FCC RF Test Report

APPLICANT	:	OnePlus Technology (Shenzhen) Co., Ltd.
EQUIPMENT	:	Smart Phone
BRAND NAME	:	ONEPLUS
MODEL NAME	:	KB2007
FCC ID	:	2ABZ2-EF009
STANDARD	:	47 CFR Part 2, 27D
CLASSIFICATION	:	PCS Licensed Transmitter Held to Ear (PCE)

The product was received on Jun. 15, 2020 and completely tested on Jul. 12, 2020. We, Sporton International (ShenZhen) 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 (ShenZhen) Inc., the test report shall not be reproduced except in full.

Reviewed by: Derreck Chen / Supervisor

Approved by: Eric Shih / Manager

ACCREDITED
Cert #5145.01

Sporton International (ShenZhen) Inc.

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People's Republic of China

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG061509F	Rev. 01	Initial issue of report	Aug. 24, 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	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 14.43 dB at 11526.250 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

OnePlus Technology (Shenzhen) Co., Ltd.
18C02, 18C03, 18C04,18C05, Shum Yip Terra Building, Binhe Avenue North, Futian District, Shenzhen,Guangdong,China

1.2 Manufacturer

OnePlus Technology (Shenzhen) Co., Ltd.
18C02, 18C03, 18C04,18C05, Shum Yip Terra Building, Binhe Avenue North, Futian District, Shenzhen,Guangdong,China

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Smart Phone
Brand Name	ONEPLUS
Model Name	KB2007
FCC ID	2ABZ2-EF009
EUT supports Radios application	CDMA/GSM/WCDMA/LTE/5G NR WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN 2.4GHz 802.11ax HE20/HE40 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80 WLAN 5GHz 802.11ax HE20/HE40/HE80 Bluetooth BR / EDR / LE / ANT+ GNSS/NFC
IMEI Code	Conducted: 990016770027769 Radiation: 990016770042024
HW Version	13
SW Version	11.1.0.1.KB09
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	**Top Antenna:** LTE Band 30 : 20.46 dBm **Bottom Antenna:** LTE Band 30 : 22.41 dBm
Antenna Gain	**Top Antenna:** LTE Band 30 : -2 dBi **Bottom Antenna:** LTE Band 30 : -1.0 dBi
Type of Modulation	QPSK / 16QAM / 64QAM / 256QAM

1.5 Modification of EUT

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

1.6 Maximum EIRP, Frequency Tolerance and Emission Designator

LTE Band 30		QPSK			16QAM		
BW (MHz)	**Frequency Range (MHz)**	**Emission Designator (99%OBW)**	**Frequency Tolerance (ppm)**	**Maximum EIRP(W)**	**Emission Designator (99%OBW)**	**Frequency Tolerance (ppm)**	**Maximum EIRP(W)**
5	2307.5 ~ 2312.5	4M51G7D	-	0.1377	4M50W7D	-	0.0893
10	2310.0	9M03G7D	0.0006	0.1384	8M95W7D	-	0.091
LTE Band 30		**64QAM**					
BW (MHz)	**Frequency Range (MHz)**	**Emission Designator (99%OBW)**	**Frequency Tolerance (ppm)**	**Maximum EIRP(W)**			
5	2307.5 ~ 2312.5	4M50W7D	-	0.0893			
10	2310.0	9M01W7D		0.0910			

1.7 Testing Site

<FCC>-SZ

Sporton International (Shenzhen) Inc. is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.01.

Test Firm	Sporton International (Shenzhen) Inc.		
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055 People's Republic of China TEL: +86-755-86379589 FAX: +86-755-86379595		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	TH01-SZ	CN1256	421272

Test Firm	Sporton International (Shenzhen) Inc.		
Test Site Location	No. 3 Bldg the third floor of south, Shahe River west, Fengzeyuan Warehouse, Nanshan Shenzhen, 518055 People's Republic of China TEL: +86-755-33202398		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	03CH02-SZ	CN1256	421272

1.8 Test Software

Item	Site	Manufacture	Name	Version
1.	03CH02-SZ	AUDIX	E3	6.2009-8-24a

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

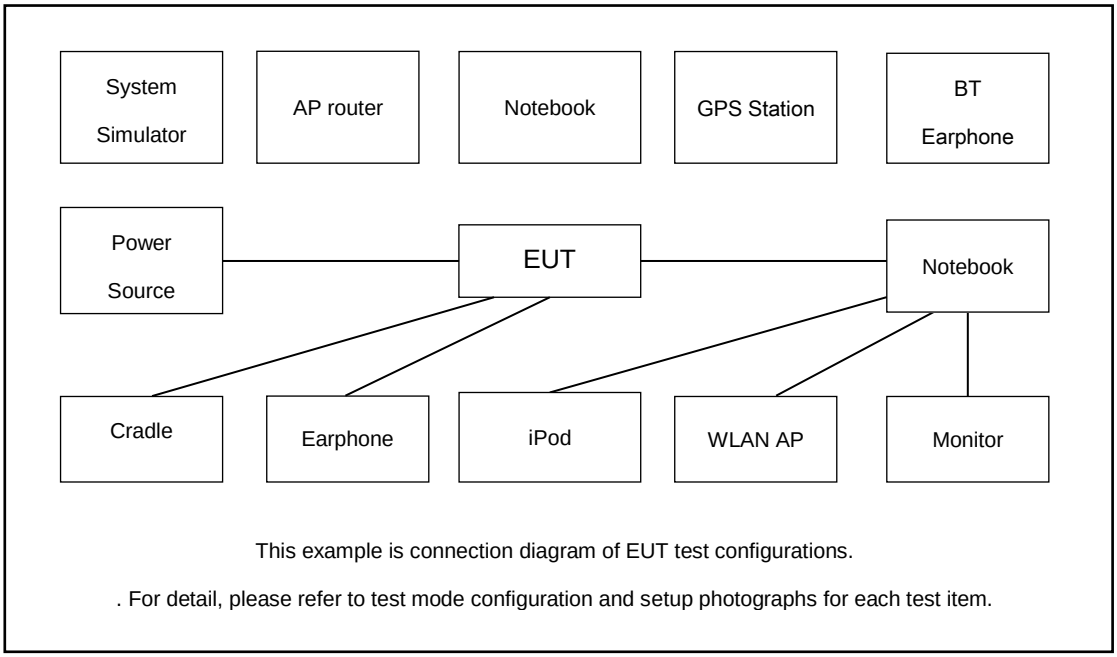
2.1 Test Mode

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	256QAM	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	v		v	
Peak-to-Average Ratio	30	-	-		v	-	-	v	v	v		v		v		v	
E.I.R.P	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
					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. 4. For QAM modulation mode, the whole testing has assessed 16QAM&64QAM mode by referring to their higher conducted power.																

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.	Power Supply	GWINSTEK	PSS-2002	N/A	N/A	Unshielded, 1.8 m
2.	LTE Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m
3.	Fixture	INTEL	NGFF Card Carrier	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 5.0 dB and 10dB attenuator.

Example :

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

= 5.0 + 10 = 15.0 (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

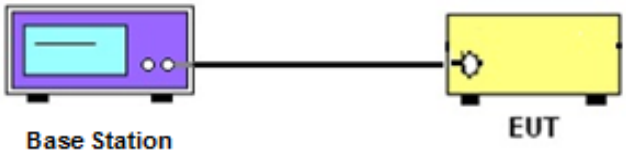
3 Conducted Test Items

3.1 Measuring Instruments

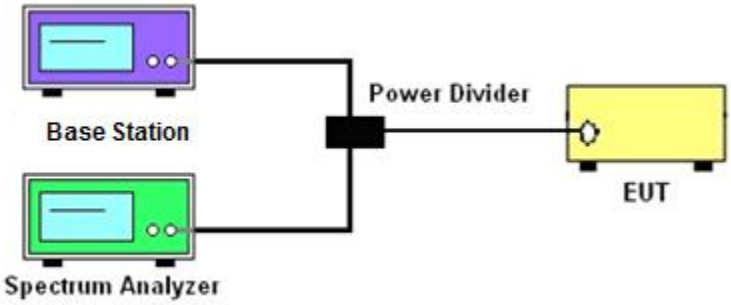
See list of measuring instruments of this test report.

3.2 Test Setup

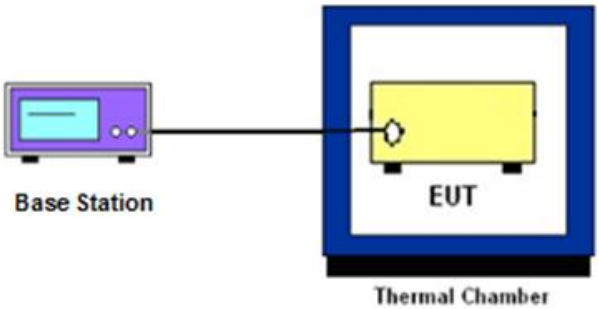
3.2.1 Conducted Output Power



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

3.6.1 Description of EIRP

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. According to KDB 412172 D01 Power Approach,
2. 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

3.7 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 10th 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.

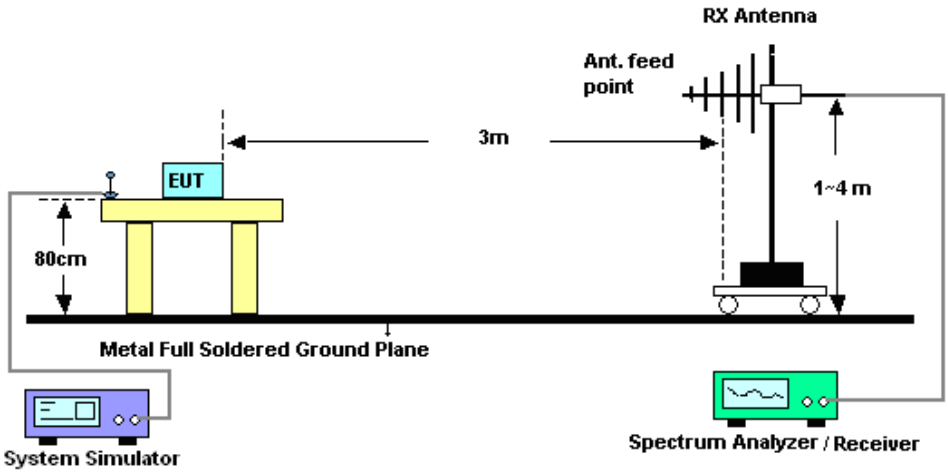
4 Radiated Test Items

4.1 Measuring Instruments

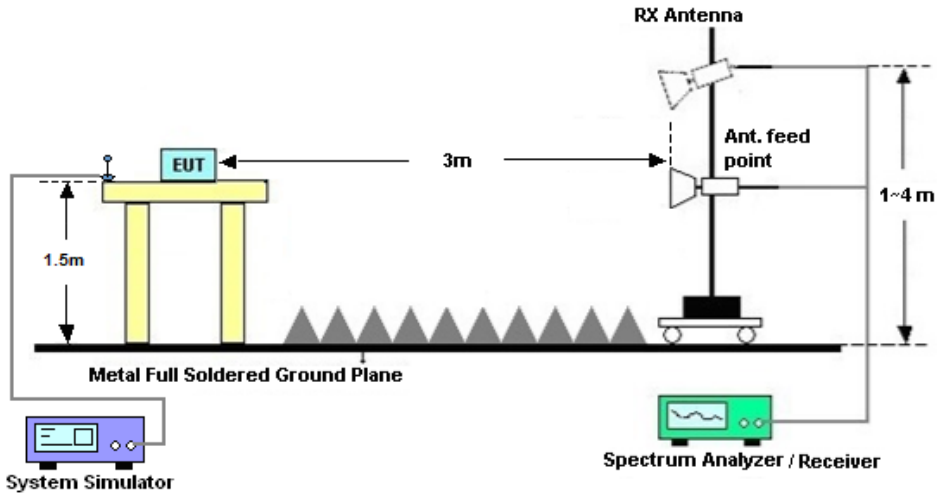
See list of measuring instruments of this test report.

