FCC RADIO TEST REPORT

FCC ID	:	**J9CQGM8180X**
Equipment	:	**Module**
Model Name	:	**QGM8180X**
Applicant	:	**Qualcomm Inc** **5775 Morehouse Dr.San Diego, CA 92121-1714 (USA)**
Manufacturer	:	**Universal Scientific Industrial (Shanghai) Co., Ltd.** **No. 1558, Zhang Dong Road, Zhangjiang Hi-Tech Park, Shanghai, P.R. China 201203**
Standard	:	**FCC 47 CFR Part 2, 90(R)**

The product was received on Feb. 01, 2019 and testing was started from Feb. 01, 2019 and completed on Jun. 11, 2019. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA-603-E and has been in compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Jones Tsai

Approved by: Jones Tsai

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)

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History of this test report

Report No.	Version	Description	Issued Date
FG920117E	01	Initial issue of report	Jul. 15, 2019

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.2	§2.1046	Conducted Output Power	Reporting only	-
	§90.542 (a)(7)	Effective Radiated Power	Pass	-
3.3	-	Peak-to-Average Ratio	Reporting only	-
3.4	§2.1049	Occupied Bandwidth	Reporting only	-
3.5	§2.1053 §90.543 (e)(2)	Conducted Band Edge Measurement	Pass	-
3.6	§2.1051 §90.210 (n)	Emission Mask	Pass	-
3.7	§2.1053 §90.543 (e)(3)	Conducted Spurious Emission	Pass	-
3.8	§2.1055 §90.539 (e)	Frequency Stability Temperature & Voltage	Pass	-
4.2	§2.1053 §90.543 (e)(3) §90.543 (f)	Radiated Spurious Emission	Pass	Under limit 17.32 dB at 1576.000 MHz

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: Wii Chang

Report Producer: Elise Chang

1 General Description

1.1 Product Feature of Equipment Under Test

WCDMA/LTE and GNSS

Product Specification subjective to this standard	
Antenna Type	WWAN: Dipole Antenna GPS/Glonass/BDS/Galileo/SBAS: Dipole Antenna

1.2 Modification of EUT

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

1.3 Testing Site

Test Site	SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978
Test Site No.	**Sporton Site No.**
	TH05-HY
Test Engineer	Aking Chang
Temperature	24~26℃
Relative Humidity	54~56%

Note: The test site complies with ANSI C63.4 2014 requirement.

Test Site	SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
Test Site No.	**Sporton Site No.**
	03CH12-HY
Test Engineer	Jack Cheng, Lance Chiang and Chuan Chul
Temperature	23~24℃
Relative Humidity	63~66%

Note: The test site complies with ANSI C63.4 2014 requirement.

FCC Designation No.: TW1190 and TW0007

1.4 Applied Standards

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

- ANSI C63.26-2015
- 47 CFR Part 2, Part 90(R)
- ANSI / TIA-603-E
- FCC KDB 971168 D01 Power Meas. License Digital Systems v03r01
- 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.

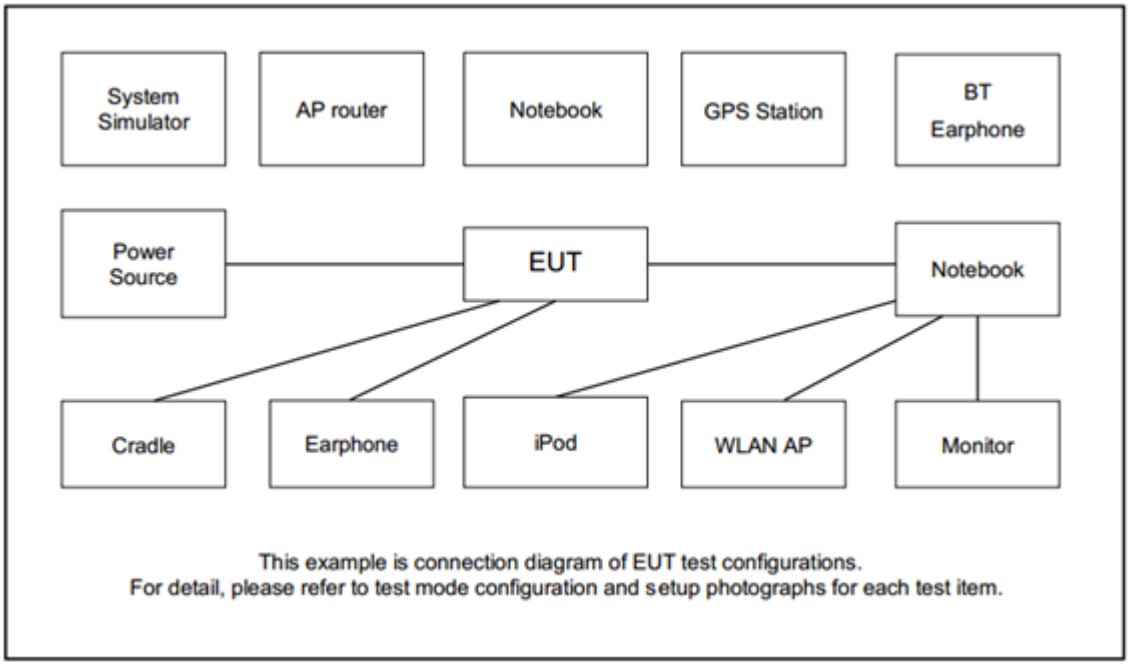
2 Test Configuration of Equipment Under Test

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 v03r01 with maximum output power.

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	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			v		v	
E.R.P	14	-	-	v	v	-	-	v	v	v	v			v	v	v
Radiated Spurious Emission	14	Worst Case												v	v	v
Remark	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	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	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

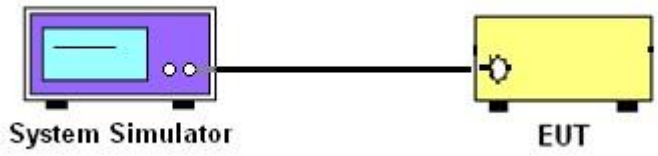
3 Conducted Test Items

3.1 Measuring Instruments

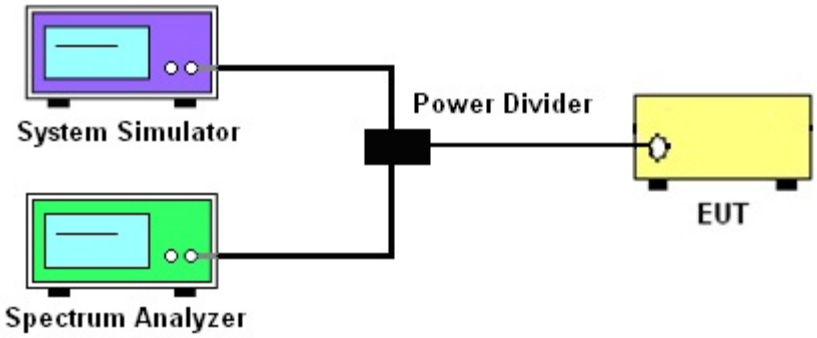
See list of measuring instruments of this test report.

3.1.1 Test Setup

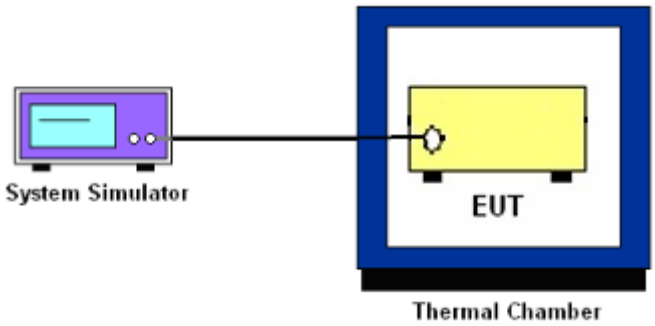
3.1.2 Conducted Output Power



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



3.1.4 Frequency Stability



3.1.5 Test Result of Conducted Test

Please refer to Appendix A.

3.2 Conducted Output Power Measurement and ERP

3.2.1 Description of the Conducted Output Power Measurement and ERP Measurement

A base station simulator was used to establish communication with the EUT. Its parameters were set to transmit the maximum power on the EUT. 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

3.2.2 Test Procedures

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

3.3 Peak-to-Average Ratio

3.3.1 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.

3.3.2 Test Procedures

The testing follows ANSI C63.26-2015 Section 5.2.6

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.

3.4 Occupied Bandwidth

3.4.1 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.

3.4.2 Test Procedures

The testing follows ANSI C63.26-2015 Section 5.4.3 (26dB) and Section 5.4.4 (99OB)

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.

3.5 Conducted Band Edge

3.5.1 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.

3.5.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 6.1.

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)

3.6 Emission Mask

3.6.1 Description of Emissions Mask Measurement

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

3.6.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 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.

3.7 Conducted Spurious Emission

3.7.1 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 10^{th} harmonic.

3.7.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 6.1.

1. The EUT was connected to spectrum analyzer and base station via 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 RBW = 1MHz, VBW = 3MHz.
6. Set spectrum analyzer with RMS detector.
7. Taking the record of maximum spurious emission.
8. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
9. The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)

3.8 Frequency Stability

3.8.1 Description of Frequency Stability Measurement

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

3.8.2 Test Procedures for Temperature Variation

The testing follows FCC KDB 971168 D01 v03r01 Section 9.0.

1. The EUT was set up in the thermal chamber and connected with the base station.
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.

3.8.3 Test Procedures for Voltage Variation

The testing follows FCC KDB 971168 D01 v03r01 Section 9.0.

1. The EUT was placed in a temperature chamber at 20±5° C and connected with the base station.
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.

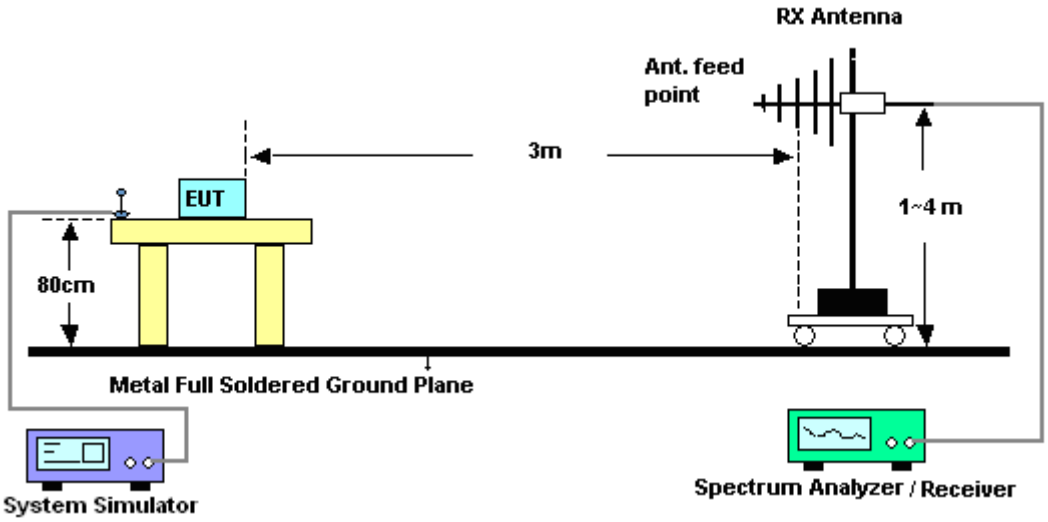
4 Radiated Test Items

4.1 Measuring Instruments

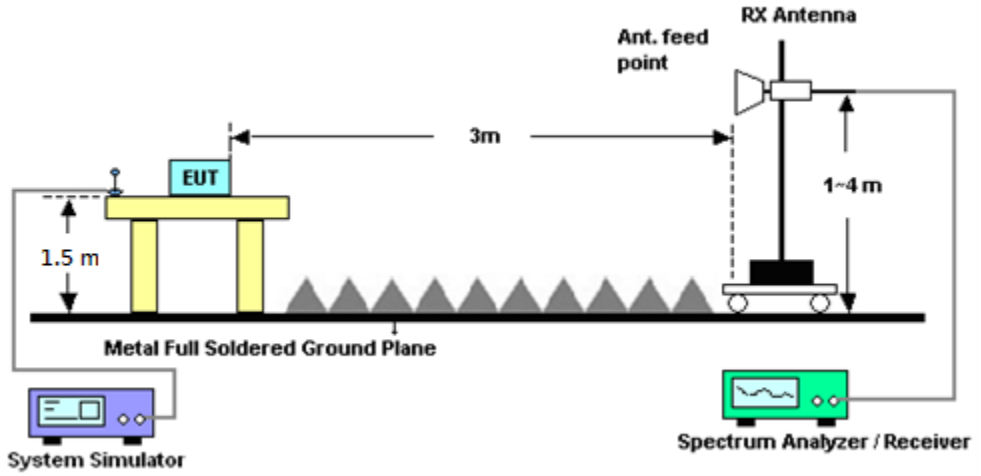
See list of measuring instruments of this test report.

4.1.1 Test Setup

For radiated test from 30MHz to 1GHz



For radiated test above 1GHz



4.1.2 Test Result of Radiated Test

Please refer to Appendix B.

4.2 Radiated Spurious Emission

4.2.1 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.

