FCC RF Test Report

APPLICANT	**: HMD Global Oy**
EQUIPMENT	**: Mobile phone**
BRAND NAME	**: Nokia**
MODEL NAME	**: TA-1222**
FCC ID	**: 2AJOTTA-1222**
STANDARD	**: 47 CFR Part 2, 27(D)**
CLASSIFICATION	**: PCS Licensed Transmitter Held to Ear (PCE)**

The product was received on Dec. 31, 2019 and completely tested on Feb. 18, 2020. We, Sporton International Inc., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.26-2015 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.

Louis Wu

Approved by: Louis Wu

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG9D3107D	Rev. 01	Initial issue of report	Mar. 05, 2020

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	§27.50 (a)(3)	EIRP Power Density	EIRP < 250mW/5MHz	PASS	-
3.7	§2.1049	Occupied Bandwidth	Reporting Only	PASS	-
3.8	§2.1051 §27.53 (a)(4)	Conducted Band Edge Measurement	Refer standard	PASS	-
3.9	§2.1051 §27.53 (a)(4)	Conducted Spurious Emission	< $70+10\log_{10}$(P[Watts])	PASS	-
3.10	§2.1055 §27.54	Frequency Stability Temperature & Voltage	Within the band	PASS	-
4.4	§2.1053 §27.53 (a)(4)	Radiated Spurious Emission	< $70+10\log_{10}$(P[Watts])	PASS	Under limit 6.10 dB at 4620.000 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.

1 General Description

1.1 Applicant

HMD Global Oy
Bertel Jungin aukio 9, 02600 Espoo, Finland

1.2 Manufacturer

HMD Global Oy
Bertel Jungin aukio 9, 02600 Espoo, Finland

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile phone
Brand Name	Nokia
Model Name	TA-1222
FCC ID	2AJOTTA-1222
EUT supports Radios application	GSM /WCDMA/LTE WLAN 2.4GHz 802.11b/g/n HT20 Bluetooth BR/EDR/LE FM Receiver, GNSS
IMEI Code	Conducted: 355787100004170 Radiation: 355787100003410
HW Version	V1.0
SW Version	00CUS_0_18Q
EUT Stage	Production Unit

1.4 Product Specification of Equipment Under Test

Product Feature	
Tx Frequency	LTE Band 30 : 2307.5 MHz ~ 2312.5 MHz
Rx Frequency	LTE Band 30 : 2352.5 MHz ~ 2357.5 MHz
Bandwidth	5MHz / 10MHz
Maximum Output Power to Antenna	LTE Band 30 : 22.83 dBm
Antenna Gain	LTE Band 30 : 1.10 dBi
Type of Modulation	QPSK / 16QAM / 64QAM

1.5 Modification of EUT

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

1.6 Maximum Conducted power, Frequency Tolerance and Emission Designator

LTE Band 30		QPSK			16QAM		
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum Conducted power(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum Conducted power(W)
5	2307.5 ~ 2312.5	4M49G7D	-	0.1914	4M51W7D	-	0.1644
10	2310.0	9M07G7D	0.0043	0.1919	8M99W7D	-	0.1538

LTE Band 30		64QAM		
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum Conducted power(W)
5	2307.5 ~ 2312.5	4M51W7D	-	0.1349
10	2310.0	9M05W7D	-	0.1274

1.7 Testing Site

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and the FCC designation No. TW1190 and TW0007.

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.**
	TH03-HY

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

1.8 Test Software

Item	Site	Manufacture	Name	Version
1.	03CH12-HY	AUDIX	E3	6.2009-8-24

1.9 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 27(D)
- ANSI C63.26-2015
- FCC KDB 971168 Power Meas License Digital Systems D01 v03r01

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

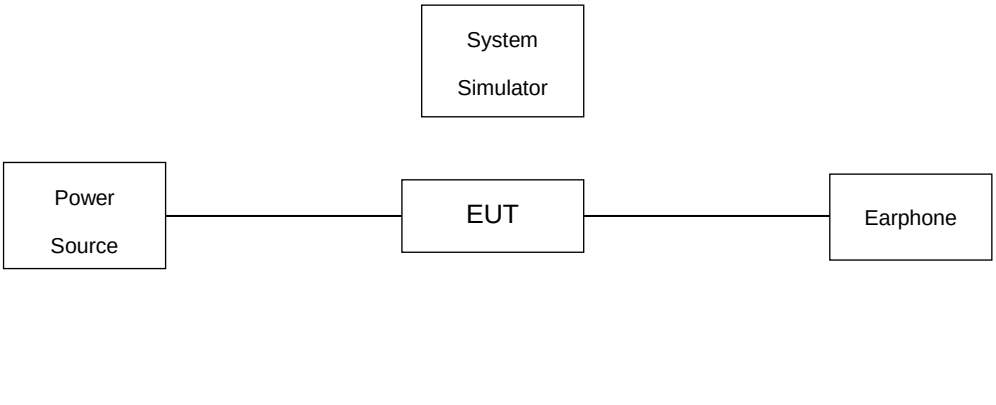
2.1 Test Mode

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.

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	30	-	-	V		-	-	V	V	V	V	V	V	V	V	V
		-	-		V	-	-	V	V	V	V	V	V		V	
Peak-to-Average Ratio	30	-	-		V	-	-	V	V	V	V		V		V	
E.I.R.P PSD	30	-	-	V		-	-	V	V	V	V			V	V	V
		-	-		V	-	-	V	V	V	V				V	
26dB and 99% Bandwidth	30	-	-	V		-	-	V	V	V			V	V	V	V
		-	-		V	-	-	V	V	V			V		V	
Conducted Band Edge	30	-	-	V		-	-	V	V	V	V		V	V		V
		-	-		V	-	-	V	V	V	V		V		V	
Conducted Spurious Emission	30	-	-	V		-	-	V	V	V	V			V	V	V
		-	-		V	-	-	V	V	V	V				V	
Frequency Stability	30	-	-		V	-	-	V					V		V	
Radiated Spurious Emission	30	-	-		V	-	-	V			V			V	V	V
Note	1. The mark “v “ means that this configuration is chosen for testing 2. The mark “-“ means that this bandwidth is not supported. 3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.															

2.2 Connection Diagram of Test System



This example is connection diagram of EUT test configurations.

. For detail, please refer to test mode configuration and setup photographs for each test item.

2.3 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	LTE Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m
2.	Earphone	Apple	A1285	N/A	N/A	N/A

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 1.90 dB and 10.00dB attenuator.

Example :

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

= 1.90 + 10.00 = 11.90(dB)

2.5 Frequency List of Low/Middle/High Channels

LTE Band 30 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
10	Channel	-	27710	-
	Frequency	-	2310	-
5	Channel	27685	27710	27735
	Frequency	2307.5	2310	2312.5

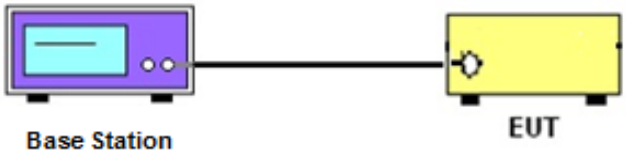
3 Conducted Test Items

3.1 Measuring Instruments

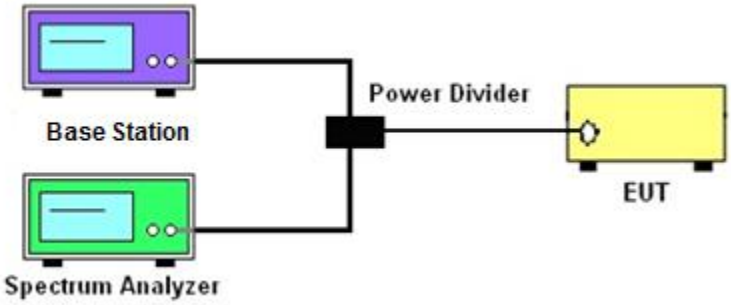
See list of measuring instruments of this test report.

3.2 Test Setup

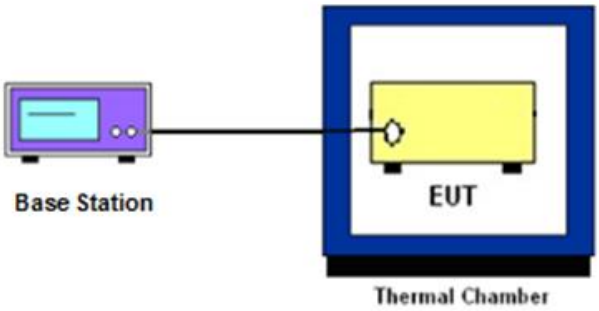
3.2.1 Conducted Output Power



3.2.2 Peak-to-Average Ratio, Occupied / 26dB Bandwidth ,Band-Edge and Conducted Spurious Emission



3.2.3 Frequency Stability



3.3 Test Result of Conducted Test

Please refer to Appendix A.

3.4 Conducted Output Power Measurement

3.4.1 Description of the Conducted Output Power 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.

3.4.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.2
2. The transmitter output port was connected to the system simulator.
3. Set EUT at maximum power through the system simulator.
4. Select lowest, middle, and highest channels for each band and different modulation.
5. Measure and record the power level from the system simulator.

3.5 Peak-to-Average Ratio

3.5.1 Description of the PAR Measurement

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

3.5.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.2.3.4 (CCDF).
2. The EUT was connected to spectrum and system simulator via a power divider.
3. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
4. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.
5. Record the deviation as Peak to Average Ratio.

3.6 EIRP Power Density

3.6.1 Description of EIRP Power Density

For mobile and portable stations transmitting in the 2305-2315 MHz band or the 2350-2360 MHz band, the average EIRP must not exceed 50 milliwatts within any 1 megahertz of authorized bandwidth, *except that* for mobile and portable stations compliant with 3GPP LTE standards or another advanced mobile broadband protocol that avoids concentrating energy at the edge of the operating band the average EIRP must not exceed 250 milliwatts within any 5 megahertz of authorized bandwidth but may exceed 50 milliwatts within any 1 megahertz of authorized bandwidth. For mobile and portable stations using time division duplexing (TDD) technology, the duty cycle must not exceed 38 percent in the 2305-2315 MHz and 2350-2360 MHz bands. Mobile and portable stations using FDD technology are restricted to transmitting in the 2305-2315 MHz band. Power averaging shall not include intervals in which the transmitter is off.

3.6.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.2.4.5
2. Set instrument center frequency to OBW center frequency.
3. Set span to at least 1.5 times the OBW.
4. Set the RBW to the specified reference bandwidth (5MHz).
5. Set VBW ≥ 3 × RBW.
6. Detector = RMS (power averaging).
7. Ensure that the number of measurement points in the sweep ≥ 2 × span/RBW.
8. Sweep time = auto couple.
9. Employ trace averaging (RMS) mode over a minimum of 100 traces.
10. Use the peak marker function to determine the maximum amplitude level within the reference bandwidth (PSD).

3.7 Occupied Bandwidth

3.7.1 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.

3.7.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.4
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be between two and five times the anticipated OBW.
4. The nominal resolution bandwidth (RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW.
5. Set the detection mode to peak, and the trace mode to max hold.
6. Determine the reference value: Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace. (this is the reference value)
7. Determine the “-26 dB down amplitude” as equal to (Reference Value – X).
8. Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the “–X dB down amplitude” determined in step 6. If a marker is below this “-X dB down amplitude” value it shall be placed as close as possible to this value. The OBW is the positive frequency difference between the two markers.
9. Use the 99 % power bandwidth function of the spectrum analyzer and report the measured bandwidth.

3.8 Conducted Band Edge Measurement

3.8.1 Description of Conducted Band Edge Measurement

27.53 (a)(4)

For mobile and portable stations operating in the 2305-2315 MHz and 2350-2360 MHz bands:

(i) By a factor of not less than: 43 + 10 log (P) dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than 55 + 10 log (P) dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than 61 + 10 log (P) dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than 67 + 10 log (P) dB on all frequencies between 2328 and 2337 MHz;

(ii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies between 2296 and 2300 MHz, 61 + 10 log (P) dB on all frequencies between 2292 and 2296 MHz, 67 + 10 log (P) dB on all frequencies between 2288 and 2292 MHz, and 70 + 10 log (P) dB below 2288 MHz;

(iii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2360 and 2365 MHz, and not less than 70 + 10 log (P) dB above 2365 MHz.

3.8.2 Test Procedures

1. The testing follows ANSI C63.26 section 5.7
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The band edges of low and high channels for the highest RF powers were measured.
4. Set RBW >= 1% EBW in the 1MHz band immediately outside and adjacent to the band edge.
5. Beyond the 1 MHz band from the band edge, RBW=1MHz was used or a narrower RBW was used and the measured power was integrated over the full required measurement bandwidth of 1 MHz.
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. Checked that all the results comply with the emission limit line.

   Example:

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

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

   = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB) = -13dBm.

3.9 Conducted Spurious Emission Measurement

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 70 + 10 log (P) dB.

It is measured by means of a calibrated spectrum analyzer and scanned from 9 kHz up to a frequency including its 10^{th} harmonic.

3.9.2 Test Procedures

1. The testing follows ANSI C63.26 section 5.7
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
4. The middle channel for the highest RF power within the transmitting frequency was measured.
5. The conducted spurious emission for the whole frequency range was taken.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz.
7. Set spectrum analyzer with RMS detector.
8. Taking the record of maximum spurious emission.
9. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
10. The limit line is derived from 70 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [70 + 10log(P)] (dB)
    = [30 + 10log(P)] (dBm) - [70 + 10log(P)] (dB)
    = -40dBm

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 ±0.00025% (±2.5ppm) of the center frequency.

3.10.2 Test Procedures for Temperature Variation

1. The testing follows ANSI C63.26 section 5.6.4
2. The EUT was set up in the thermal chamber and connected with the system simulator.
3. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
4. With power OFF, the temperature was raised in 10°C step up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

3.10.3 Test Procedures for Voltage Variation

1. The testing follows ANSI C63.26 section 5.6.5.
2. The EUT was placed in a temperature chamber at 20±5°C and connected with the system simulator.
3. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value for other than hand carried battery equipment.
4. For hand carried, battery powered equipment, reduce the primary ac or dc supply voltage to the battery operating end point, which shall be specified by the manufacturer.
5. The variation in frequency was measured for the worst case.

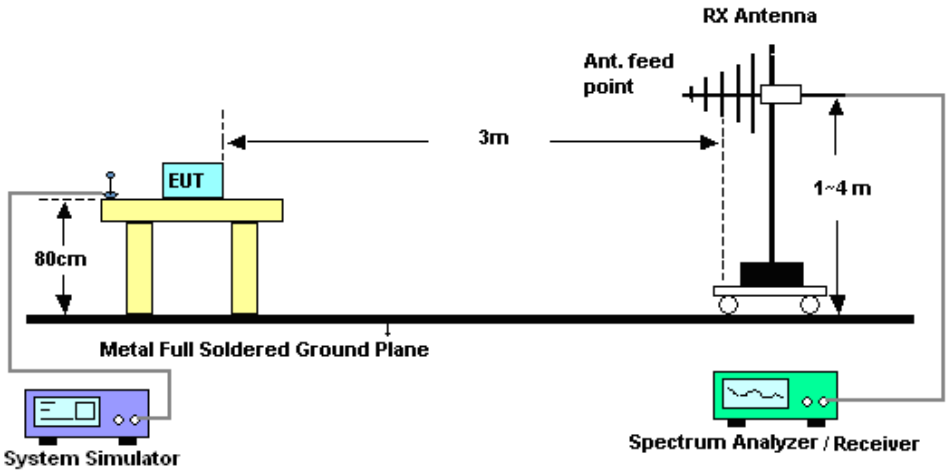
4 Radiated Test Items

4.1 Measuring Instruments

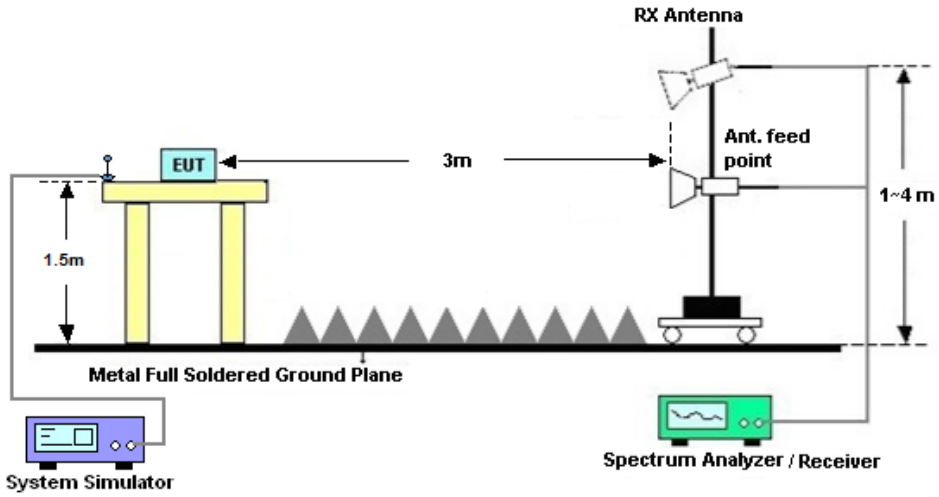
See list of measuring instruments of this test report.

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 70 + 10 log (P) dB.

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

4.4.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.5
2. The EUT was placed on a turntable with 0.8 meter height for frequency below 1GHz and 1.5 meter height for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the receiving antenna mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. The height of the receiving antenna is varied between 1m to 4m to search the maximum spurious emission for both horizontal and vertical polarizations.
6. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power.
7. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
8. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
9. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
   EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
   ERP (dBm) = EIRP - 2.15
10. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
    The limit line is derived from 70 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [70 + 10log(P)] (dB)
    = [30 + 10log(P)] (dBm) - [70 + 10log(P)] (dB)
    = -40dBm.

