769.000 MHz	775.000 MHz	6.250 kHz	769.30270 MHz	-61.05 dBm	-48.05 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-31.53 dBm	-18.53 dB
788.000 MHz	799.000 MHz	100.000 kHz	791.46703 MHz	3.82 dBm	-26.18 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.33267 MHz	-58.56 dBm	-23.56 dB

Date: 8.MAR.2018 10:25:04

Highest Band Edge / Full RB



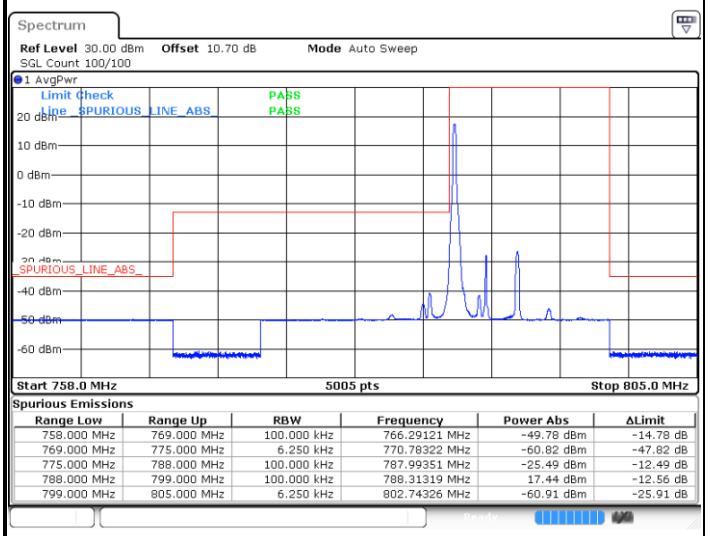
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	766.95055 MHz	-49.86 dBm	-14.86 dB
769.000 MHz	775.000 MHz	6.250 kHz	774.16384 MHz	-60.93 dBm	-47.93 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.94156 MHz	-44.32 dBm	-31.32 dB
788.000 MHz	799.000 MHz	100.000 kHz	796.46703 MHz	3.76 dBm	-26.24 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.69231 MHz	-53.44 dBm	-18.44 dB

Date: 8.MAR.2018 11:49:13

LTE Band 14 / 5MHz / 64QAM

Lowest Band Edge / 1 RB

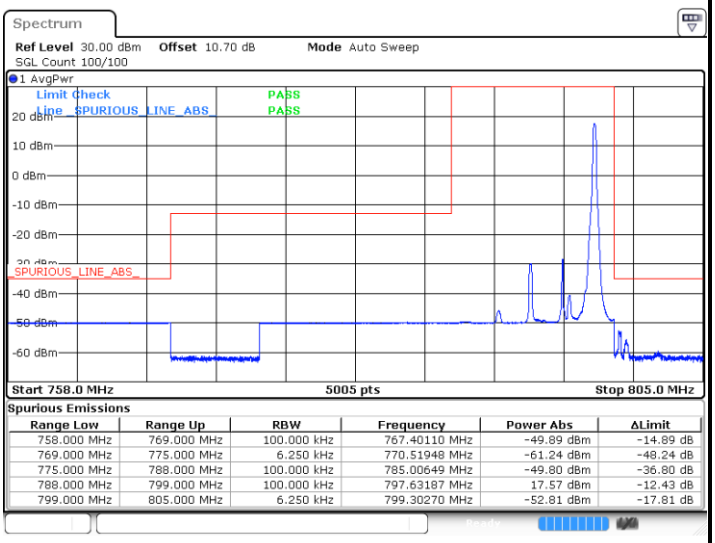


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	766.29121 MHz	-49.78 dBm	-14.78 dB
769.000 MHz	775.000 MHz	6.250 kHz	770.78322 MHz	-60.82 dBm	-47.82 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-25.49 dBm	-12.49 dB
788.000 MHz	799.000 MHz	100.000 kHz	788.31319 MHz	17.44 dBm	-12.56 dB
799.000 MHz	805.000 MHz	6.250 kHz	802.74326 MHz	-60.91 dBm	-25.91 dB

Date: 8.MAR.2018 10:21:47

Highest Band Edge / 1 RB

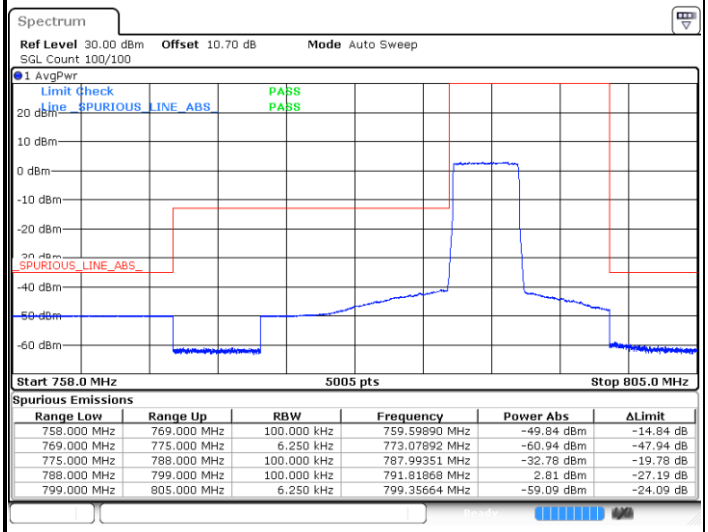


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	767.40110 MHz	-49.89 dBm	-14.89 dB
769.000 MHz	775.000 MHz	6.250 kHz	770.51948 MHz	-61.24 dBm	-48.24 dB
775.000 MHz	788.000 MHz	100.000 kHz	785.00649 MHz	-49.80 dBm	-36.80 dB
788.000 MHz	799.000 MHz	100.000 kHz	797.63187 MHz	17.57 dBm	-12.43 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.30270 MHz	-52.81 dBm	-17.81 dB

Date: 8.MAR.2018 10:31:39

Lowest Band Edge / Full RB

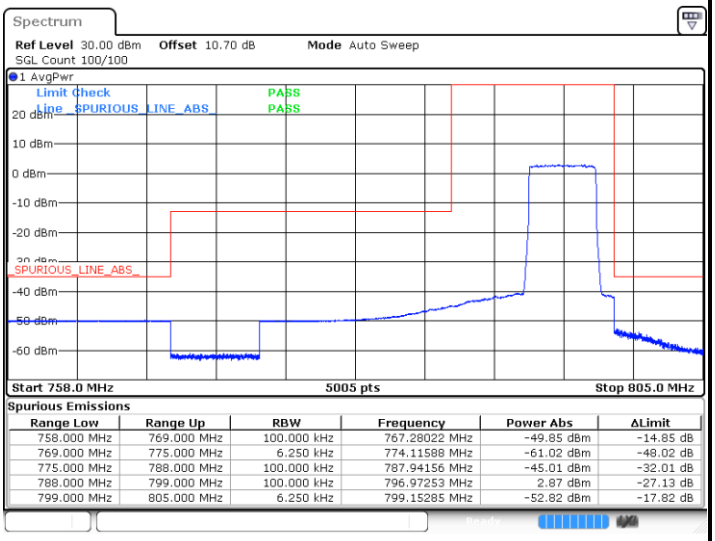


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	759.59890 MHz	-49.84 dBm	-14.84 dB
769.000 MHz	775.000 MHz	6.250 kHz	773.07892 MHz	-60.94 dBm	-47.94 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-32.78 dBm	-19.78 dB
788.000 MHz	799.000 MHz	100.000 kHz	791.81868 MHz	2.81 dBm	-27.19 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.35664 MHz	-59.09 dBm	-24.09 dB