4.2.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 7 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.
11. 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
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Jan. 07, 2019	Jun. 09, 2019~ Jun. 11, 2019	Jan. 06, 2020	Radiation (03CH12-HY)
Bilog Antenna	TESEQ	CBL 6111D&00802N1 D01N-06	47020&06	30MHz to 1GHz	Oct. 13, 2018	Jun. 09, 2019~ Jun. 11, 2019	Oct. 12, 2019	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1212	1GHz ~ 18GHz	Oct. 19, 2018	Jun. 09, 2019~ Jun. 11, 2019	Oct. 18, 2019	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1326	1GHz ~ 18GHz	Oct. 30, 2018	Jun. 09, 2019~ Jun. 11, 2019	Oct. 29, 2019	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170584	18GHz ~ 40GHz	Dec. 05, 2018	Jun. 09, 2019~ Jun. 11, 2019	Dec. 04, 2019	Radiation (03CH12-HY)
Preamplifier	COM-POWER	PA-103	161075	10MHz~1GHz	Mar. 25, 2019	Jun. 09, 2019~ Jun. 11, 2019	Mar. 24, 2020	Radiation (03CH12-HY)
Preamplifier	Agilent	8449B	3008A02375	1GHz~26.5Ghz	May 28, 2018	Jun. 09, 2019~ Jun. 11, 2019	May 26, 2020	Radiation (03CH12-HY)
Preamplifier	Jet-Power	JPA0118-55-303	1710001800055007	1GHz~18GHz	Apr. 01, 2019	Jun. 09, 2019~ Jun. 11, 2019	Mar. 31, 2020	Radiation (03CH12-HY)
Preamplifier	EMEC	EM18G40G	060715	18GHz ~ 40GHz	Dec. 06, 2018	Jun. 09, 2019~ Jun. 11, 2019	Dec. 05, 2019	Radiation (03CH12-HY)
EMI Test Receiver	Rohde & Schwarz	ESU26	100390	20Hz~26.5GHz	Dec. 26, 2018	Jun. 09, 2019~ Jun. 11, 2019	Dec. 25, 2019	Radiation (03CH12-HY)
Spectrum Analyzer	Keysight	N9010A	MY542004486	10Hz~44GHz	Dec. 19, 2018	Jun. 09, 2019~ Jun. 11, 2019	Dec. 18, 2019	Radiation (03CH12-HY)
Signal Generator	Rohde & Schwarz	SMB100A	175727	100kHz~40GHz	Dec. 23, 2018	Jun. 09, 2019~ Jun. 11, 2019	Dec. 23, 2019	Radiation (03CH12-HY)
Base Station	Rohde & Schwarz	CMU200	106656	GSM/GPRS/WCDMA/CDMA	Nov. 15, 2018	Jun. 09, 2019~ Jun. 11, 2019	Nov. 14, 2020	Radiation (03CH12-HY)
Base Station	Anritsu	MT8821C	6201432816	GSM / GPRS /WCDMA / LTE FDD/TDD with 44) /LTE-3CC DLCA,2CC ULCA	May 05, 2019	Jun. 09, 2019~ Jun. 11, 2019	May 04, 2020	Radiation (03CH12-HY)
Filter	Wainwright	WLK4-1000-1530-6000-40SS	SN11	1 GHz Lowpass	Sep. 16, 2018	Jun. 09, 2019~ Jun. 11, 2019	Sep. 15, 2019	Radiation (03CH12-HY)
Filter	Wainwright	WHKX12-1080-1200-1500-60SS	SN2	1.2G High Pass	Sep. 16, 2018	Jun. 09, 2019~ Jun. 11, 2019	Sep. 15, 2019	Radiation (03CH12-HY)
Filter	Wainwright	WHKX12-2700-3000-18000-60ST	SN2	3GHz High Pass	Mar. 20, 2019	Jun. 09, 2019~ Jun. 11, 2019	Mar. 19, 2020	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 126E	0058/126E	30M-18G	Mar. 13, 2019	Jun. 09, 2019~ Jun. 11, 2019	Mar. 12, 2020	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	505134/2	30M~40GHz	Oct. 16, 2018	Jun. 09, 2019~ Jun. 11, 2019	Oct. 15, 2019	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	800740/2	30M~40GHz	Oct. 16, 2018	Jun. 09, 2019~ Jun. 11, 2019	Oct. 15, 2019	Radiation (03CH12-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Jun. 09, 2019~ Jun. 11, 2019	N/A	Radiation (03CH12-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Jun. 09, 2019~ Jun. 11, 2019	N/A	Radiation (03CH12-HY)
Software	Audix	E3 6.2009-8-24	RK-000989	N/A	N/A	Jun. 09, 2019~ Jun. 11, 2019	N/A	Radiation (03CH12-HY)

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. 14, 2018	Feb. 01, 2019~ Jun. 06, 2019	Oct. 13, 2019	Conducted (TH05-HY)
Base Station (Measure)	Anritsu	MT8821C	6201664755	GSM / GPRS /WCDMA / LTE FDD/TDD with 44) /LTE-3CC DLCA,2CC ULCA	Feb. 26, 2018	Feb. 01, 2019~ Feb. 24, 2019	Feb. 25, 2019	Conducted (TH05-HY)
Base Station (Measure)	Anritsu	MT8821C	6201664755	GSM / GPRS /WCDMA / LTE FDD/TDD with 44) /LTE-3CC DLCA,2CC ULCA	Mar. 03, 2019	May 04, 2019~ Jun. 06, 2019	Mar. 02, 2020	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSV40	101397	10Hz~40GHz	Nov. 13, 2018	Feb. 01, 2019~ Jun. 06, 2019	Nov. 12, 2019	Conducted (TH05-HY)
Temperature Chamber	ESPEC	SH-641	92013720	-40℃~90℃	Aug. 29, 2018	Feb. 01, 2019~ Jun. 06, 2019	Aug. 28, 2019	Conducted (TH05-HY)
Programmable Power Supply	GW Instek	PSS-2005	EL890094	1V~20V 0.5A~5A	Oct. 02, 2018	Feb. 01, 2019~ Jun. 06, 2019	Oct. 01, 2019	Conducted (TH05-HY)
Coupler	Warison	20dB 25W SMA Directional Coupler	#A	1-18GHz	Jan. 14, 2019	Feb. 01, 2019~ Jun. 06, 2019	Jan. 13, 2020	Conducted (TH05-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

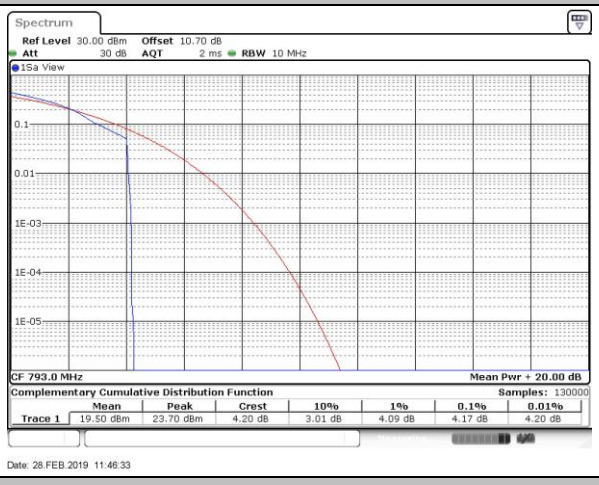
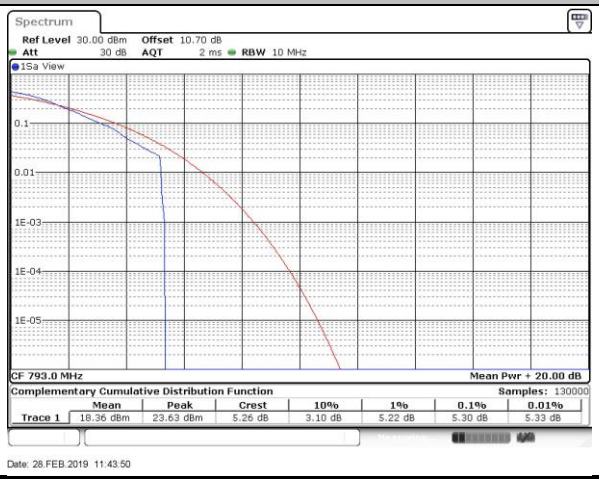
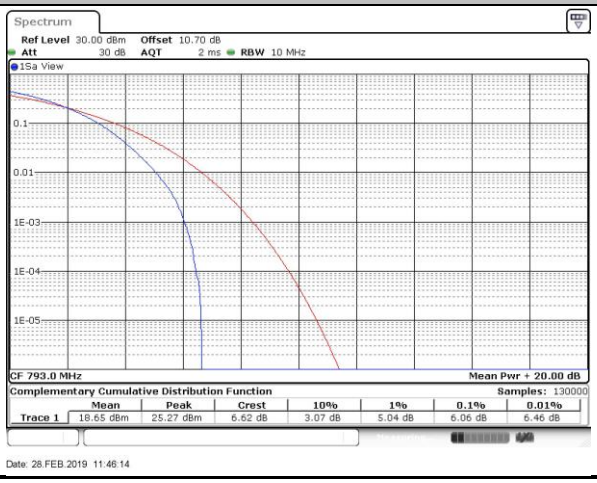
Conducted Output Power(Average power)

LTE Band 14 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
10	1	0	QPSK	-	**23.12**	-
10	1	25			22.99	
10	1	49			22.91	
10	25	0			22.15	
10	25	12			22.14	
10	25	25			22.04	
10	50	0			22.12	
10	1	0	16-QAM		22.40	
10	1	25			22.28	
10	1	49			22.14	
10	25	0			21.15	
10	25	12			21.13	
10	25	25			21.03	
10	50	0			21.10	
10	1	0	64-QAM		21.36	
10	1	25			21.22	
10	1	49			21.11	
10	25	0			20.17	
10	25	12			20.13	
10	25	25			20.06	
10	50	0			20.12	
5	1	0	QPSK	22.95	22.96	23.04
5	1	12		23.03	23.10	22.98
5	1	24		23.05	22.97	23.00
5	12	0		22.13	22.05	22.10
5	12	7		22.17	22.13	22.14
5	12	13		22.16	22.11	22.08
5	25	0		22.17	22.10	22.10
5	1	0	16-QAM	22.19	22.25	22.37
5	1	12		22.37	22.43	22.29
5	1	24		22.34	22.32	22.21
5	12	0		21.14	21.09	21.09
5	12	7		21.19	21.15	21.12
5	12	13		21.18	21.10	21.09
5	25	0		21.14	21.10	21.11
5	1	0	64-QAM	21.22	21.22	21.30
5	1	12		21.32	21.38	21.26
5	1	24		21.33	21.22	21.15
5	12	0		20.18	20.10	20.13
5	12	7		20.25	20.16	20.16
5	12	13		20.24	20.13	20.12
5	25	0		20.17	20.12	20.12

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	3.77	4.41	4.17	5.45	
Highest CH	-	-	-	-	
Mode	LTE Band 14 / 10MHz				
Mod.	64QAM				Limit: 13dB
RB Size	1RB	Full RB			Result
Lowest CH	-	-	-	-	PASS
Middle CH	5.30	6.06	-	-	
Highest CH	-	-	-	-	

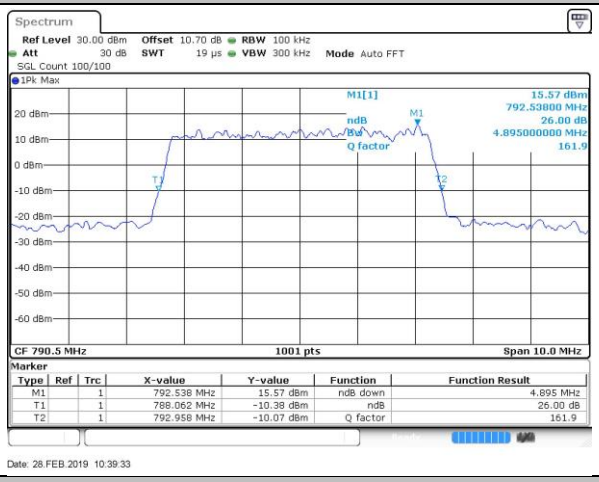
LTE Band 14 / 10MHz / QPSK	
Middle Channel/ 1RB	**Middle Channel / Full RB**
	
LTE Band 14 / 10MHz / 16QAM	
Middle Channel/ 1RB	**Middle Channel / Full RB**
	
LTE Band 14 / 10MHz / 64QAM	
Middle Channel/ 1RB	**Middle Channel / Full RB**
	

26dB Bandwidth

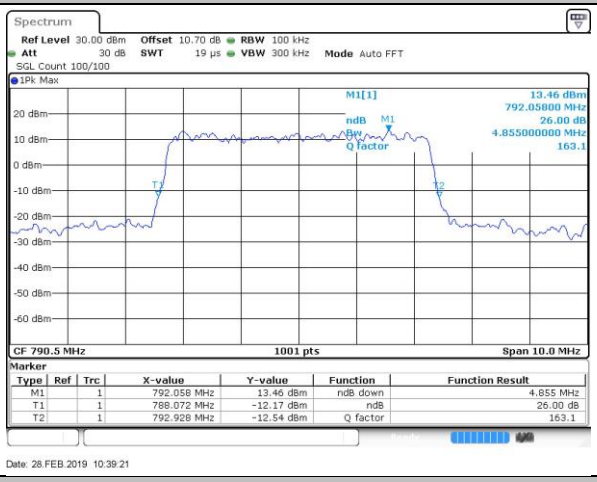
Mode	LTE Band 14 : 26dB BW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	-	-	-	-	4.90	4.86	-	-	-	-	-	-
Middle CH	-	-	-	-	4.90	4.92	9.75	9.69	-	-	-	-
Highest CH	-	-	-	-	4.88	4.80	-	-	-	-	-	-
Mode	LTE Band 14 : 26dB BW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	64QAM		64QAM		64QAM		64QAM		64QAM		64QAM	
Lowest CH	-	-	-	-	4.79	-	-	-	-	-	-	-
Middle CH	-	-	-	-	4.86	-	9.77	-	-	-	-	-
Highest CH	-	-	-	-	4.97	-	-	-	-	-	-	-