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
Spectrum Analyzer	R&S	FSV40	101078	10Hz~40GHz	Apr. 17, 2020	Jul. 09, 2020	Apr. 16, 2021	Conducted (TH01-SZ)
Thermal Chamber	Ten Billion Hongzhangroup	LP-150U	H2014081803	-40~+150°C	Dec. 23, 2019	Jul. 09, 2020	Dec. 22, 2020	Conducted (TH01-SZ)
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY55150213	10Hz~44GHz	Apr. 17, 2020	Jul. 12, 2020	Apr. 16, 2021	Radiation (03CH02-SZ)
Bilog Antenna	TeseQ	CBL6112D	35407	30MHz-2GHz	Jul. 16, 2019	Jul. 12, 2020	Jul. 15, 2020	Radiation (03CH02-SZ)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00119436	1GHz~18GHz	Jul. 26, 2019	Jul. 12, 2020	Jul. 25, 2020	Radiation (03CH02-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18Ghz-40GHz	Apr. 17, 2020	Jul. 12, 2020	Apr. 16, 2021	Radiation (03CH02-SZ)
LF Amplifier	Burgeon	BPA-530	102211	0.01~3000Mhz	Oct. 18,2019	Jul. 12, 2020	Oct. 17,2020	Radiation (03CH02-SZ)
HF Amplifier	KEYSIGHT	83017A	MY53270105	0.5GHz~26.5Ghz	Oct. 18,2019	Jul. 12, 2020	Oct. 17,2020	Radiation (03CH02-SZ)
HF Amplifier	MITEQ	TTA1840-35-HG	1871923	18GHz~40GHz	Jul. 22, 2019	Jul. 12, 2020	Jul. 21, 2020	Radiation (03CH02-SZ)
AC Power Source	Chroma	61601	616010002470	N/A	NCR	Jul. 12, 2020	NCR	Radiation (03CH02-SZ)
Turn Table	Chaintek	T-200	N/A	0~360 degree	NCR	Jul. 12, 2020	NCR	Radiation (03CH02-SZ)
Antenna Mast	Chaintek	MBS-400	N/A	1 m~4 m	NCR	Jul. 12, 2020	NCR	Radiation (03CH02-SZ)

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))	**2.47dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.31dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.72dB**

Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power)

Top antenna:

BW [MHz]	Modulation	RB Size	RB Offset	Lowest	Middle	Highest
Channel				27710		
Frequency (MHz)				2310		
10	QPSK	1	0		**20.46**	
10	QPSK	1	25		20.00	
10	QPSK	1	49		20.34	
10	QPSK	25	0		19.44	
10	QPSK	25	12		19.47	
10	QPSK	25	25		19.45	
10	QPSK	50	0		19.46	
10	16QAM	1	0		19.83	
10	16QAM	1	25		19.79	
10	16QAM	1	49		19.73	
10	16QAM	25	0		18.40	
10	16QAM	25	12		18.46	
10	16QAM	25	25		18.46	
10	16QAM	50	0		18.44	
10	64QAM	1	0		18.65	
10	64QAM	1	25		18.69	
10	64QAM	1	49		18.61	
10	64QAM	25	0		17.46	
10	64QAM	25	12		17.50	
10	64QAM	25	25		17.51	
10	64QAM	50	0		17.49	
10	256QAM	1	0		15.71	
10	256QAM	1	25		15.86	
10	256QAM	1	49		15.77	
10	256QAM	25	0		15.61	

10	256QAM	25	12		15.76	
10	256QAM	25	25		15.69	
10	256QAM	50	0		15.62	
Channel				27685	27710	27735
Frequency (MHz)				2307.5	2310	2312.5
5	QPSK	1	0	20.30	20.32	20.39
5	QPSK	1	12	20.42	20.45	20.44
5	QPSK	1	24	20.41	20.38	20.34
5	QPSK	12	0	19.40	19.45	19.46
5	QPSK	12	7	19.47	19.49	19.49
5	QPSK	12	13	19.48	19.42	19.51
5	QPSK	25	0	19.47	19.41	19.47
5	16QAM	1	0	19.61	19.69	19.72
5	16QAM	1	12	19.72	19.78	19.75
5	16QAM	1	24	19.82	19.74	19.72
5	16QAM	12	0	18.40	18.47	18.47
5	16QAM	12	7	18.57	18.49	18.51
5	16QAM	12	13	18.53	18.48	18.50
5	16QAM	25	0	18.47	18.43	18.48
5	64QAM	1	0	18.58	18.59	18.64
5	64QAM	1	12	18.67	18.68	18.67
5	64QAM	1	24	18.73	18.66	18.65
5	64QAM	12	0	17.47	17.50	17.54
5	64QAM	12	7	17.55	17.56	17.56
5	64QAM	12	13	17.59	17.53	17.55
5	64QAM	25	0	17.52	17.47	17.51
5	256QAM	1	0	15.80	15.73	15.63
5	256QAM	1	12	15.84	15.77	15.96
5	256QAM	1	24	15.87	15.72	15.81
5	256QAM	12	0	15.57	15.62	15.68
5	256QAM	12	7	15.71	15.72	15.68
5	256QAM	12	13	15.67	15.70	15.61
5	256QAM	25	0	15.53	15.68	15.71

Bottom antenna:

BW [MHz]	Modulation	RB Size	RB Offset	Lowest	Middle	Highest
Channel				27710		
Frequency (MHz)				2310		
10	QPSK	1	0		**22.41**	
10	QPSK	1	25		22.39	
10	QPSK	1	49		22.35	
10	QPSK	25	0		21.43	
10	QPSK	25	12		21.48	
10	QPSK	25	25		21.49	
10	QPSK	50	0		21.47	
10	16QAM	1	0		21.81	
10	16QAM	1	25		21.78	
10	16QAM	1	49		21.74	
10	16QAM	25	0		20.42	
10	16QAM	25	12		20.48	
10	16QAM	25	25		20.48	
10	16QAM	50	0		20.49	
10	64QAM	1	0		20.59	
10	64QAM	1	25		20.32	
10	64QAM	1	49		20.50	
10	64QAM	25	0		19.45	
10	64QAM	25	12		19.40	
10	64QAM	25	25		19.24	
10	64QAM	50	0		19.18	
10	256QAM	1	0		17.38	
10	256QAM	1	25		17.53	
10	256QAM	1	49		17.60	
10	256QAM	25	0		17.46	
10	256QAM	25	12		17.53	
10	256QAM	25	25		17.47	
10	256QAM	50	0		17.43	
Channel				27685	27710	27735

Frequency (MHz)				2307.5	2310	2312.5
5	QPSK	1	0	22.21	22.26	22.36
5	QPSK	1	12	22.37	22.37	22.37
5	QPSK	1	24	22.39	22.36	22.34
5	QPSK	12	0	21.37	21.46	21.47
5	QPSK	12	7	21.50	21.46	21.53
5	QPSK	12	13	21.47	21.46	21.53
5	QPSK	25	0	21.48	21.43	21.49
5	16QAM	1	0	21.54	21.63	21.66
5	16QAM	1	12	21.63	21.70	21.68
5	16QAM	1	24	21.71	21.68	21.67
5	16QAM	12	0	20.36	20.46	20.52
5	16QAM	12	7	20.50	20.51	20.56
5	16QAM	12	13	20.52	20.51	20.51
5	16QAM	25	0	20.48	20.47	20.52
5	64QAM	1	0	20.47	20.34	20.39
5	64QAM	1	12	20.46	20.14	20.39
5	64QAM	1	24	20.24	20.19	20.51
5	64QAM	12	0	19.42	19.17	19.26
5	64QAM	12	7	19.38	19.18	19.37
5	64QAM	12	13	19.23	19.17	19.41
5	64QAM	25	0	19.29	19.18	19.23
5	256QAM	1	0	17.48	17.58	17.50
5	256QAM	1	12	17.54	17.52	17.44
5	256QAM	1	24	17.60	17.50	17.54
5	256QAM	12	0	17.45	17.44	17.39
5	256QAM	12	7	17.56	17.53	17.49
5	256QAM	12	13	17.45	17.42	17.46
5	256QAM	25	0	17.33	17.49	17.36

ERP/EIRP

LTE Band 30 (GT - LC = -1.0 dB) QPSK (dBm/5MHz)			
Bandwidth	5M		
Channel	27685	27710	27735
	(Low)	(Mid)	(High)
Frequency (MHz)	2307.5	2310	2312.5
Conducted Power (dBm)	22.39	22.36	22.34
Conducted Power (Watts)	0.1734	0.1722	0.1714
EIRP(dBm)	21.39	21.36	21.34
EIRP(Watts)	0.1377	0.1368	0.1361
Limit	250mW / 5MHz = 24dBm / 5MHz		PASS

LTE Band 30 (GT - LC = -1.0 dB) QPSK (dBm/5MHz)			
Bandwidth	10M		
Channel		27710	
		(Mid)	
Frequency (MHz)		2310	
Conducted Power (dBm)		22.41	
Conducted Power (Watts)		0.1742	
EIRP(dBm)		21.41	
EIRP(Watts)		0.1384	
Limit	250mW / 5MHz = 24dBm / 5MHz		PASS

LTE Band 30 (GT - LC = -1.0 dB) 16QAM (dBm/5MHz)			
Bandwidth	5M		
Channel	27685	27710	27735
	(Low)	(Mid)	(High)
Frequency (MHz)	2307.5	2310	2312.5
Conducted Power (dBm)	21.71	21.68	21.67
Conducted Power (Watts)	0.1483	0.1472	0.1469
EIRP(dBm)	20.71	20.68	20.67
EIRP(Watts)	0.1178	0.1169	0.1167
Limit	250mW / 5MHz = 24dBm / 5MHz		PASS

LTE Band 30 (GT - LC = -1.0 dB) 16QAM (dBm/5MHz)			
Bandwidth	10M		
Channel		27710	
		(Mid)	
Frequency (MHz)		2310	
Conducted Power (dBm)		21.81	
Conducted Power (Watts)		0.1517	
EIRP(dBm)		20.81	
EIRP(Watts)		0.1205	
Limit	250mW / 5MHz = 24dBm / 5MHz		PASS

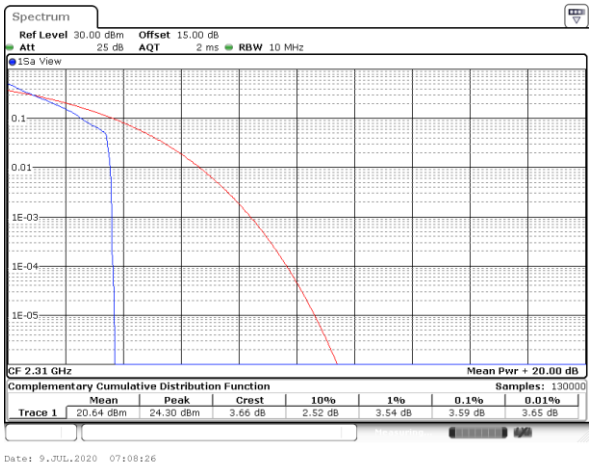
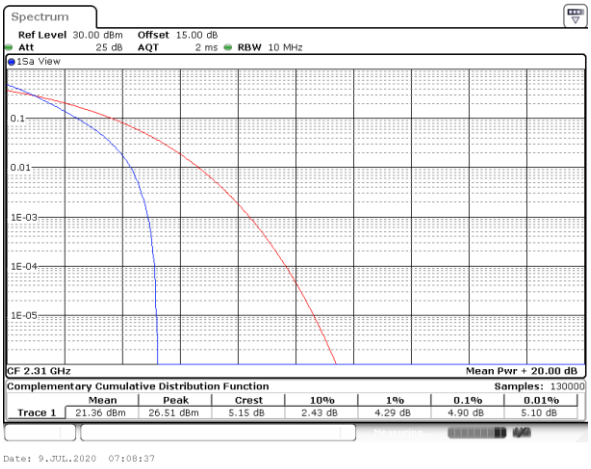
LTE Band 30 (GT - LC = -1.0 dB) 64QAM (dBm/5MHz)			
Bandwidth	5M		
Channel	27685	27710	27735
	(Low)	(Mid)	(High)
Frequency (MHz)	2307.5	2310	2312.5
Conducted Power (dBm)	20.24	20.19	20.51
Conducted Power (Watts)	0.1057	0.1045	0.1125
EIRP(dBm)	19.24	19.19	19.51
EIRP(Watts)	0.0839	0.0830	0.0893
Limit	250mW / 5MHz = 24dBm / 5MHz		PASS

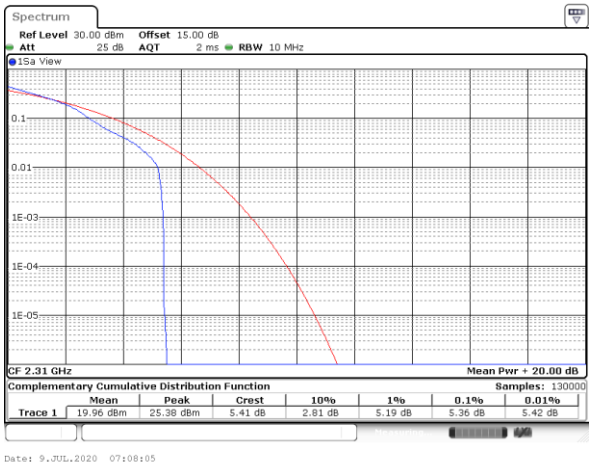
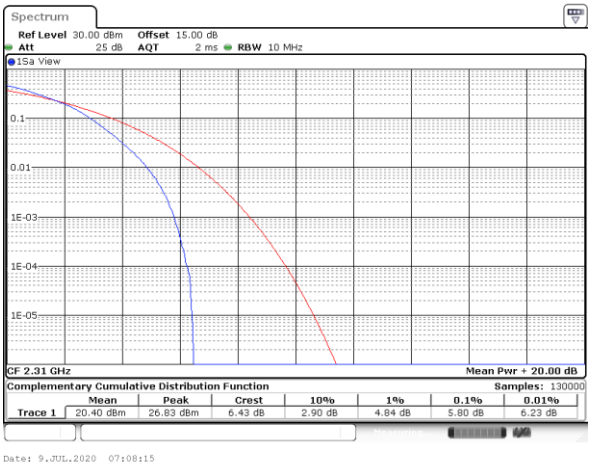
LTE Band 30 (GT - LC = -1.0 dB) 64QAM (dBm/5MHz)			
Bandwidth	10M		
Channel		27710	
		(Mid)	
Frequency (MHz)		2310	
Conducted Power (dBm)		20.59	
Conducted Power (Watts)		0.1146	
EIRP(dBm)		19.59	
EIRP(Watts)		0.0910	
Limit	250mW / 5MHz = 24dBm / 5MHz		PASS