Date: 8.MAR.2018 10:26:43

Highest Band Edge / Full RB



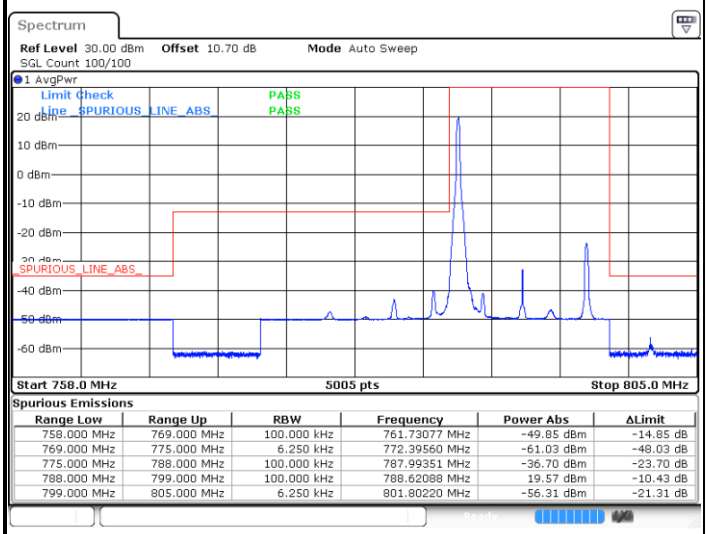
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	767.28022 MHz	-49.85 dBm	-14.85 dB
769.000 MHz	775.000 MHz	6.250 kHz	774.11588 MHz	-61.02 dBm	-48.02 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.94156 MHz	-45.01 dBm	-32.01 dB
788.000 MHz	799.000 MHz	100.000 kHz	796.97253 MHz	2.87 dBm	-27.13 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.15285 MHz	-52.82 dBm	-17.82 dB

Date: 8.MAR.2018 11:46:44

LTE Band 14 / 10MHz / QPSK

Lowest Band Edge / 1 RB

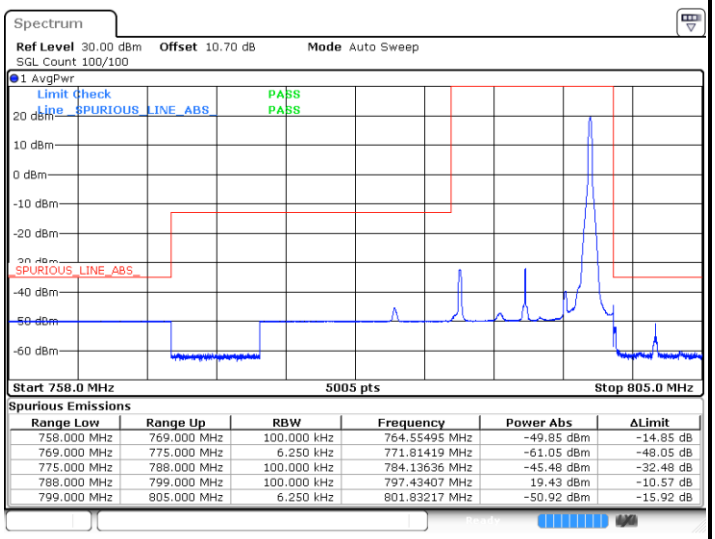


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	761.73077 MHz	-49.85 dBm	-14.85 dB
769.000 MHz	775.000 MHz	6.250 kHz	772.39560 MHz	-61.03 dBm	-48.03 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-36.70 dBm	-23.70 dB
788.000 MHz	799.000 MHz	100.000 kHz	788.62088 MHz	19.57 dBm	-10.43 dB
799.000 MHz	805.000 MHz	6.250 kHz	801.80220 MHz	-56.31 dBm	-21.31 dB

Date: 8.MAR.2018 10:38:13

Highest Band Edge / 1 RB

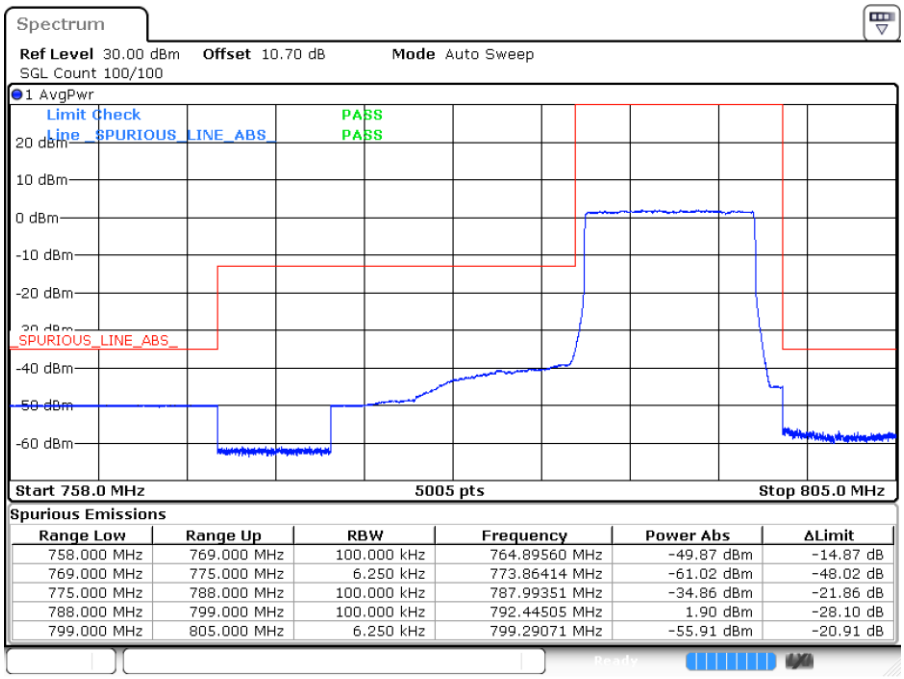


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	764.55495 MHz	-49.85 dBm	-14.85 dB
769.000 MHz	775.000 MHz	6.250 kHz	771.81419 MHz	-61.05 dBm	-48.05 dB
775.000 MHz	788.000 MHz	100.000 kHz	784.13636 MHz	-45.48 dBm	-32.48 dB
788.000 MHz	799.000 MHz	100.000 kHz	797.43407 MHz	19.43 dBm	-10.57 dB
799.000 MHz	805.000 MHz	6.250 kHz	801.83217 MHz	-50.92 dBm	-15.92 dB