5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Base Station(Measure)	Anritsu	MT8821C	6201664755	GSM / GPRS /WCDMA / LTE FDD/TDD with 44)	Mar. 03, 2019	Feb. 08, 2020 ~ Feb. 18, 2020	Mar. 02, 2020	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSV40	101397	10Hz~40GHz	Nov. 15, 2019	Feb. 08, 2020 ~ Feb. 18, 2020	Nov. 14, 2020	Conducted (TH05-HY)
Temperature Chamber	ESPEC	SH-641	92013720	-40℃~90℃	Sep. 02, 2019	Feb. 08, 2020 ~ Feb. 18, 2020	Sep. 01, 2020	Conducted (TH05-HY)
Programmable Power Supply	GW Instek	PSS-2005	EL890094	1V~20V 0.5A~5A	Oct. 09, 2019	Feb. 08, 2020 ~ Feb. 18, 2020	Oct. 08, 2020	Conducted (TH05-HY)
Coupler	Warison	20dB 25W SMA Directional	#A	1-18GHz	Jan. 13, 2020	Feb. 08, 2020 ~ Feb. 18, 2020	Jan. 12, 2021	Conducted (TH05-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	Dec. 26, 2019	Feb. 05, 2019~ Feb. 12, 2019	Dec. 25, 2020	Radiation (03CH12-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00800N 1D01N-06	37059 & 01	30MHz~1GHz	Otc. 12, 2019	Feb. 05, 2019~ Feb. 12, 2019	Otc 11, 2020	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1328	1GHz ~ 18GHz	Nov. 14, 2019	Feb. 05, 2019~ Feb. 12, 2019	Nov. 13, 2020	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1522	1GHz ~ 18GHz	Sep. 19, 2019	Feb. 05, 2019~ Feb. 12, 2019	Sep. 18, 2020	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170584	18GHz ~ 40GHz	Dec. 10, 2019	Feb. 05, 2019~ Feb. 12, 2019	Dec. 09, 2020	Radiation (03CH12-HY)
Preamplifier	COM-POWER	PA-103	161075	10MHz~1GHz	Mar. 25, 2019	Feb. 05, 2019~ Feb. 12, 2019	Mar. 24, 2020	Radiation (03CH12-HY)
Preamplifier	Jet-Power	JPA0010180 0-30-10P	1601180002	1GHz~18GHz	Aug. 01, 2019	Feb. 05, 2019~ Feb. 12, 2019	Jul. 01, 2020	Radiation (03CH12-HY)
Preamplifier	EMEC	EM18G40G	060715	18GHz ~ 40GHz	Dec. 13, 2019	Feb. 05, 2019~ Feb. 12, 2019	Dec. 12, 2020	Radiation (03CH12-HY)
Preamplifier	Keysight	83017A	MY53270148	1GHz~26.5GHz	Dec. 20, 2019	Feb. 05, 2019~ Feb. 12, 2019	Dec. 19, 2020	Radiation (03CH12-HY)
Spectrum Analyzer	Rohde & Schwarz	FSV40	101408	10Hz~40GHz	Aug. 13, 2019	Feb. 05, 2019~ Feb. 12, 2019	Aug. 12, 2020	Radiation (03CH12-HY)
Signal Generator	Rohde & Schwarz	SMF100A	101107	100kHz~40GHz	Aug. 27, 2019	Feb. 05, 2019~ Feb. 12, 2019	Aug. 26, 2020	Radiation (03CH12-HY)
Hygrometer	TECPEL	DTM-303B	TP161243	N/A	May. 11, 2019	Feb. 05, 2019~ Feb. 12, 2019	May. 10, 2020	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 126E	0058/126E	30M-18G	Mar. 13, 2019	Feb. 05, 2019~ Feb. 12, 2019	Mar. 12, 2020	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	505134/2	30M~40GHz	Feb. 26, 2019	Feb. 05, 2019~ Feb. 12, 2019	Feb. 25, 2020	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	800740/2	30M~40GHz	Feb. 26, 2019	Feb. 05, 2019~ Feb. 12, 2019	Feb. 25, 2020	Radiation (03CH12-HY)

Base Station	Anritsu	MT8821C	6201432816	GSM / GPRS /W CDMA / LTE FDD /TDD with 44) /LT	May 05, 2019	Feb. 05, 2019~ Feb. 12, 2019	May 04, 2020	Radiation (03CH12-HY)
Controller	EMEC	EM1000	N/A	Control Turn table & Ant Mast	N/A	Feb. 05, 2019~ Feb. 12, 2019	N/A	Radiation (03CH12-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Feb. 05, 2019~ Feb. 12, 2019	N/A	Radiation (03CH12-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Feb. 05, 2019~ Feb. 12, 2019	N/A	Radiation (03CH12-HY)
Software	Audix	E3 6.2009-8-24	RK-000989	N/A	N/A	Feb. 05, 2019~ Feb. 12, 2019	N/A	Radiation (03CH12-HY)

NCR: No Calibration Required

6 Uncertainty of Evaluation

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.26-2015. All the measurement uncertainty value were shown with a coverage K=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.24dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.62dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.06dB**

Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power)

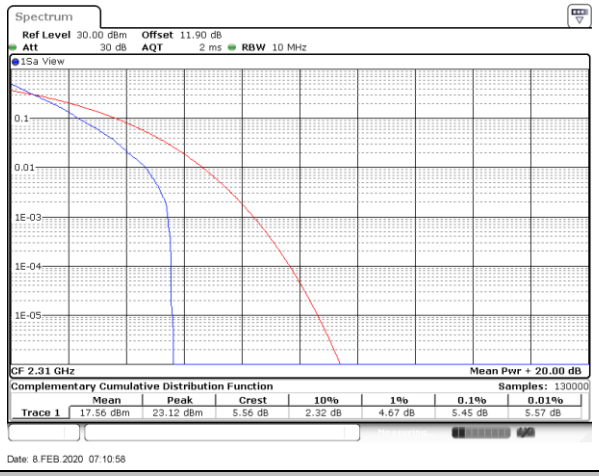
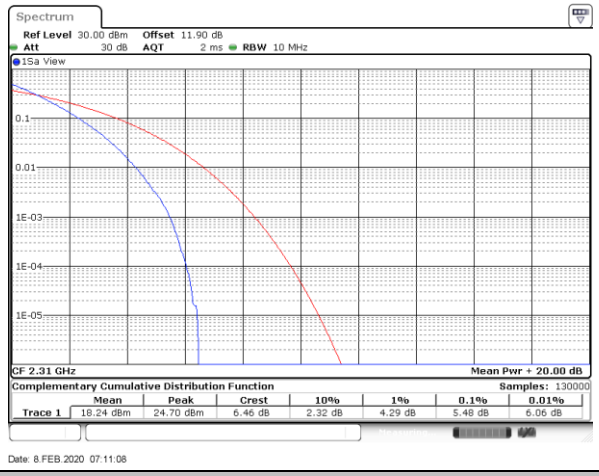
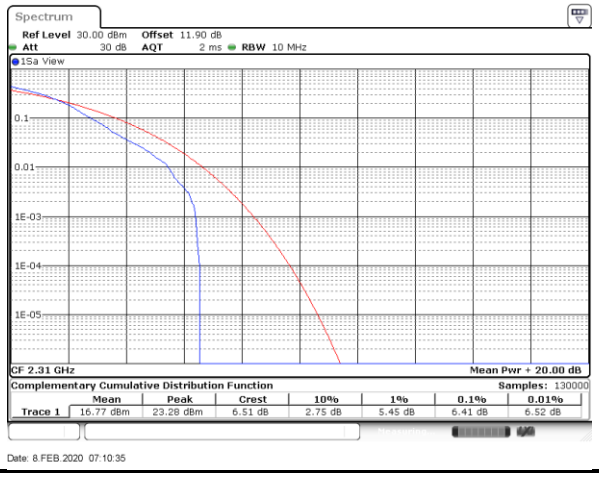
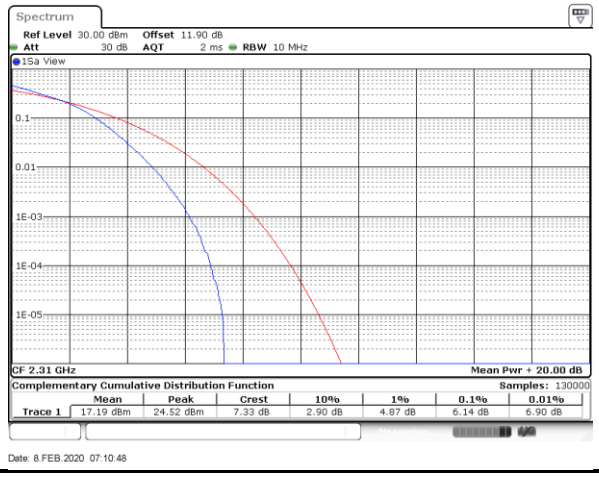
LTE Band 30 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	22.46	22.55	22.46
5	1	12		22.79	22.82	22.79
5	1	24		22.43	22.54	22.54
5	12	0		21.68	21.62	21.62
5	12	7		21.77	21.68	21.71
5	12	13		21.71	21.78	21.68
5	25	0		21.68	21.67	21.64
5	1	0	16-QAM	21.69	21.82	21.69
5	1	12		22.02	22.15	22.16
5	1	24		21.71	21.92	21.66
5	12	0		20.70	20.71	20.58
5	12	7		20.65	20.79	20.64
5	12	13		20.76	20.77	20.62
5	25	0		20.74	20.74	20.69
5	1	0	64QAM	20.90	20.83	20.83
5	1	12		21.30	21.18	21.21
5	1	24		20.85	20.83	20.96
5	12	0		19.85	19.79	19.84
5	12	7		19.93	19.93	19.87
5	12	13		19.94	19.97	19.78
5	25	0		19.85	19.82	19.74

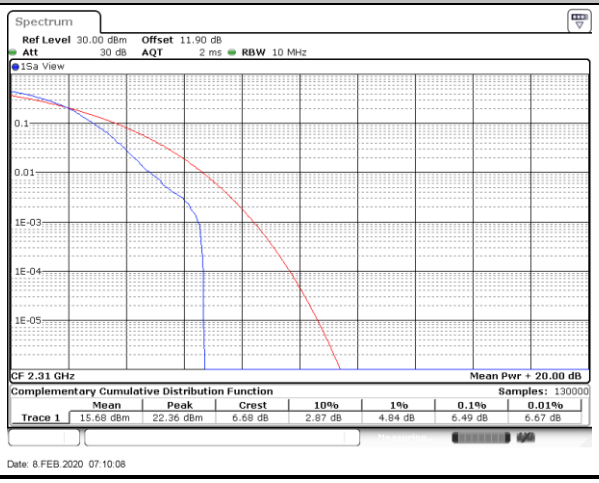
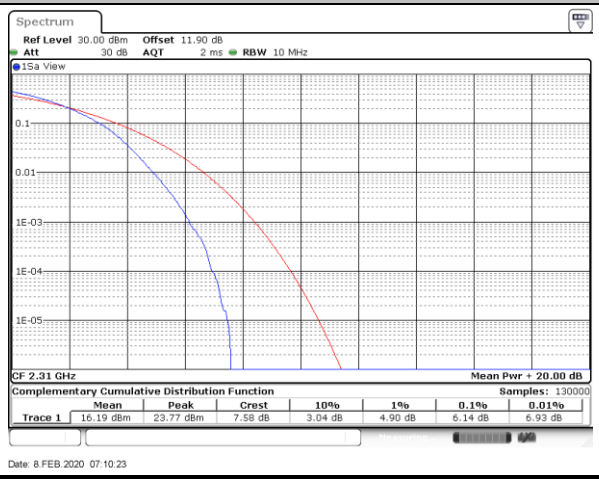
10	1	0	QPSK	-	22.51	-
10	1	25			**22.83**	
10	1	49			22.61	
10	25	0			21.64	
10	25	12			21.66	
10	25	25			21.70	
10	50	0			21.67	
10	1	0	16-QAM		21.73	
10	1	25			21.87	
10	1	49			21.65	
10	25	0			20.77	
10	25	12			20.81	
10	25	25			20.72	
10	50	0			20.70	
10	1	0	64QAM		21.01	
10	1	25			21.05	
10	1	49			20.61	
10	25	0			20.00	
10	25	12			19.93	
10	25	25			19.94	
10	50	0			19.79	

LTE Band 30

Peak-to-Average Ratio

Mode	LTE Band 30 / 10MHz				
Mod.	QPSK		16QAM		Limit: 13dB
RB Size	1RB	Full RB	1RB	Full RB	Result
Lowest CH	-	-	-	-	PASS
Middle CH	5.45	5.48	6.41	6.14	
Highest CH	-	-	-	-	
Mode	LTE Band 30 / 10MHz				
Mod.	64QAM				Limit: 13dB
RB Size	1RB	Full RB			Result
Lowest CH	-	-	-	-	PASS
Middle CH	6.49	6.14	-	-	
Highest CH	-	-	-	-	

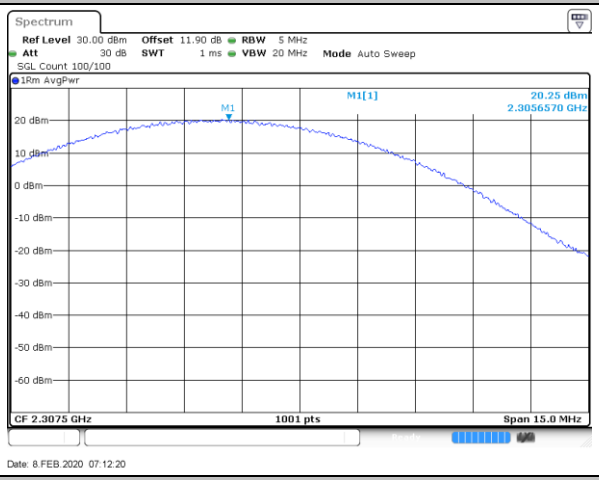
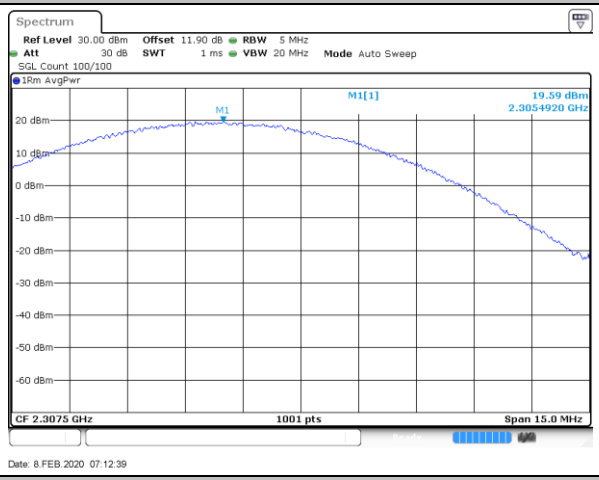
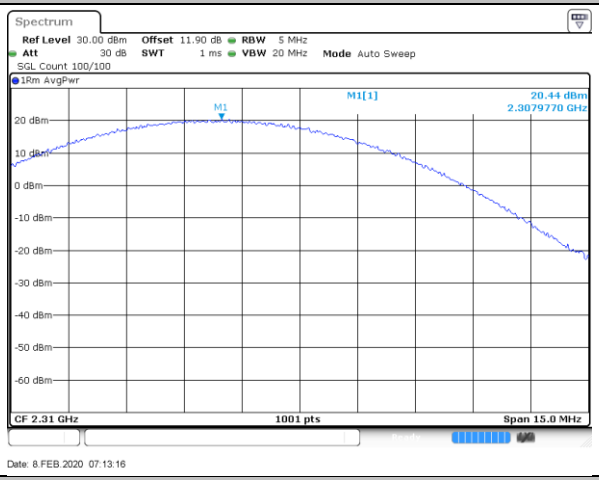
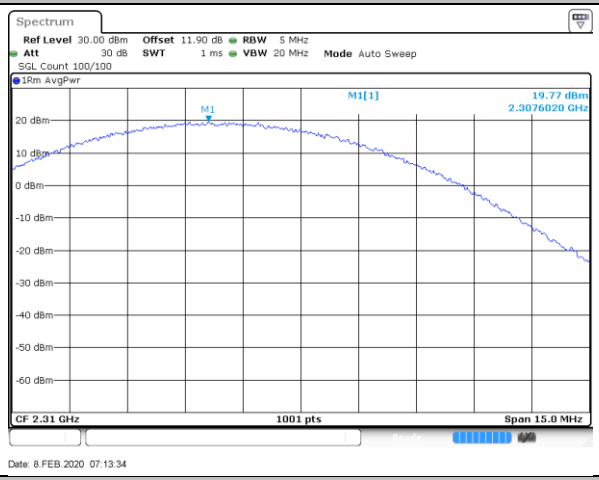
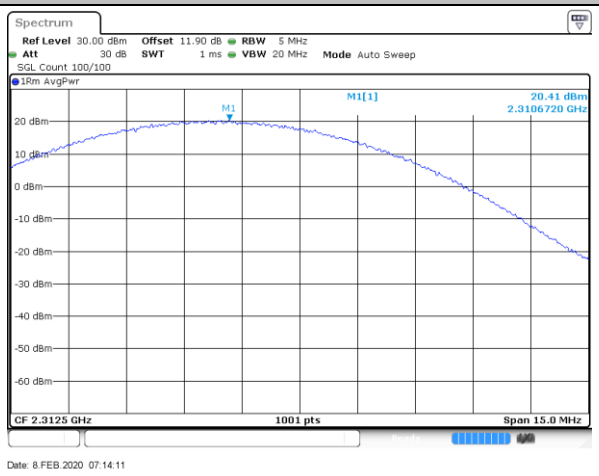
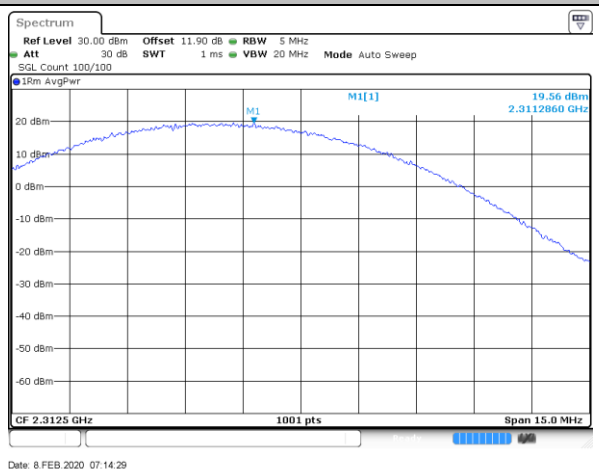
LTE Band 30 / 10MHz / QPSK	
Middle Channel / 1RB	**Middle Channel / Full RB**
	