LTE Band 14

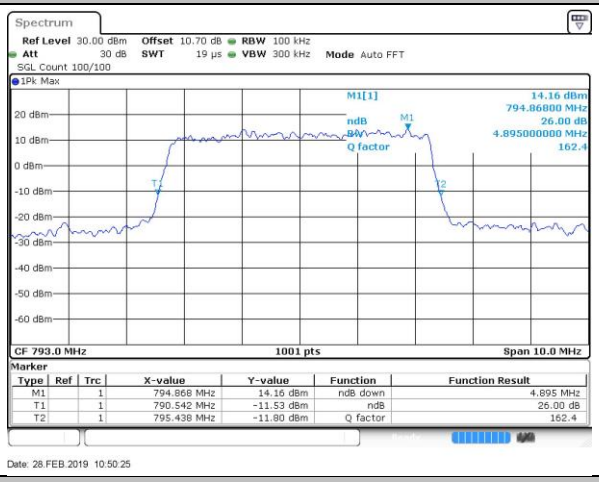
Lowest Channel / 5MHz / QPSK



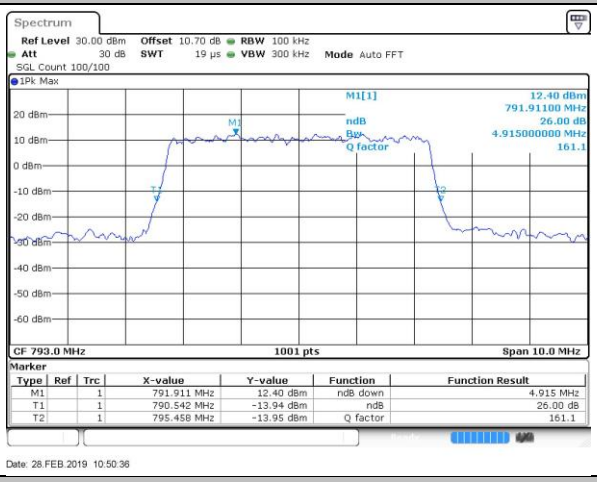
Lowest Channel / 5MHz / 16QAM



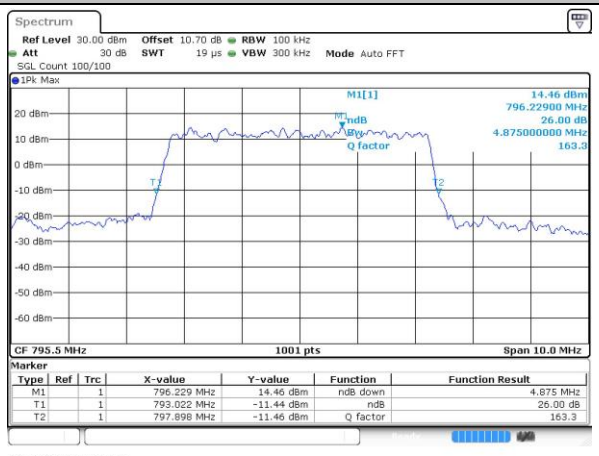
Middle Channel / 5MHz / QPSK



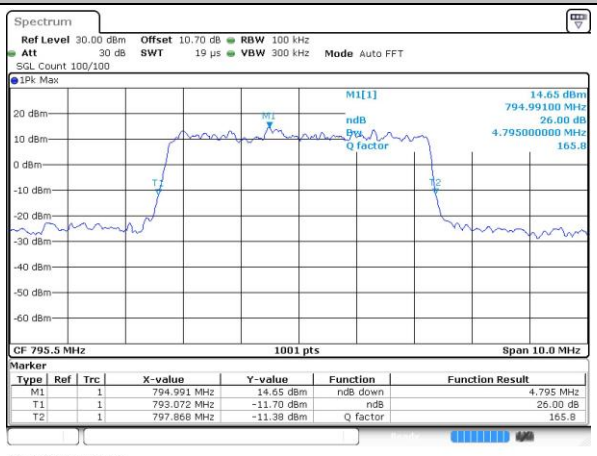
Middle Channel / 5MHz / 16QAM

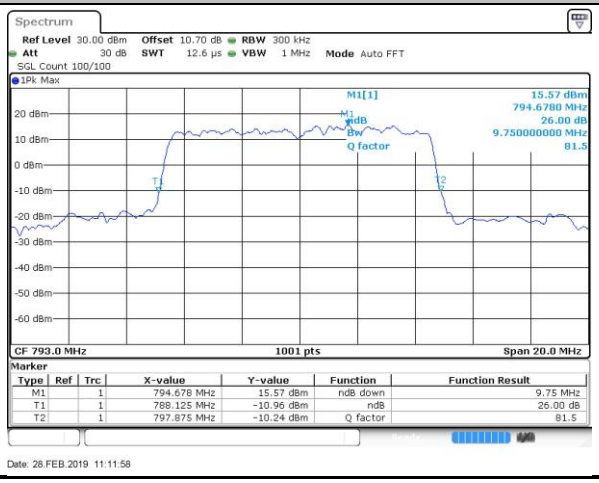
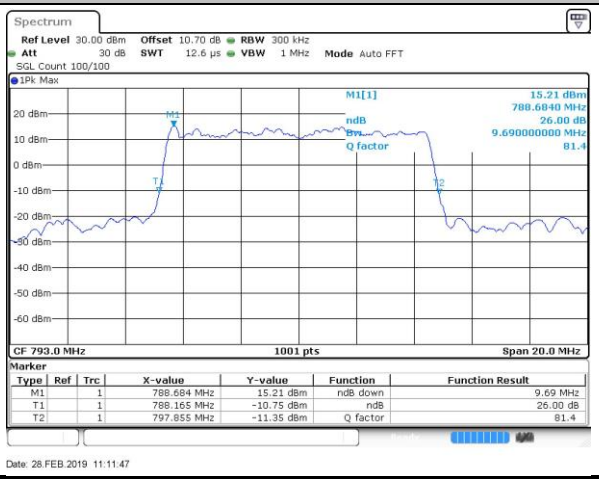


Highest Channel / 5MHz / QPSK



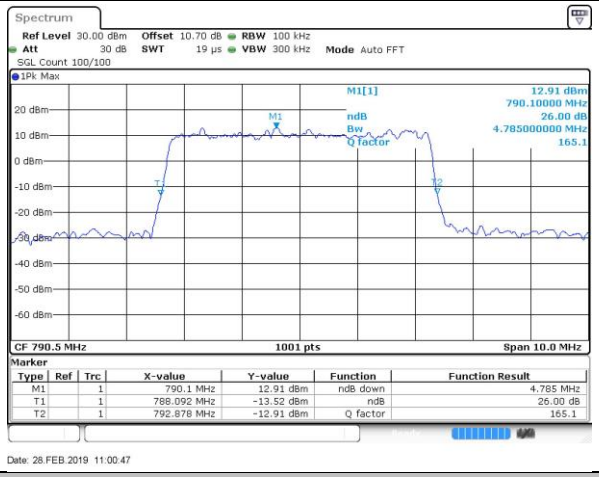
Highest Channel / 5MHz / 16QAM



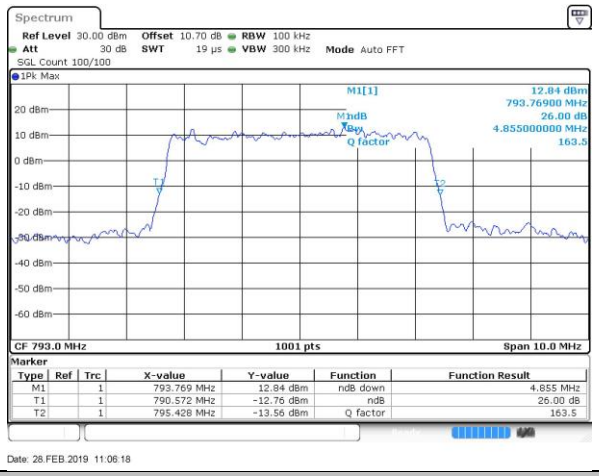
LTE Band 14	
Middle Channel / 10MHz / QPSK	**Middle Channel / 10MHz / 16QAM**
	

LTE Band 14

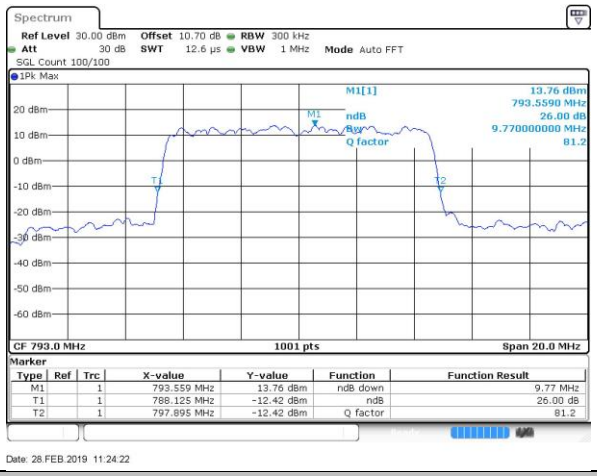
Lowest Channel / 5MHz / 64QAM



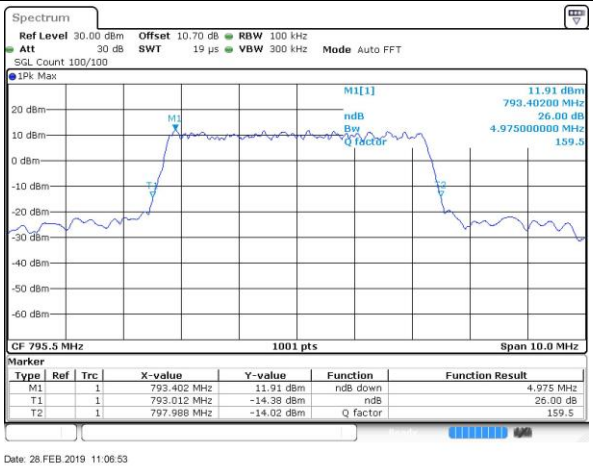
Middle Channel / 5MHz / 64QAM



Middle Channel / 10MHz / 64QAM



Highest Channel / 5MHz / 64QAM

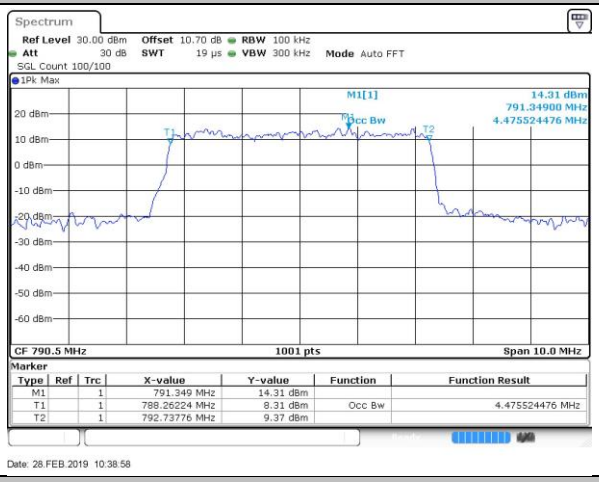


Occupied Bandwidth

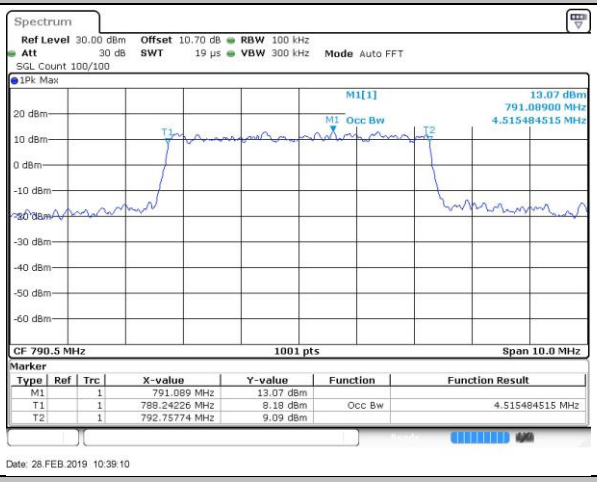
Mode	LTE Band 14 : 99%OBW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	-	-	-	-	4.48	4.52	-	-	-	-	-	-
Middle CH	-	-	-	-	4.5	4.5	9.01	9.01	-	-	-	-
Highest CH	-	-	-	-	4.49	4.51	-	-	-	-	-	-
Mode	LTE Band 14 : 99%OBW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	64QAM		64QAM		64QAM		64QAM		64QAM		64QAM	
Lowest CH	-	-	-	-	4.50	-	-	-	-	-	-	-
Middle CH	-	-	-	-	4.50	-	9.07	-	-	-	-	-
Highest CH	-	-	-	-	4.49	-	-	-	-	-	-	-

LTE Band 14

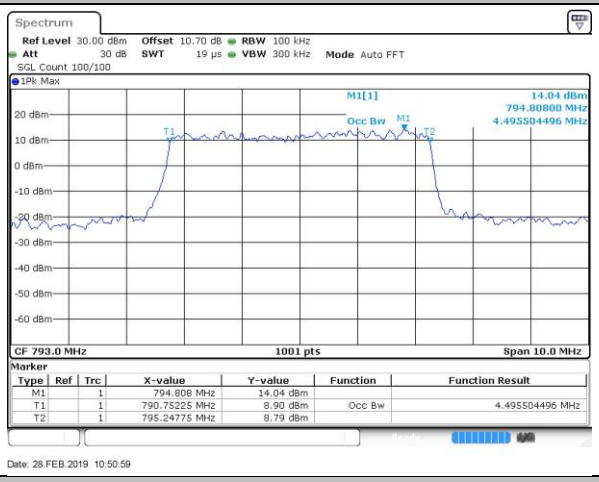
Lowest Channel / 5MHz / QPSK



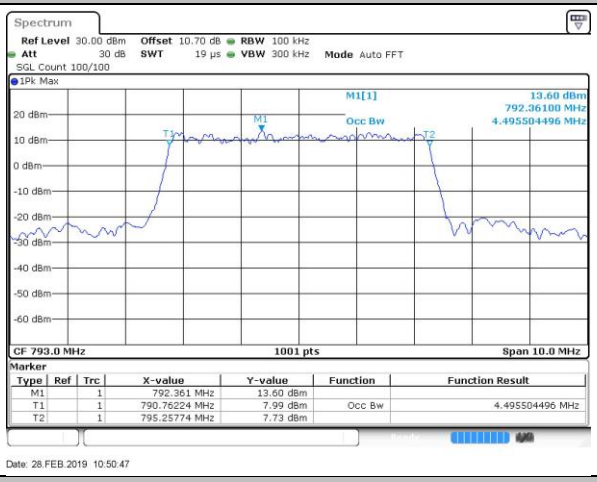
Lowest Channel / 5MHz / 16QAM



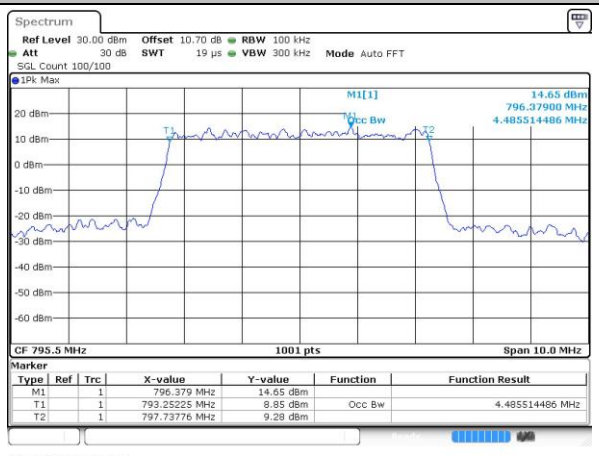
Middle Channel / 5MHz / QPSK



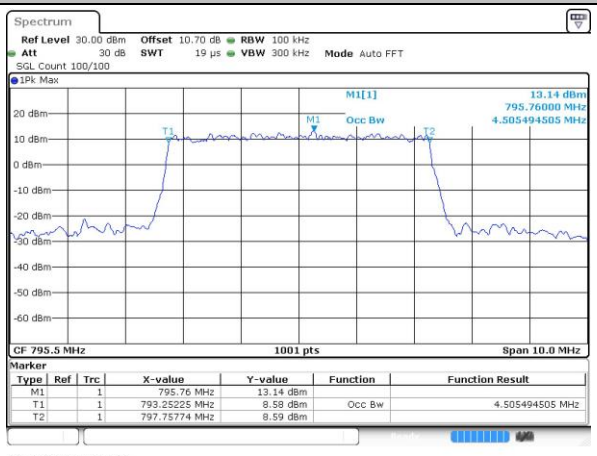
Middle Channel / 5MHz / 16QAM

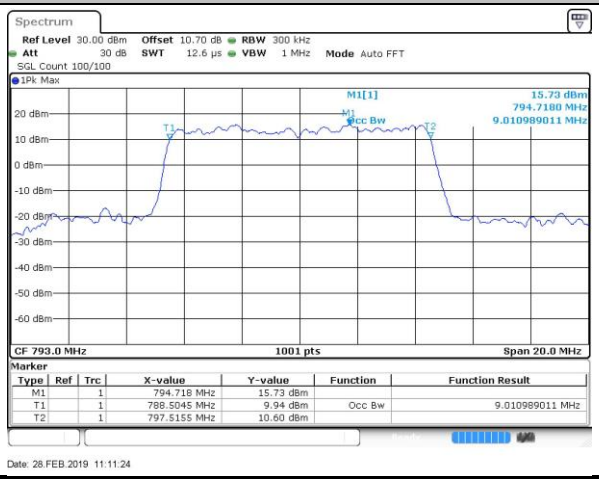
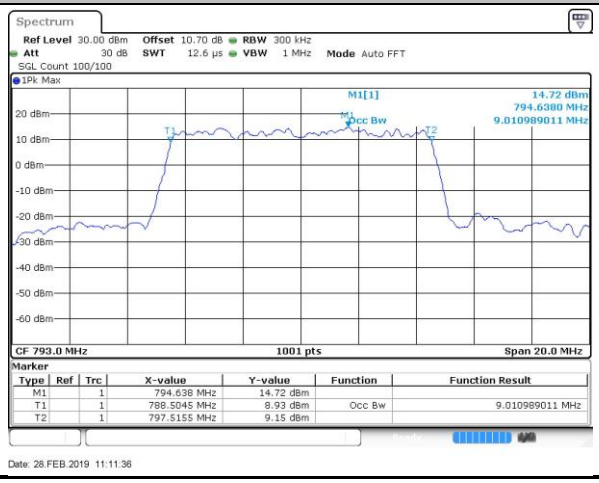