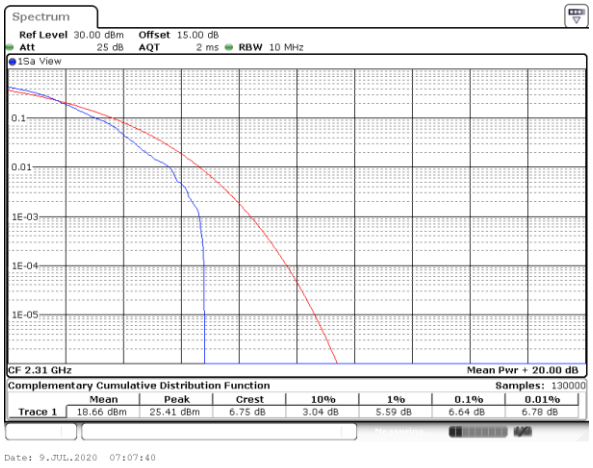
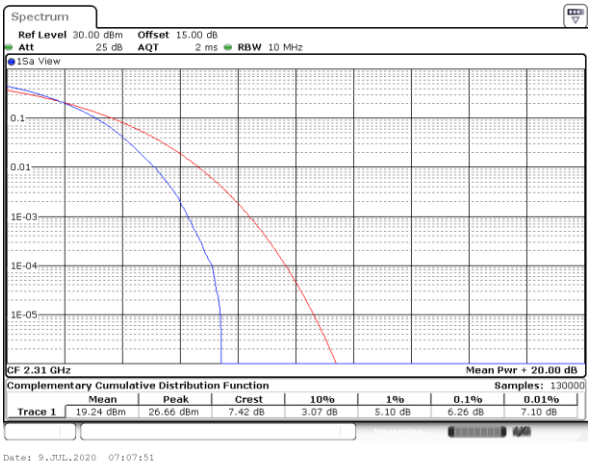
LTE Band 30

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	3.59	4.90	5.36	5.80	
Highest CH	-	-	-	-	
Mode	LTE Band 30 / 10MHz				
Mod.	64QAM				Limit: 13dB
RB Size	1RB	Full RB			Result
Lowest CH	-	-	-	-	PASS
Middle CH	6.64	6.26	-	-	
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**
	

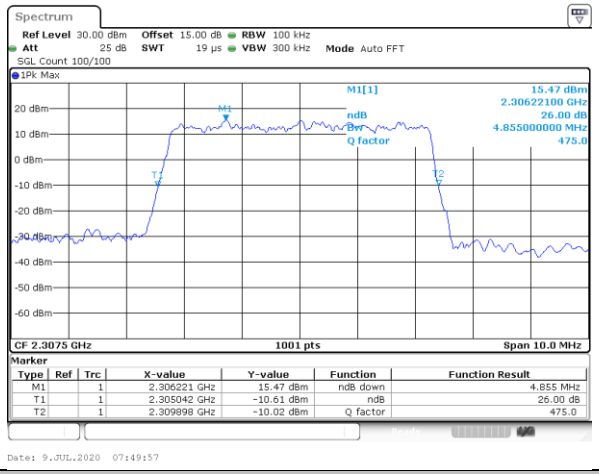
LTE Band 30 / 10MHz / 64QAM	
Middle Channel / 1RB	**Middle Channel / Full RB**
	

26dB Bandwidth

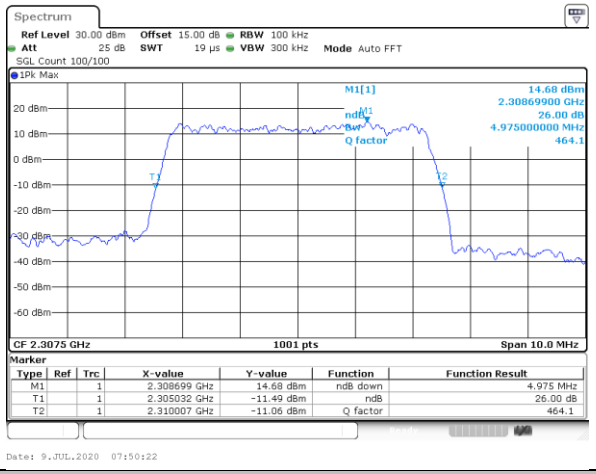
Mode	LTE Band 30 : 26dB BW(MHz)											
BW					5MHz		10MHz					
Mod.					QPSK	16QAM	QPSK	16QAM				
Lowest CH	-	-	-	-	4.86	4.98	-	-	-	-	-	-
Middle CH	-	-	-	-	4.90	4.87	9.81	9.79	-	-	-	-
Highest CH	-	-	-	-	4.98	4.95	-	-	-	-	-	-
Mode	LTE Band 30 : 26dB BW(MHz)											
BW					5MHz		10MHz					
Mod.					64QAM		64QAM					
Lowest CH	-	-	-	-	4.73	-	-	-				
Middle CH	-	-	-	-	4.95	-	9.67	-				
Highest CH	-	-	-	-	4.83	-	-	-				

LTE Band 30

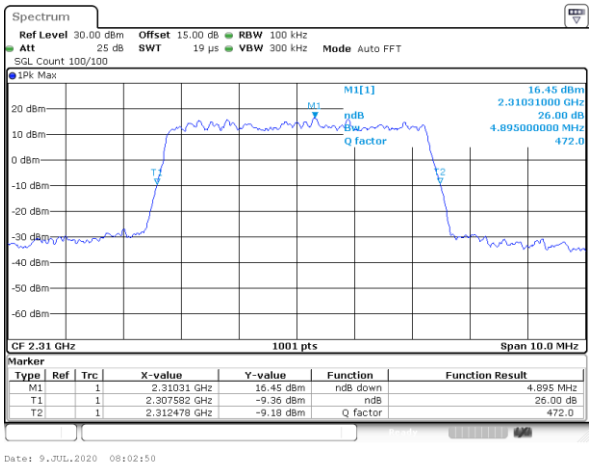
Lowest Channel / 5MHz / QPSK



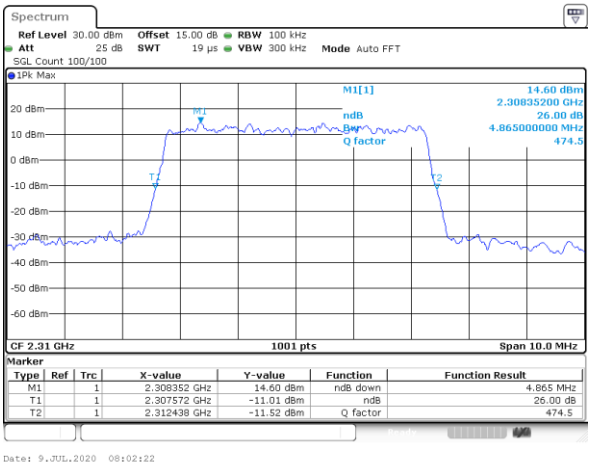
Lowest Channel / 5MHz / 16QAM



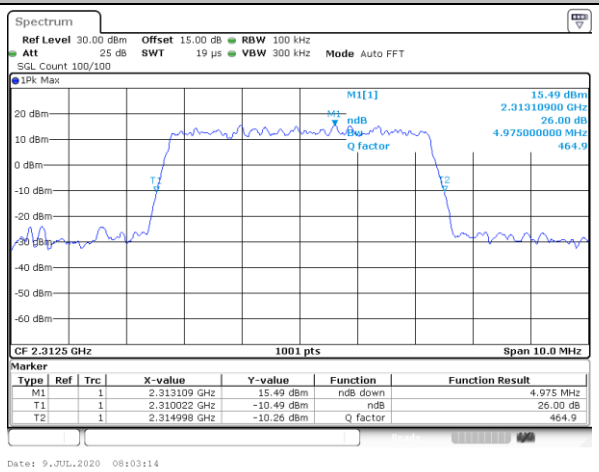
Middle Channel / 5MHz / QPSK



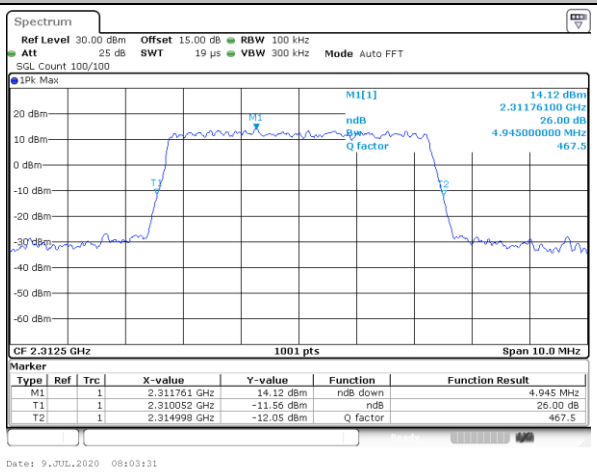
Middle Channel / 5MHz / 16QAM



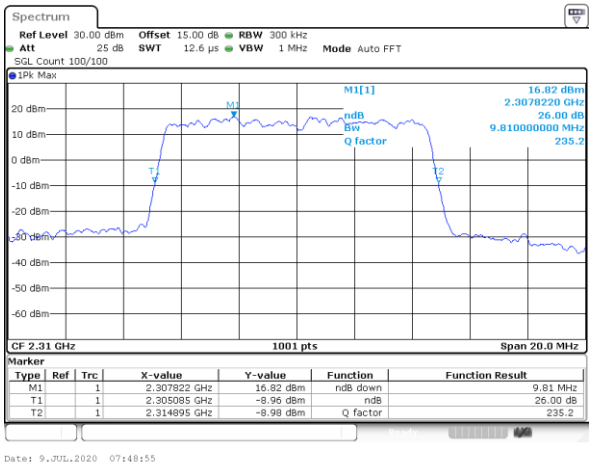
Highest Channel / 5MHz / QPSK

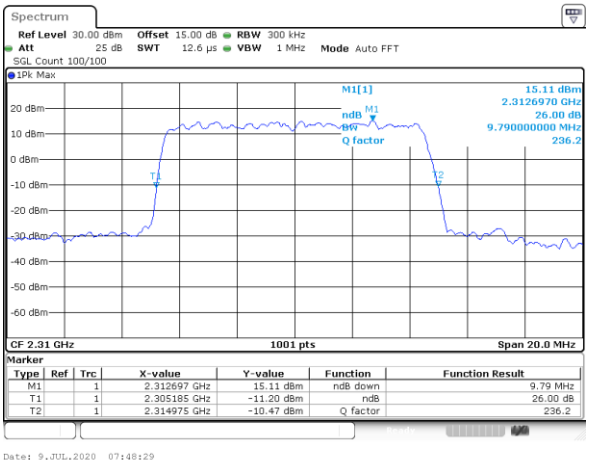


Highest Channel / 5MHz / 16QAM



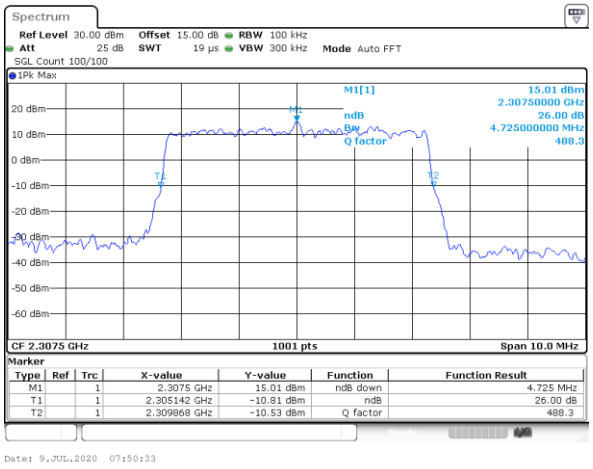
LTE Band 30	
Middle Channel / 10MHz / QPSK	**Middle Channel / 10MHz / 16QAM**