LTE Band 30 / 10MHz / 16QAM	
Middle Channel / 1RB	**Middle Channel / Full RB**
	

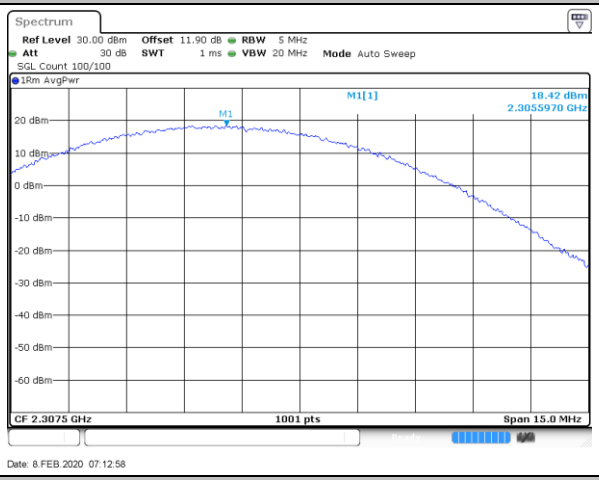
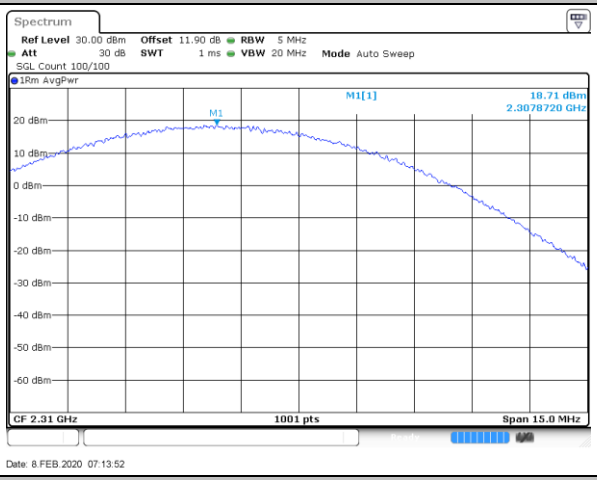
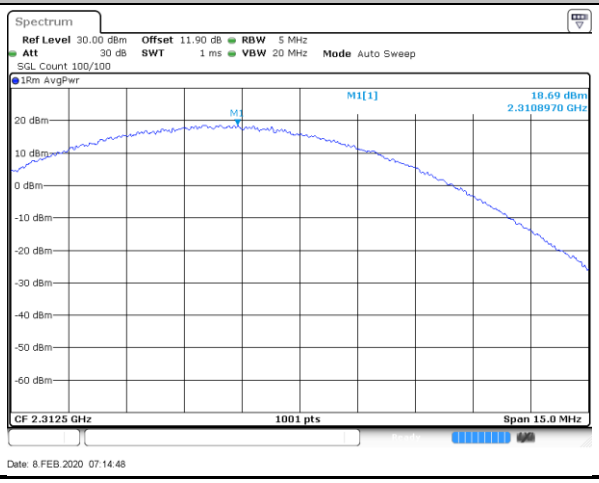
LTE Band 30 / 10MHz / 64QAM	
Middle Channel / 1RB	**Middle Channel / Full RB**
	

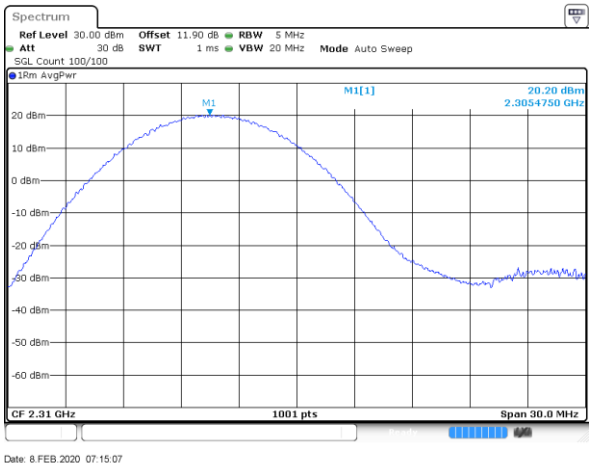
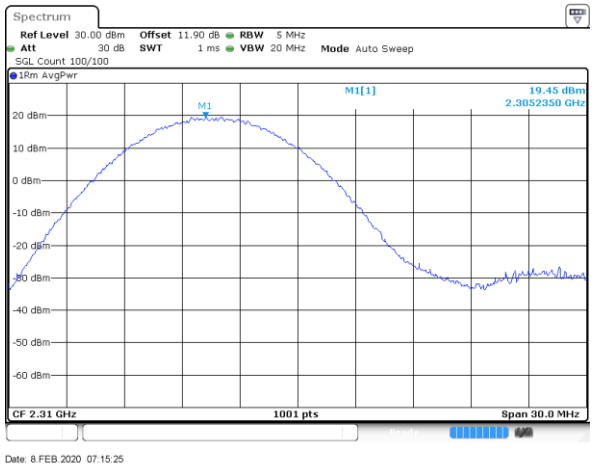
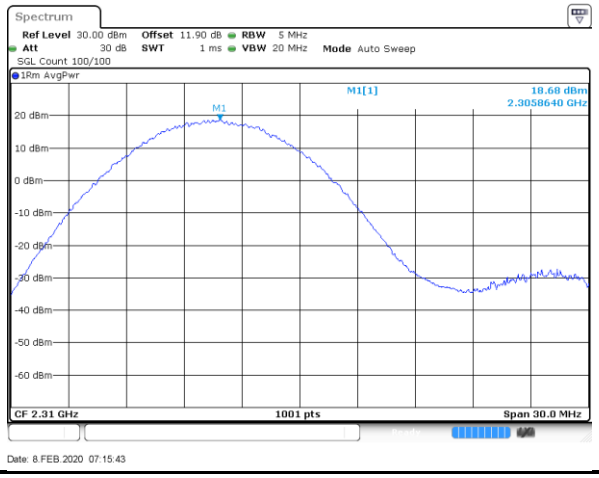
EIRP Power Density

Mode	LTE Band 30 : Conducted Power Density (dBm/5MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	-	-	-	-	20.25	19.59	-	-	-	-	-	-
Middle CH	-	-	-	-	20.44	19.77	20.20	19.45	-	-	-	-
Highest CH	-	-	-	-	20.41	19.56	-	-	-	-	-	-
Mode	LTE Band 30 : Conducted Power Density (dBm/5MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	64QAM		64QAM		64QAM		64QAM		64QAM		64QAM	
Lowest CH	-	-	-	-	18.42	-	-	-	-	-	-	-
Middle CH	-	-	-	-	18.71	-	18.68	-	-	-	-	-
Highest CH	-	-	-	-	18.69	-	-	-	-	-	-	-

Mode	LTE Band 30 : EIRP Power Density (dBm/5MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	-	-	-	-	21.35	20.69	-	-	-	-	-	-
Middle CH	-	-	-	-	21.54	20.87	21.30	20.55	-	-	-	-
Highest CH	-	-	-	-	21.51	20.66	-	-	-	-	-	-
Mode	LTE Band 30 : EIRP Power Density (dBm/5MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	64QAM		64QAM		64QAM		64QAM		64QAM		64QAM	
Lowest CH	-	-	-	-	19.52	-	-	-	-	-	-	-
Middle CH	-	-	-	-	19.91	-	19.78	-	-	-	-	-
Highest CH	-	-	-	-	19.79	-	-	-	-	-	-	-
Antenna Gain	1.1 dBi											
Limit	250mW / 5MHz = 24dBm / 5MHz											
Result	Pass											

LTE Band 30 / 5MHz	
Lowest Channel / 5MHz / 1RB0 / QPSK	**Lowest Channel / 5MHz / 1RB0 / 16QAM**
	
Middle Channel / 5MHz / 1RB0 / QPSK	**Middle Channel / 5MHz / 1RB0 / 16QAM**
	
Highest Channel / 5MHz / 1RB0 / QPSK	**Highest Channel / 5MHz / 1RB0 / 16QAM**
	

LTE Band 30 / 5MHz	
Lowest Channel / 5MHz / 1RB0 / 64QAM	**Middle Channel / 5MHz / 1RB0 / 64QAM**
	
Highest Channel / 5MHz / 1RB0 / 64QAM	
	

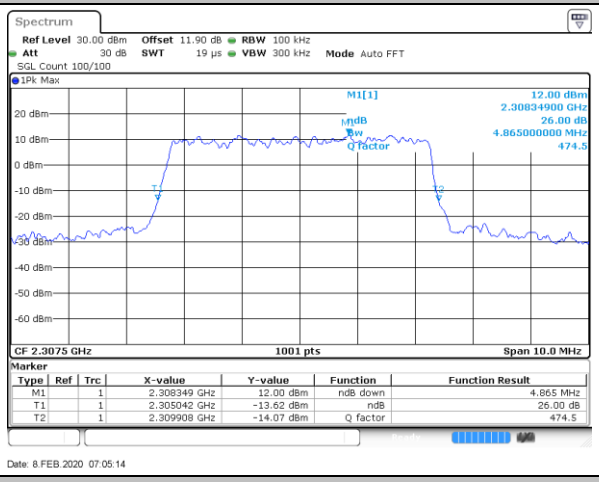
LTE Band 30 / 10MHz	
Lowest Channel / 10MHz / 1RB0 / QPSK	**Lowest Channel / 10MHz / 1RB0 / 16QAM**
	
Lowest Channel / 10MHz / 1RB0 / 64QAM	
	

26dB Bandwidth

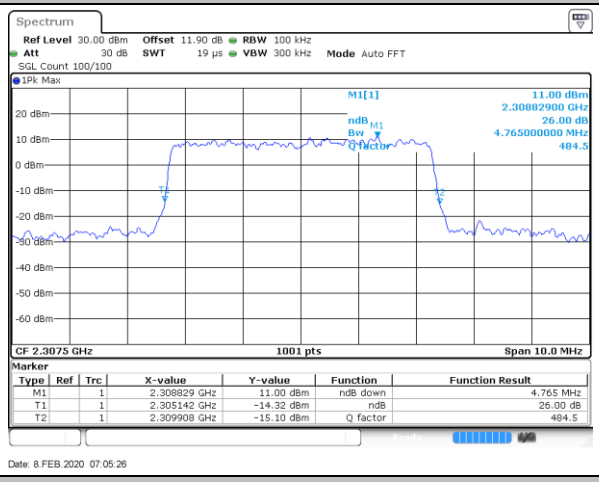
Mode	LTE Band 30 : 26dB BW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	-	-	-	-	4.87	4.77	-	-	-	-	-	-
Middle CH	-	-	-	-	4.90	4.84	9.77	9.85	-	-	-	-
Highest CH	-	-	-	-	4.82	4.82	-	-	-	-	-	-
Mode	LTE Band 30 : 26dB BW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	64QAM		64QAM		64QAM		64QAM		64QAM		64QAM	
Lowest CH	-	-	-	-	4.89	-	-	-	-	-	-	-
Middle CH	-	-	-	-	4.81	-	9.73	-	-	-	-	-
Highest CH	-	-	-	-	4.87	-	-	-	-	-	-	-

LTE Band 30

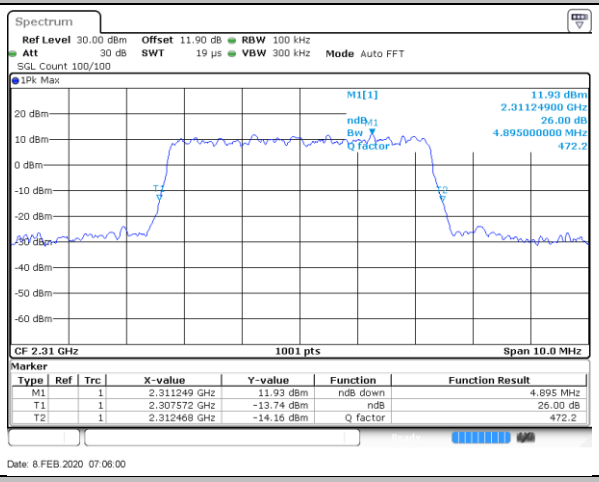
Lowest Channel / 5MHz / QPSK



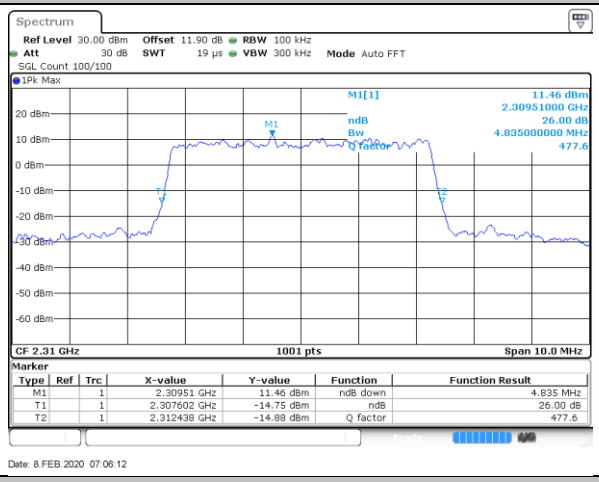
Lowest Channel / 5MHz / 16QAM



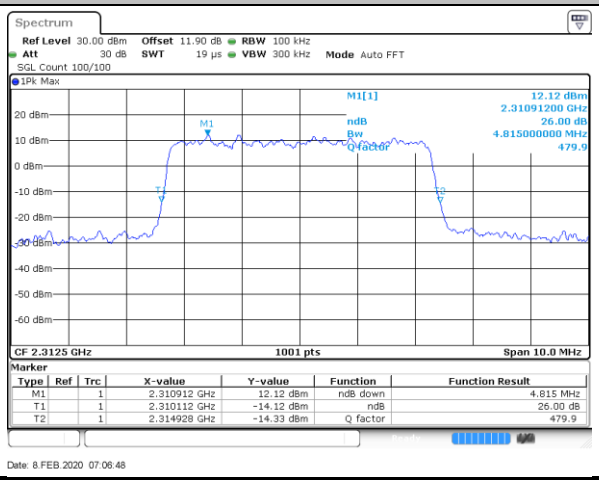
Middle Channel / 5MHz / QPSK



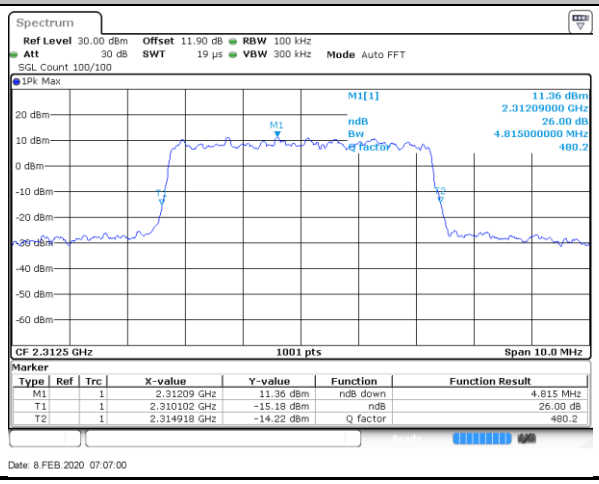
Middle Channel / 5MHz / 16QAM



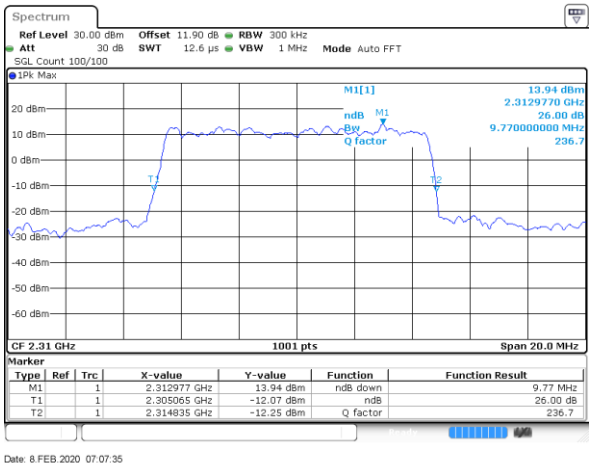
Highest Channel / 5MHz / QPSK

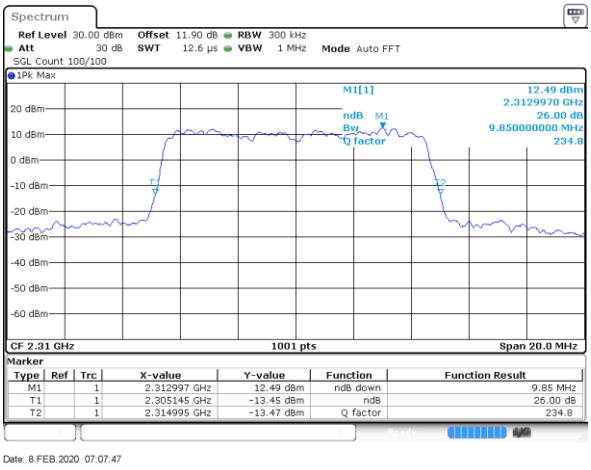


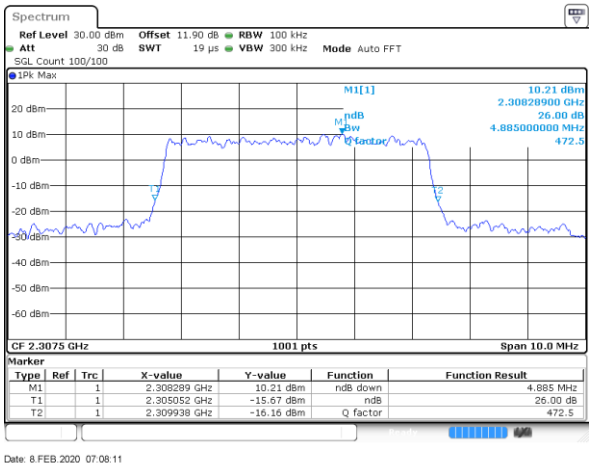
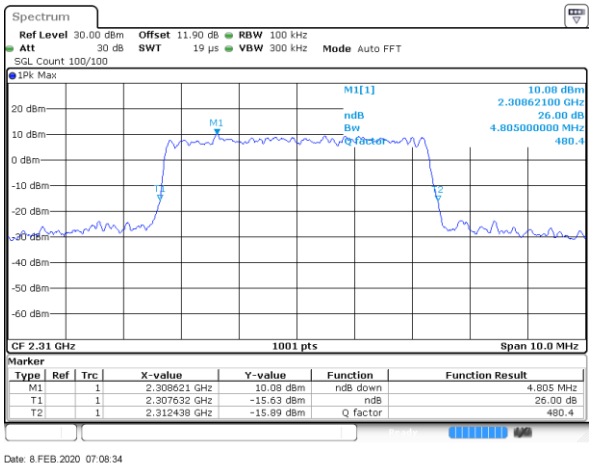
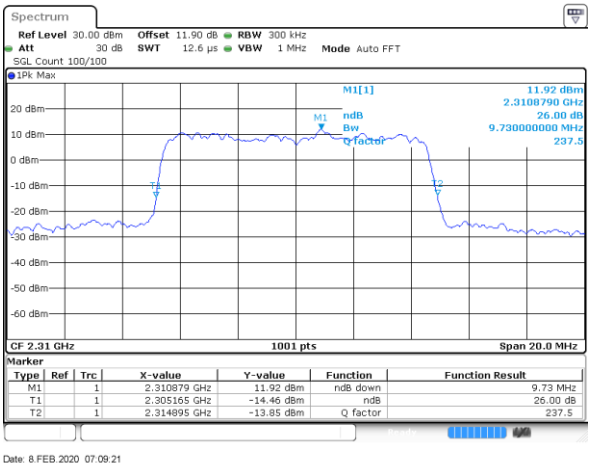
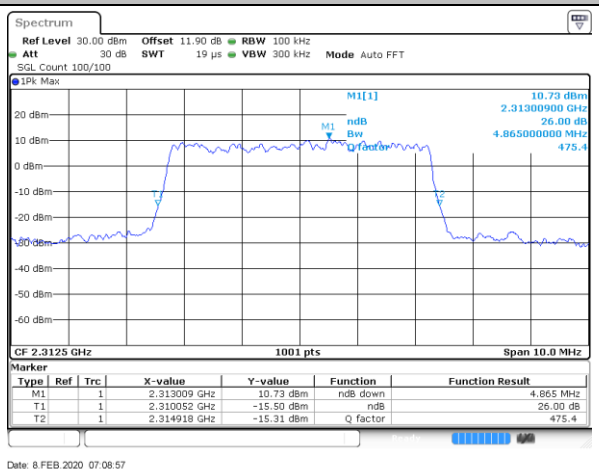
Highest Channel / 5MHz / 16QAM