Highest Channel / 5MHz / QPSK



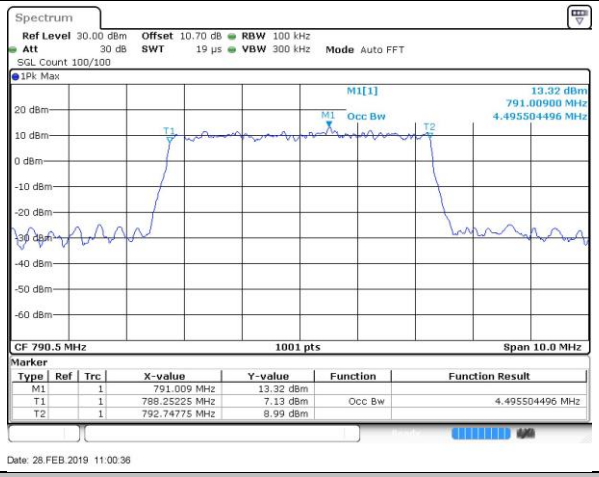
Highest Channel / 5MHz / 16QAM



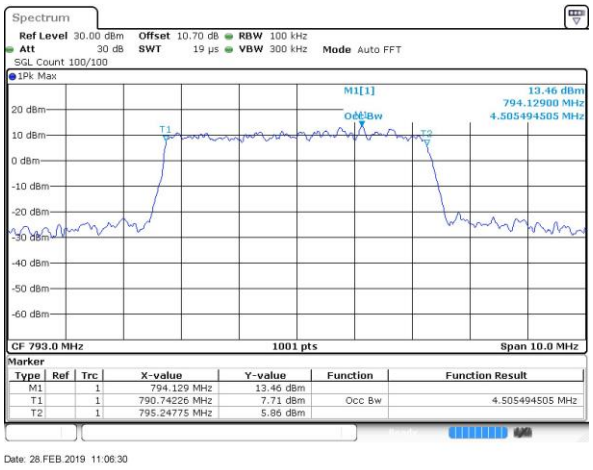
LTE Band 14	
Middle Channel / 10MHz / QPSK	**Middle Channel / 10MHz / 16QAM**
	

LTE Band 14

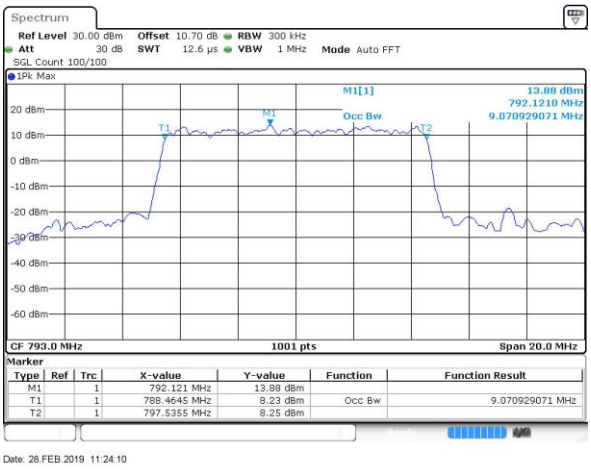
Lowest Channel / 5MHz / 64QAM



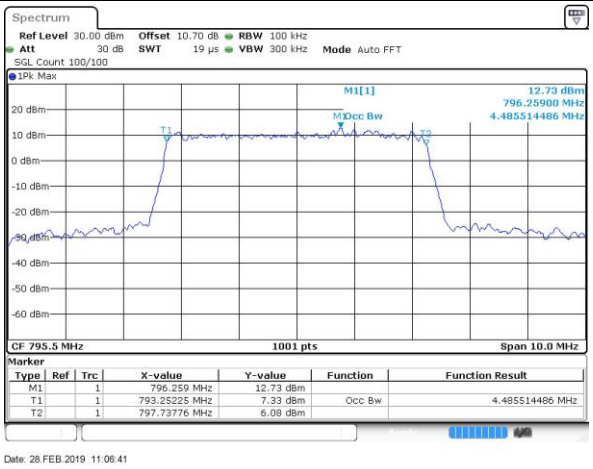
Middle Channel / 5MHz / 64QAM



Middle Channel / 10MHz / 64QAM



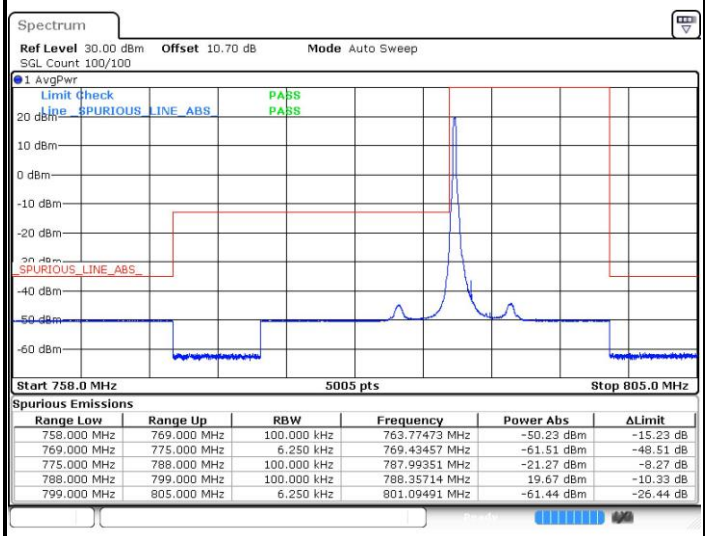
Highest Channel / 5MHz / 64QAM



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	763.77473 MHz	-50.23 dBm	-15.23 dB
769.000 MHz	775.000 MHz	6.250 kHz	769.43457 MHz	-61.51 dBm	-48.51 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-21.27 dBm	-8.27 dB
788.000 MHz	799.000 MHz	100.000 kHz	788.35714 MHz	19.67 dBm	-10.33 dB
799.000 MHz	805.000 MHz	6.250 kHz	801.09491 MHz	-61.44 dBm	-26.44 dB

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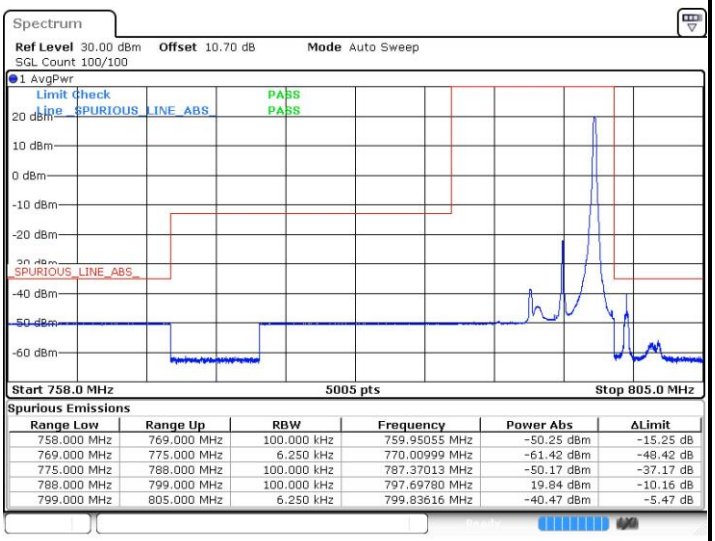
Highest Band Edge / 1 RB



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	759.95055 MHz	-50.25 dBm	-15.25 dB
769.000 MHz	775.000 MHz	6.250 kHz	770.00999 MHz	-61.42 dBm	-48.42 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.37013 MHz	-50.17 dBm	-37.17 dB
788.000 MHz	799.000 MHz	100.000 kHz	797.69780 MHz	19.84 dBm	-10.16 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.83616 MHz	-40.47 dBm	-5.47 dB

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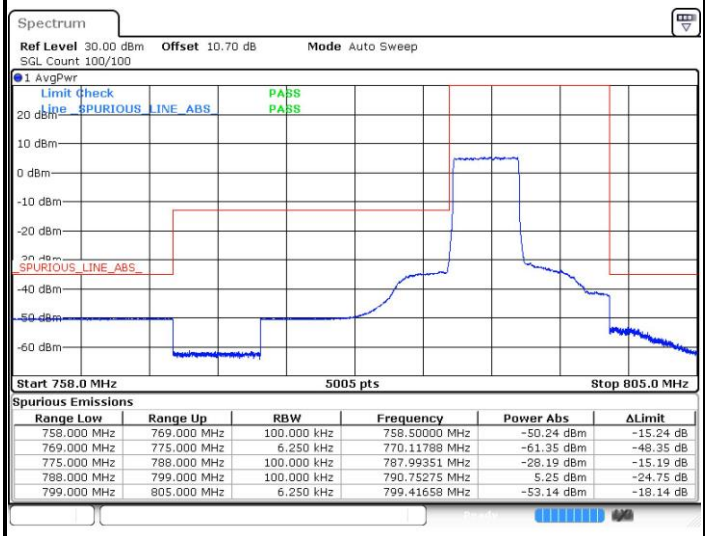
Lowest Band Edge / Full RB



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	758.50000 MHz	-50.24 dBm	-15.24 dB
769.000 MHz	775.000 MHz	6.250 kHz	770.11788 MHz	-61.35 dBm	-48.35 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-28.19 dBm	-15.19 dB
788.000 MHz	799.000 MHz	100.000 kHz	790.75275 MHz	5.25 dBm	-24.75 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.41658 MHz	-53.14 dBm	-18.14 dB

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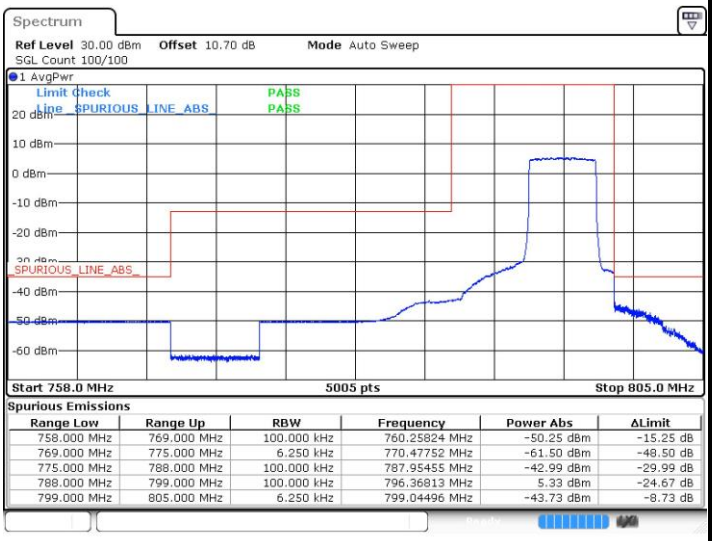
Highest Band Edge / Full RB



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	760.25824 MHz	-50.25 dBm	-15.25 dB
769.000 MHz	775.000 MHz	6.250 kHz	770.47752 MHz	-61.50 dBm	-48.50 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.95455 MHz	-42.99 dBm	-29.99 dB
788.000 MHz	799.000 MHz	100.000 kHz	796.36813 MHz	5.33 dBm	-24.67 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.04496 MHz	-43.73 dBm	-8.73 dB

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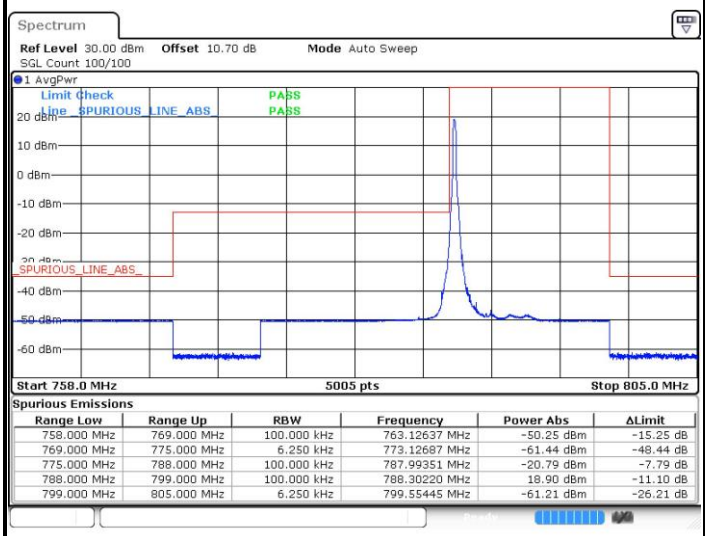
LTE Band 14 / 5MHz / 16QAM

Lowest Band Edge /1 RB

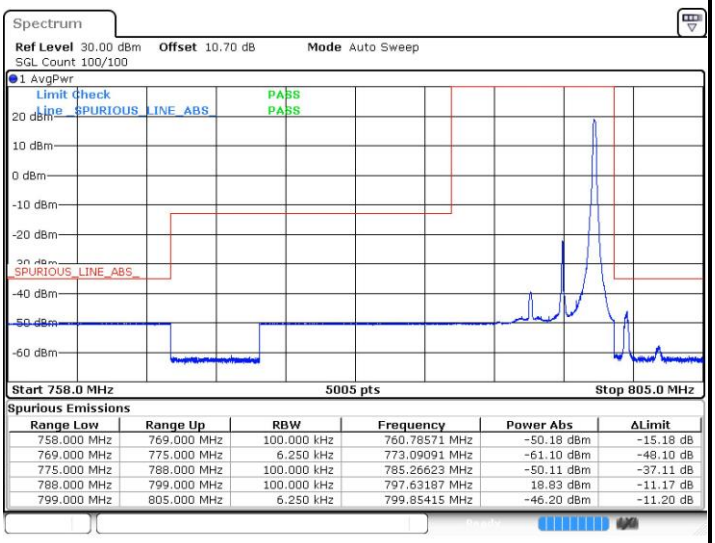


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	763.12637 MHz	-50.25 dBm	-15.25 dB
769.000 MHz	775.000 MHz	6.250 kHz	773.12687 MHz	-61.44 dBm	-48.44 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-20.79 dBm	-7.79 dB
788.000 MHz	799.000 MHz	100.000 kHz	788.30220 MHz	18.90 dBm	-11.10 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.55445 MHz	-61.21 dBm	-26.21 dB