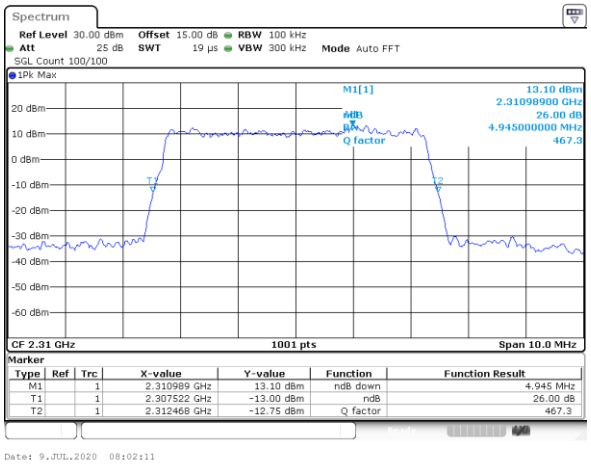


LTE Band 30

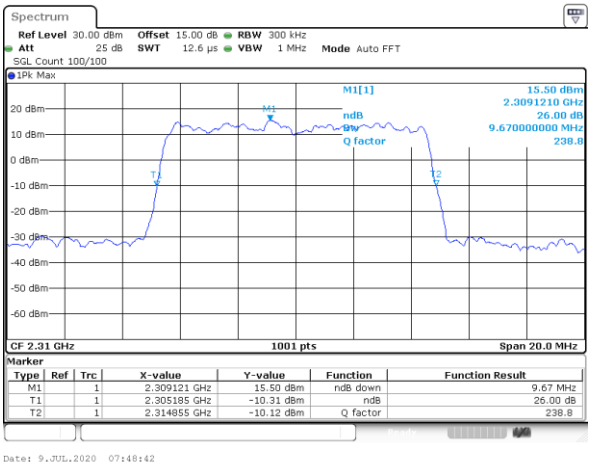
Lowest Channel / 5MHz / 64QAM



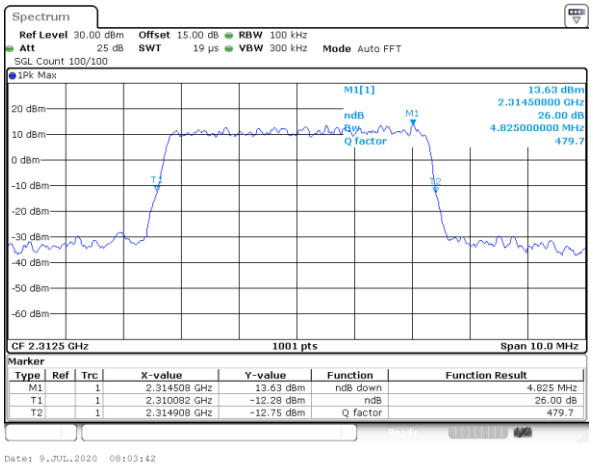
Middle Channel / 5MHz / 64QAM



Middle Channel / 10MHz / 64QAM



Highest Channel / 5MHz / 64QAM

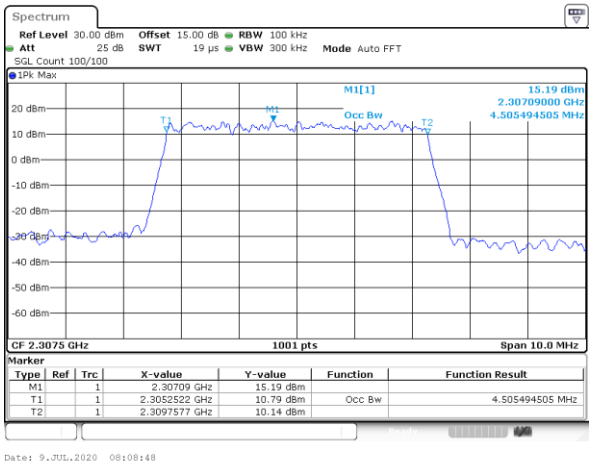


Occupied Bandwidth

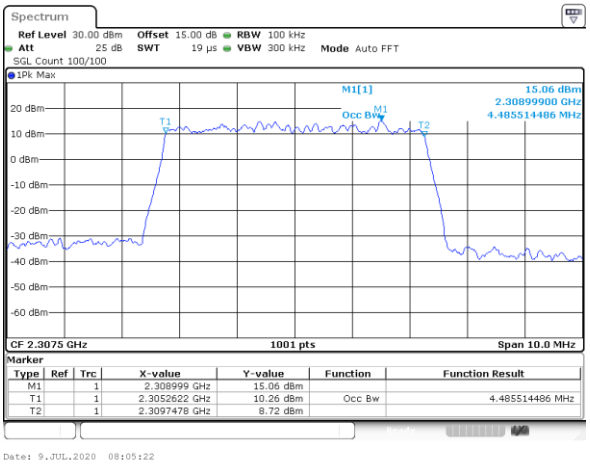
Mode	LTE Band 30 : 99%OBW(MHz)											
BW					5MHz		10MHz					
Mod.					QPSK	16QAM	QPSK	16QAM				
Lowest CH	-	-	-	-	4.51	4.49	-	-	-	-	-	-
Middle CH	-	-	-	-	4.49	4.50	9.03	8.95	-	-	-	-
Highest CH	-	-	-	-	4.50	4.47	-	-	-	-	-	-
Mode	LTE Band 26 : 99%OBW(MHz)											
BW					5MHz		10MHz					
Mod.					64QAM		64QAM					
Lowest CH	-	-	-	-	4.49	-	-	-	-	-	-	-
Middle CH	-	-	-	-	4.50	-	9.01	-	-	-	-	-
Highest CH	-	-	-	-	4.49	-	-	-	-	-	-	-

LTE Band 30

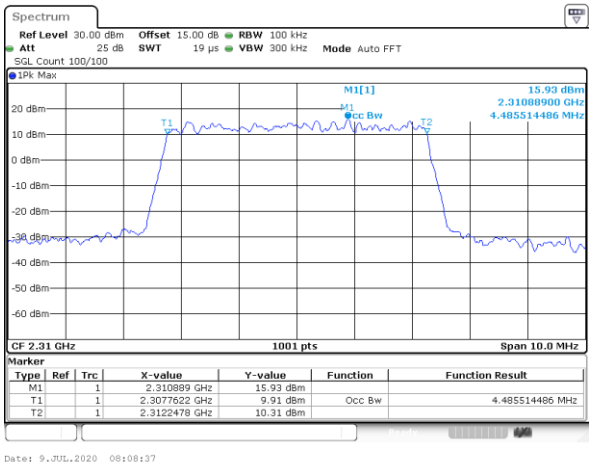
Lowest Channel / 5MHz / QPSK



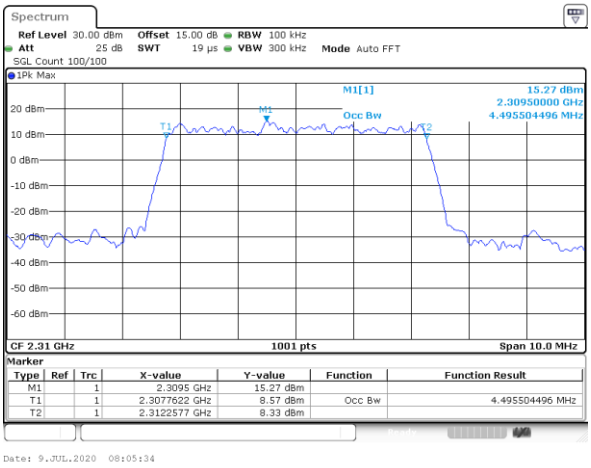
Lowest Channel / 5MHz / 16QAM



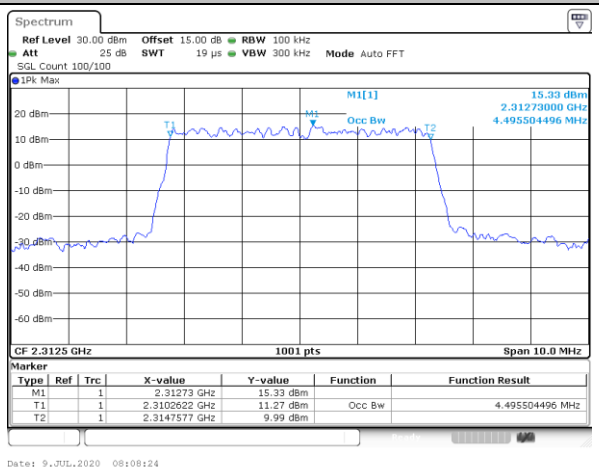
Middle Channel / 5MHz / QPSK



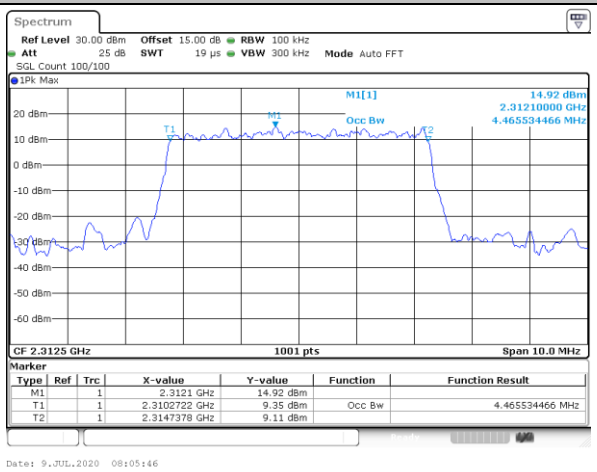
Middle Channel / 5MHz / 16QAM



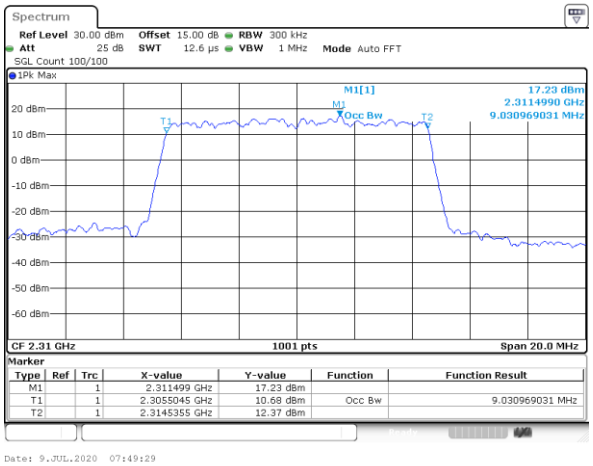
Highest Channel / 5MHz / QPSK

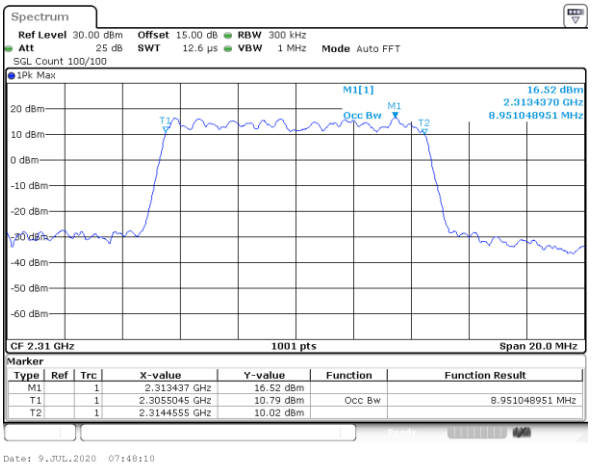


Highest Channel / 5MHz / 16QAM



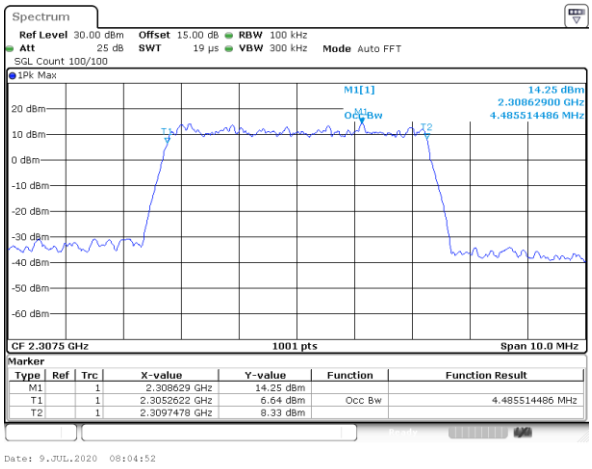
LTE Band 30	
Middle Channel / 10MHz / QPSK	Middle Channel / 10MHz / 16QAM