LTE Band 30	
Middle Channel / 10MHz / QPSK	Middle Channel / 10MHz / 16QAM





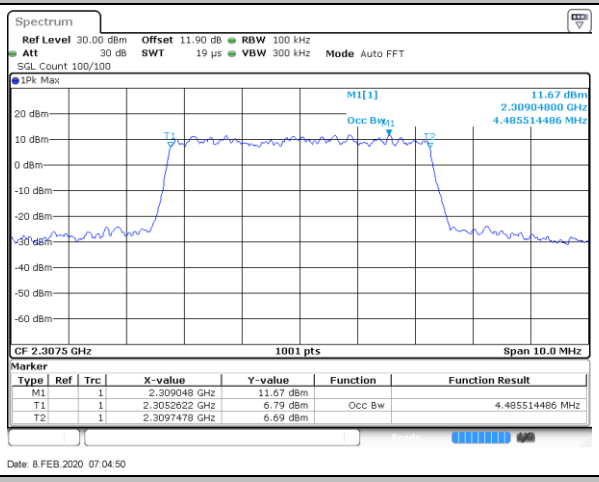
LTE Band 30	
Lowest Channel / 5MHz / 64QAM	
	
Middle Channel / 5MHz / 64QAM	**Middle Channel / 10MHz / 64QAM**
	
Highest Channel / 5MHz / 64QAM	
	

Occupied Bandwidth

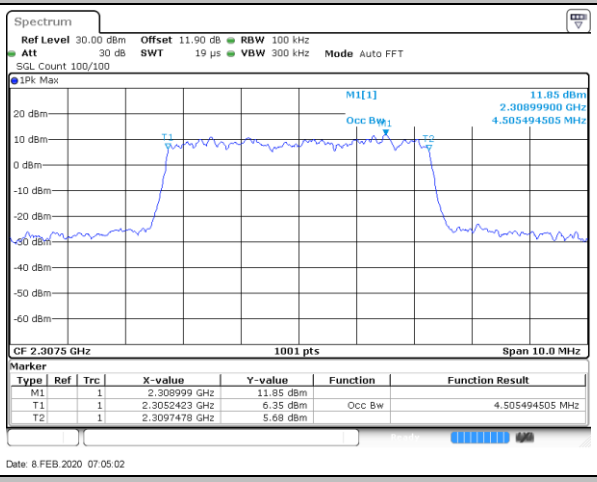
Mode	LTE Band 30 : 99%OBW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	-	-	-	-	4.49	4.51	-	-	-	-	-	-
Middle CH	-	-	-	-	4.48	4.48	9.07	8.99	-	-	-	-
Highest CH	-	-	-	-	4.49	4.51	-	-	-	-	-	-
Mode	LTE Band 26 : 99%OBW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	64QAM		64QAM		64QAM		64QAM		64QAM		64QAM	
Lowest CH	-	-	-	-	4.49	-	-	-	-	-	-	-
Middle CH	-	-	-	-	4.49	-	9.05	-	-	-	-	-
Highest CH	-	-	-	-	4.51	-	-	-	-	-	-	-

LTE Band 30

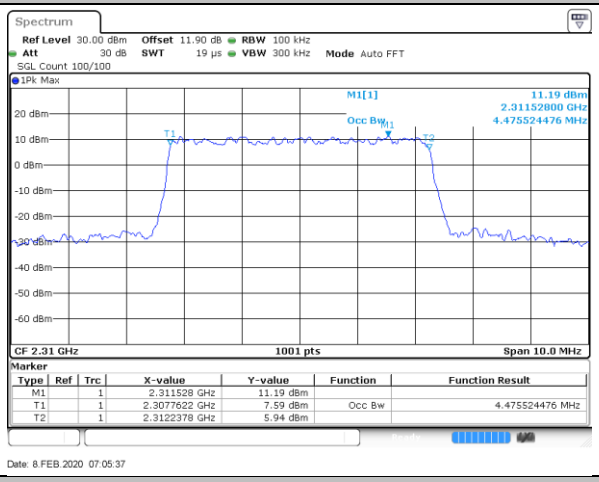
Lowest Channel / 5MHz / QPSK



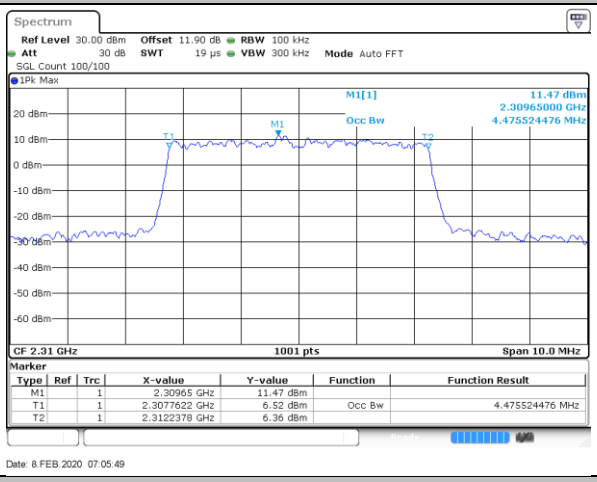
Lowest Channel / 5MHz / 16QAM



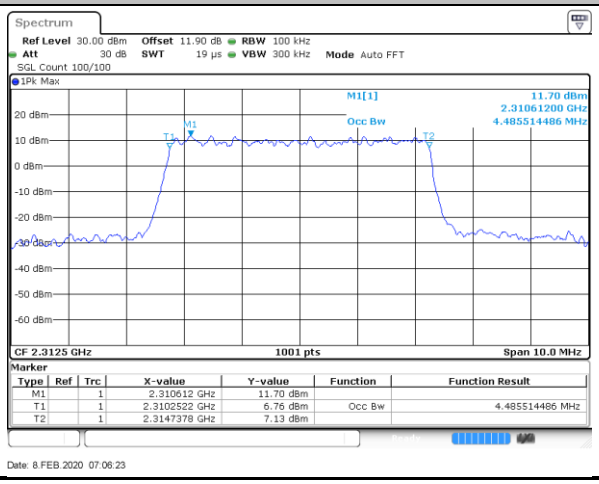
Middle Channel / 5MHz / QPSK



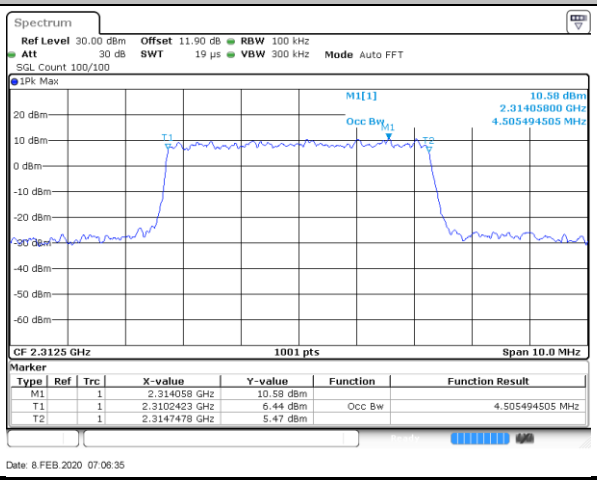
Middle Channel / 5MHz / 16QAM



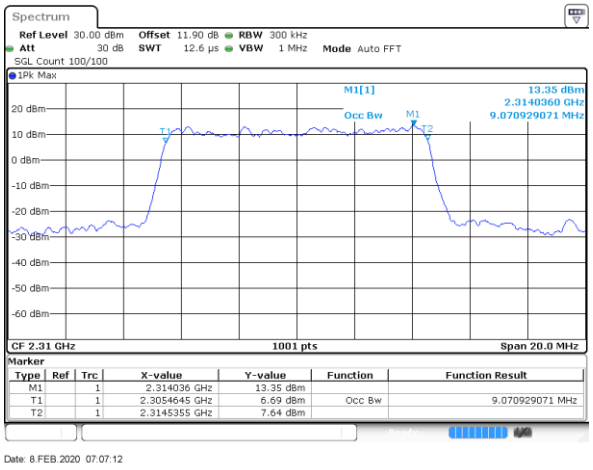
Highest Channel / 5MHz / QPSK

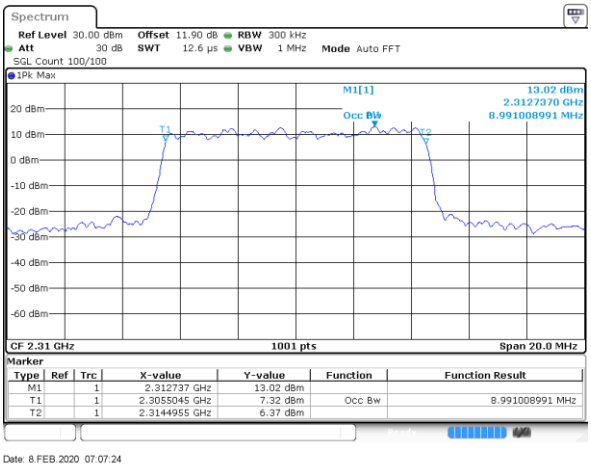


Highest Channel / 5MHz / 16QAM



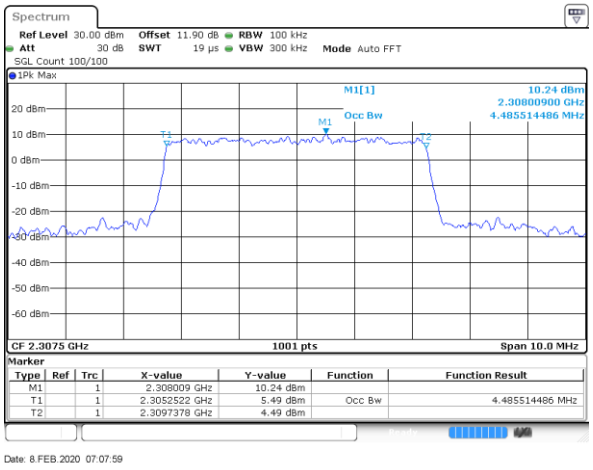
LTE Band 30	
Middle Channel / 10MHz / QPSK	Middle Channel / 10MHz / 16QAM



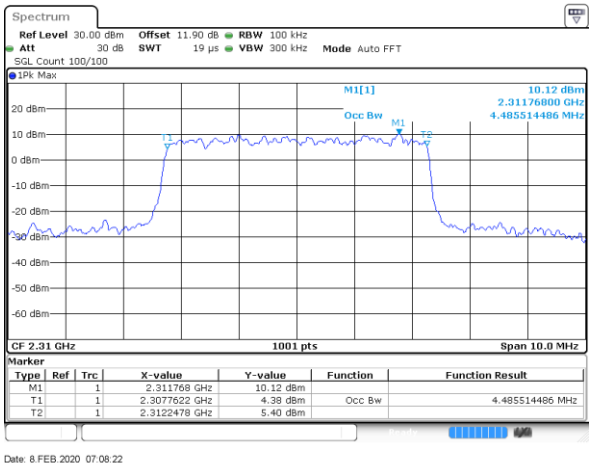


LTE Band 30

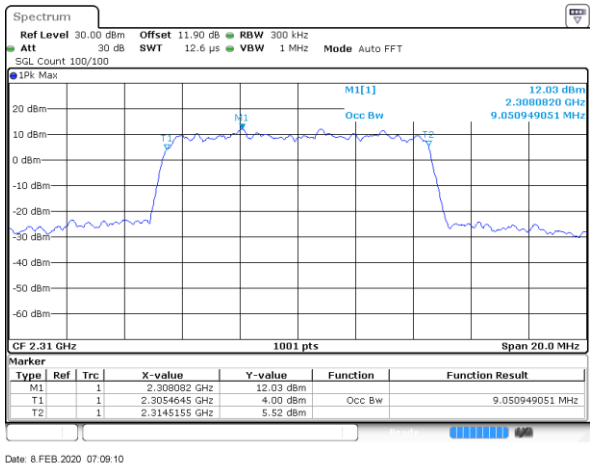
Lowest Channel / 5MHz / 64QAM



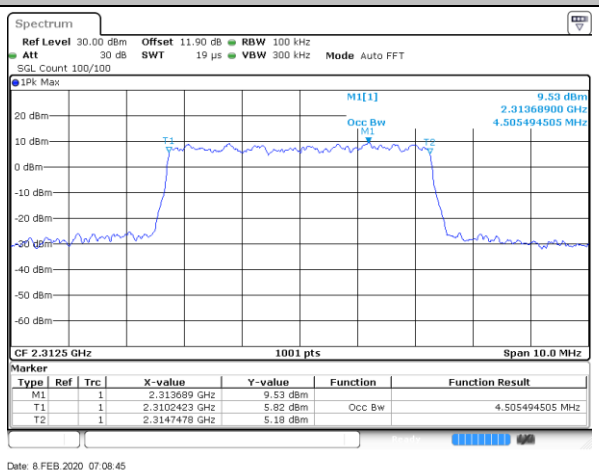
Middle Channel / 5MHz / 64QAM



Middle Channel / 10MHz / 64QAM



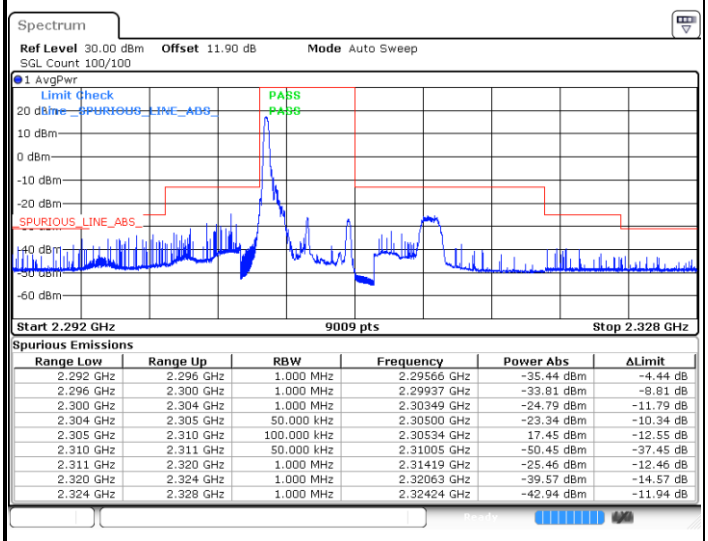
Highest Channel / 5MHz / 64QAM



Conducted Band Edge

LTE Band 30 / 5MHz / QPSK

Lowest Band Edge / 1 RB

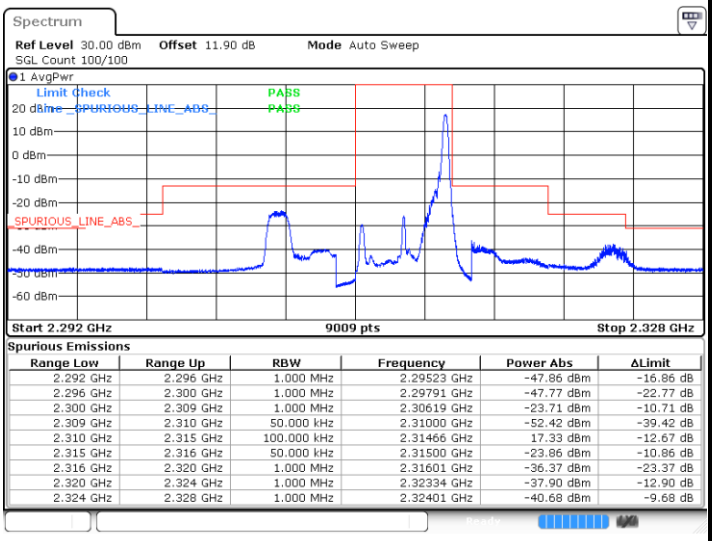


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29566 GHz	-35.44 dBm	-4.44 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29937 GHz	-33.81 dBm	-8.81 dB
2.300 GHz	2.304 GHz	1.000 MHz	2.30349 GHz	-24.79 dBm	-11.79 dB
2.304 GHz	2.305 GHz	50.000 kHz	2.30500 GHz	-23.34 dBm	-10.34 dB
2.305 GHz	2.310 GHz	100.000 kHz	2.30534 GHz	17.45 dBm	-12.55 dB
2.310 GHz	2.311 GHz	50.000 kHz	2.31005 GHz	-50.45 dBm	-37.45 dB
2.311 GHz	2.320 GHz	1.000 MHz	2.31419 GHz	-25.46 dBm	-12.46 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32063 GHz	-39.57 dBm	-14.57 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32424 GHz	-42.94 dBm	-11.94 dB