Date: 28.FEB.2019 10:44:34

Highest Band Edge / 1 RB

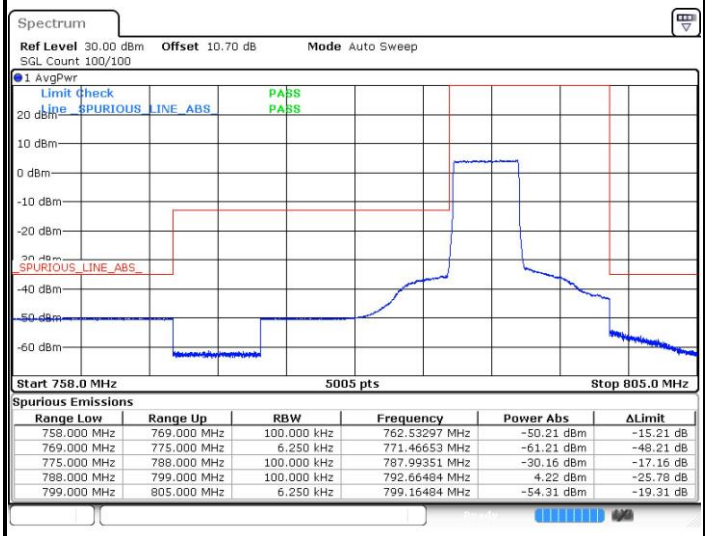


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	760.78571 MHz	-50.18 dBm	-15.18 dB
769.000 MHz	775.000 MHz	6.250 kHz	773.09091 MHz	-61.10 dBm	-48.10 dB
775.000 MHz	788.000 MHz	100.000 kHz	785.26623 MHz	-50.11 dBm	-37.11 dB
788.000 MHz	799.000 MHz	100.000 kHz	797.63187 MHz	18.83 dBm	-11.17 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.85415 MHz	-46.20 dBm	-11.20 dB

Date: 28.FEB.2019 10:56:45

Lowest Band Edge / Full RB

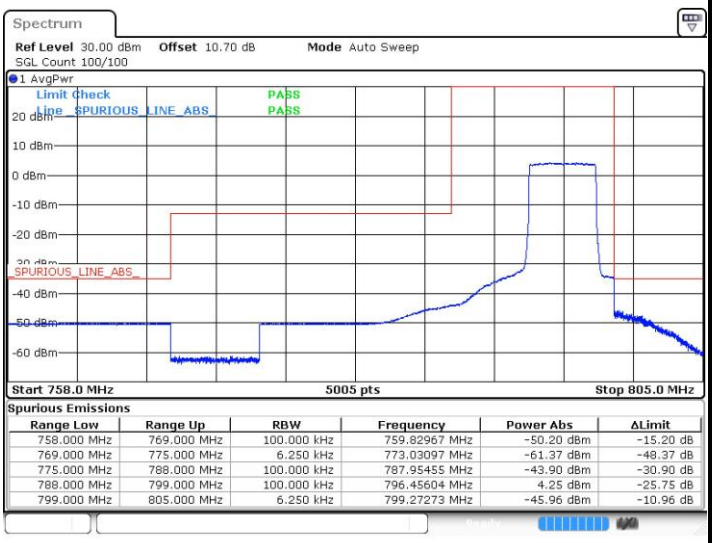


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	762.53297 MHz	-50.21 dBm	-15.21 dB
769.000 MHz	775.000 MHz	6.250 kHz	771.46653 MHz	-61.21 dBm	-48.21 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-30.16 dBm	-17.16 dB
788.000 MHz	799.000 MHz	100.000 kHz	792.66484 MHz	4.22 dBm	-25.78 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.16484 MHz	-54.31 dBm	-19.31 dB

Date: 28.FEB.2019 10:42:53

Highest Band Edge / Full RB



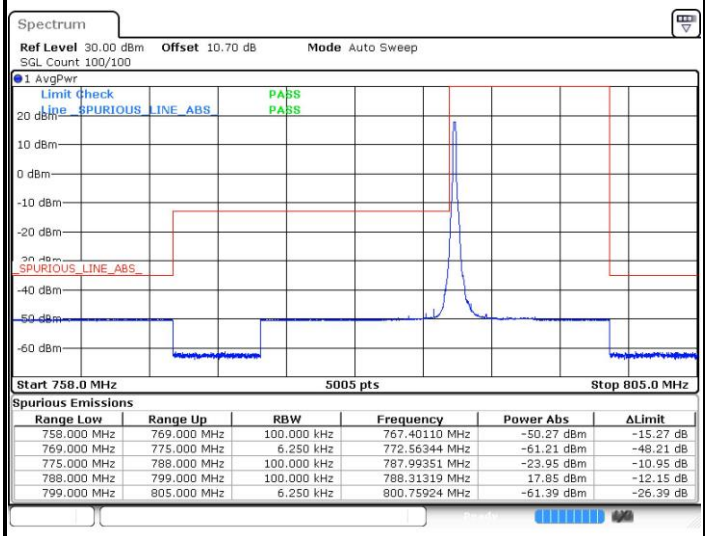
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	759.82967 MHz	-50.20 dBm	-15.20 dB
769.000 MHz	775.000 MHz	6.250 kHz	773.03097 MHz	-61.37 dBm	-48.37 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.95455 MHz	-43.90 dBm	-30.90 dB
788.000 MHz	799.000 MHz	100.000 kHz	796.45604 MHz	4.25 dBm	-25.75 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.27273 MHz	-45.96 dBm	-10.96 dB

Date: 28.FEB.2019 10:55:05

LTE Band 14 / 5MHz / 64QAM

Lowest Band Edge / 1 RB

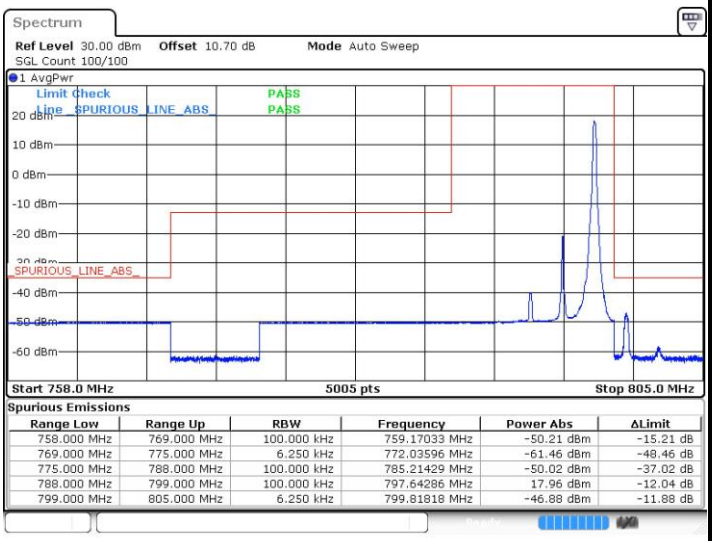


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	767.40110 MHz	-50.27 dBm	-15.27 dB
769.000 MHz	775.000 MHz	6.250 kHz	772.56344 MHz	-61.21 dBm	-48.21 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-23.95 dBm	-10.95 dB
788.000 MHz	799.000 MHz	100.000 kHz	788.31319 MHz	17.85 dBm	-12.15 dB
799.000 MHz	805.000 MHz	6.250 kHz	800.75924 MHz	-61.39 dBm	-26.39 dB

Date: 28.FEB.2019 11:04:07

Highest Band Edge / 1 RB

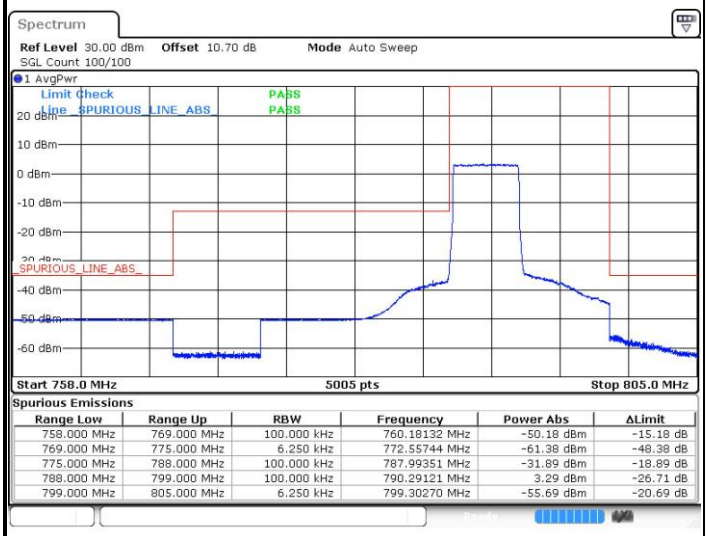


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	759.17033 MHz	-50.21 dBm	-15.21 dB
769.000 MHz	775.000 MHz	6.250 kHz	772.03596 MHz	-61.46 dBm	-48.46 dB
775.000 MHz	788.000 MHz	100.000 kHz	785.21429 MHz	-50.02 dBm	-37.02 dB
788.000 MHz	799.000 MHz	100.000 kHz	797.64286 MHz	17.96 dBm	-12.04 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.81818 MHz	-46.88 dBm	-11.88 dB

Date: 28.FEB.2019 11:10:13

Lowest Band Edge / Full RB

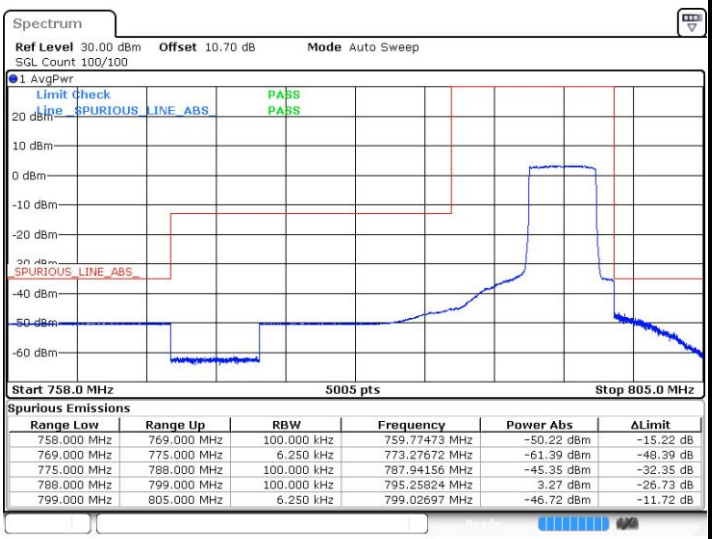


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	760.18132 MHz	-50.18 dBm	-15.18 dB
769.000 MHz	775.000 MHz	6.250 kHz	772.55744 MHz	-61.38 dBm	-48.38 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-31.89 dBm	-18.89 dB
788.000 MHz	799.000 MHz	100.000 kHz	790.29121 MHz	3.29 dBm	-26.71 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.30270 MHz	-55.69 dBm	-20.69 dB

Date: 28.FEB.2019 11:02:27

Highest Band Edge / Full RB

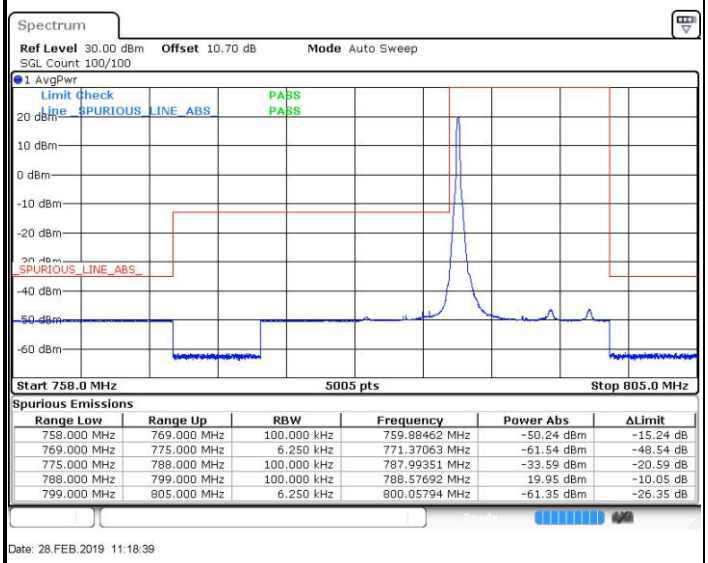


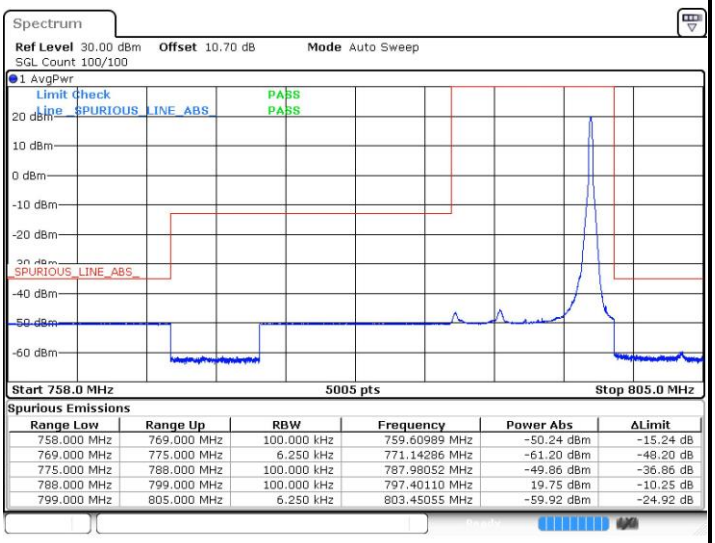
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	759.77473 MHz	-50.22 dBm	-15.22 dB
769.000 MHz	775.000 MHz	6.250 kHz	773.27672 MHz	-61.39 dBm	-48.39 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.94156 MHz	-45.35 dBm	-32.35 dB
788.000 MHz	799.000 MHz	100.000 kHz	795.25824 MHz	3.27 dBm	-26.73 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.02697 MHz	-46.72 dBm	-11.72 dB