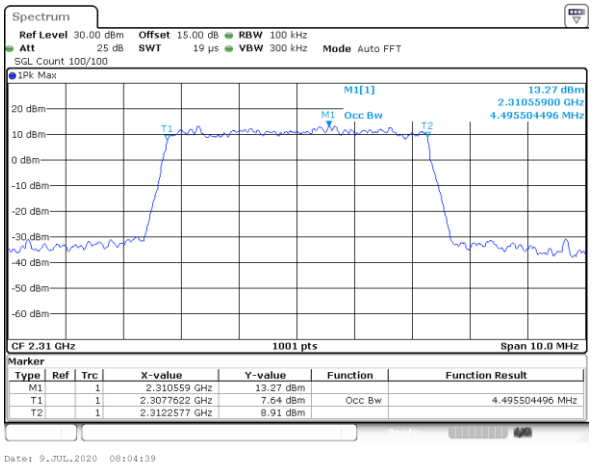


LTE Band 30

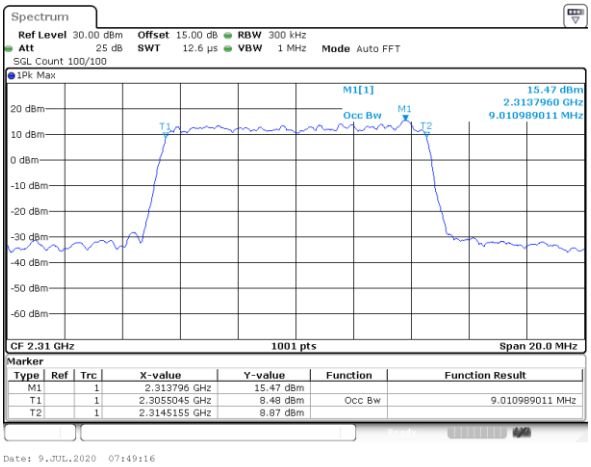
Lowest Channel / 5MHz / 64QAM



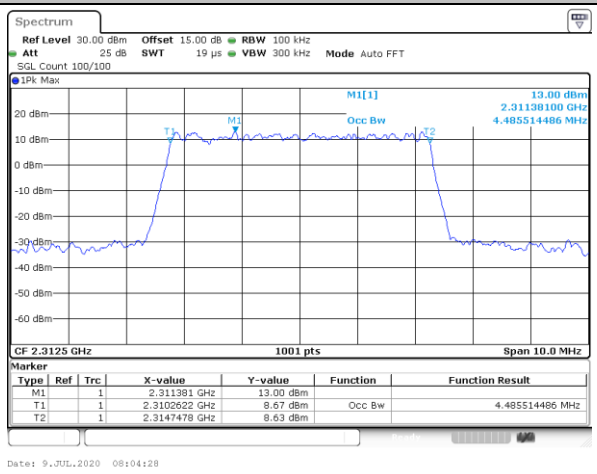
Middle Channel / 5MHz / 64QAM



Middle Channel / 10MHz / 64QAM



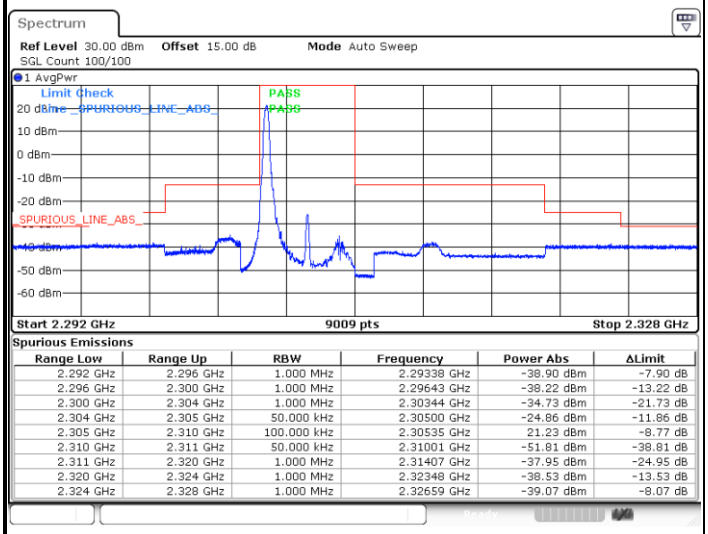
Highest Channel / 5MHz / 64QAM



Conducted Band Edge

LTE Band 30 / 5MHz / QPSK

Lowest Band Edge / 1 RB

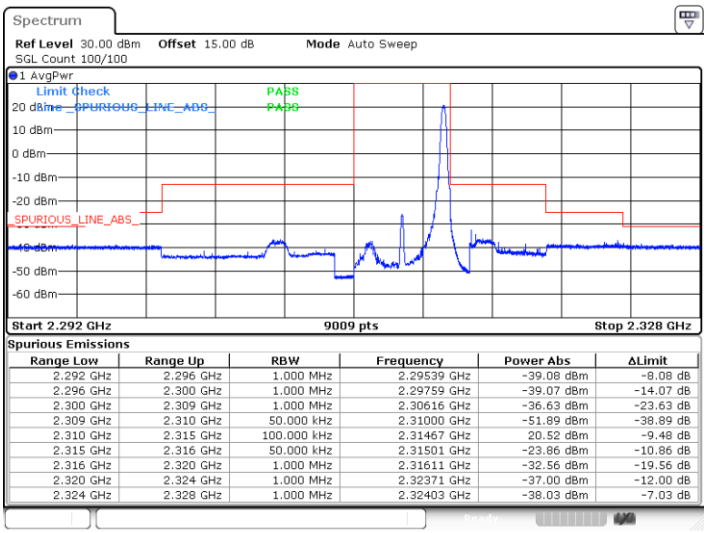


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29338 GHz	-38.90 dBm	-7.90 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29643 GHz	-38.22 dBm	-13.22 dB
2.300 GHz	2.304 GHz	1.000 MHz	2.30344 GHz	-34.73 dBm	-21.73 dB
2.304 GHz	2.305 GHz	50.000 kHz	2.30500 GHz	-24.86 dBm	-11.86 dB
2.305 GHz	2.310 GHz	100.000 kHz	2.30535 GHz	21.23 dBm	-8.77 dB
2.310 GHz	2.311 GHz	50.000 kHz	2.31001 GHz	-51.81 dBm	-38.81 dB
2.311 GHz	2.320 GHz	1.000 MHz	2.31407 GHz	-37.95 dBm	-24.95 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32348 GHz	-38.53 dBm	-13.53 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32659 GHz	-39.07 dBm	-8.07 dB

Date: 9.JUL.2020 04:52:10

Highest Band Edge / 1 RB

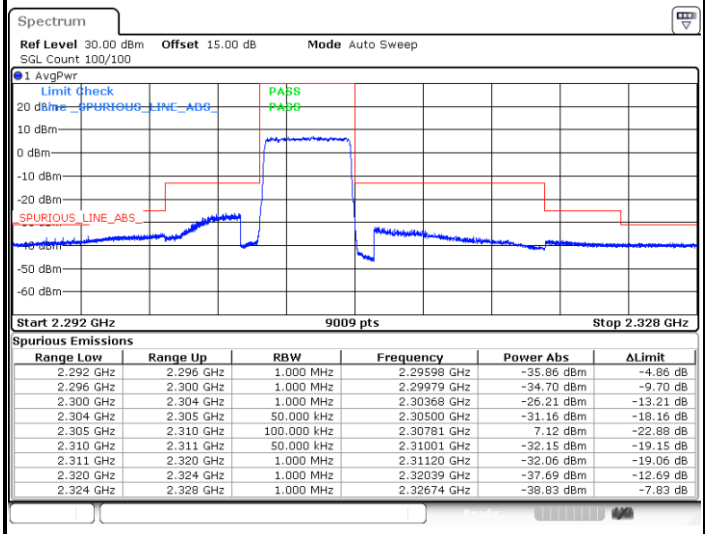


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29539 GHz	-39.08 dBm	-8.08 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29759 GHz	-39.07 dBm	-14.07 dB
2.300 GHz	2.309 GHz	1.000 MHz	2.30616 GHz	-36.63 dBm	-23.63 dB
2.309 GHz	2.310 GHz	50.000 kHz	2.31000 GHz	-51.89 dBm	-38.89 dB
2.310 GHz	2.315 GHz	100.000 kHz	2.31467 GHz	20.52 dBm	-9.48 dB
2.315 GHz	2.316 GHz	50.000 kHz	2.31501 GHz	-23.86 dBm	-10.86 dB
2.316 GHz	2.320 GHz	1.000 MHz	2.31611 GHz	-32.56 dBm	-19.56 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32371 GHz	-37.00 dBm	-12.00 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32403 GHz	-38.03 dBm	-7.03 dB

Date: 9.JUL.2020 04:58:28

Lowest Band Edge / Full RB

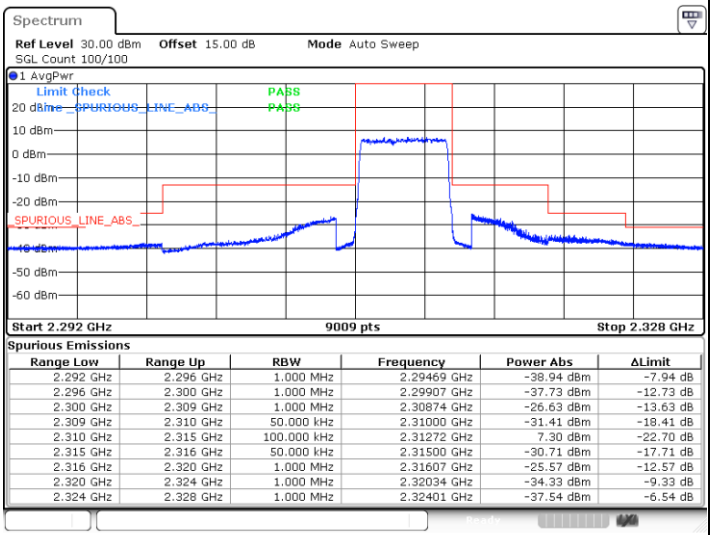


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29598 GHz	-35.86 dBm	-4.86 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29979 GHz	-34.70 dBm	-9.70 dB
2.300 GHz	2.304 GHz	1.000 MHz	2.30368 GHz	-26.21 dBm	-13.21 dB
2.304 GHz	2.305 GHz	50.000 kHz	2.30500 GHz	-31.16 dBm	-18.16 dB
2.305 GHz	2.310 GHz	100.000 kHz	2.30781 GHz	7.12 dBm	-22.88 dB
2.310 GHz	2.311 GHz	50.000 kHz	2.31001 GHz	-32.15 dBm	-19.15 dB
2.311 GHz	2.320 GHz	1.000 MHz	2.31120 GHz	-32.06 dBm	-19.06 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32039 GHz	-37.69 dBm	-12.69 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32674 GHz	-38.83 dBm	-7.83 dB

Date: 9.JUL.2020 04:55:19

Highest Band Edge / Full RB



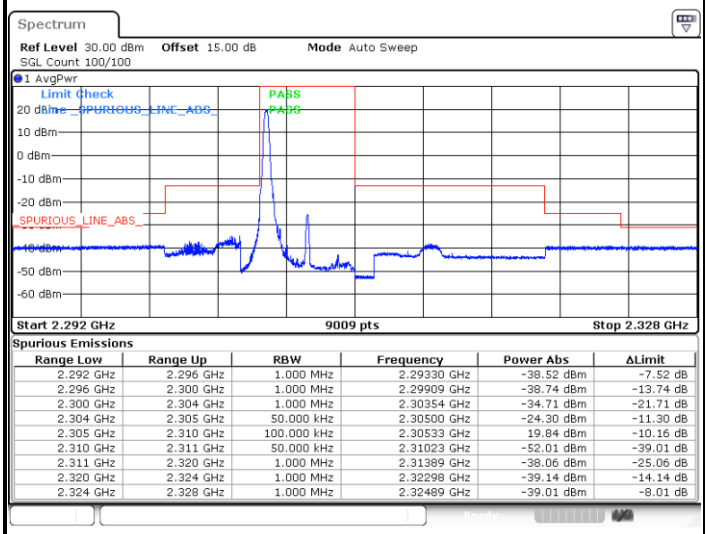
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29469 GHz	-38.94 dBm	-7.94 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29907 GHz	-37.73 dBm	-12.73 dB
2.300 GHz	2.309 GHz	1.000 MHz	2.30874 GHz	-26.63 dBm	-13.63 dB
2.309 GHz	2.310 GHz	50.000 kHz	2.31000 GHz	-31.41 dBm	-18.41 dB
2.310 GHz	2.315 GHz	100.000 kHz	2.31272 GHz	7.30 dBm	-22.70 dB
2.315 GHz	2.316 GHz	50.000 kHz	2.31500 GHz	-30.71 dBm	-17.71 dB
2.316 GHz	2.320 GHz	1.000 MHz	2.31607 GHz	-25.57 dBm	-12.57 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32034 GHz	-34.33 dBm	-9.33 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32401 GHz	-37.54 dBm	-6.54 dB

Date: 9.JUL.2020 05:01:37

LTE Band 30 / 5MHz / 16QAM

Lowest Band Edge / 1RB

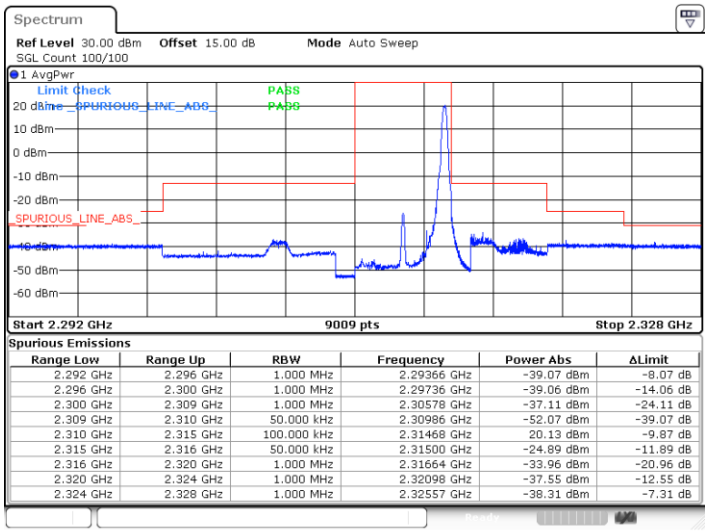


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29330 GHz	-38.52 dBm	-7.52 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29909 GHz	-38.74 dBm	-13.74 dB
2.300 GHz	2.304 GHz	1.000 MHz	2.30354 GHz	-34.71 dBm	-21.71 dB
2.304 GHz	2.305 GHz	50.000 kHz	2.30500 GHz	-24.30 dBm	-11.30 dB
2.305 GHz	2.310 GHz	100.000 kHz	2.30533 GHz	19.84 dBm	-10.16 dB
2.310 GHz	2.311 GHz	50.000 kHz	2.31023 GHz	-52.01 dBm	-39.01 dB
2.311 GHz	2.320 GHz	1.000 MHz	2.31389 GHz	-38.06 dBm	-25.06 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32298 GHz	-39.14 dBm	-14.14 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32489 GHz	-39.01 dBm	-8.01 dB