Date: 8.MAR.2018 10:43:09

Band Edge / Full RB



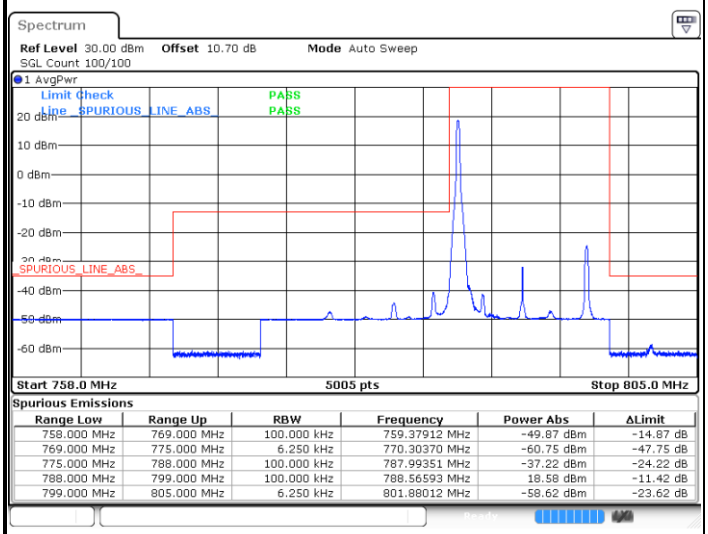
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	764.89560 MHz	-49.87 dBm	-14.87 dB
769.000 MHz	775.000 MHz	6.250 kHz	773.86414 MHz	-61.02 dBm	-48.02 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-34.86 dBm	-21.86 dB
788.000 MHz	799.000 MHz	100.000 kHz	792.44505 MHz	1.90 dBm	-28.10 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.29071 MHz	-55.91 dBm	-20.91 dB

Date: 8.MAR.2018 10:48:05

LTE Band 14 / 10MHz / 16QAM

Lowest Band Edge / 1 RB

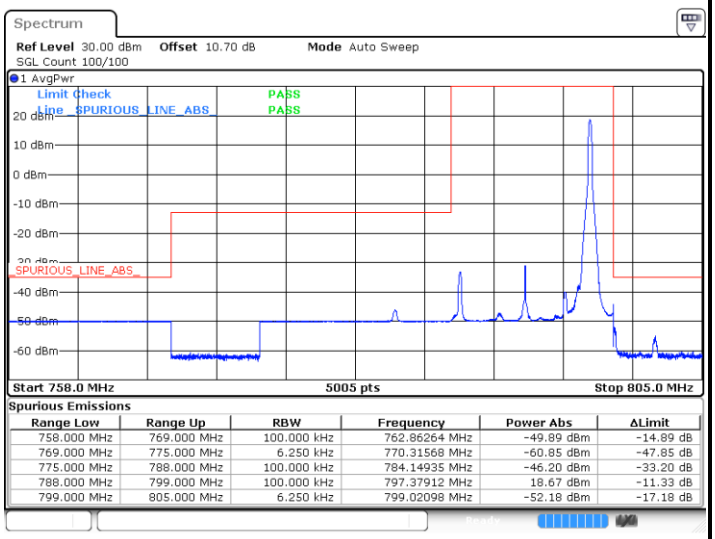


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	759.37912 MHz	-49.87 dBm	-14.87 dB
769.000 MHz	775.000 MHz	6.250 kHz	770.30370 MHz	-60.75 dBm	-47.75 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-37.22 dBm	-24.22 dB
788.000 MHz	799.000 MHz	100.000 kHz	788.56593 MHz	18.58 dBm	-11.42 dB
799.000 MHz	805.000 MHz	6.250 kHz	801.88012 MHz	-58.62 dBm	-23.62 dB

Date: 8.MAR.2018 10:39:52

Highest Band Edge / 1 RB

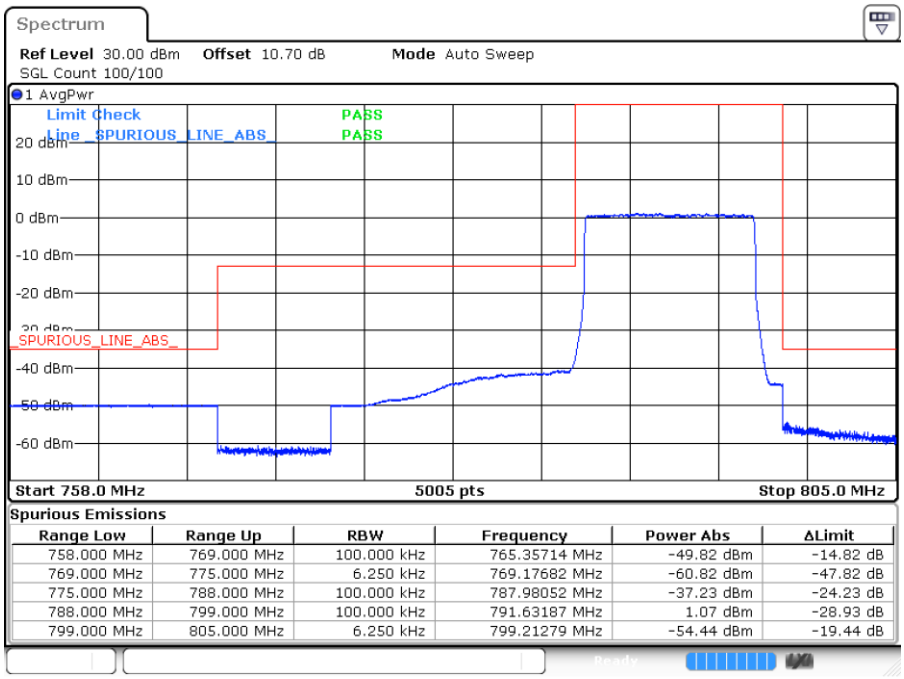


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	762.86264 MHz	-49.89 dBm	-14.89 dB
769.000 MHz	775.000 MHz	6.250 kHz	770.31568 MHz	-60.85 dBm	-47.85 dB
775.000 MHz	788.000 MHz	100.000 kHz	784.14935 MHz	-46.20 dBm	-33.20 dB
788.000 MHz	799.000 MHz	100.000 kHz	797.37912 MHz	18.67 dBm	-11.33 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.02098 MHz	-52.18 dBm	-17.18 dB