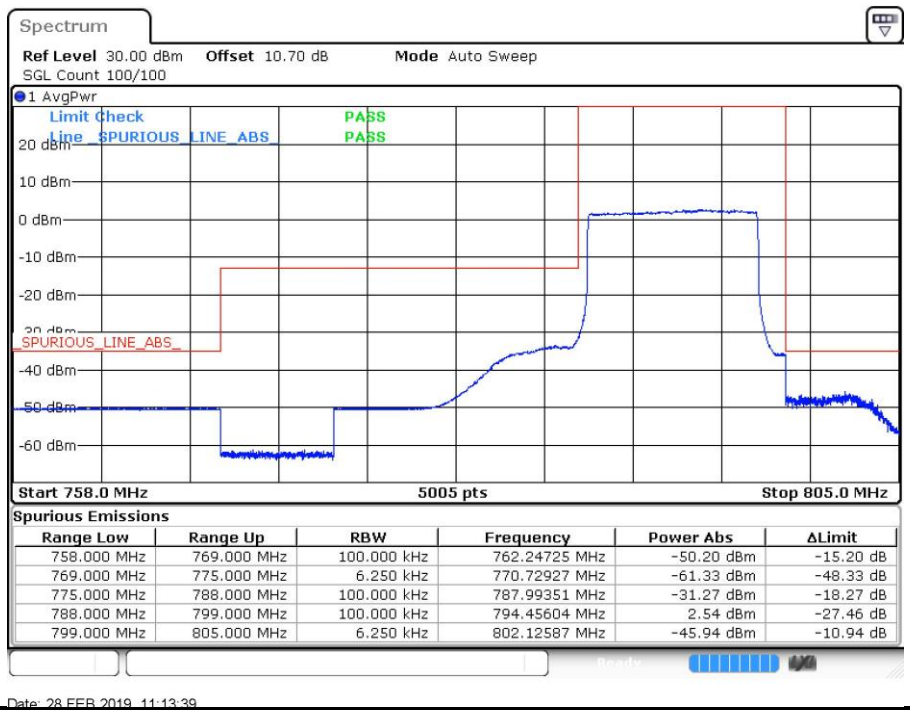
Date: 28.FEB.2019 11:08:33

LTE Band 14 / 10MHz / QPSK	
Lowest Band Edge / 1 RB	**Highest Band Edge / 1 RB**



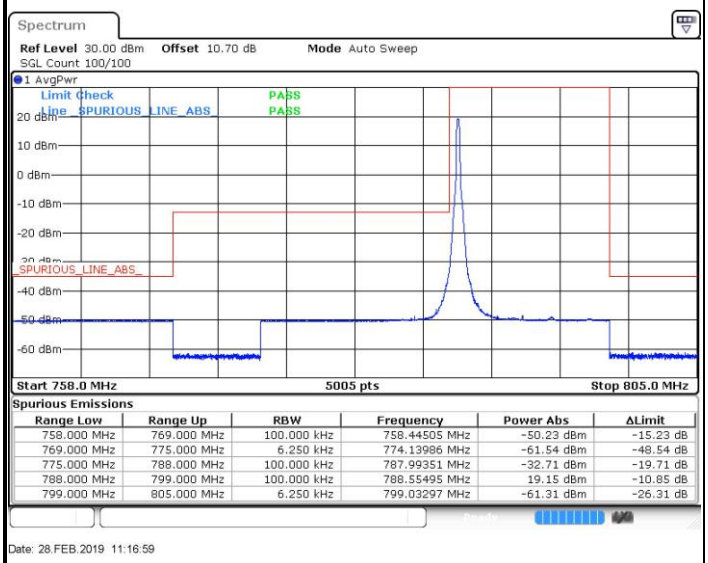


Band Edge / Full RB



LTE Band 14 / 10MHz / 16QAM

Lowest Band Edge / 1 RB

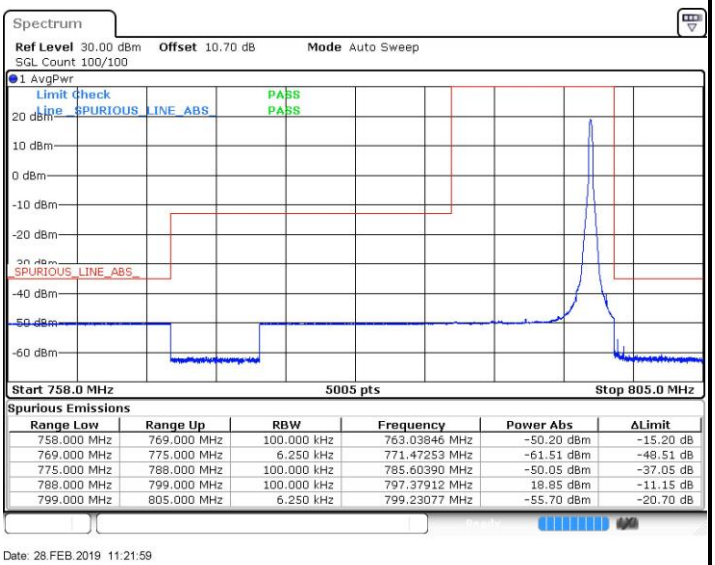


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	758.44505 MHz	-50.23 dBm	-15.23 dB
769.000 MHz	775.000 MHz	6.250 kHz	774.13986 MHz	-61.54 dBm	-48.54 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-32.71 dBm	-19.71 dB
788.000 MHz	799.000 MHz	100.000 kHz	788.55495 MHz	19.15 dBm	-10.85 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.03297 MHz	-61.31 dBm	-26.31 dB

Date: 28.FEB.2019 11:16:59

Highest Band Edge / 1 RB

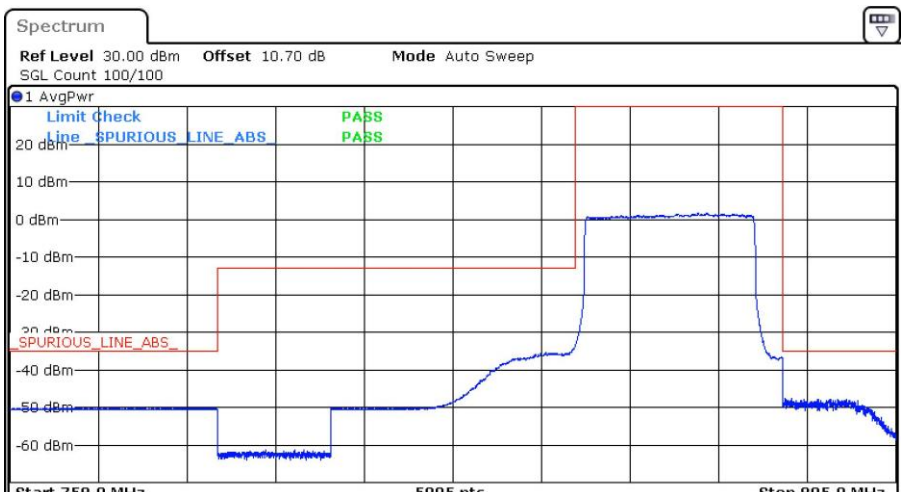


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	763.03846 MHz	-50.20 dBm	-15.20 dB
769.000 MHz	775.000 MHz	6.250 kHz	771.47253 MHz	-61.51 dBm	-48.51 dB
775.000 MHz	788.000 MHz	100.000 kHz	785.60390 MHz	-50.05 dBm	-37.05 dB
788.000 MHz	799.000 MHz	100.000 kHz	797.37912 MHz	18.85 dBm	-11.15 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.23077 MHz	-55.70 dBm	-20.70 dB

Date: 28.FEB.2019 11:21:59

Band Edge / Full RB



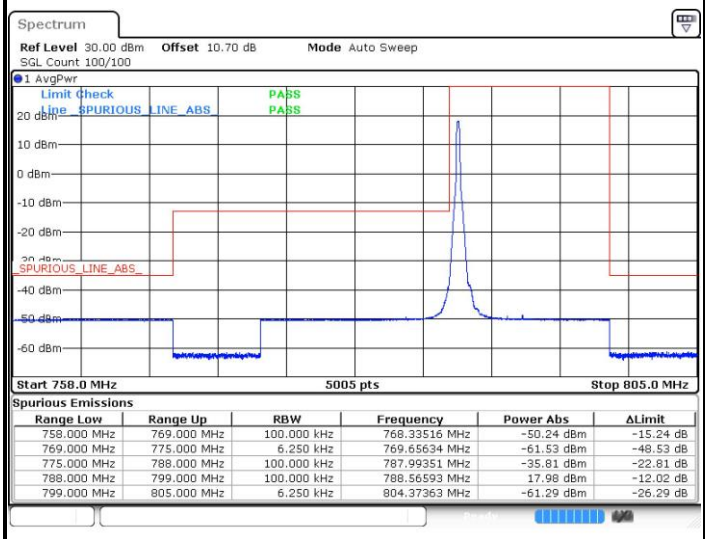
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	762.43407 MHz	-50.17 dBm	-15.17 dB
769.000 MHz	775.000 MHz	6.250 kHz	771.54446 MHz	-61.32 dBm	-48.32 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-33.35 dBm	-20.35 dB
788.000 MHz	799.000 MHz	100.000 kHz	794.48901 MHz	1.61 dBm	-28.39 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.44655 MHz	-47.57 dBm	-12.57 dB

Date: 28.FEB.2019 11:15:19

LTE Band 14 / 10MHz / 64QAM

Lowest Band Edge / 1 RB

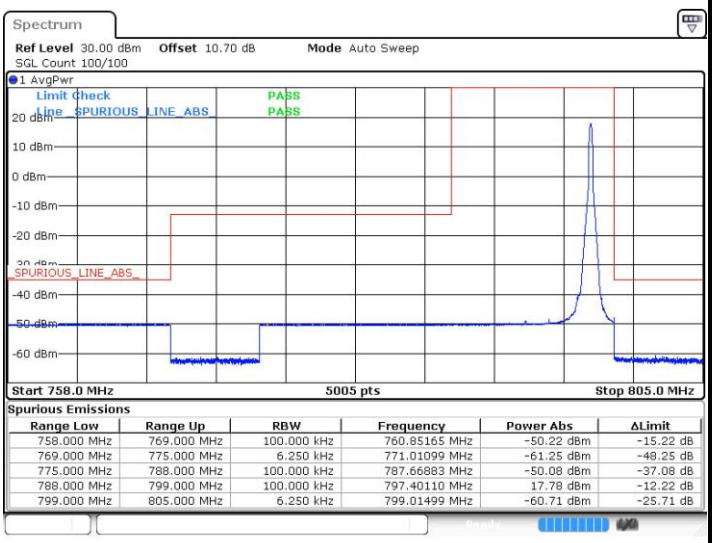


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	768.33516 MHz	-50.24 dBm	-15.24 dB
769.000 MHz	775.000 MHz	6.250 kHz	769.65634 MHz	-61.53 dBm	-48.53 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-35.81 dBm	-22.81 dB
788.000 MHz	799.000 MHz	100.000 kHz	788.56593 MHz	17.98 dBm	-12.02 dB
799.000 MHz	805.000 MHz	6.250 kHz	804.37363 MHz	-61.29 dBm	-26.29 dB

Date: 28.FEB.2019 11:27:42

Highest Band Edge / 1 RB

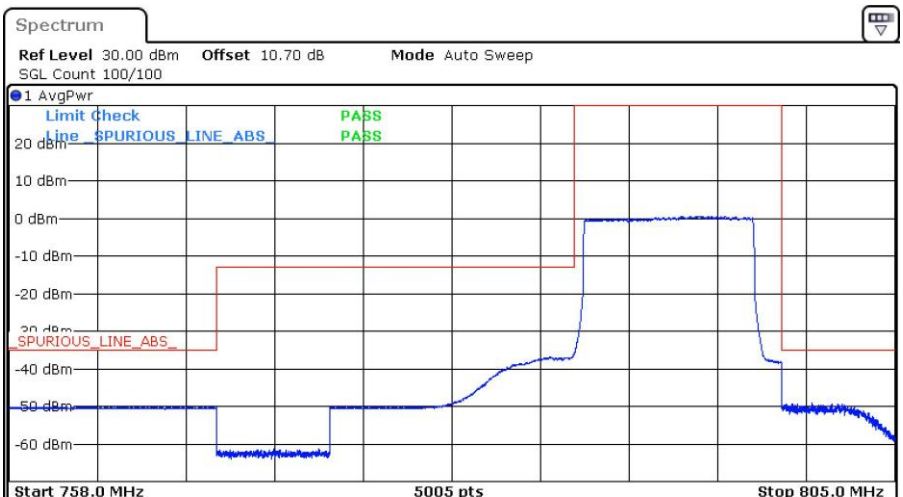


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	760.85165 MHz	-50.22 dBm	-15.22 dB
769.000 MHz	775.000 MHz	6.250 kHz	771.01099 MHz	-61.25 dBm	-48.25 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.66883 MHz	-50.08 dBm	-37.08 dB
788.000 MHz	799.000 MHz	100.000 kHz	797.40110 MHz	17.78 dBm	-12.22 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.01499 MHz	-60.71 dBm	-25.71 dB

Date: 28.FEB.2019 11:29:22

Band Edge / Full RB



Spurious Emissions

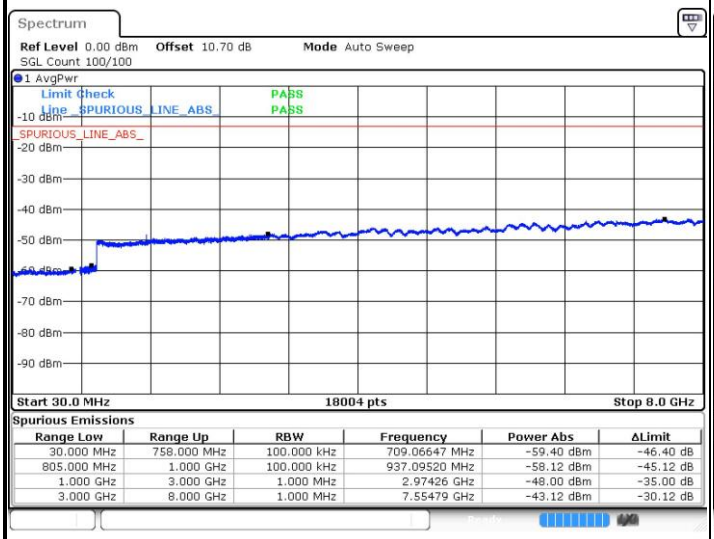
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	759.81868 MHz	-50.21 dBm	-15.21 dB
769.000 MHz	775.000 MHz	6.250 kHz	772.05994 MHz	-61.35 dBm	-48.35 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-36.05 dBm	-23.05 dB
788.000 MHz	799.000 MHz	100.000 kHz	794.65385 MHz	0.52 dBm	-29.48 dB
799.000 MHz	805.000 MHz	6.250 kHz	800.59740 MHz	-49.05 dBm	-14.05 dB