Date: 8.FEB.2020 06:41:16

Highest Band Edge / 1 RB

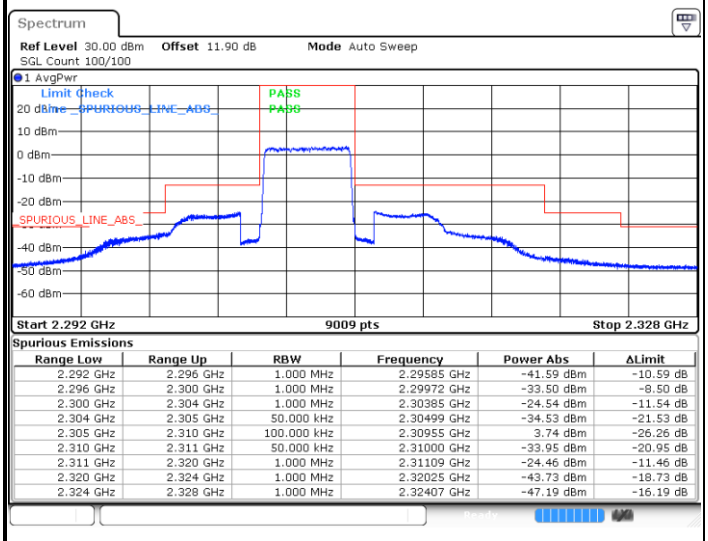


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29523 GHz	-47.86 dBm	-16.86 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29791 GHz	-47.77 dBm	-22.77 dB
2.300 GHz	2.309 GHz	1.000 MHz	2.30619 GHz	-23.71 dBm	-10.71 dB
2.309 GHz	2.310 GHz	50.000 kHz	2.31000 GHz	-52.42 dBm	-39.42 dB
2.310 GHz	2.315 GHz	100.000 kHz	2.31466 GHz	17.33 dBm	-12.67 dB
2.315 GHz	2.316 GHz	50.000 kHz	2.31500 GHz	-23.86 dBm	-10.86 dB
2.316 GHz	2.320 GHz	1.000 MHz	2.31601 GHz	-36.37 dBm	-23.37 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32334 GHz	-37.90 dBm	-12.90 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32401 GHz	-40.68 dBm	-9.68 dB

Date: 8.FEB.2020 06:45:24

Lowest Band Edge / Full RB

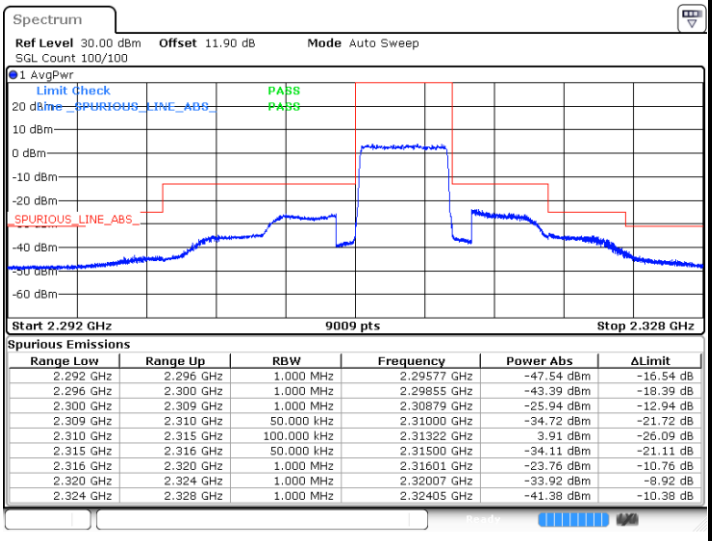


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29585 GHz	-41.59 dBm	-10.59 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29972 GHz	-33.50 dBm	-8.50 dB
2.300 GHz	2.304 GHz	1.000 MHz	2.30385 GHz	-24.54 dBm	-11.54 dB
2.304 GHz	2.305 GHz	50.000 kHz	2.30499 GHz	-34.53 dBm	-21.53 dB
2.305 GHz	2.310 GHz	100.000 kHz	2.30955 GHz	3.74 dBm	-26.26 dB
2.310 GHz	2.311 GHz	50.000 kHz	2.31000 GHz	-33.95 dBm	-20.95 dB
2.311 GHz	2.320 GHz	1.000 MHz	2.31109 GHz	-24.46 dBm	-11.46 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32025 GHz	-43.73 dBm	-18.73 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32407 GHz	-47.19 dBm	-16.19 dB

Date: 8.FEB.2020 06:43:20

Highest Band Edge / Full RB



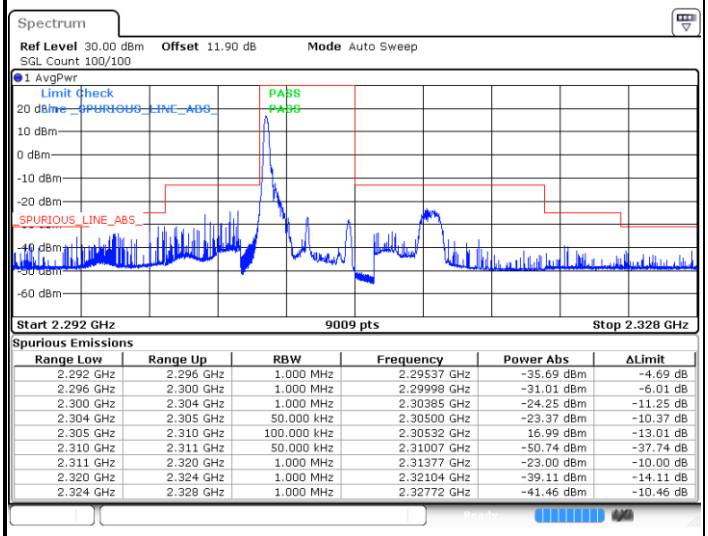
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29577 GHz	-47.54 dBm	-16.54 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29855 GHz	-43.39 dBm	-18.39 dB
2.300 GHz	2.309 GHz	1.000 MHz	2.30879 GHz	-25.94 dBm	-12.94 dB
2.309 GHz	2.310 GHz	50.000 kHz	2.31000 GHz	-34.72 dBm	-21.72 dB
2.310 GHz	2.315 GHz	100.000 kHz	2.31322 GHz	3.91 dBm	-26.09 dB
2.315 GHz	2.316 GHz	50.000 kHz	2.31500 GHz	-34.11 dBm	-21.11 dB
2.316 GHz	2.320 GHz	1.000 MHz	2.31601 GHz	-23.76 dBm	-10.76 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32007 GHz	-33.92 dBm	-8.92 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32405 GHz	-41.38 dBm	-10.38 dB

Date: 8.FEB.2020 06:47:28

LTE Band 30 / 5MHz / 16QAM

Lowest Band Edge / 1RB

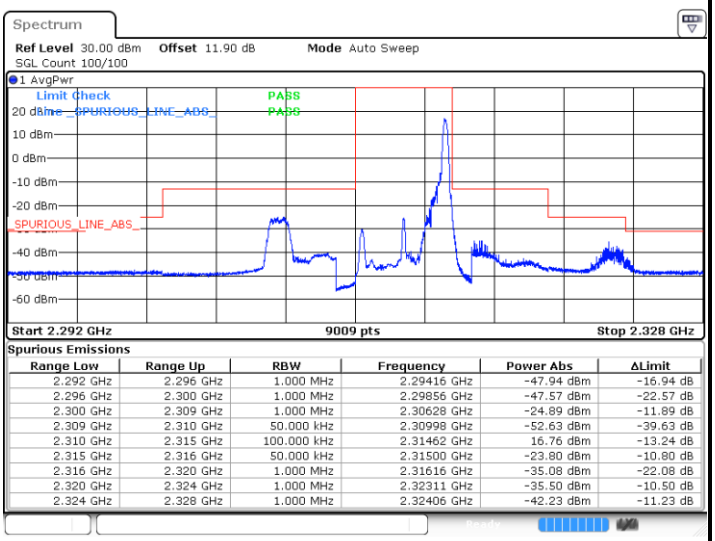


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29537 GHz	-35.69 dBm	-4.69 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29998 GHz	-31.01 dBm	-6.01 dB
2.300 GHz	2.304 GHz	1.000 MHz	2.30385 GHz	-24.25 dBm	-11.25 dB
2.304 GHz	2.305 GHz	50.000 kHz	2.30500 GHz	-23.37 dBm	-10.37 dB
2.305 GHz	2.310 GHz	100.000 kHz	2.30532 GHz	16.99 dBm	-13.01 dB
2.310 GHz	2.311 GHz	50.000 kHz	2.31007 GHz	-50.74 dBm	-37.74 dB
2.311 GHz	2.320 GHz	1.000 MHz	2.31377 GHz	-23.00 dBm	-10.00 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32104 GHz	-39.11 dBm	-14.11 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32772 GHz	-41.46 dBm	-10.46 dB

Date: 8.FEB.2020 06:41:57

Highest Band Edge / 1 RB

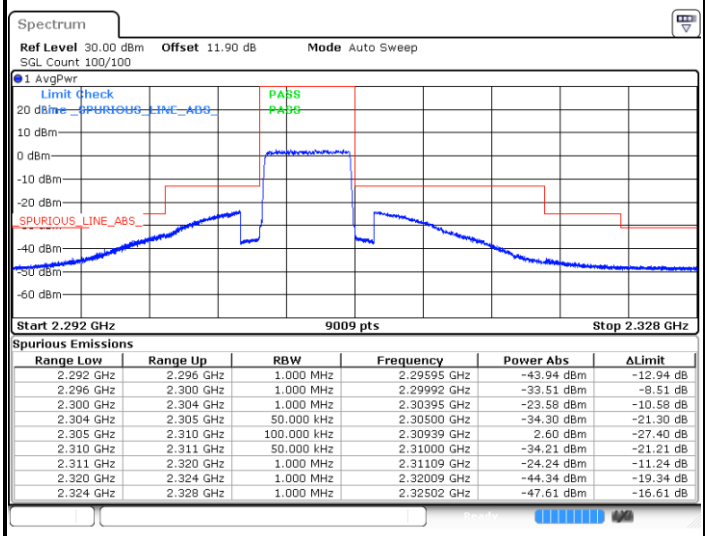


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29416 GHz	-47.94 dBm	-16.94 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29856 GHz	-47.57 dBm	-22.57 dB
2.300 GHz	2.309 GHz	1.000 MHz	2.30628 GHz	-24.89 dBm	-11.89 dB
2.309 GHz	2.310 GHz	50.000 kHz	2.30998 GHz	-52.63 dBm	-39.63 dB
2.310 GHz	2.315 GHz	100.000 kHz	2.31462 GHz	16.76 dBm	-13.24 dB
2.315 GHz	2.316 GHz	50.000 kHz	2.31500 GHz	-23.80 dBm	-10.80 dB
2.316 GHz	2.320 GHz	1.000 MHz	2.31616 GHz	-35.08 dBm	-22.08 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32311 GHz	-35.50 dBm	-10.50 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32406 GHz	-42.23 dBm	-11.23 dB

Date: 8.FEB.2020 06:46:05

Lowest Band Edge / Full RB

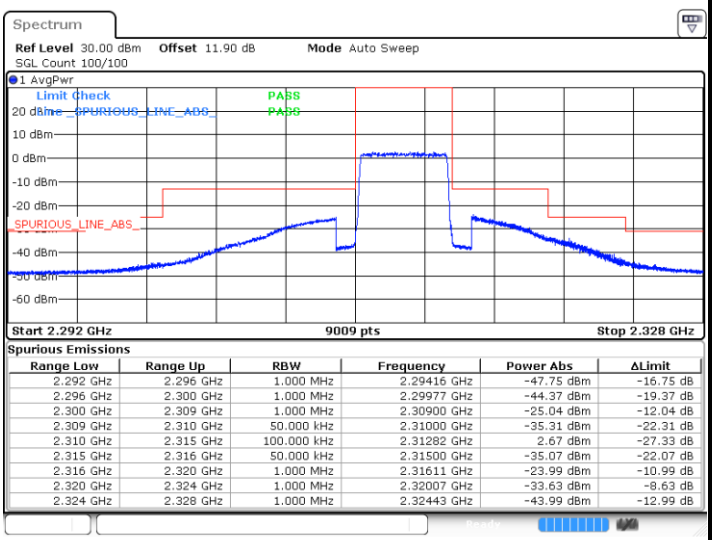


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29595 GHz	-43.94 dBm	-12.94 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29992 GHz	-33.51 dBm	-8.51 dB
2.300 GHz	2.304 GHz	1.000 MHz	2.30395 GHz	-23.58 dBm	-10.58 dB
2.304 GHz	2.305 GHz	50.000 kHz	2.30500 GHz	-34.30 dBm	-21.30 dB
2.305 GHz	2.310 GHz	100.000 kHz	2.30939 GHz	2.60 dBm	-27.40 dB
2.310 GHz	2.311 GHz	50.000 kHz	2.31000 GHz	-34.21 dBm	-21.21 dB
2.311 GHz	2.320 GHz	1.000 MHz	2.31109 GHz	-24.24 dBm	-11.24 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32009 GHz	-44.34 dBm	-19.34 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32502 GHz	-47.61 dBm	-16.61 dB

Date: 8.FEB.2020 06:44:01

Highest Band Edge / Full RB



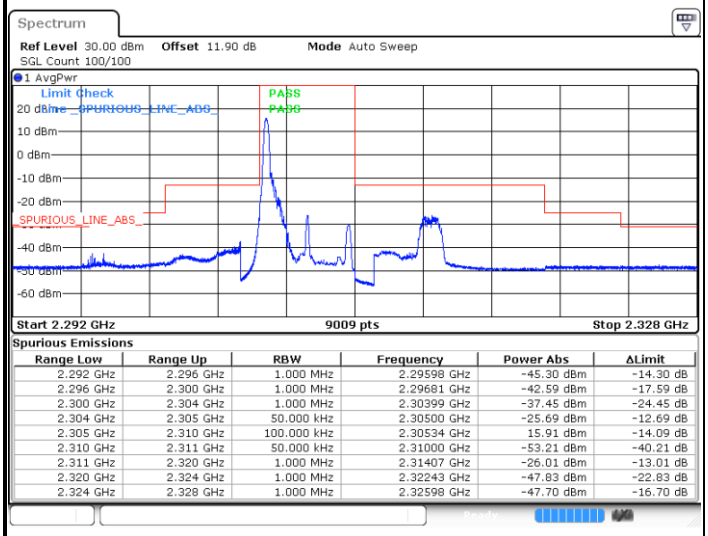
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29416 GHz	-47.75 dBm	-16.75 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29977 GHz	-44.37 dBm	-19.37 dB
2.300 GHz	2.309 GHz	1.000 MHz	2.30900 GHz	-25.04 dBm	-12.04 dB
2.309 GHz	2.310 GHz	50.000 kHz	2.31000 GHz	-35.31 dBm	-22.31 dB
2.310 GHz	2.315 GHz	100.000 kHz	2.31282 GHz	2.67 dBm	-27.33 dB
2.315 GHz	2.316 GHz	50.000 kHz	2.31500 GHz	-35.07 dBm	-22.07 dB
2.316 GHz	2.320 GHz	1.000 MHz	2.31611 GHz	-23.99 dBm	-10.99 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32007 GHz	-33.63 dBm	-8.63 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32443 GHz	-43.99 dBm	-12.99 dB

Date: 8.FEB.2020 06:48:09

LTE Band 30 / 5MHz / 64QAM

Lowest Band Edge / 1RB

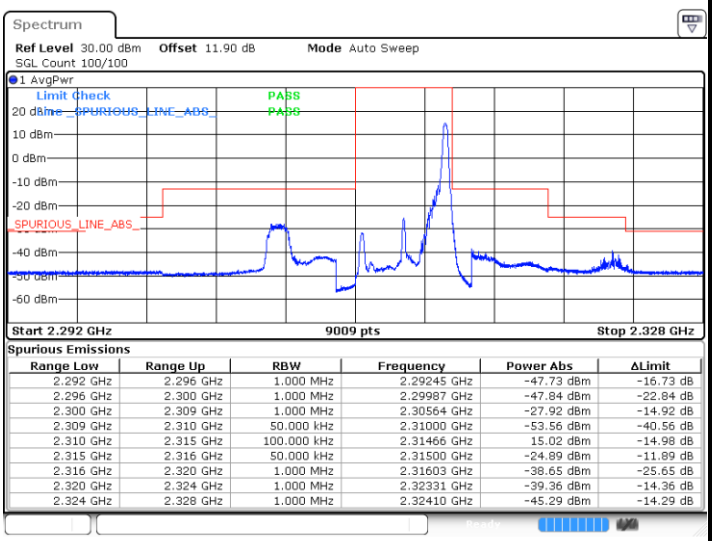


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29598 GHz	-45.30 dBm	-14.30 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29681 GHz	-42.59 dBm	-17.59 dB
2.300 GHz	2.304 GHz	1.000 MHz	2.30399 GHz	-37.45 dBm	-24.45 dB
2.304 GHz	2.305 GHz	50.000 kHz	2.30500 GHz	-25.69 dBm	-12.69 dB
2.305 GHz	2.310 GHz	100.000 kHz	2.30534 GHz	15.91 dBm	-14.09 dB
2.310 GHz	2.311 GHz	50.000 kHz	2.31000 GHz	-53.21 dBm	-40.21 dB
2.311 GHz	2.320 GHz	1.000 MHz	2.31407 GHz	-26.01 dBm	-13.01 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32243 GHz	-47.83 dBm	-22.83 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32598 GHz	-47.70 dBm	-16.70 dB

Date: 8.FEB.2020 06:42:39

Highest Band Edge / 1 RB

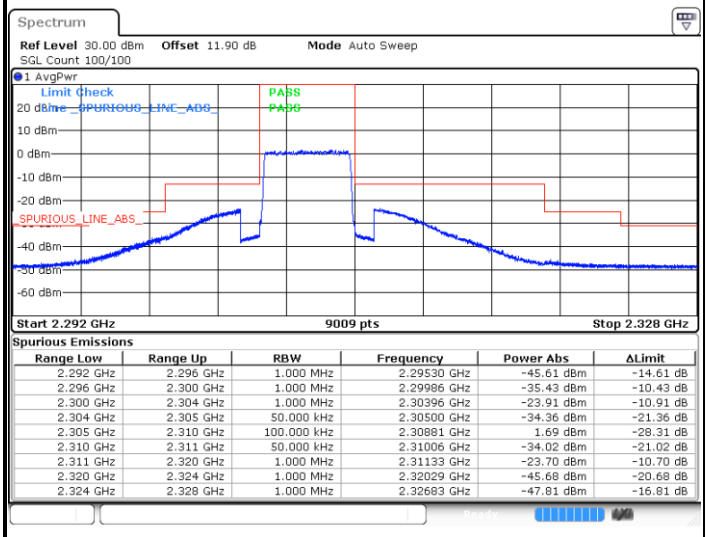


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29245 GHz	-47.73 dBm	-16.73 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29987 GHz	-47.84 dBm	-22.84 dB
2.300 GHz	2.309 GHz	1.000 MHz	2.30564 GHz	-27.92 dBm	-14.92 dB
2.309 GHz	2.310 GHz	50.000 kHz	2.31000 GHz	-53.56 dBm	-40.56 dB
2.310 GHz	2.315 GHz	100.000 kHz	2.31466 GHz	15.02 dBm	-14.98 dB
2.315 GHz	2.316 GHz	50.000 kHz	2.31500 GHz	-24.89 dBm	-11.89 dB
2.316 GHz	2.320 GHz	1.000 MHz	2.31603 GHz	-38.65 dBm	-25.65 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32331 GHz	-39.36 dBm	-14.36 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32410 GHz	-45.29 dBm	-14.29 dB