Date: 8.MAR.2018 11:39:34

Band Edge / Full RB



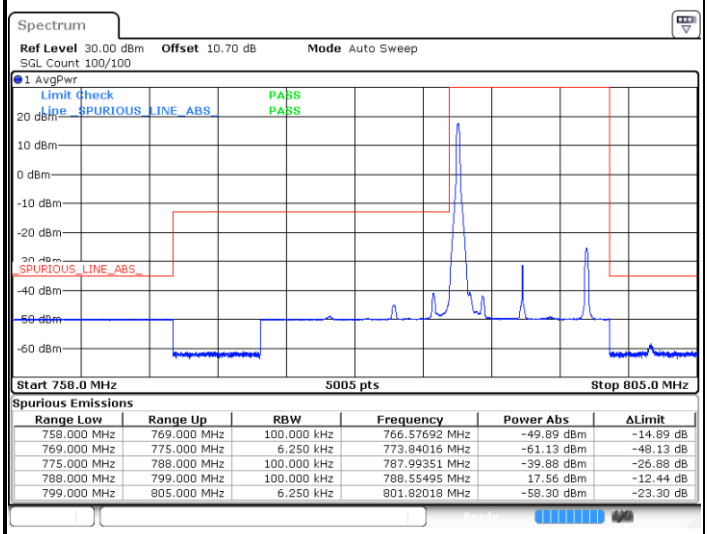
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	765.35714 MHz	-49.82 dBm	-14.82 dB
769.000 MHz	775.000 MHz	6.250 kHz	769.17682 MHz	-60.82 dBm	-47.82 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.98052 MHz	-37.23 dBm	-24.23 dB
788.000 MHz	799.000 MHz	100.000 kHz	791.63187 MHz	1.07 dBm	-28.93 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.21279 MHz	-54.44 dBm	-19.44 dB

Date: 8.MAR.2018 10:49:44

LTE Band 14 / 10MHz / 64QAM

Lowest Band Edge / 1 RB

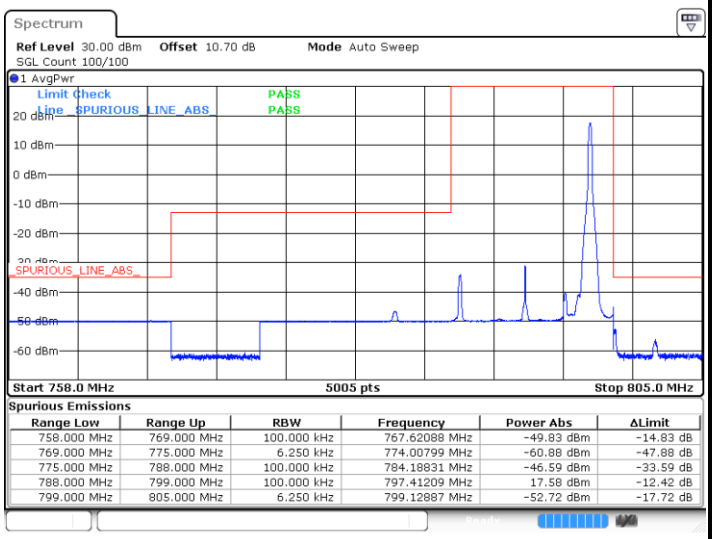


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	766.57692 MHz	-49.89 dBm	-14.89 dB
769.000 MHz	775.000 MHz	6.250 kHz	773.84016 MHz	-61.13 dBm	-48.13 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-39.88 dBm	-26.88 dB
788.000 MHz	799.000 MHz	100.000 kHz	788.55495 MHz	17.56 dBm	-12.44 dB
799.000 MHz	805.000 MHz	6.250 kHz	801.82018 MHz	-58.30 dBm	-23.30 dB

Date: 8.MAR.2018 10:41:31

Highest Band Edge / 1 RB

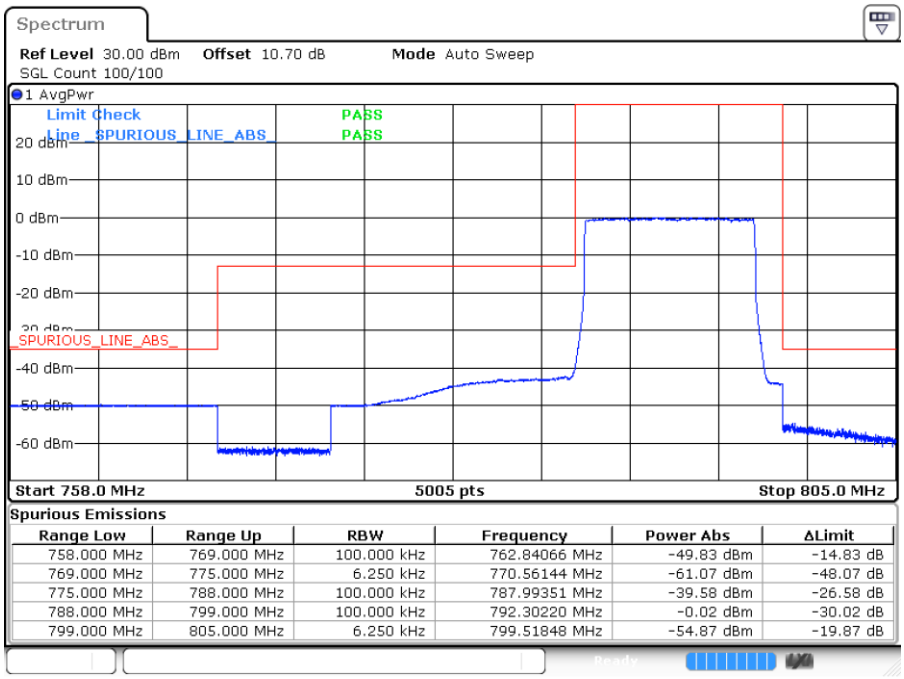


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	767.62088 MHz	-49.83 dBm	-14.83 dB
769.000 MHz	775.000 MHz	6.250 kHz	774.00799 MHz	-60.88 dBm	-47.88 dB
775.000 MHz	788.000 MHz	100.000 kHz	784.18831 MHz	-46.59 dBm	-33.59 dB
788.000 MHz	799.000 MHz	100.000 kHz	797.41209 MHz	17.58 dBm	-12.42 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.12887 MHz	-52.72 dBm	-17.72 dB