Date: 28.FEB.2019 11:26:02

Conducted Spurious Emission

LTE Band 14 / 5MHz

Lowest Channel / QPSK

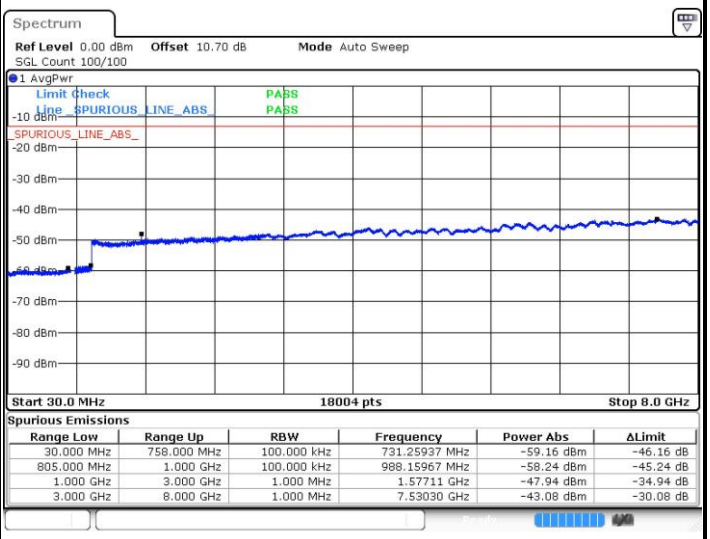


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	758.000 MHz	100.000 kHz	709.06647 MHz	-59.40 dBm	-46.40 dB
805.000 MHz	1.000 GHz	100.000 kHz	937.09520 MHz	-58.12 dBm	-45.12 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.97426 GHz	-48.00 dBm	-35.00 dB
3.000 GHz	8.000 GHz	1.000 MHz	7.55479 GHz	-43.12 dBm	-30.12 dB

Date: 28.FEB.2019 10:47:14

Lowest Channel / 16QAM

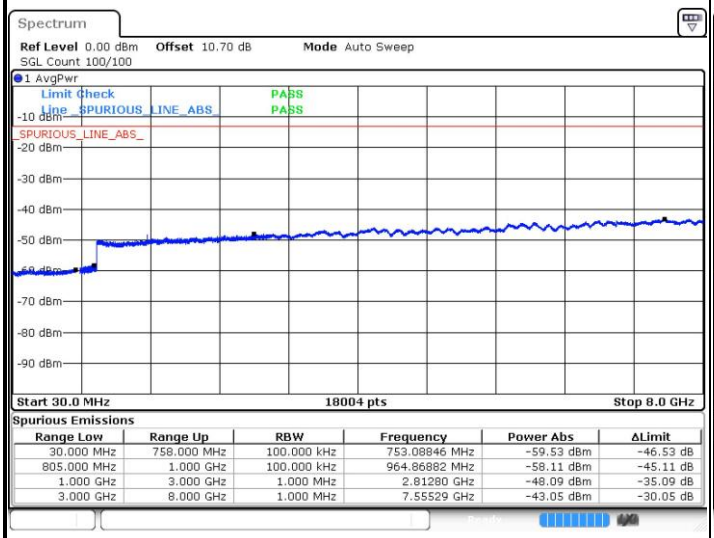


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	758.000 MHz	100.000 kHz	731.25937 MHz	-59.16 dBm	-46.16 dB
805.000 MHz	1.000 GHz	100.000 kHz	988.15967 MHz	-58.24 dBm	-45.24 dB
1.000 GHz	3.000 GHz	1.000 MHz	1.57711 GHz	-47.94 dBm	-34.94 dB
3.000 GHz	8.000 GHz	1.000 MHz	7.53030 GHz	-43.08 dBm	-30.08 dB

Date: 28.FEB.2019 10:48:14

Middle Channel / QPSK

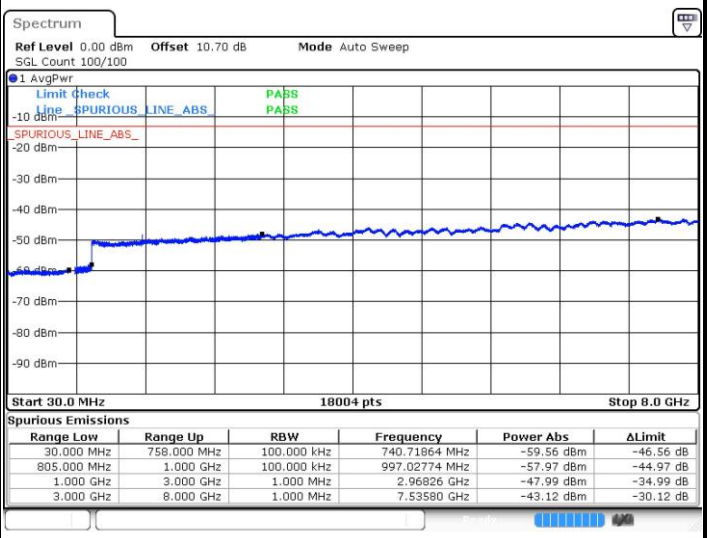


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	758.000 MHz	100.000 kHz	753.08846 MHz	-59.53 dBm	-46.53 dB
805.000 MHz	1.000 GHz	100.000 kHz	964.86882 MHz	-58.11 dBm	-45.11 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.81280 GHz	-48.09 dBm	-35.09 dB
3.000 GHz	8.000 GHz	1.000 MHz	7.55529 GHz	-43.05 dBm	-30.05 dB

Date: 28.FEB.2019 10:50:14

Middle Channel / 16QAM



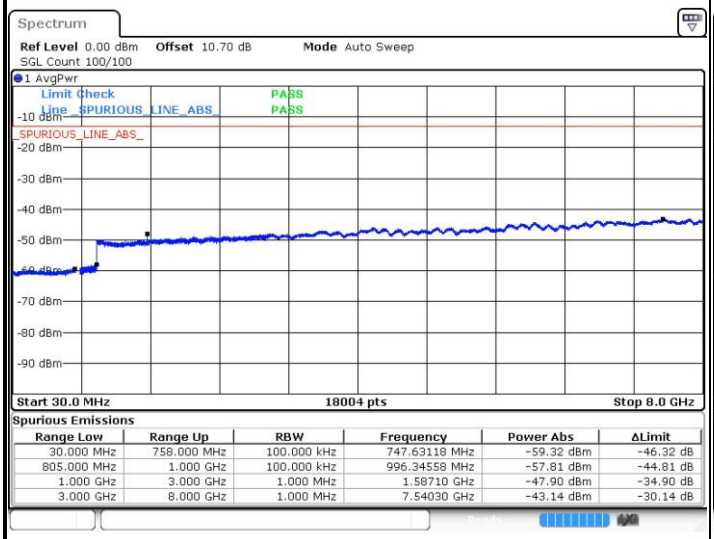
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	758.000 MHz	100.000 kHz	740.71864 MHz	-59.56 dBm	-46.56 dB
805.000 MHz	1.000 GHz	100.000 kHz	997.02774 MHz	-57.97 dBm	-44.97 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.96826 GHz	-47.99 dBm	-34.99 dB
3.000 GHz	8.000 GHz	1.000 MHz	7.53580 GHz	-43.12 dBm	-30.12 dB

Date: 28.FEB.2019 10:49:14

LTE Band 14 / 5MHz

Highest Channel / QPSK

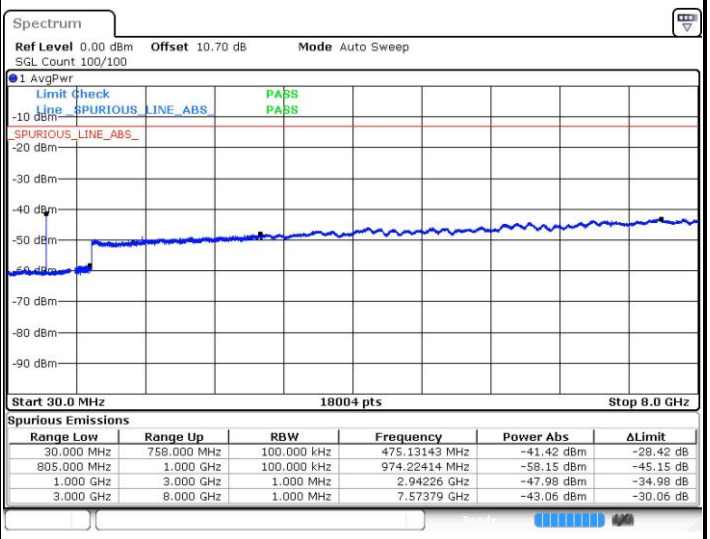


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	758.000 MHz	100.000 kHz	747.63118 MHz	-59.32 dBm	-46.32 dB
805.000 MHz	1.000 GHz	100.000 kHz	996.34558 MHz	-57.81 dBm	-44.81 dB
1.000 GHz	3.000 GHz	1.000 MHz	1.58710 GHz	-47.90 dBm	-34.90 dB
3.000 GHz	8.000 GHz	1.000 MHz	7.54030 GHz	-43.14 dBm	-30.14 dB

Date: 28.FEB.2019 10:59:25

Highest Channel / 16QAM



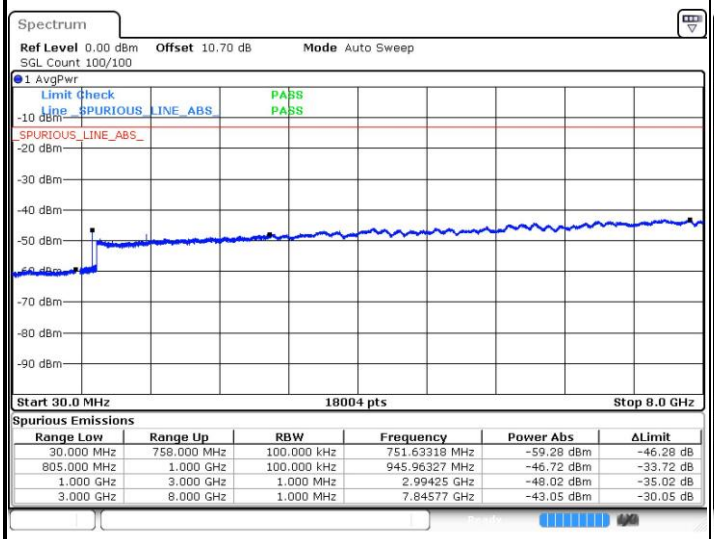
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	758.000 MHz	100.000 kHz	475.13143 MHz	-41.42 dBm	-28.42 dB
805.000 MHz	1.000 GHz	100.000 kHz	974.22414 MHz	-58.15 dBm	-45.15 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.94226 GHz	-47.98 dBm	-34.98 dB
3.000 GHz	8.000 GHz	1.000 MHz	7.57379 GHz	-43.06 dBm	-30.06 dB

Date: 28.FEB.2019 11:00:25

LTE Band 14 / 10MHz

Middle Channel / QPSK

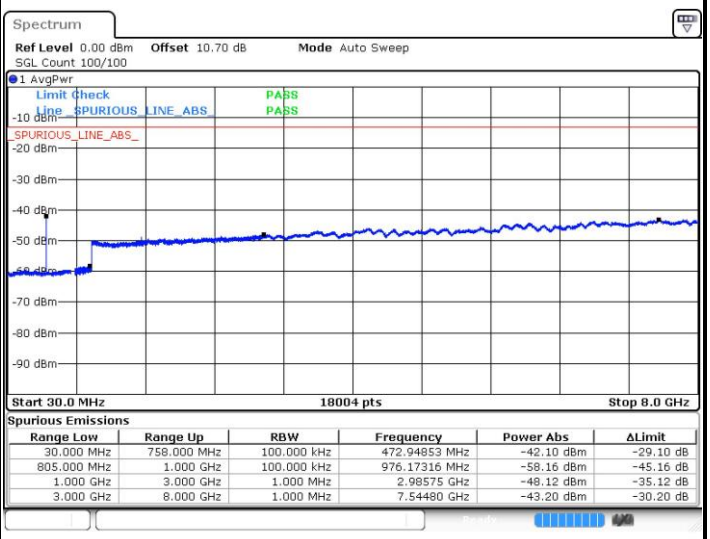


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	758.000 MHz	100.000 kHz	751.63318 MHz	-59.28 dBm	-46.28 dB
805.000 MHz	1.000 GHz	100.000 kHz	945.96327 MHz	-46.72 dBm	-33.72 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.99425 GHz	-48.02 dBm	-35.02 dB
3.000 GHz	8.000 GHz	1.000 MHz	7.84577 GHz	-43.05 dBm	-30.05 dB

Date: 28.FEB.2019 11:23:59

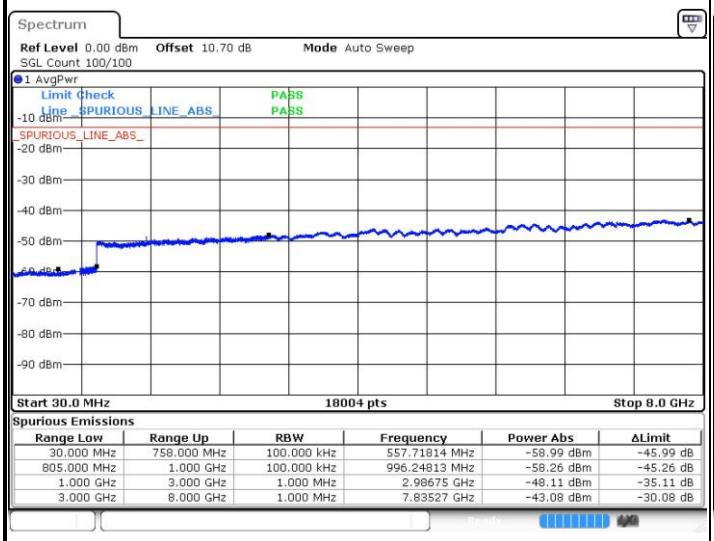
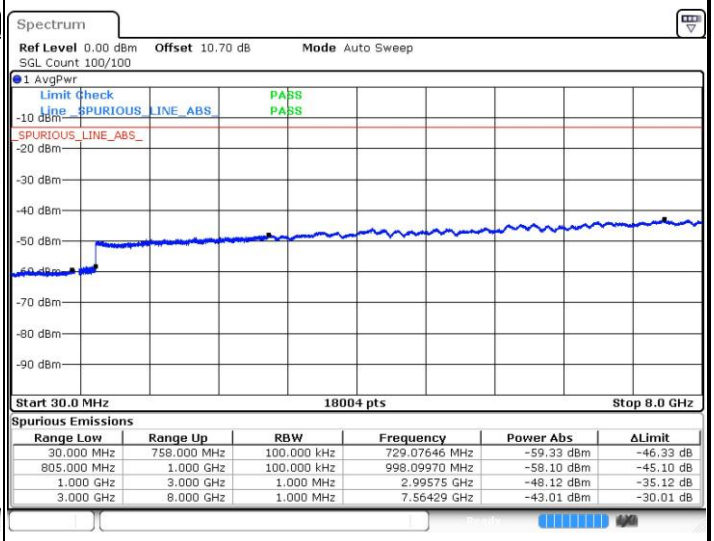
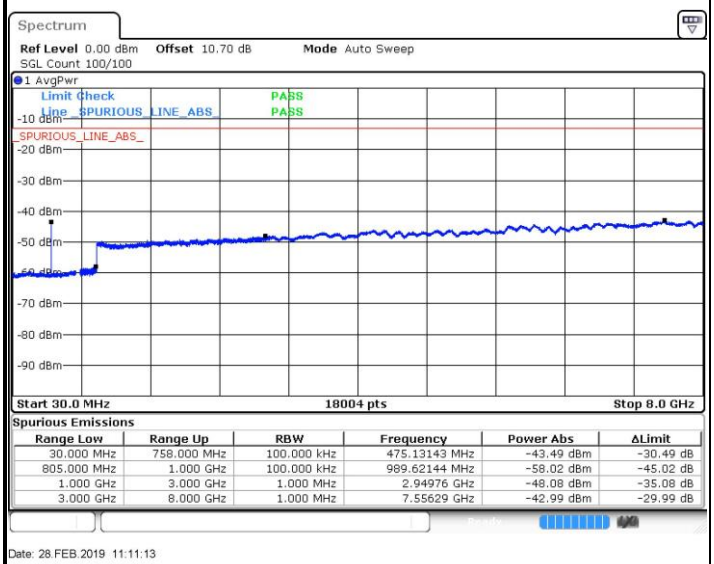
Middle Channel / 16QAM