Date: 8.FEB.2020 06:46:47

Lowest Band Edge / Full RB

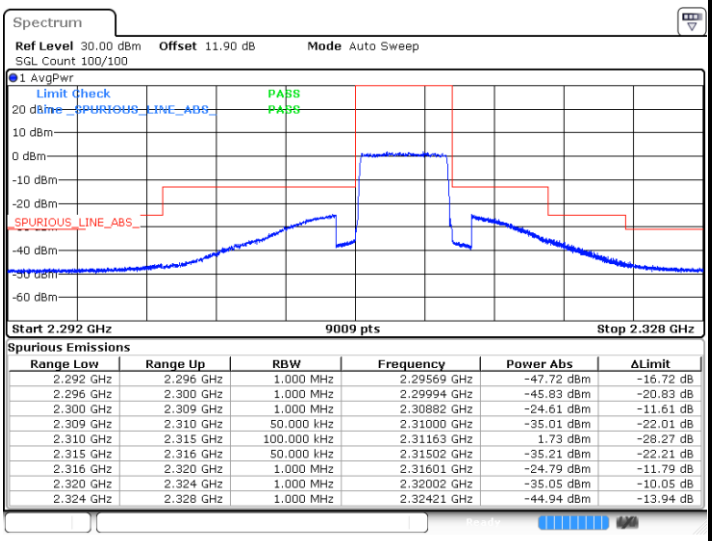


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29530 GHz	-45.61 dBm	-14.61 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29986 GHz	-35.43 dBm	-10.43 dB
2.300 GHz	2.304 GHz	1.000 MHz	2.30396 GHz	-23.91 dBm	-10.91 dB
2.304 GHz	2.305 GHz	50.000 kHz	2.30500 GHz	-34.36 dBm	-21.36 dB
2.305 GHz	2.310 GHz	100.000 kHz	2.30881 GHz	1.69 dBm	-28.31 dB
2.310 GHz	2.311 GHz	50.000 kHz	2.31006 GHz	-34.02 dBm	-21.02 dB
2.311 GHz	2.320 GHz	1.000 MHz	2.31133 GHz	-23.70 dBm	-10.70 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32029 GHz	-45.68 dBm	-20.68 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32683 GHz	-47.81 dBm	-16.81 dB

Date: 8.FEB.2020 06:44:43

Highest Band Edge / Full RB



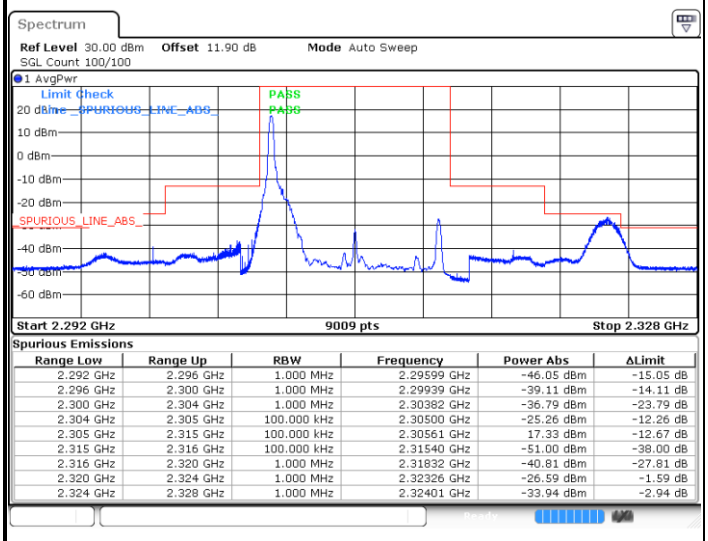
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29569 GHz	-47.72 dBm	-16.72 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29994 GHz	-45.83 dBm	-20.83 dB
2.300 GHz	2.309 GHz	1.000 MHz	2.30882 GHz	-24.61 dBm	-11.61 dB
2.309 GHz	2.310 GHz	50.000 kHz	2.31000 GHz	-35.01 dBm	-22.01 dB
2.310 GHz	2.315 GHz	100.000 kHz	2.31163 GHz	1.73 dBm	-28.27 dB
2.315 GHz	2.316 GHz	50.000 kHz	2.31502 GHz	-35.21 dBm	-22.21 dB
2.316 GHz	2.320 GHz	1.000 MHz	2.31601 GHz	-24.79 dBm	-11.79 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32002 GHz	-35.05 dBm	-10.05 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32421 GHz	-44.94 dBm	-13.94 dB

Date: 8.FEB.2020 06:48:50

LTE Band 30 / 10MHz / QPSK

Lowest Band Edge / 1 RB

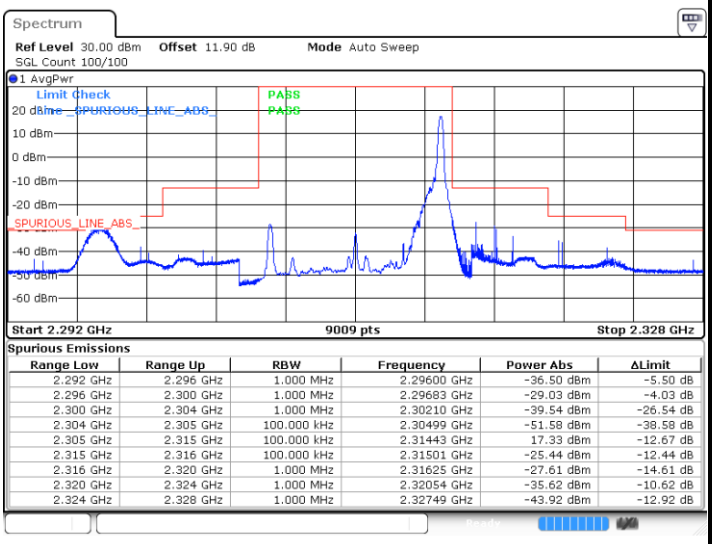


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29599 GHz	-46.05 dBm	-15.05 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29939 GHz	-39.11 dBm	-14.11 dB
2.300 GHz	2.304 GHz	1.000 MHz	2.30382 GHz	-36.79 dBm	-23.79 dB
2.304 GHz	2.305 GHz	100.000 kHz	2.30500 GHz	-25.26 dBm	-12.26 dB
2.305 GHz	2.315 GHz	100.000 kHz	2.30561 GHz	17.33 dBm	-12.67 dB
2.315 GHz	2.316 GHz	100.000 kHz	2.31540 GHz	-51.00 dBm	-38.00 dB
2.316 GHz	2.320 GHz	1.000 MHz	2.31832 GHz	-40.81 dBm	-27.81 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32326 GHz	-26.59 dBm	-1.59 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32401 GHz	-33.94 dBm	-2.94 dB

Date: 8.FEB.2020 06:49:32

Highest Band Edge / 1 RB

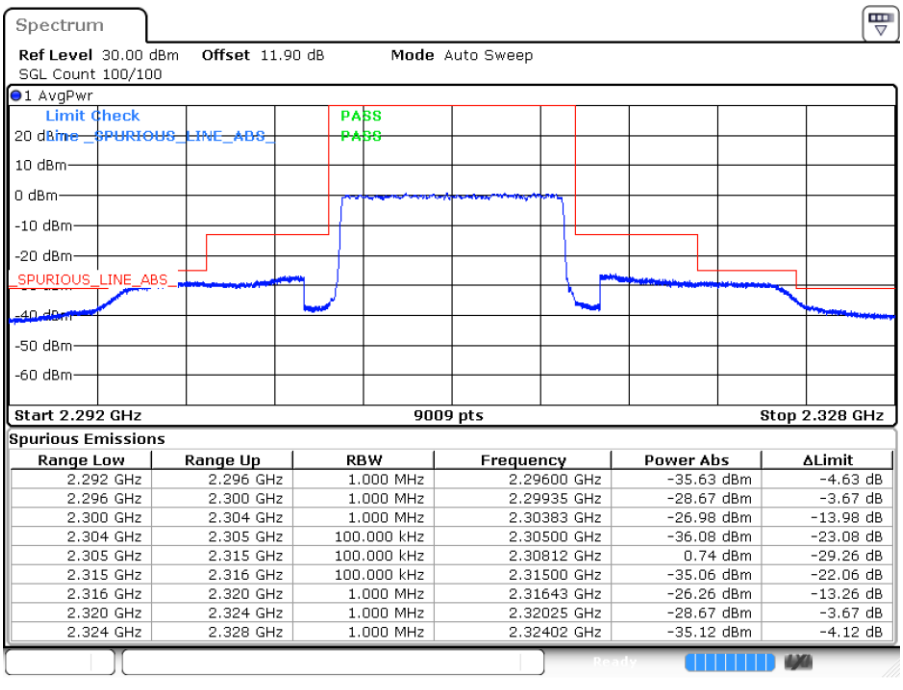


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29600 GHz	-36.50 dBm	-5.50 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29683 GHz	-29.03 dBm	-4.03 dB
2.300 GHz	2.304 GHz	1.000 MHz	2.30210 GHz	-39.54 dBm	-26.54 dB
2.304 GHz	2.305 GHz	100.000 kHz	2.30499 GHz	-51.58 dBm	-38.58 dB
2.305 GHz	2.315 GHz	100.000 kHz	2.31443 GHz	17.33 dBm	-12.67 dB
2.315 GHz	2.316 GHz	100.000 kHz	2.31501 GHz	-25.44 dBm	-12.44 dB
2.316 GHz	2.320 GHz	1.000 MHz	2.31625 GHz	-27.61 dBm	-14.61 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32054 GHz	-35.62 dBm	-10.62 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32749 GHz	-43.92 dBm	-12.92 dB

Date: 8.FEB.2020 06:51:34

Band Edge / Full RB



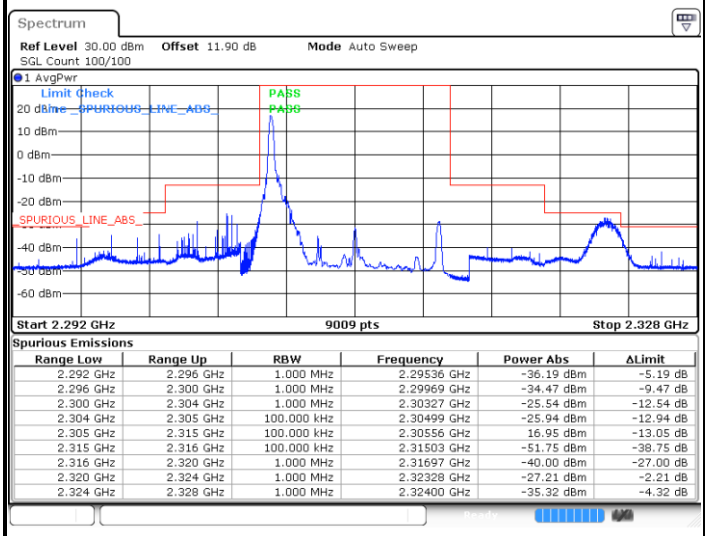
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29600 GHz	-35.63 dBm	-4.63 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29935 GHz	-28.67 dBm	-3.67 dB
2.300 GHz	2.304 GHz	1.000 MHz	2.30383 GHz	-26.98 dBm	-13.98 dB
2.304 GHz	2.305 GHz	100.000 kHz	2.30500 GHz	-36.08 dBm	-23.08 dB
2.305 GHz	2.315 GHz	100.000 kHz	2.30812 GHz	0.74 dBm	-29.26 dB
2.315 GHz	2.316 GHz	100.000 kHz	2.31500 GHz	-35.06 dBm	-22.06 dB
2.316 GHz	2.320 GHz	1.000 MHz	2.31643 GHz	-26.26 dBm	-13.26 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32025 GHz	-28.67 dBm	-3.67 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32402 GHz	-35.12 dBm	-4.12 dB

Date: 8.FEB.2020 06:53:37

LTE Band 30 / 10MHz / 16QAM

Lowest Band Edge / 1 RB

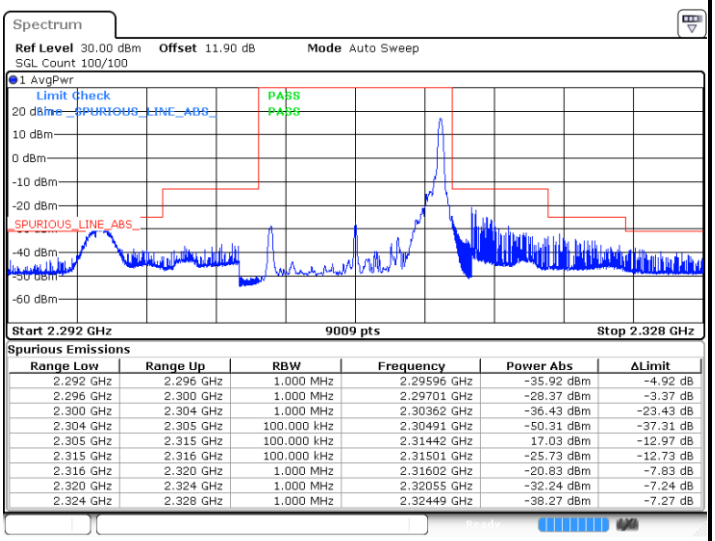


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29536 GHz	-36.19 dBm	-5.19 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29969 GHz	-34.47 dBm	-9.47 dB
2.300 GHz	2.304 GHz	1.000 MHz	2.30327 GHz	-25.54 dBm	-12.54 dB
2.304 GHz	2.305 GHz	100.000 kHz	2.30499 GHz	-25.94 dBm	-12.94 dB
2.305 GHz	2.315 GHz	100.000 kHz	2.30556 GHz	16.95 dBm	-13.05 dB
2.315 GHz	2.316 GHz	100.000 kHz	2.31503 GHz	-51.75 dBm	-38.75 dB
2.316 GHz	2.320 GHz	1.000 MHz	2.31697 GHz	-40.00 dBm	-27.00 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32328 GHz	-27.21 dBm	-2.21 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32400 GHz	-35.32 dBm	-4.32 dB

Date: 8.FEB.2020 06:50:13

Highest Band Edge / 1 RB

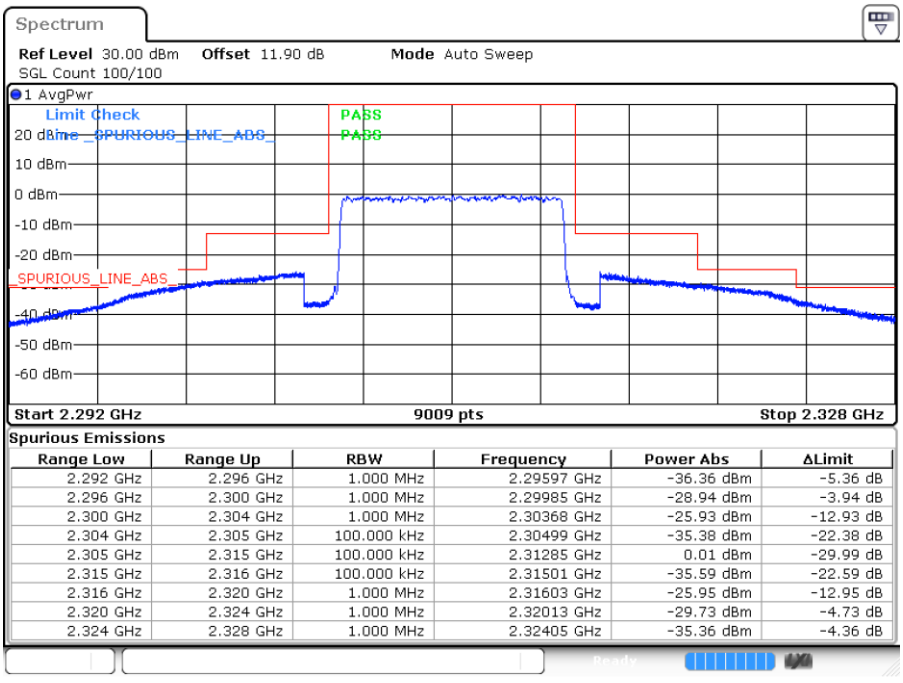


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29596 GHz	-35.92 dBm	-4.92 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29701 GHz	-28.37 dBm	-3.37 dB
2.300 GHz	2.304 GHz	1.000 MHz	2.30362 GHz	-36.43 dBm	-23.43 dB
2.304 GHz	2.305 GHz	100.000 kHz	2.30491 GHz	-50.31 dBm	-37.31 dB
2.305 GHz	2.315 GHz	100.000 kHz	2.31442 GHz	17.03 dBm	-12.97 dB
2.315 GHz	2.316 GHz	100.000 kHz	2.31501 GHz	-25.73 dBm	-12.73 dB
2.316 GHz	2.320 GHz	1.000 MHz	2.31602 GHz	-20.83 dBm	-7.83 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32055 GHz	-32.24 dBm	-7.24 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32449 GHz	-38.27 dBm	-7.27 dB

Date: 8.FEB.2020 06:52:15

Band Edge / Full RB



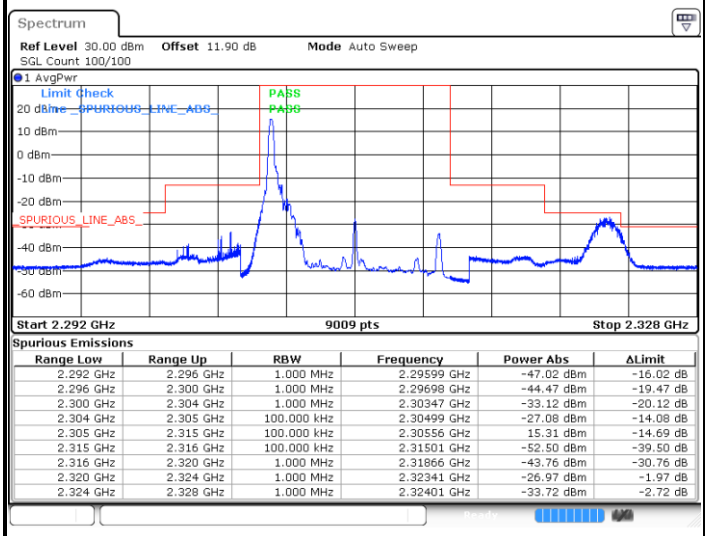
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29597 GHz	-36.36 dBm	-5.36 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29985 GHz	-28.94 dBm	-3.94 dB
2.300 GHz	2.304 GHz	1.000 MHz	2.30368 GHz	-25.93 dBm	-12.93 dB
2.304 GHz	2.305 GHz	100.000 kHz	2.30499 GHz	-35.38 dBm	-22.38 dB
2.305 GHz	2.315 GHz	100.000 kHz	2.31285 GHz	0.01 dBm	-29.99 dB
2.315 GHz	2.316 GHz	100.000 kHz	2.31501 GHz	-35.59 dBm	-22.59 dB
2.316 GHz	2.320 GHz	1.000 MHz	2.31603 GHz	-25.95 dBm	-12.95 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32013 GHz	-29.73 dBm	-4.73 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32405 GHz	-35.36 dBm	-4.36 dB