Date: 9.JUL.2020 04:53:13

Highest Band Edge / 1 RB

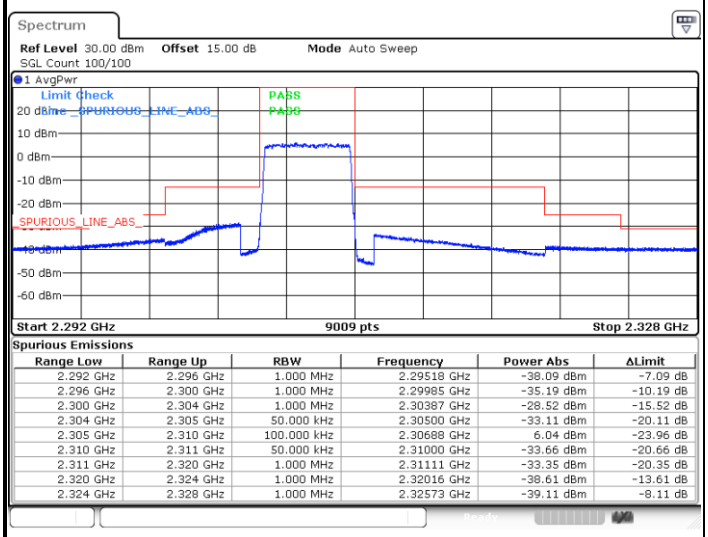


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29366 GHz	-39.07 dBm	-8.07 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29736 GHz	-39.06 dBm	-14.06 dB
2.300 GHz	2.309 GHz	1.000 MHz	2.30578 GHz	-37.11 dBm	-24.11 dB
2.309 GHz	2.310 GHz	50.000 kHz	2.30986 GHz	-52.07 dBm	-39.07 dB
2.310 GHz	2.315 GHz	100.000 kHz	2.31468 GHz	20.13 dBm	-9.87 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	2.31664 GHz	-33.96 dBm	-20.96 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32098 GHz	-37.55 dBm	-12.55 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32557 GHz	-38.31 dBm	-7.31 dB

Date: 9.JUL.2020 04:59:30

Lowest Band Edge / Full RB

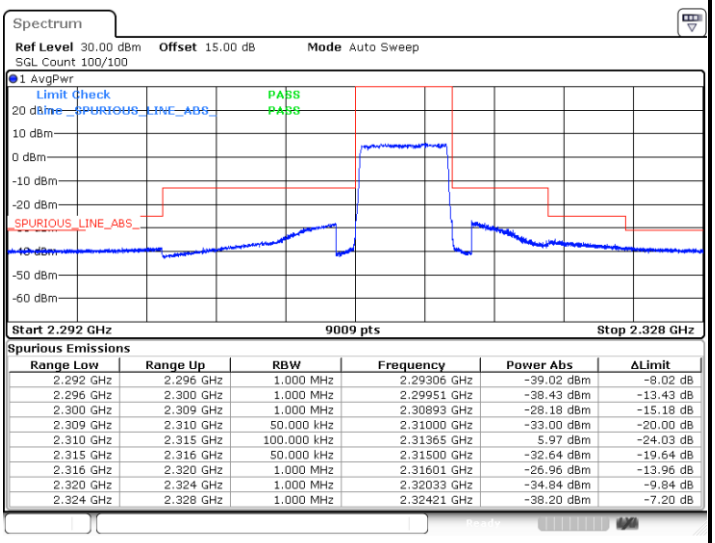


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29518 GHz	-38.09 dBm	-7.09 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29985 GHz	-35.19 dBm	-10.19 dB
2.300 GHz	2.304 GHz	1.000 MHz	2.30387 GHz	-28.52 dBm	-15.52 dB
2.304 GHz	2.305 GHz	50.000 kHz	2.30500 GHz	-33.11 dBm	-20.11 dB
2.305 GHz	2.310 GHz	100.000 kHz	2.30688 GHz	6.04 dBm	-23.96 dB
2.310 GHz	2.311 GHz	50.000 kHz	2.31000 GHz	-33.66 dBm	-20.66 dB
2.311 GHz	2.320 GHz	1.000 MHz	2.31111 GHz	-33.35 dBm	-20.35 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32016 GHz	-38.61 dBm	-13.61 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32573 GHz	-39.11 dBm	-8.11 dB

Date: 9.JUL.2020 04:56:22

Highest Band Edge / Full RB



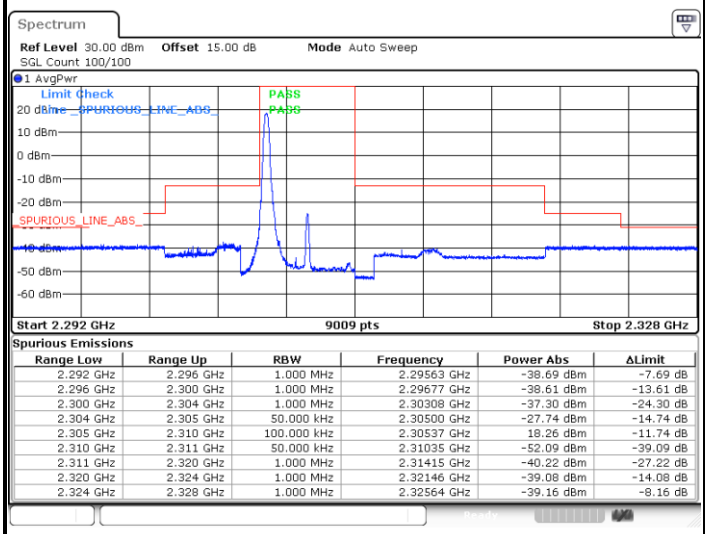
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29306 GHz	-39.02 dBm	-8.02 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29951 GHz	-38.43 dBm	-13.43 dB
2.300 GHz	2.309 GHz	1.000 MHz	2.30893 GHz	-28.18 dBm	-15.18 dB
2.309 GHz	2.310 GHz	50.000 kHz	2.31000 GHz	-33.00 dBm	-20.00 dB
2.310 GHz	2.315 GHz	100.000 kHz	2.31365 GHz	5.97 dBm	-24.03 dB
2.315 GHz	2.316 GHz	50.000 kHz	2.31500 GHz	-32.64 dBm	-19.64 dB
2.316 GHz	2.320 GHz	1.000 MHz	2.31601 GHz	-26.96 dBm	-13.96 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32033 GHz	-34.84 dBm	-9.84 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32421 GHz	-38.20 dBm	-7.20 dB

Date: 9.JUL.2020 05:02:40

LTE Band 30 / 5MHz / 64QAM

Lowest Band Edge / 1RB

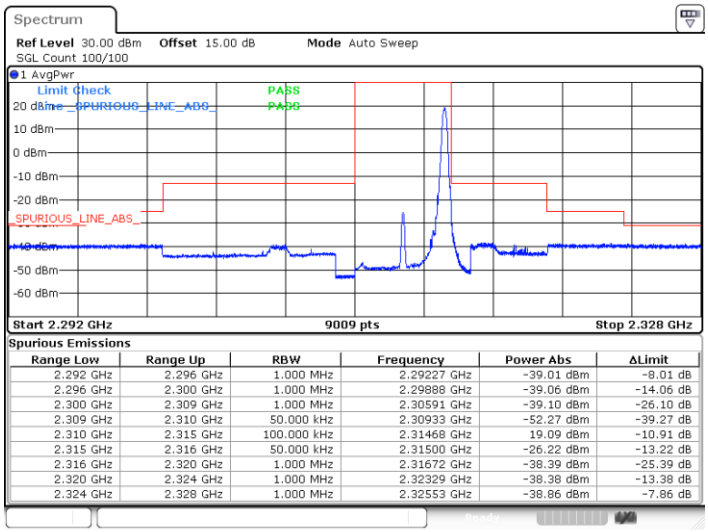


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29563 GHz	-38.69 dBm	-7.69 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29677 GHz	-38.61 dBm	-13.61 dB
2.300 GHz	2.304 GHz	1.000 MHz	2.30308 GHz	-37.30 dBm	-24.30 dB
2.304 GHz	2.305 GHz	50.000 kHz	2.30500 GHz	-27.74 dBm	-14.74 dB
2.305 GHz	2.310 GHz	100.000 kHz	2.30537 GHz	18.26 dBm	-11.74 dB
2.310 GHz	2.311 GHz	50.000 kHz	2.31035 GHz	-52.09 dBm	-39.09 dB
2.311 GHz	2.320 GHz	1.000 MHz	2.31415 GHz	-40.22 dBm	-27.22 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32146 GHz	-39.08 dBm	-14.08 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32564 GHz	-39.16 dBm	-8.16 dB

Date: 9.JUL.2020 04:54:16

Highest Band Edge / 1 RB

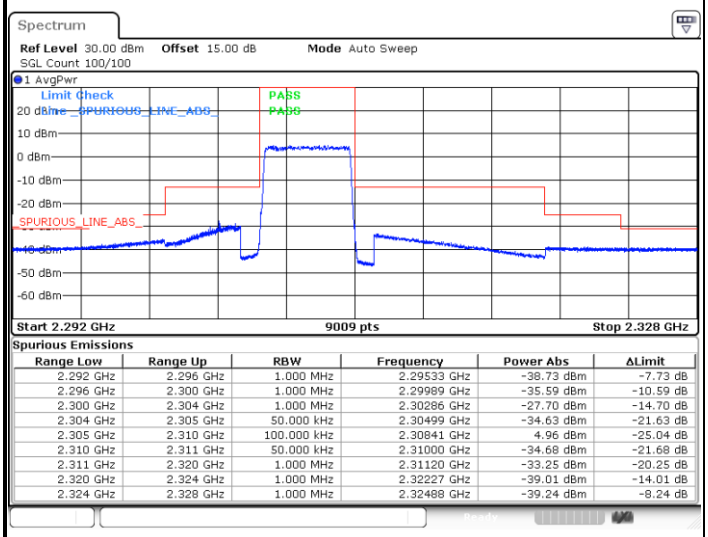


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29227 GHz	-39.01 dBm	-8.01 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29888 GHz	-39.06 dBm	-14.06 dB
2.300 GHz	2.309 GHz	1.000 MHz	2.30591 GHz	-39.10 dBm	-26.10 dB
2.309 GHz	2.310 GHz	50.000 kHz	2.30933 GHz	-52.27 dBm	-39.27 dB
2.310 GHz	2.315 GHz	100.000 kHz	2.31468 GHz	19.09 dBm	-10.91 dB
2.315 GHz	2.316 GHz	50.000 kHz	2.31500 GHz	-26.22 dBm	-13.22 dB
2.316 GHz	2.320 GHz	1.000 MHz	2.31672 GHz	-38.39 dBm	-25.39 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32329 GHz	-38.38 dBm	-13.38 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32553 GHz	-38.86 dBm	-7.86 dB

Date: 9.JUL.2020 05:00:33

Lowest Band Edge / Full RB

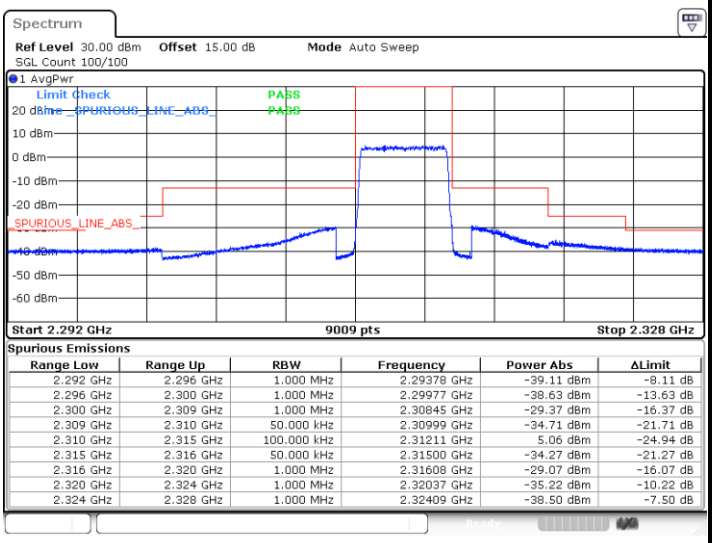


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29533 GHz	-38.73 dBm	-7.73 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29989 GHz	-35.59 dBm	-10.59 dB
2.300 GHz	2.304 GHz	1.000 MHz	2.30286 GHz	-27.70 dBm	-14.70 dB
2.304 GHz	2.305 GHz	50.000 kHz	2.30499 GHz	-34.63 dBm	-21.63 dB
2.305 GHz	2.310 GHz	100.000 kHz	2.30841 GHz	4.96 dBm	-25.04 dB
2.310 GHz	2.311 GHz	50.000 kHz	2.31000 GHz	-34.68 dBm	-21.68 dB
2.311 GHz	2.320 GHz	1.000 MHz	2.31120 GHz	-33.25 dBm	-20.25 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32227 GHz	-39.01 dBm	-14.01 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32488 GHz	-39.24 dBm	-8.24 dB