Date: 8.MAR.2018 10:46:27

Band Edge / Full RB



Spurious Emissions

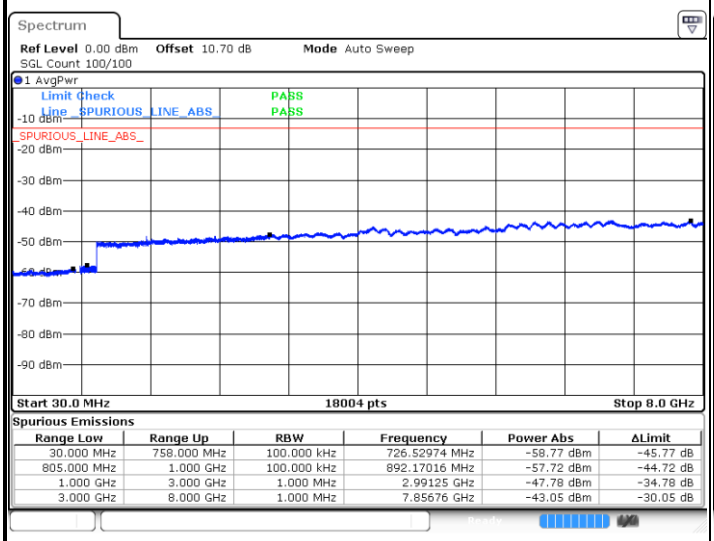
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	762.84066 MHz	-49.83 dBm	-14.83 dB
769.000 MHz	775.000 MHz	6.250 kHz	770.56144 MHz	-61.07 dBm	-48.07 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-39.58 dBm	-26.58 dB
788.000 MHz	799.000 MHz	100.000 kHz	792.30220 MHz	-0.02 dBm	-30.02 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.51848 MHz	-54.87 dBm	-19.87 dB

Date: 8.MAR.2018 10:51:23

Conducted Spurious Emission

LTE Band 14 / 5MHz

Lowest Channel / QPSK

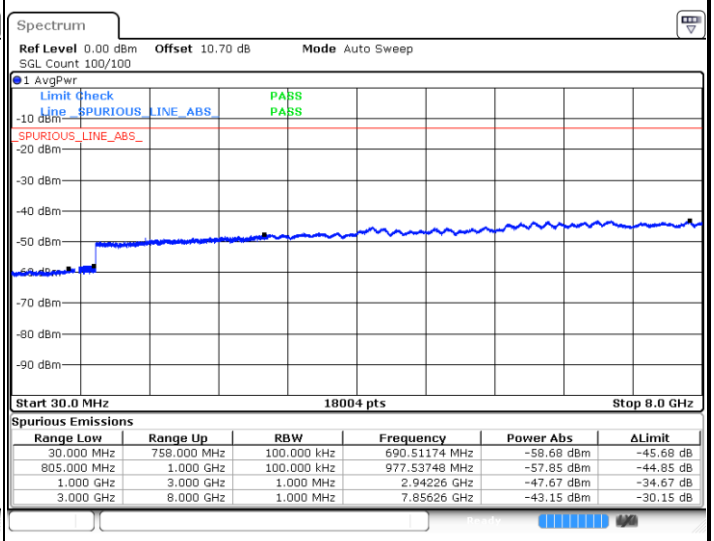


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	758.000 MHz	100.000 kHz	726.52974 MHz	-58.77 dBm	-45.77 dB
805.000 MHz	1.000 GHz	100.000 kHz	892.17016 MHz	-57.72 dBm	-44.72 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.99125 GHz	-47.78 dBm	-34.78 dB
3.000 GHz	8.000 GHz	1.000 MHz	7.85676 GHz	-43.05 dBm	-30.05 dB

Date: 8.MAR.2018 10:52:16

Lowest Channel / 16QAM

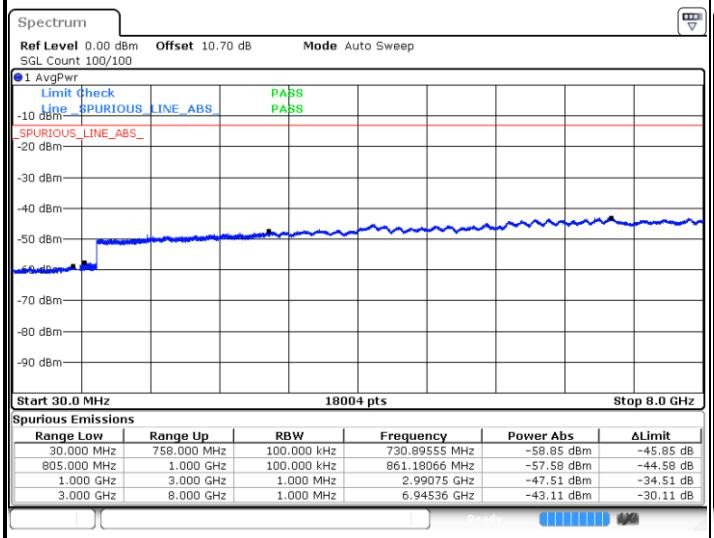


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	758.000 MHz	100.000 kHz	690.51174 MHz	-58.68 dBm	-45.68 dB
805.000 MHz	1.000 GHz	100.000 kHz	977.53748 MHz	-57.85 dBm	-44.85 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.94226 GHz	-47.67 dBm	-34.67 dB
3.000 GHz	8.000 GHz	1.000 MHz	7.85626 GHz	-43.15 dBm	-30.15 dB

Date: 8.MAR.2018 10:53:10

Middle Channel / QPSK

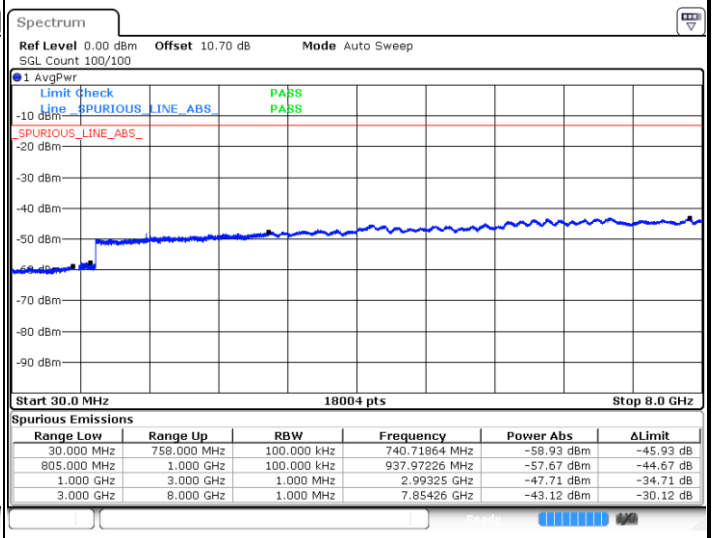


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	758.000 MHz	100.000 kHz	730.89555 MHz	-58.85 dBm	-45.85 dB
805.000 MHz	1.000 GHz	100.000 kHz	861.18066 MHz	-57.58 dBm	-44.58 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.99075 GHz	-47.51 dBm	-34.51 dB
3.000 GHz	8.000 GHz	1.000 MHz	6.94536 GHz	-43.11 dBm	-30.11 dB