Date: 8.FEB.2020 06:54:18

LTE Band 30 / 10MHz / 64QAM

Lowest Band Edge / 1 RB

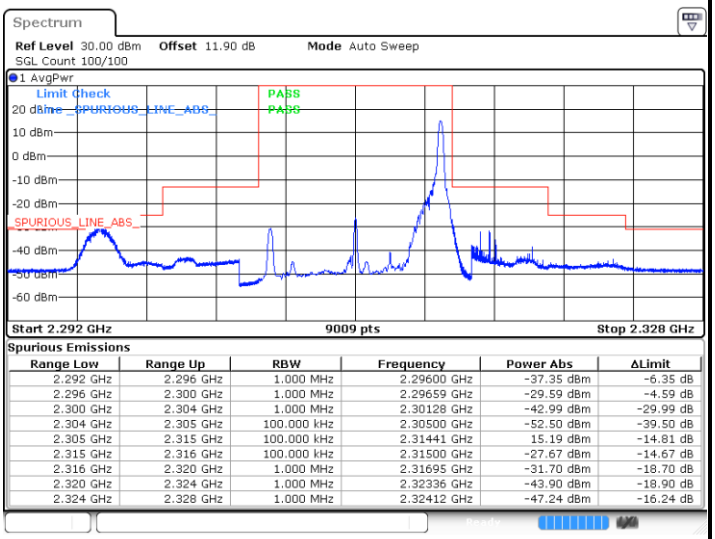


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29599 GHz	-47.02 dBm	-16.02 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29698 GHz	-44.47 dBm	-19.47 dB
2.300 GHz	2.304 GHz	1.000 MHz	2.30347 GHz	-33.12 dBm	-20.12 dB
2.304 GHz	2.305 GHz	100.000 kHz	2.30499 GHz	-27.08 dBm	-14.08 dB
2.305 GHz	2.315 GHz	100.000 kHz	2.30556 GHz	15.31 dBm	-14.69 dB
2.315 GHz	2.316 GHz	100.000 kHz	2.31501 GHz	-52.50 dBm	-39.50 dB
2.316 GHz	2.320 GHz	1.000 MHz	2.31866 GHz	-43.76 dBm	-30.76 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32341 GHz	-26.97 dBm	-1.97 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32401 GHz	-33.72 dBm	-2.72 dB

Date: 8.FEB.2020 06:50:54

Highest Band Edge / 1 RB

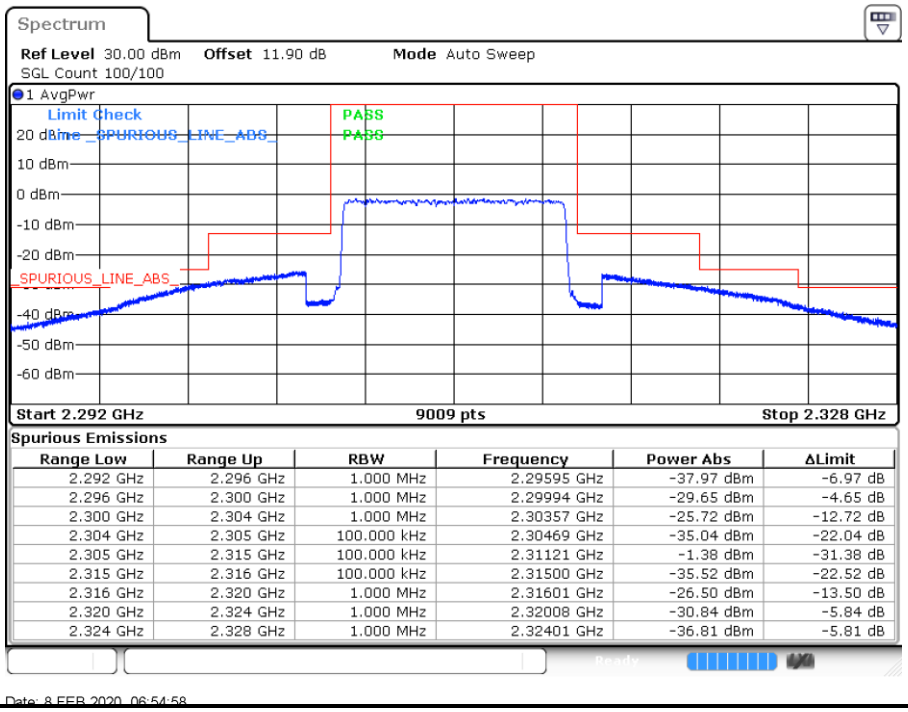


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29600 GHz	-37.35 dBm	-6.35 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29659 GHz	-29.59 dBm	-4.59 dB
2.300 GHz	2.304 GHz	1.000 MHz	2.30128 GHz	-42.99 dBm	-29.99 dB
2.304 GHz	2.305 GHz	100.000 kHz	2.30500 GHz	-52.50 dBm	-39.50 dB
2.305 GHz	2.315 GHz	100.000 kHz	2.31441 GHz	15.19 dBm	-14.81 dB
2.315 GHz	2.316 GHz	100.000 kHz	2.31500 GHz	-27.67 dBm	-14.67 dB
2.316 GHz	2.320 GHz	1.000 MHz	2.31695 GHz	-31.70 dBm	-18.70 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32336 GHz	-43.90 dBm	-18.90 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32412 GHz	-47.24 dBm	-16.24 dB

Date: 8.FEB.2020 06:52:56

Band Edge / Full RB



Spurious Emissions

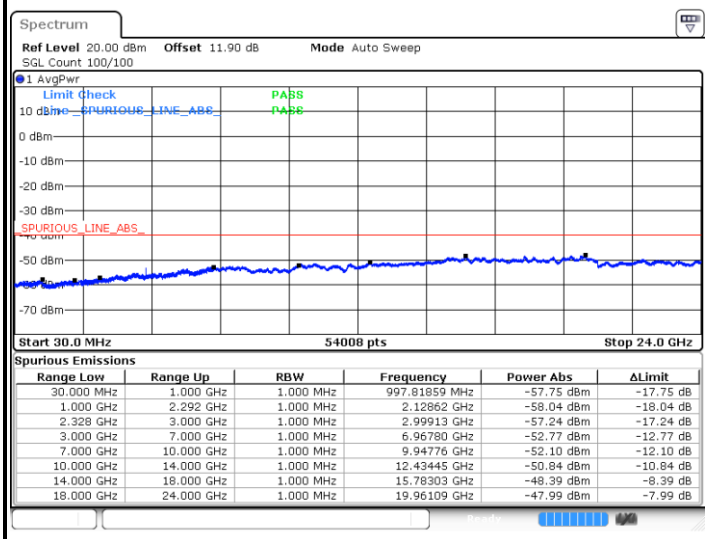
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29595 GHz	-37.97 dBm	-6.97 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29994 GHz	-29.65 dBm	-4.65 dB
2.300 GHz	2.304 GHz	1.000 MHz	2.30357 GHz	-25.72 dBm	-12.72 dB
2.304 GHz	2.305 GHz	100.000 kHz	2.30469 GHz	-35.04 dBm	-22.04 dB
2.305 GHz	2.315 GHz	100.000 kHz	2.31121 GHz	-1.38 dBm	-31.38 dB
2.315 GHz	2.316 GHz	100.000 kHz	2.31500 GHz	-35.52 dBm	-22.52 dB
2.316 GHz	2.320 GHz	1.000 MHz	2.31601 GHz	-26.50 dBm	-13.50 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32008 GHz	-30.84 dBm	-5.84 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32401 GHz	-36.81 dBm	-5.81 dB

Date: 8.FEB.2020 06:54:58

Conducted Spurious Emission

LTE Band 30 / 5MHz

Lowest Channel / QPSK

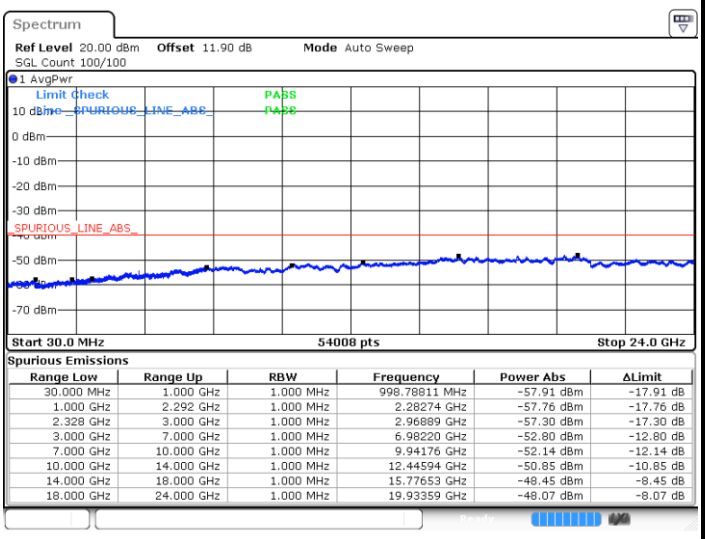


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	997.81859 MHz	-57.75 dBm	-17.75 dB
1.000 GHz	2.292 GHz	1.000 MHz	2.12862 GHz	-58.04 dBm	-18.04 dB
2.328 GHz	3.000 GHz	1.000 MHz	2.99913 GHz	-57.24 dBm	-17.24 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.96780 GHz	-52.77 dBm	-12.77 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.94776 GHz	-52.10 dBm	-12.10 dB
10.000 GHz	14.000 GHz	1.000 MHz	12.43445 GHz	-50.84 dBm	-10.84 dB
14.000 GHz	18.000 GHz	1.000 MHz	15.78303 GHz	-48.39 dBm	-8.39 dB
18.000 GHz	24.000 GHz	1.000 MHz	19.96109 GHz	-47.99 dBm	-7.99 dB

Date: 8.FEB.2020 06:56:25

Lowest Channel / 16QAM

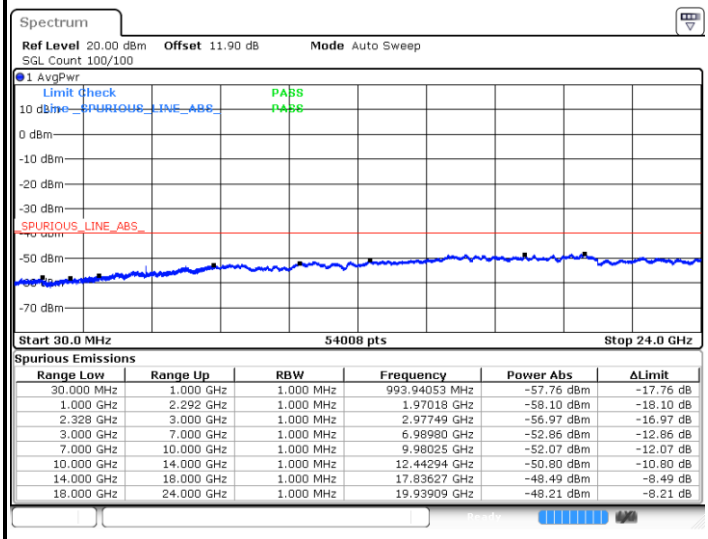


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	998.78811 MHz	-57.91 dBm	-17.91 dB
1.000 GHz	2.292 GHz	1.000 MHz	2.28274 GHz	-57.76 dBm	-17.76 dB
2.328 GHz	3.000 GHz	1.000 MHz	2.96889 GHz	-57.30 dBm	-17.30 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.98220 GHz	-52.80 dBm	-12.80 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.94176 GHz	-52.14 dBm	-12.14 dB
10.000 GHz	14.000 GHz	1.000 MHz	12.44594 GHz	-50.85 dBm	-10.85 dB
14.000 GHz	18.000 GHz	1.000 MHz	15.77653 GHz	-48.45 dBm	-8.45 dB
18.000 GHz	24.000 GHz	1.000 MHz	19.93359 GHz	-48.07 dBm	-8.07 dB

Date: 8.FEB.2020 06:57:08

Middle Channel / QPSK

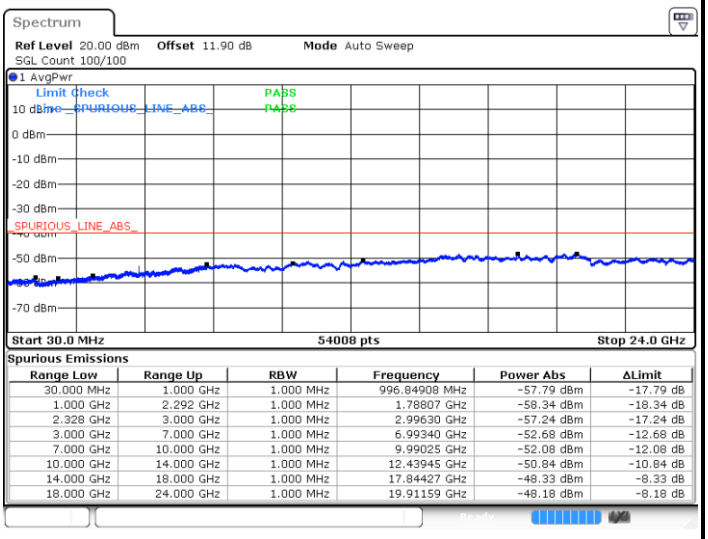


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	993.94053 MHz	-57.76 dBm	-17.76 dB
1.000 GHz	2.292 GHz	1.000 MHz	1.97018 GHz	-58.10 dBm	-18.10 dB
2.328 GHz	3.000 GHz	1.000 MHz	2.97749 GHz	-56.97 dBm	-16.97 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.98980 GHz	-52.86 dBm	-12.86 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.98025 GHz	-52.07 dBm	-12.07 dB
10.000 GHz	14.000 GHz	1.000 MHz	12.44294 GHz	-50.80 dBm	-10.80 dB
14.000 GHz	18.000 GHz	1.000 MHz	17.83627 GHz	-48.49 dBm	-8.49 dB
18.000 GHz	24.000 GHz	1.000 MHz	19.93909 GHz	-48.21 dBm	-8.21 dB

Date: 8.FEB.2020 06:57:51

Middle Channel / 16QAM



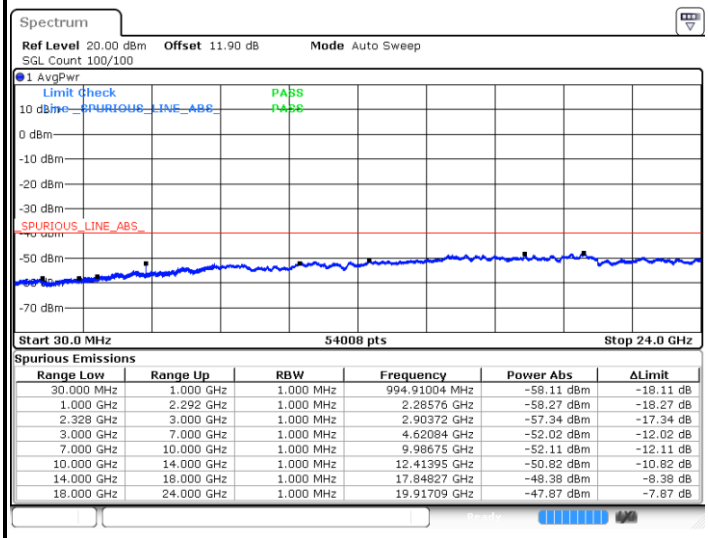
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	996.84908 MHz	-57.79 dBm	-17.79 dB
1.000 GHz	2.292 GHz	1.000 MHz	1.78807 GHz	-58.34 dBm	-18.34 dB
2.328 GHz	3.000 GHz	1.000 MHz	2.99630 GHz	-57.24 dBm	-17.24 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.99340 GHz	-52.68 dBm	-12.68 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.99025 GHz	-52.08 dBm	-12.08 dB
10.000 GHz	14.000 GHz	1.000 MHz	12.43945 GHz	-50.84 dBm	-10.84 dB
14.000 GHz	18.000 GHz	1.000 MHz	17.84427 GHz	-48.33 dBm	-8.33 dB
18.000 GHz	24.000 GHz	1.000 MHz	19.91159 GHz	-48.18 dBm	-8.18 dB

Date: 8.FEB.2020 06:58:34

LTE Band 30 / 5MHz

Highest Channel / QPSK

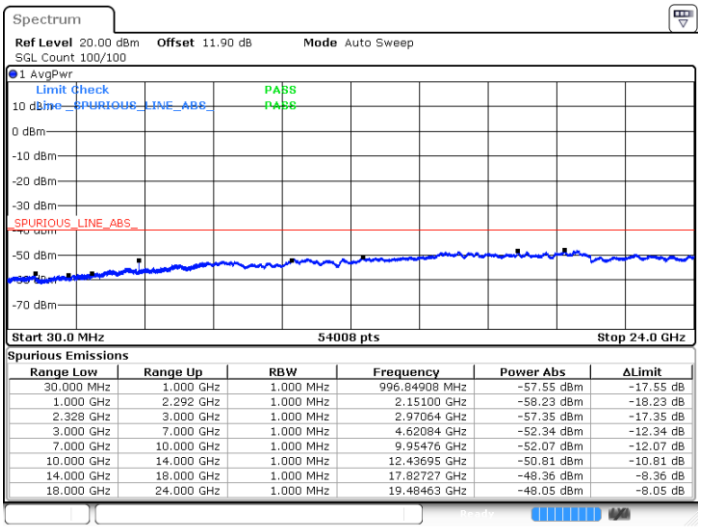


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	994.91004 MHz	-58.11 dBm	-18.11 dB
1.000 GHz	2.292 GHz	1.000 MHz	2.28576 GHz	-58.27 dBm	-18.27 dB
2.328 GHz	3.000 GHz	1.000 MHz	2.90372 GHz	-57.34 dBm	-17.34 dB
3.000 GHz	7.000 GHz	1.000 MHz	4.62084 GHz	-52.02 dBm	-12.02 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.98675 GHz	-52.11 dBm	-12.11 dB
10.000 GHz	14.000 GHz	1.000 MHz	12.41395 GHz	-50.82 dBm	-10.82 dB
14.000 GHz	18.000 GHz	1.000 MHz	17.84827 GHz	-48.38 dBm	-8.38 dB
18.000 GHz	24.000 GHz	1.000 MHz	19.91709 GHz	-47.87 dBm	-7.87 dB