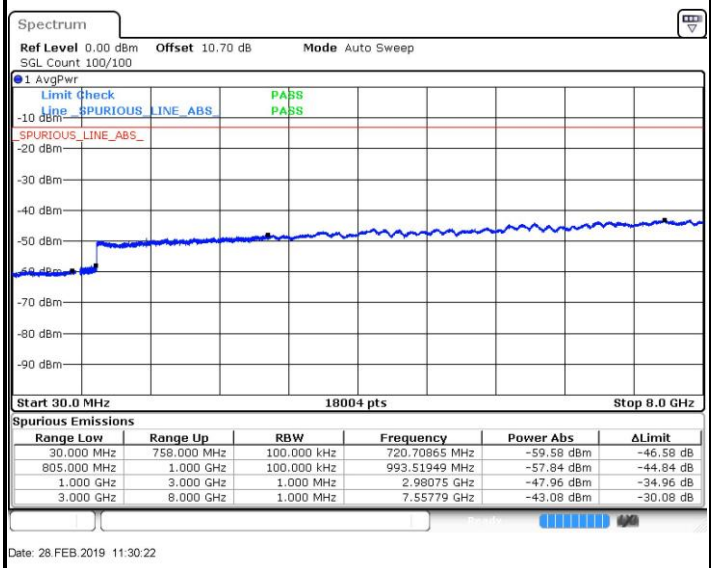
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	758.000 MHz	100.000 kHz	472.94853 MHz	-42.10 dBm	-29.10 dB
805.000 MHz	1.000 GHz	100.000 kHz	976.17316 MHz	-58.16 dBm	-45.16 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.98575 GHz	-48.12 dBm	-35.12 dB
3.000 GHz	8.000 GHz	1.000 MHz	7.54480 GHz	-43.20 dBm	-30.20 dB

Date: 28.FEB.2019 11:22:59

LTE Band 14 / 5MHz	
Lowest Channel / 64QAM	**Middle Channel / 64QAM**
	
Highest Channel / 64QAM	
	

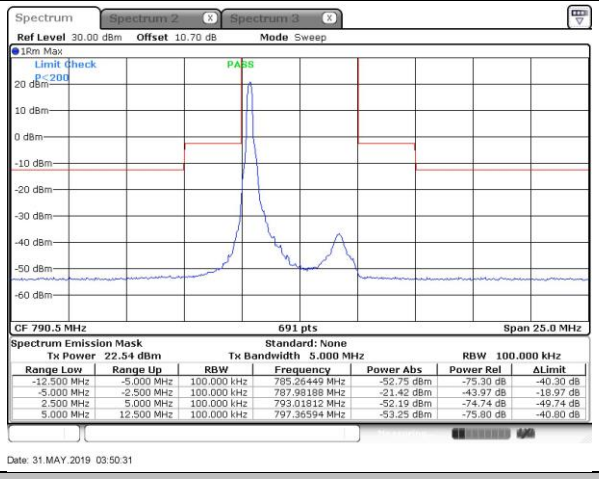
LTE Band 14 / 10MHz	
Middle Channel / 64QAM	

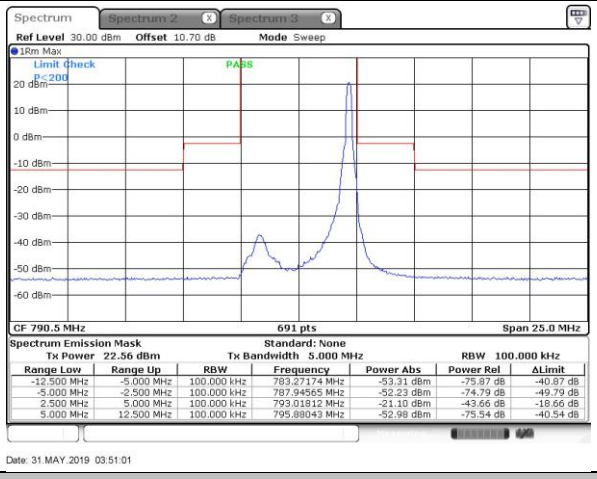


Emission Mask

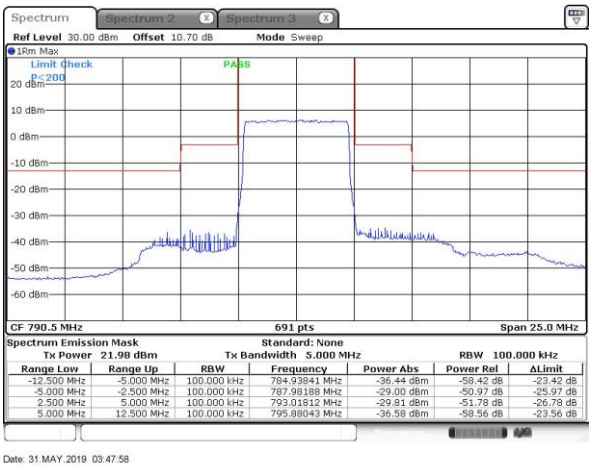
LTE Band 14 / 5MHz / QPSK

Lowest Channel / 1RB



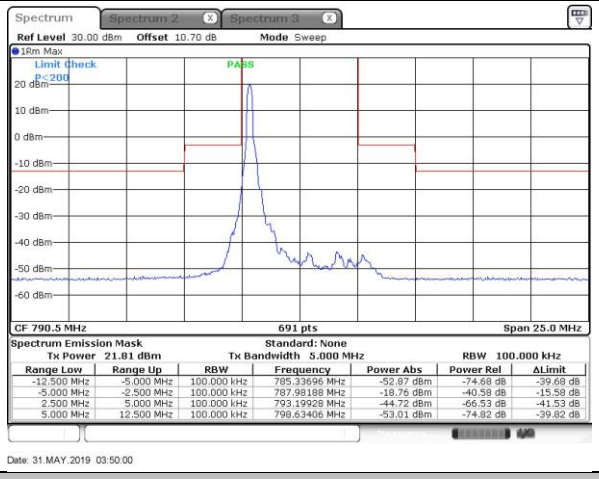


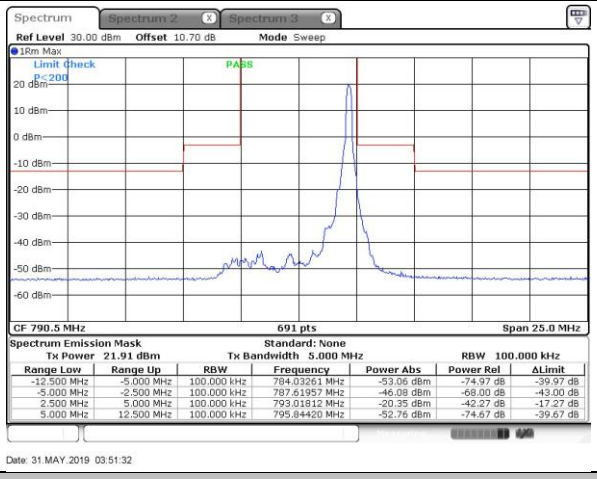
Lowest Channel / Full RB



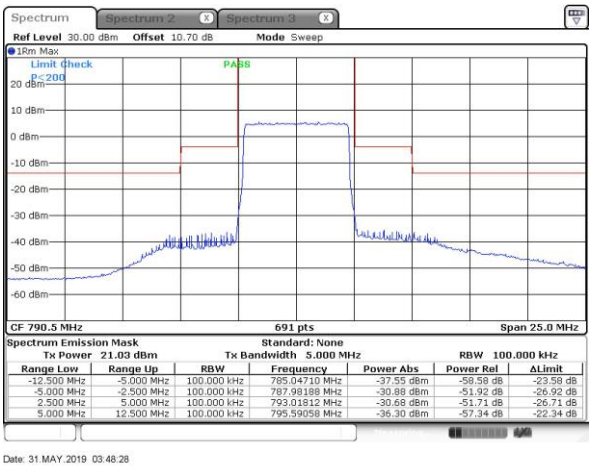
LTE Band 14 / 5MHz / 16QAM

Lowest Channel / 1RB



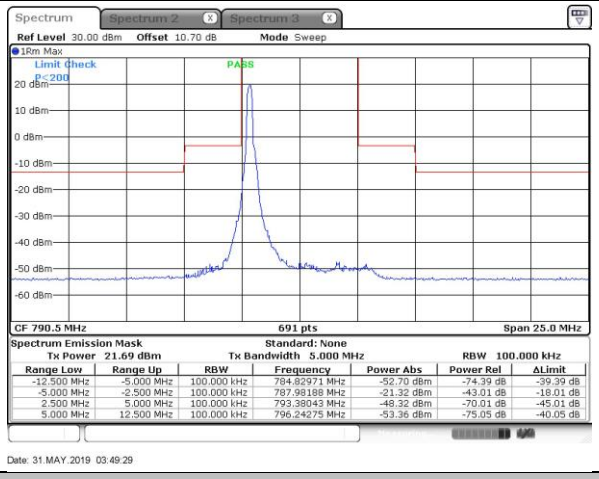


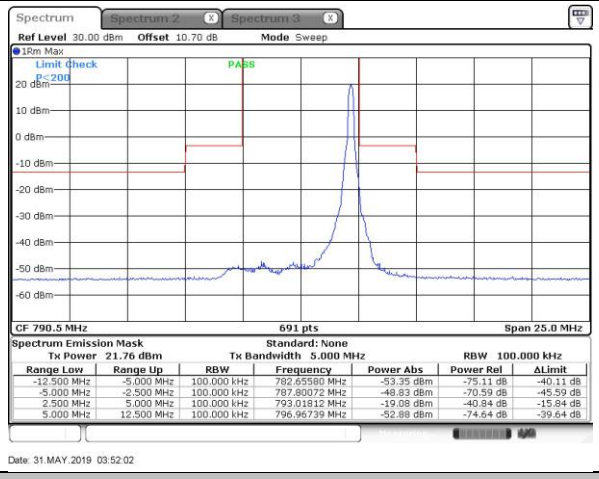
Lowest Channel / Full RB



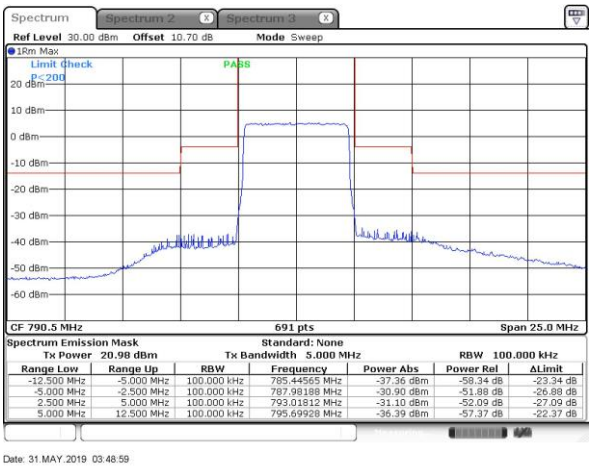
LTE Band 14 / 5MHz / 64QAM

Lowest Channel / 1RB



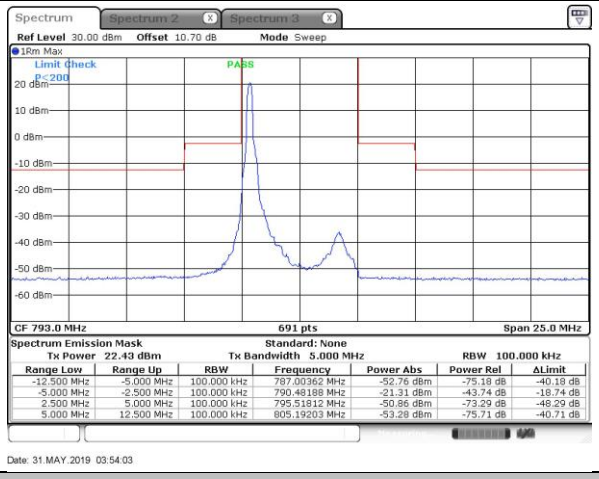


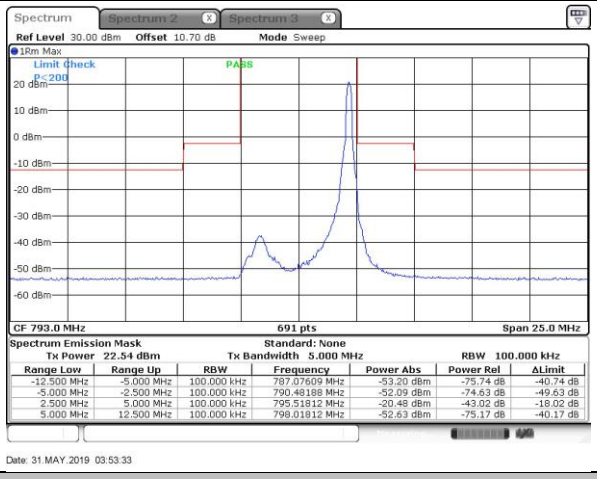
Lowest Channel / Full RB



LTE Band 14 / 5MHz / QPSK

Middle Channel / 1RB





Middle Channel / Full RB