Date: 8.MAR.2018 11:33:08

Middle Channel / 16QAM



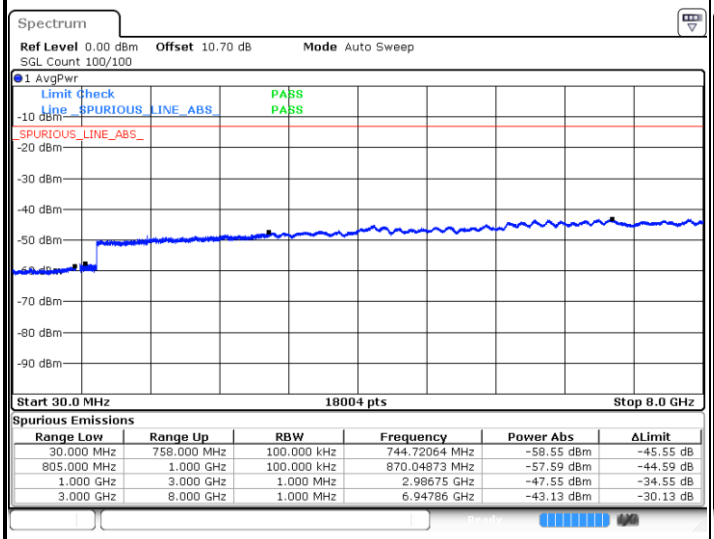
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	758.000 MHz	100.000 kHz	740.71864 MHz	-58.93 dBm	-45.93 dB
805.000 MHz	1.000 GHz	100.000 kHz	937.97226 MHz	-57.67 dBm	-44.67 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.99325 GHz	-47.71 dBm	-34.71 dB
3.000 GHz	8.000 GHz	1.000 MHz	7.85426 GHz	-43.12 dBm	-30.12 dB

Date: 8.MAR.2018 11:34:02

LTE Band 14 / 5MHz

Highest Channel / QPSK

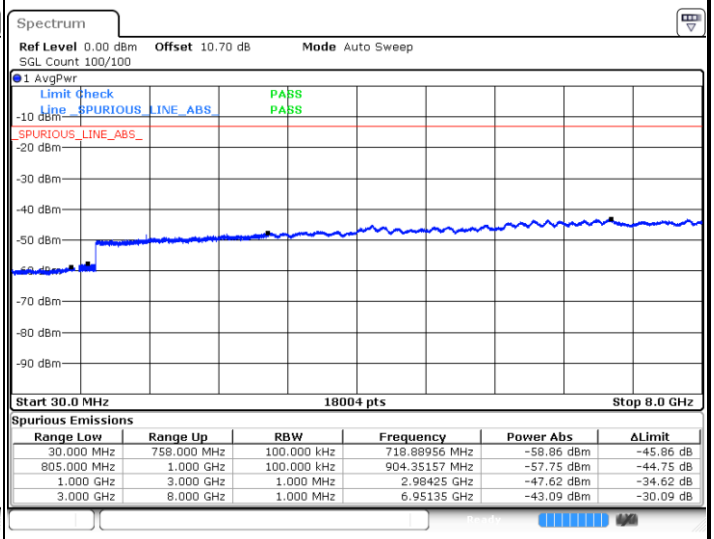


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	758.000 MHz	100.000 kHz	744.72064 MHz	-58.55 dBm	-45.55 dB
805.000 MHz	1.000 GHz	100.000 kHz	870.04873 MHz	-57.59 dBm	-44.59 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.98675 GHz	-47.55 dBm	-34.55 dB
3.000 GHz	8.000 GHz	1.000 MHz	6.94786 GHz	-43.13 dBm	-30.13 dB

Date: 8.MAR.2018 11:14:34

Highest Channel / 16QAM



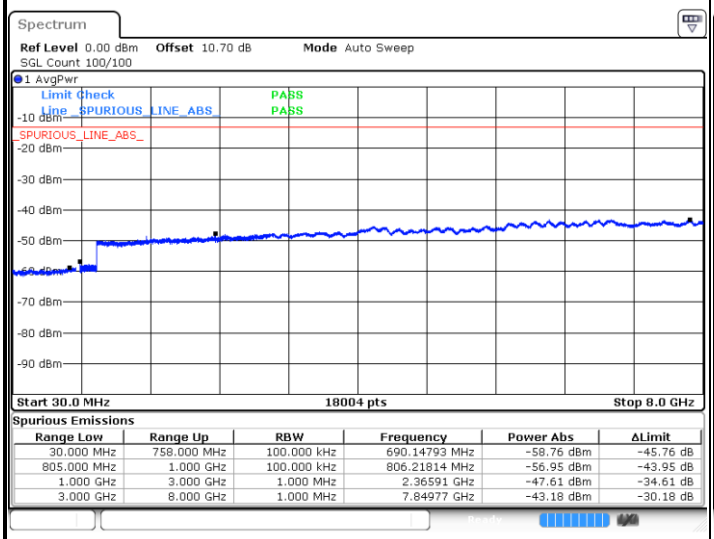
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	758.000 MHz	100.000 kHz	718.88956 MHz	-58.86 dBm	-45.86 dB
805.000 MHz	1.000 GHz	100.000 kHz	904.35157 MHz	-57.75 dBm	-44.75 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.98425 GHz	-47.62 dBm	-34.62 dB
3.000 GHz	8.000 GHz	1.000 MHz	6.95135 GHz	-43.09 dBm	-30.09 dB

Date: 8.MAR.2018 11:15:27

LTE Band 14 / 10MHz

Middle Channel / QPSK

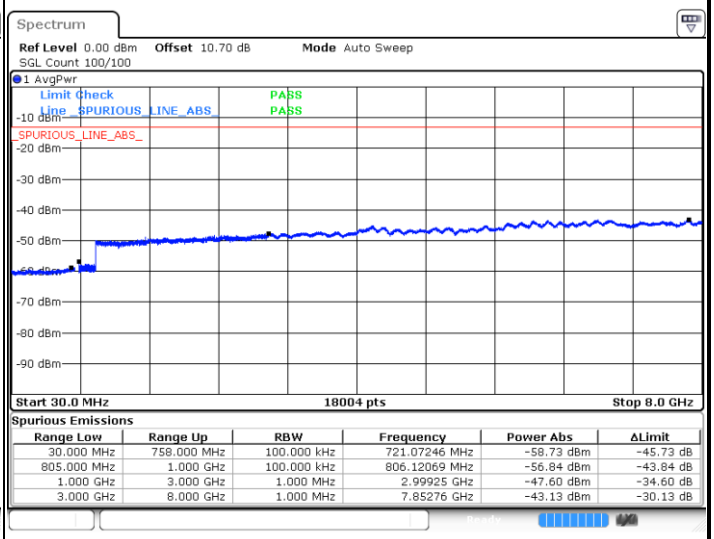


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	758.000 MHz	100.000 kHz	690.14793 MHz	-58.76 dBm	-45.76 dB
805.000 MHz	1.000 GHz	100.000 kHz	806.21814 MHz	-56.95 dBm	-43.95 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.36591 GHz	-47.61 dBm	-34.61 dB
3.000 GHz	8.000 GHz	1.000 MHz	7.84977 GHz	-43.18 dBm	-30.18 dB