Date: 9.JUL.2020 04:57:25

Highest Band Edge / Full RB



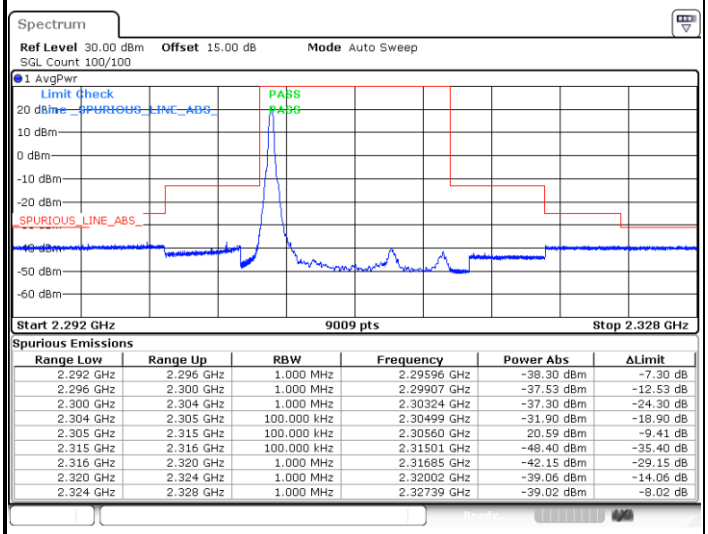
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29378 GHz	-39.11 dBm	-8.11 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29977 GHz	-38.63 dBm	-13.63 dB
2.300 GHz	2.309 GHz	1.000 MHz	2.30845 GHz	-29.37 dBm	-16.37 dB
2.309 GHz	2.310 GHz	50.000 kHz	2.30999 GHz	-34.71 dBm	-21.71 dB
2.310 GHz	2.315 GHz	100.000 kHz	2.31211 GHz	5.06 dBm	-24.94 dB
2.315 GHz	2.316 GHz	50.000 kHz	2.31500 GHz	-34.27 dBm	-21.27 dB
2.316 GHz	2.320 GHz	1.000 MHz	2.31608 GHz	-29.07 dBm	-16.07 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32037 GHz	-35.22 dBm	-10.22 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32409 GHz	-38.50 dBm	-7.50 dB

Date: 9.JUL.2020 05:03:43

LTE Band 30 / 10MHz / QPSK

Lowest Band Edge / 1 RB

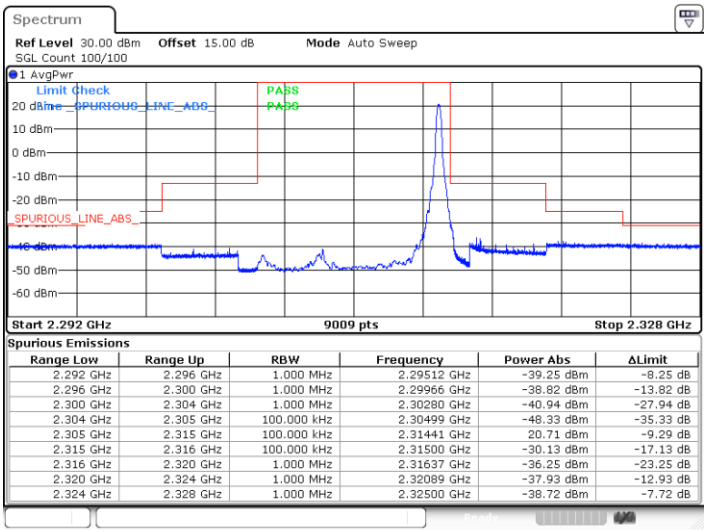


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29596 GHz	-38.30 dBm	-7.30 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29907 GHz	-37.53 dBm	-12.53 dB
2.300 GHz	2.304 GHz	1.000 MHz	2.30324 GHz	-37.30 dBm	-24.30 dB
2.304 GHz	2.305 GHz	100.000 kHz	2.30499 GHz	-31.90 dBm	-18.90 dB
2.305 GHz	2.315 GHz	100.000 kHz	2.30560 GHz	20.59 dBm	-9.41 dB
2.315 GHz	2.316 GHz	100.000 kHz	2.31501 GHz	-48.40 dBm	-35.40 dB
2.316 GHz	2.320 GHz	1.000 MHz	2.31685 GHz	-42.15 dBm	-29.15 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32002 GHz	-39.06 dBm	-14.06 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32739 GHz	-39.02 dBm	-8.02 dB

Date: 9.JUL.2020 05:04:46

Highest Band Edge / 1 RB

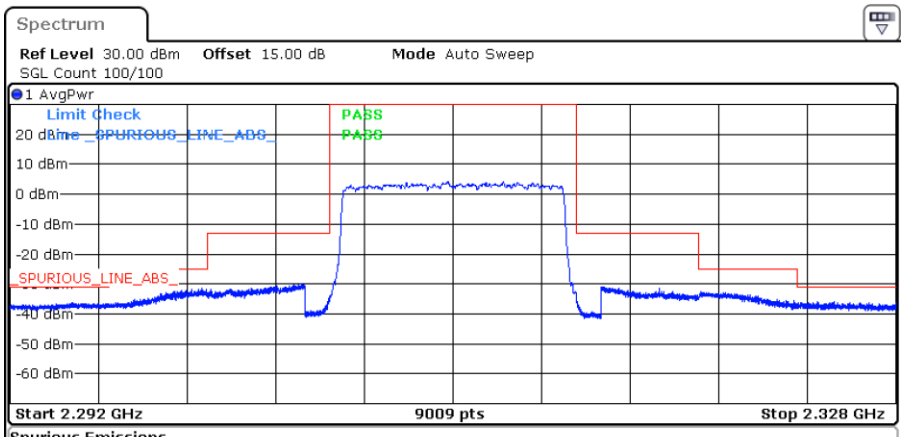


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29512 GHz	-39.25 dBm	-8.25 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29966 GHz	-38.82 dBm	-13.82 dB
2.300 GHz	2.304 GHz	1.000 MHz	2.30280 GHz	-40.94 dBm	-27.94 dB
2.304 GHz	2.305 GHz	100.000 kHz	2.30499 GHz	-48.33 dBm	-35.33 dB
2.305 GHz	2.315 GHz	100.000 kHz	2.31441 GHz	20.71 dBm	-9.29 dB
2.315 GHz	2.316 GHz	100.000 kHz	2.31500 GHz	-30.13 dBm	-17.13 dB
2.316 GHz	2.320 GHz	1.000 MHz	2.31637 GHz	-36.25 dBm	-23.25 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32089 GHz	-37.93 dBm	-12.93 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32500 GHz	-38.72 dBm	-7.72 dB

Date: 9.JUL.2020 05:07:58

Band Edge / Full RB



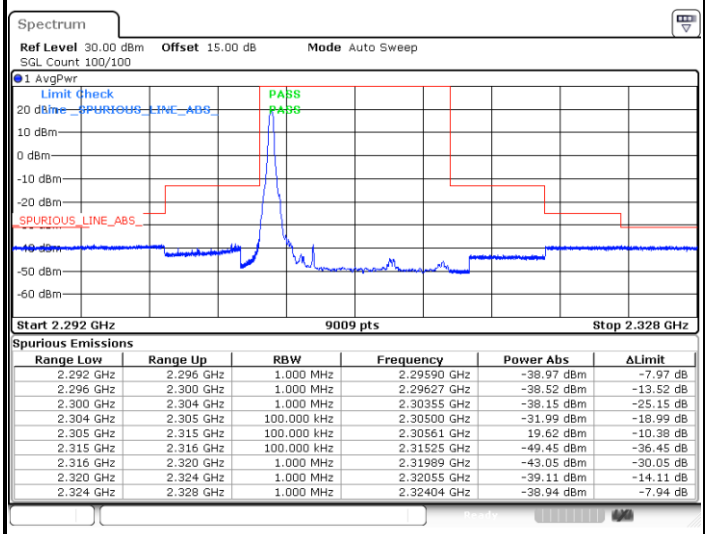
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29455 GHz	-36.36 dBm	-5.36 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29980 GHz	-31.47 dBm	-6.47 dB
2.300 GHz	2.304 GHz	1.000 MHz	2.30384 GHz	-29.90 dBm	-16.90 dB
2.304 GHz	2.305 GHz	100.000 kHz	2.30500 GHz	-34.05 dBm	-21.05 dB
2.305 GHz	2.315 GHz	100.000 kHz	2.30978 GHz	4.28 dBm	-25.72 dB
2.315 GHz	2.316 GHz	100.000 kHz	2.31501 GHz	-34.62 dBm	-21.62 dB
2.316 GHz	2.320 GHz	1.000 MHz	2.31601 GHz	-30.98 dBm	-17.98 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32005 GHz	-32.58 dBm	-7.58 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32548 GHz	-35.90 dBm	-4.90 dB

Date: 9.JUL.2020 05:11:07

LTE Band 30 / 10MHz / 16QAM

Lowest Band Edge / 1 RB

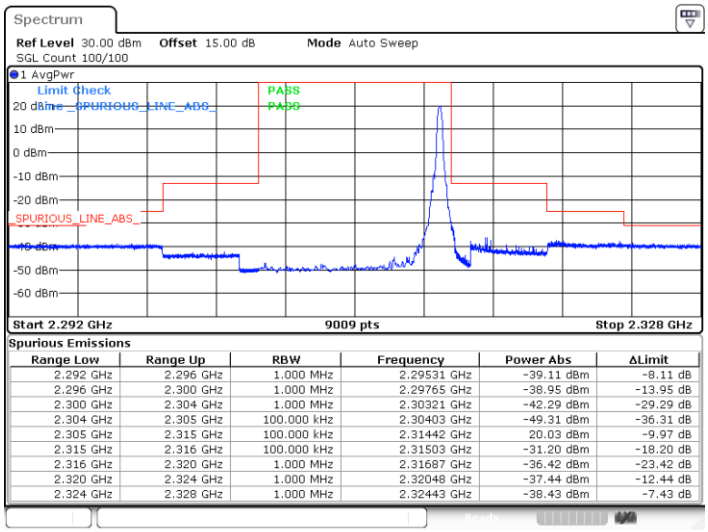


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29590 GHz	-38.97 dBm	-7.97 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29627 GHz	-38.52 dBm	-13.52 dB
2.300 GHz	2.304 GHz	1.000 MHz	2.30355 GHz	-38.15 dBm	-25.15 dB
2.304 GHz	2.305 GHz	100.000 kHz	2.30500 GHz	-31.99 dBm	-18.99 dB
2.305 GHz	2.315 GHz	100.000 kHz	2.30561 GHz	19.62 dBm	-10.38 dB
2.315 GHz	2.316 GHz	100.000 kHz	2.31525 GHz	-49.45 dBm	-36.45 dB
2.316 GHz	2.320 GHz	1.000 MHz	2.31989 GHz	-43.05 dBm	-30.05 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32055 GHz	-39.11 dBm	-14.11 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32404 GHz	-38.94 dBm	-7.94 dB

Date: 9.JUL.2020 05:05:50

Highest Band Edge / 1 RB

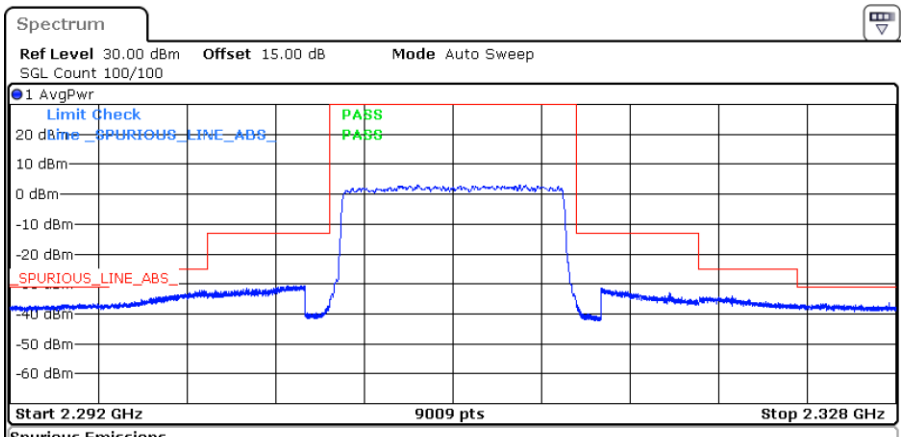


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29531 GHz	-39.11 dBm	-8.11 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29765 GHz	-38.95 dBm	-13.95 dB
2.300 GHz	2.304 GHz	1.000 MHz	2.30321 GHz	-42.29 dBm	-29.29 dB
2.304 GHz	2.305 GHz	100.000 kHz	2.30403 GHz	-49.31 dBm	-36.31 dB
2.305 GHz	2.315 GHz	100.000 kHz	2.31442 GHz	20.03 dBm	-9.97 dB
2.315 GHz	2.316 GHz	100.000 kHz	2.31503 GHz	-31.20 dBm	-18.20 dB
2.316 GHz	2.320 GHz	1.000 MHz	2.31687 GHz	-36.42 dBm	-23.42 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32048 GHz	-37.44 dBm	-12.44 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32443 GHz	-38.43 dBm	-7.43 dB