Date: 8.FEB.2020 06:59:17

Highest Channel / 16QAM



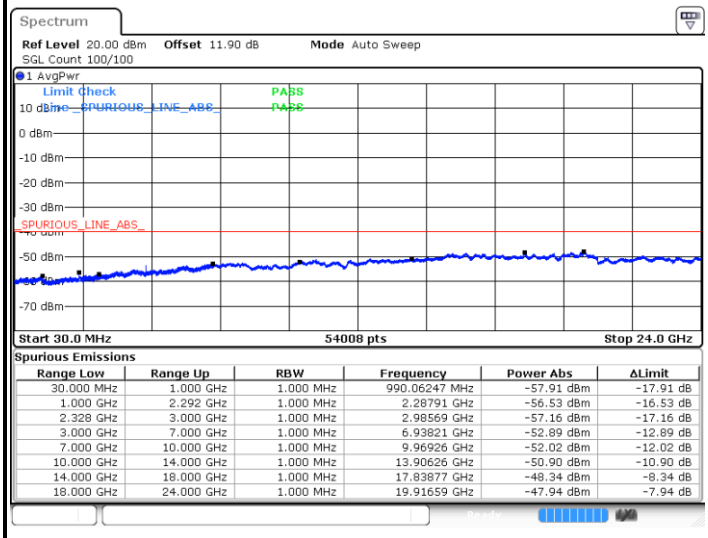
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	996.84908 MHz	-57.55 dBm	-17.55 dB
1.000 GHz	2.292 GHz	1.000 MHz	2.15100 GHz	-58.23 dBm	-18.23 dB
2.328 GHz	3.000 GHz	1.000 MHz	2.97064 GHz	-57.35 dBm	-17.35 dB
3.000 GHz	7.000 GHz	1.000 MHz	4.62084 GHz	-52.34 dBm	-12.34 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.95476 GHz	-52.07 dBm	-12.07 dB
10.000 GHz	14.000 GHz	1.000 MHz	12.43695 GHz	-50.81 dBm	-10.81 dB
14.000 GHz	18.000 GHz	1.000 MHz	17.82727 GHz	-48.36 dBm	-8.36 dB
18.000 GHz	24.000 GHz	1.000 MHz	19.48463 GHz	-48.05 dBm	-8.05 dB

Date: 8.FEB.2020 07:00:00

LTE Band 30 / 10MHz

Middle Channel / QPSK

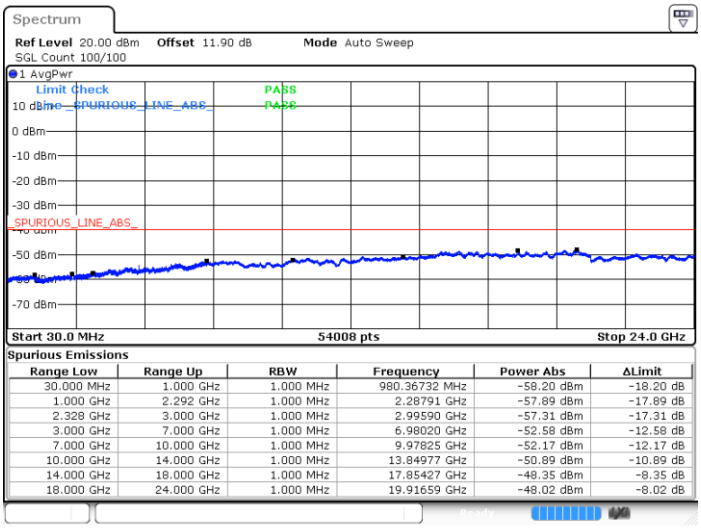


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	990.06247 MHz	-57.91 dBm	-17.91 dB
1.000 GHz	2.292 GHz	1.000 MHz	2.28791 GHz	-56.53 dBm	-16.53 dB
2.328 GHz	3.000 GHz	1.000 MHz	2.98569 GHz	-57.16 dBm	-17.16 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.93821 GHz	-52.89 dBm	-12.89 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.96926 GHz	-52.02 dBm	-12.02 dB
10.000 GHz	14.000 GHz	1.000 MHz	13.90626 GHz	-50.90 dBm	-10.90 dB
14.000 GHz	18.000 GHz	1.000 MHz	17.83877 GHz	-48.34 dBm	-8.34 dB
18.000 GHz	24.000 GHz	1.000 MHz	19.91659 GHz	-47.94 dBm	-7.94 dB

Date: 8.FEB.2020 07:03:36

Middle Channel / 16QAM



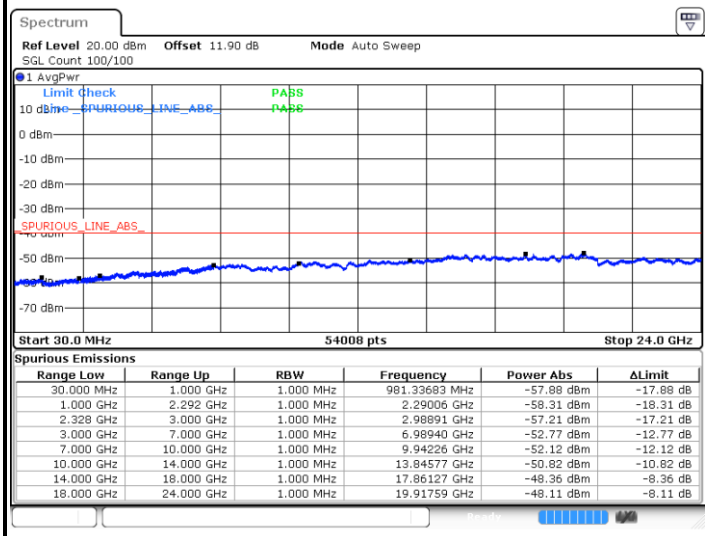
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	980.36732 MHz	-58.20 dBm	-18.20 dB
1.000 GHz	2.292 GHz	1.000 MHz	2.28791 GHz	-57.89 dBm	-17.89 dB
2.328 GHz	3.000 GHz	1.000 MHz	2.99590 GHz	-57.31 dBm	-17.31 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.98020 GHz	-52.58 dBm	-12.58 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.97825 GHz	-52.17 dBm	-12.17 dB
10.000 GHz	14.000 GHz	1.000 MHz	13.84977 GHz	-50.89 dBm	-10.89 dB
14.000 GHz	18.000 GHz	1.000 MHz	17.85427 GHz	-48.35 dBm	-8.35 dB
18.000 GHz	24.000 GHz	1.000 MHz	19.91659 GHz	-48.02 dBm	-8.02 dB

Date: 8.FEB.2020 07:04:18

LTE Band 30 / 5MHz

Lowest Channel / 64QAM

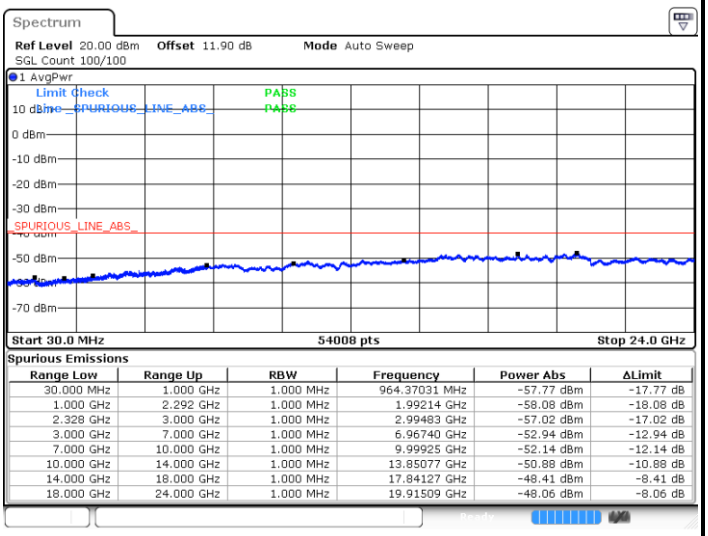


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	981.33683 MHz	-57.88 dBm	-17.88 dB
1.000 GHz	2.292 GHz	1.000 MHz	2.29006 GHz	-58.31 dBm	-18.31 dB
2.328 GHz	3.000 GHz	1.000 MHz	2.98891 GHz	-57.21 dBm	-17.21 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.98940 GHz	-52.77 dBm	-12.77 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.94226 GHz	-52.12 dBm	-12.12 dB
10.000 GHz	14.000 GHz	1.000 MHz	13.84577 GHz	-50.82 dBm	-10.82 dB
14.000 GHz	18.000 GHz	1.000 MHz	17.86127 GHz	-48.36 dBm	-8.36 dB
18.000 GHz	24.000 GHz	1.000 MHz	19.91759 GHz	-48.11 dBm	-8.11 dB

Date: 8.FEB.2020 07:00:43

Middle Channel / 64QAM



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	964.37031 MHz	-57.77 dBm	-17.77 dB
1.000 GHz	2.292 GHz	1.000 MHz	1.99214 GHz	-58.08 dBm	-18.08 dB
2.328 GHz	3.000 GHz	1.000 MHz	2.99483 GHz	-57.02 dBm	-17.02 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.96740 GHz	-52.94 dBm	-12.94 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.99925 GHz	-52.14 dBm	-12.14 dB
10.000 GHz	14.000 GHz	1.000 MHz	13.85077 GHz	-50.88 dBm	-10.88 dB
14.000 GHz	18.000 GHz	1.000 MHz	17.84127 GHz	-48.41 dBm	-8.41 dB
18.000 GHz	24.000 GHz	1.000 MHz	19.91509 GHz	-48.06 dBm	-8.06 dB

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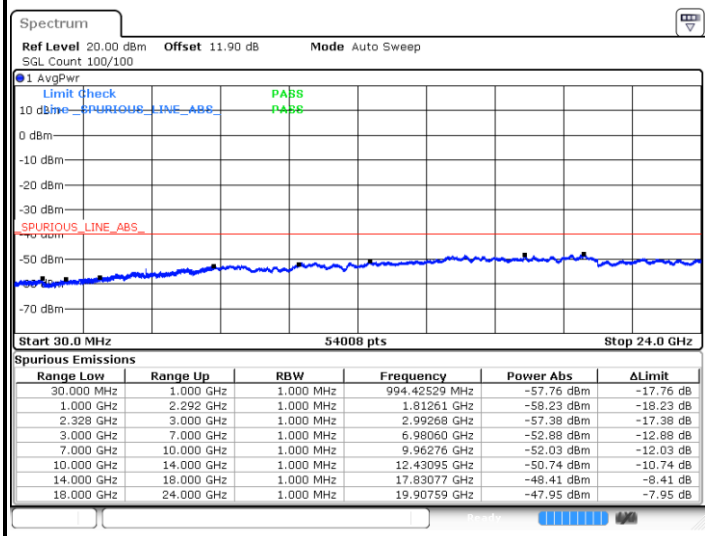
Highest Channel / 64QAM



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	994.42529 MHz	-57.76 dBm	-17.76 dB
1.000 GHz	2.292 GHz	1.000 MHz	1.81261 GHz	-58.23 dBm	-18.23 dB
2.328 GHz	3.000 GHz	1.000 MHz	2.99268 GHz	-57.38 dBm	-17.38 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.98060 GHz	-52.88 dBm	-12.88 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.96276 GHz	-52.03 dBm	-12.03 dB
10.000 GHz	14.000 GHz	1.000 MHz	12.43095 GHz	-50.74 dBm	-10.74 dB
14.000 GHz	18.000 GHz	1.000 MHz	17.83077 GHz	-48.41 dBm	-8.41 dB
18.000 GHz	24.000 GHz	1.000 MHz	19.90759 GHz	-47.95 dBm	-7.95 dB

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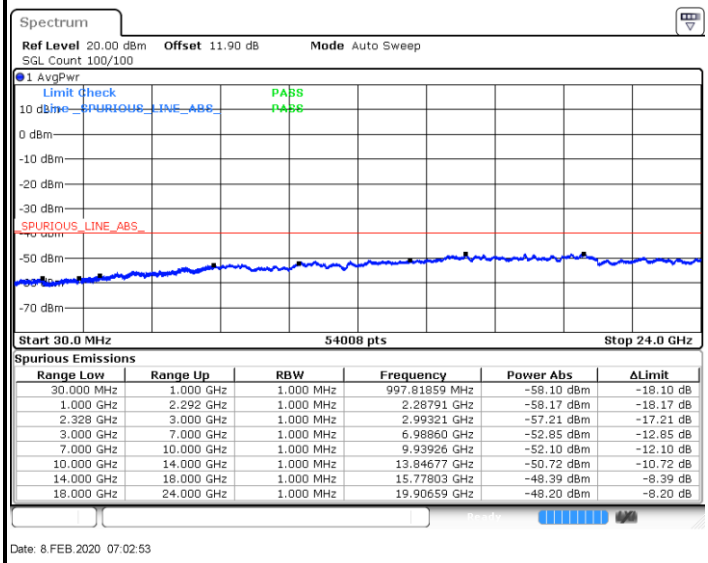
LTE Band 30 / 10MHz	
Middle Channel / 64QAM	



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	997.81859 MHz	-58.10 dBm	-18.10 dB
1.000 GHz	2.292 GHz	1.000 MHz	2.28791 GHz	-58.17 dBm	-18.17 dB
2.328 GHz	3.000 GHz	1.000 MHz	2.99321 GHz	-57.21 dBm	-17.21 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.98860 GHz	-52.85 dBm	-12.85 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.93926 GHz	-52.10 dBm	-12.10 dB
10.000 GHz	14.000 GHz	1.000 MHz	13.84677 GHz	-50.72 dBm	-10.72 dB
14.000 GHz	18.000 GHz	1.000 MHz	15.77803 GHz	-48.39 dBm	-8.39 dB
18.000 GHz	24.000 GHz	1.000 MHz	19.90659 GHz	-48.20 dBm	-8.20 dB

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Frequency Stability

Test Conditions		LTE Band 30 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 10MHz	Note 2.
		Deviation (ppm)	Result
50	Normal Voltage	0.0043	PASS
40	Normal Voltage	0.0026	
30	Normal Voltage	0.0029	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0030	
0	Normal Voltage	0.0015	
-10	Normal Voltage	0.0003	
-20	Normal Voltage	0.0005	
-30	Normal Voltage	0.0019	
20	Maximum Voltage	0.0026	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0028	

Note:

1. Normal Voltage =4 V. ; Battery End Point (BEP) =3.7 V. ; Maximum Voltage =4.3 V.
2. Note: The frequency fundamental emissions stay within the authorized frequency block.

Appendix B. Test Results of Radiated Test

Radiated Spurious Emission

LTE Band 30 / 5MHz / QPSK / RB Size 1 Offset 0									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	4614	-47.32	-40	-7.32	-38.94	-58.54	1.46	12.68	H
	6924	-59.81	-40	-19.81	-56.02	-70.09	1.73	12.01	H
	9234	-59.68	-40	-19.68	-57.75	-69.29	2.16	11.77	H
	4614	-51.28	-40	-11.28	-42.13	-62.50	1.46	12.68	V
	6924	-60.91	-40	-20.91	-56.67	-71.19	1.73	12.01	V
	9234	-58.14	-40	-18.14	-57.22	-67.75	2.16	11.77	V
Middle	4620	-46.10	-40	-6.10	-37.73	-57.32	1.46	12.68	H
	6930	-60.33	-40	-20.33	-56.56	-70.60	1.73	12.00	H
	9243	-59.85	-40	-19.85	-57.91	-69.44	2.16	11.76	H
	11547	-58.68	-40	-18.68	-60.93	-67.86	2.46	11.63	H
	13860	-54.28	-40	-14.28	-61.51	-63.76	2.86	12.34	H
	4620	-51.55	-40	-11.55	-42.41	-62.77	1.46	12.68	V
	6930	-60.60	-40	-20.60	-56.38	-70.87	1.73	12.00	V
	9243	-58.81	-40	-18.81	-57.9	-68.40	2.16	11.76	V
	11547	-58.80	-40	-18.80	-60.98	-67.98	2.46	11.63	V
	13860	-55.83	-40	-15.83	-63.36	-65.31	2.86	12.34	V
Highest	4626	-46.99	-40	-6.99	-38.63	-58.20	1.46	12.67	H
	6936	-59.32	-40	-19.32	-55.58	-69.58	1.73	11.99	H
	9252	-60.29	-40	-20.29	-58.36	-69.87	2.17	11.75	H
	11565	-59.29	-40	-19.29	-61.57	-68.51	2.46	11.68	H
	13875	-54.35	-40	-14.35	-61.56	-63.81	2.86	12.33	H
	4626	-51.15	-40	-11.15	-42.02	-62.36	1.46	12.67	V
	6936	-60.50	-40	-20.50	-56.31	-70.76	1.73	11.99	V
	9252	-58.68	-40	-18.68	-57.79	-68.26	2.17	11.75	V
	11565	-59.36	-40	-19.36	-61.6	-68.58	2.46	11.68	V
	13875	-55.20	-40	-15.20	-62.7	-64.66	2.86	12.33	V

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

LTE Band 30 / 10MHz / QPSK / RB Size 1 Offset 0									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	4620	-46.15	-40	-6.15	-37.78	-57.37	1.46	12.68	H
	6930	-59.99	-40	-19.99	-56.22	-70.26	1.73	12.00	H
	9243	-56.82	-40	-16.82	-57.82	-66.41	2.16	11.76	H
	11550	-59.68	-40	-19.68	-60.68	-68.86	2.46	11.64	H
	13860	-60.45	-40	-20.45	-61.45	-69.93	2.86	12.34	H
	4620	-51.34	-40	-11.34	-42.2	-62.56	1.46	12.68	V
	6930	-60.70	-40	-20.70	-56.48	-70.97	1.73	12.00	V
	9243	-58.57	-40	-18.57	-57.66	-68.16	2.16	11.76	V
	11550	-58.52	-40	-18.52	-60.7	-67.70	2.46	11.64	V
	13860	-55.84	-40	-15.84	-63.37	-65.32	2.86	12.34	V

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