Date: 8.MAR.2018 11:17:14

Middle Channel / 16QAM



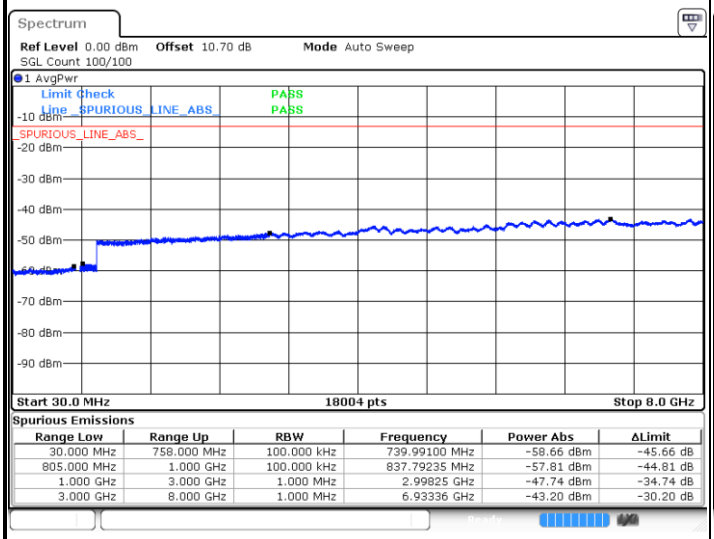
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	758.000 MHz	100.000 kHz	721.07246 MHz	-58.73 dBm	-45.73 dB
805.000 MHz	1.000 GHz	100.000 kHz	806.12069 MHz	-56.84 dBm	-43.84 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.99925 GHz	-47.60 dBm	-34.60 dB
3.000 GHz	8.000 GHz	1.000 MHz	7.85276 GHz	-43.13 dBm	-30.13 dB

Date: 8.MAR.2018 11:18:08

LTE Band 14 / 5MHz

Lowest Channel / 64QAM

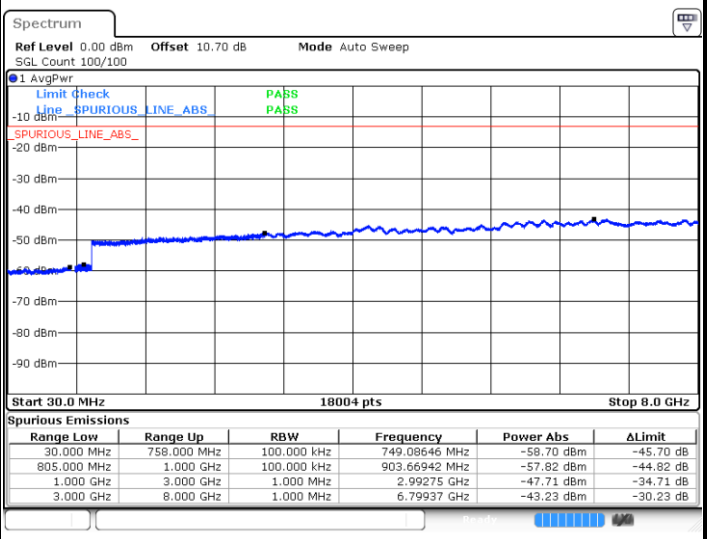


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	758.000 MHz	100.000 kHz	739.99100 MHz	-58.66 dBm	-45.66 dB
805.000 MHz	1.000 GHz	100.000 kHz	837.79235 MHz	-57.81 dBm	-44.81 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.99825 GHz	-47.74 dBm	-34.74 dB
3.000 GHz	8.000 GHz	1.000 MHz	6.93336 GHz	-43.20 dBm	-30.20 dB

Date: 8.MAR.2018 10:54:03

Middle Channel / 64QAM



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	758.000 MHz	100.000 kHz	749.08646 MHz	-58.70 dBm	-45.70 dB
805.000 MHz	1.000 GHz	100.000 kHz	903.66942 MHz	-57.82 dBm	-44.82 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.99275 GHz	-47.71 dBm	-34.71 dB
3.000 GHz	8.000 GHz	1.000 MHz	6.79937 GHz	-43.23 dBm	-30.23 dB

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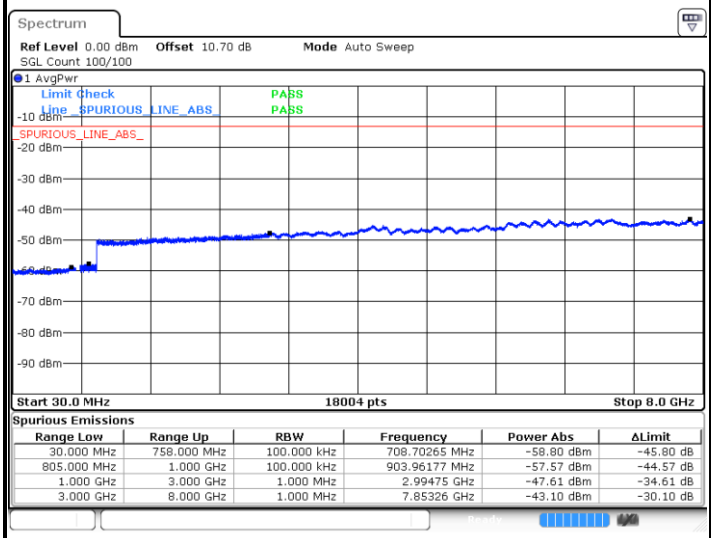
Highest Channel / 64QAM



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	758.000 MHz	100.000 kHz	708.70265 MHz	-58.80 dBm	-45.80 dB
805.000 MHz	1.000 GHz	100.000 kHz	903.96177 MHz	-57.57 dBm	-44.57 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.99475 GHz	-47.61 dBm	-34.61 dB
3.000 GHz	8.000 GHz	1.000 MHz	7.85326 GHz	-43.10 dBm	-30.10 dB

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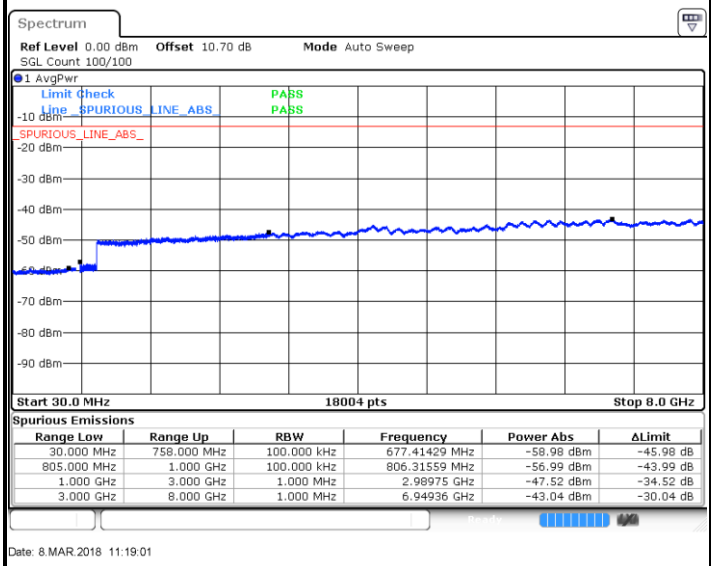
LTE Band 14 / 10MHz	
Middle Channel / 64QAM	



Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	758.000 MHz	100.000 kHz	677.41429 MHz	-58.98 dBm	-45.98 dB
805.000 MHz	1.000 GHz	100.000 kHz	806.31559 MHz	-56.99 dBm	-43.99 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.98975 GHz	-47.52 dBm	-34.52 dB
3.000 GHz	8.000 GHz	1.000 MHz	6.94936 GHz	-43.04 dBm	-30.04 dB

Frequency Stability

Test Conditions		LTE Band 14 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 10MHz	Note 2.
		Deviation (ppm)	Result
50	Normal Voltage	0.0079	PASS
40	Normal Voltage	0.0072	
30	Normal Voltage	0.0009	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0019	
0	Normal Voltage	0.0069	
-10	Normal Voltage	0.0083	
-20	Normal Voltage	0.0069	
-30	Normal Voltage	0.0081	
20	Maximum Voltage	0.0071	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0005	

Note:

1. Normal Voltage =3.3 V.；Battery End Point (BEP) =3.135 V.；Maximum Voltage =4.4 V.
2. The frequency fundamental emissions stay within the authorized frequency block.

Radiated Spurious Emission

LTE Band 14

LTE Band 14 / 5MHz / QPSK									
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	1576	-60.44	-42.15	-18.29	-71.96	-62.43	0.95	5.09	H
	2368	-41.98	-13	-28.98	-58.77	-43.58	1.25	5.00	H
	3152	-57.21	-13	-44.21	-75.83	-60.03	1.50	6.47	H
									H
									H
									H
	1576	-62.28	-42.15	-20.13	-74.31	-64.27	0.95	5.09	V
	2368	-49.79	-13	-36.79	-66.87	-51.39	1.25	5.00	V
	3152	-57.36	-13	-44.36	-76.62	-60.18	1.50	6.47	V
									V
									V
									V
Middle	1584	-59.11	-42.15	-16.96	-70.62	-61.08	0.95	5.06	H
	2376	-44.84	-13	-31.84	-61.65	-46.47	1.25	5.03	H
	3162	-55.66	-13	-42.66	-74.26	-58.52	1.50	6.51	H
									H
									H
									H
	1584	-61.48	-42.15	-19.33	-73.51	-63.45	0.95	5.06	V
	2376	-51.26	-13	-38.26	-68.39	-52.89	1.25	5.03	V
	3162	-56.48	-13	-43.48	-75.72	-59.34	1.50	6.51	V
									V
									V
									V

Highest	1584	-59.97	-42.15	-17.82	-71.52	-61.94	0.95	5.06	H
	2376	-51.88	-13	-38.88	-68.67	-53.51	1.25	5.03	H
	3176	-54.96	-13	-41.96	-73.68	-57.88	1.50	6.57	H
									H
									H
									H
	1584	-62.52	-42.15	-20.37	-74.54	-64.49	0.95	5.06	V
	2376	-54.74	-13	-41.74	-71.97	-56.37	1.25	5.03	V
	3176	-55.64	-13	-42.64	-74.92	-58.56	1.50	6.57	V
									V
									V
									V

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

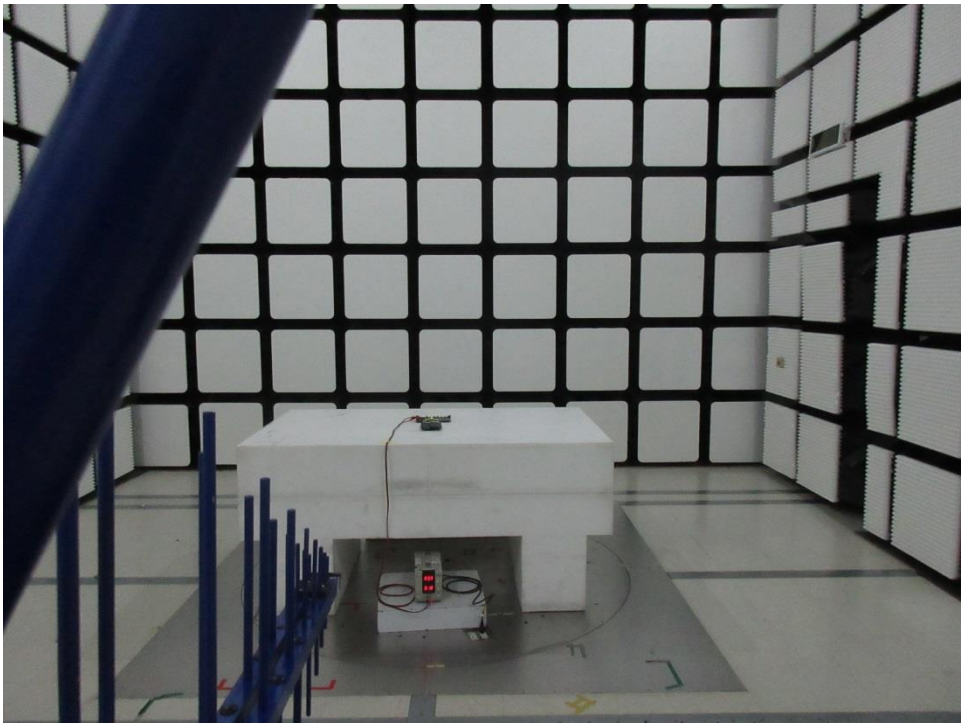
LTE Band 14 / 10MHz / QPSK									
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	1576	-62.68	-42.15	-20.53	-74.19	-64.67	0.95	5.09	H
	2368	-47.97	-13	-34.97	-64.74	-49.57	1.25	5.00	H
	3152	-57.86	-13	-44.86	-76.5	-60.68	1.50	6.47	H
									H
									H
									H
	1576	-62.46	-42.15	-20.31	-74.49	-64.45	0.95	5.09	V
	2368	-46.48	-13	-33.48	-63.6	-48.08	1.25	5.00	V
	3152	-57.54	-13	-44.54	-76.8	-60.36	1.50	6.47	V
									V
									V
									V

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

Appendix C. Setup Photographs

<Radiated Emission>

LF



HF