Date: 9.JUL.2020 05:09:01

Band Edge / Full RB



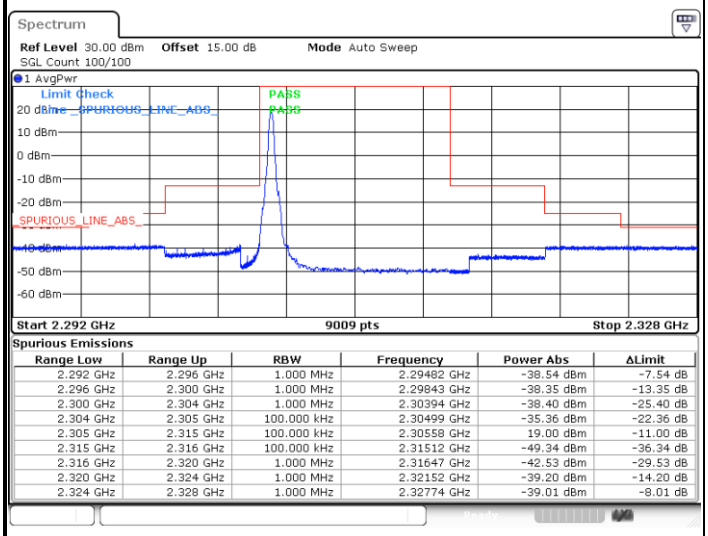
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29538 GHz	-36.60 dBm	-5.60 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29981 GHz	-32.17 dBm	-7.17 dB
2.300 GHz	2.304 GHz	1.000 MHz	2.30332 GHz	-30.54 dBm	-17.54 dB
2.304 GHz	2.305 GHz	100.000 kHz	2.30500 GHz	-35.57 dBm	-22.57 dB
2.305 GHz	2.315 GHz	100.000 kHz	2.31271 GHz	2.96 dBm	-27.04 dB
2.315 GHz	2.316 GHz	100.000 kHz	2.31501 GHz	-35.47 dBm	-22.47 dB
2.316 GHz	2.320 GHz	1.000 MHz	2.31604 GHz	-31.44 dBm	-18.44 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32135 GHz	-34.11 dBm	-9.11 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32772 GHz	-36.42 dBm	-5.42 dB

Date: 9.JUL.2020 05:12:10

LTE Band 30 / 10MHz / 64QAM

Lowest Band Edge / 1 RB

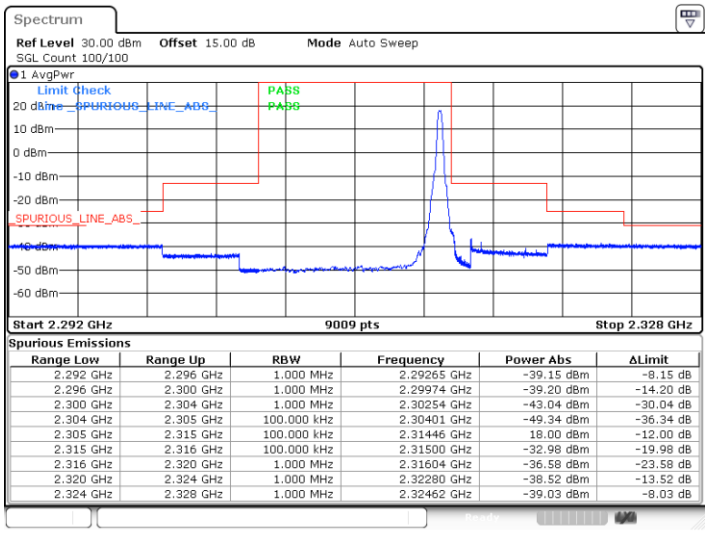


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29482 GHz	-38.54 dBm	-7.54 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29843 GHz	-38.35 dBm	-13.35 dB
2.300 GHz	2.304 GHz	1.000 MHz	2.30394 GHz	-38.40 dBm	-25.40 dB
2.304 GHz	2.305 GHz	100.000 kHz	2.30499 GHz	-35.36 dBm	-22.36 dB
2.305 GHz	2.315 GHz	100.000 kHz	2.30558 GHz	19.00 dBm	-11.00 dB
2.315 GHz	2.316 GHz	100.000 kHz	2.31512 GHz	-49.34 dBm	-36.34 dB
2.316 GHz	2.320 GHz	1.000 MHz	2.31647 GHz	-42.53 dBm	-29.53 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32152 GHz	-39.20 dBm	-14.20 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32774 GHz	-39.01 dBm	-8.01 dB

Date: 9.JUL.2020 05:06:54

Highest Band Edge / 1 RB

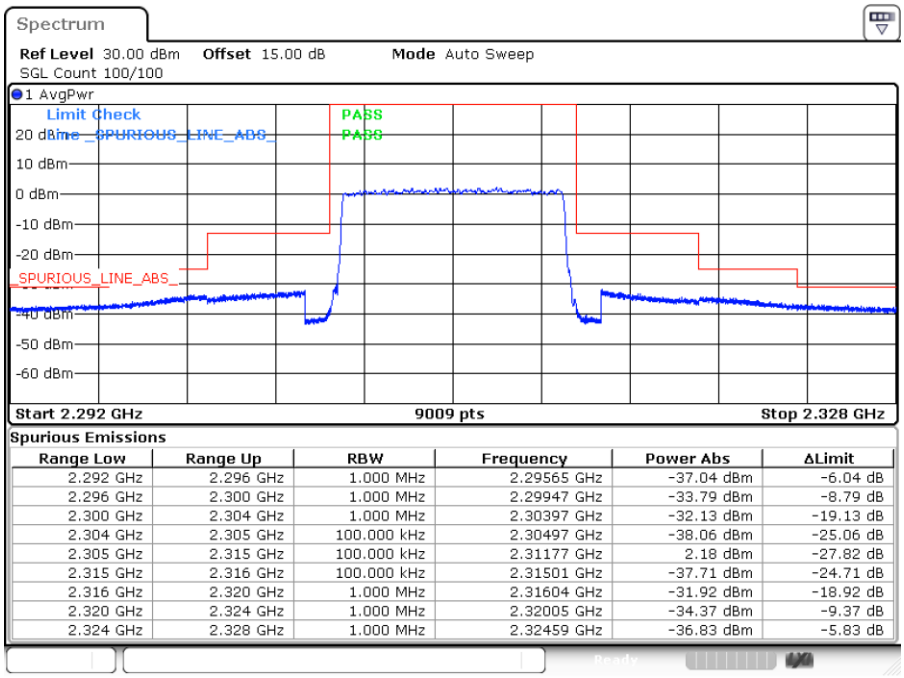


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29265 GHz	-39.15 dBm	-8.15 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29974 GHz	-39.20 dBm	-14.20 dB
2.300 GHz	2.304 GHz	1.000 MHz	2.30254 GHz	-43.04 dBm	-30.04 dB
2.304 GHz	2.305 GHz	100.000 kHz	2.30401 GHz	-49.34 dBm	-36.34 dB
2.305 GHz	2.315 GHz	100.000 kHz	2.31446 GHz	18.00 dBm	-12.00 dB
2.315 GHz	2.316 GHz	100.000 kHz	2.31500 GHz	-32.98 dBm	-19.98 dB
2.316 GHz	2.320 GHz	1.000 MHz	2.31604 GHz	-36.58 dBm	-23.58 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32280 GHz	-38.52 dBm	-13.52 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32462 GHz	-39.03 dBm	-8.03 dB

Date: 9.JUL.2020 05:10:04

Band Edge / Full RB



Spurious Emissions

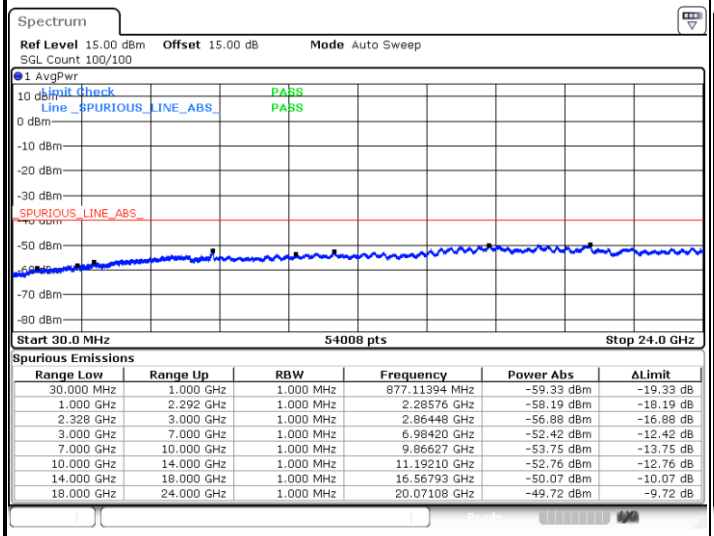
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.292 GHz	2.296 GHz	1.000 MHz	2.29565 GHz	-37.04 dBm	-6.04 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29947 GHz	-33.79 dBm	-8.79 dB
2.300 GHz	2.304 GHz	1.000 MHz	2.30397 GHz	-32.13 dBm	-19.13 dB
2.304 GHz	2.305 GHz	100.000 kHz	2.30497 GHz	-38.06 dBm	-25.06 dB
2.305 GHz	2.315 GHz	100.000 kHz	2.31177 GHz	2.18 dBm	-27.82 dB
2.315 GHz	2.316 GHz	100.000 kHz	2.31501 GHz	-37.71 dBm	-24.71 dB
2.316 GHz	2.320 GHz	1.000 MHz	2.31604 GHz	-31.92 dBm	-18.92 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32005 GHz	-34.37 dBm	-9.37 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32459 GHz	-36.83 dBm	-5.83 dB

Date: 9.JUL.2020 05:13:14

Conducted Spurious Emission

LTE Band 30 / 5MHz

Lowest Channel / QPSK

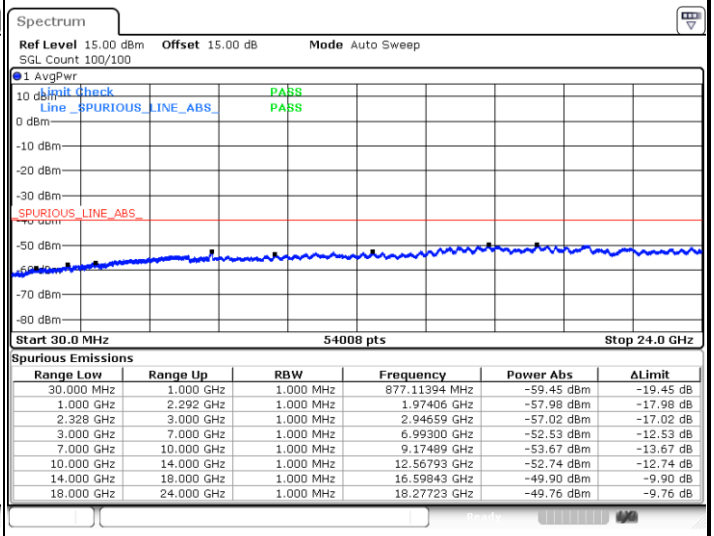


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	877.11394 MHz	-59.33 dBm	-19.33 dB
1.000 GHz	2.292 GHz	1.000 MHz	2.28576 GHz	-58.19 dBm	-18.19 dB
2.328 GHz	3.000 GHz	1.000 MHz	2.86448 GHz	-56.88 dBm	-16.88 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.98420 GHz	-52.42 dBm	-12.42 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.86627 GHz	-53.75 dBm	-13.75 dB
10.000 GHz	14.000 GHz	1.000 MHz	11.19210 GHz	-52.76 dBm	-12.76 dB
14.000 GHz	18.000 GHz	1.000 MHz	16.56793 GHz	-50.07 dBm	-10.07 dB
18.000 GHz	24.000 GHz	1.000 MHz	20.07108 GHz	-49.72 dBm	-9.72 dB

Date: 9.JUL.2020 06:41:09

Lowest Channel / 16QAM

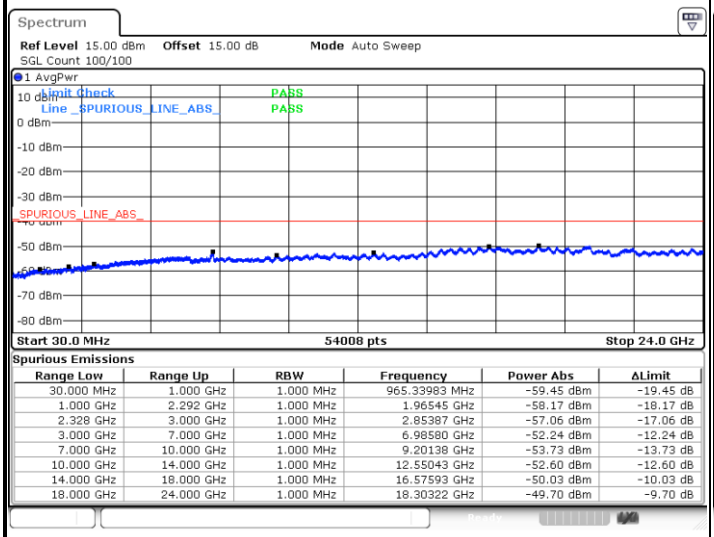


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	877.11394 MHz	-59.45 dBm	-19.45 dB
1.000 GHz	2.292 GHz	1.000 MHz	1.97406 GHz	-57.98 dBm	-17.98 dB
2.328 GHz	3.000 GHz	1.000 MHz	2.94659 GHz	-57.02 dBm	-17.02 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.99300 GHz	-52.53 dBm	-12.53 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.17489 GHz	-53.67 dBm	-13.67 dB
10.000 GHz	14.000 GHz	1.000 MHz	12.56793 GHz	-52.74 dBm	-12.74 dB
14.000 GHz	18.000 GHz	1.000 MHz	16.59843 GHz	-49.90 dBm	-9.90 dB
18.000 GHz	24.000 GHz	1.000 MHz	18.27723 GHz	-49.76 dBm	-9.76 dB

Date: 9.JUL.2020 06:49:11

Middle Channel / QPSK

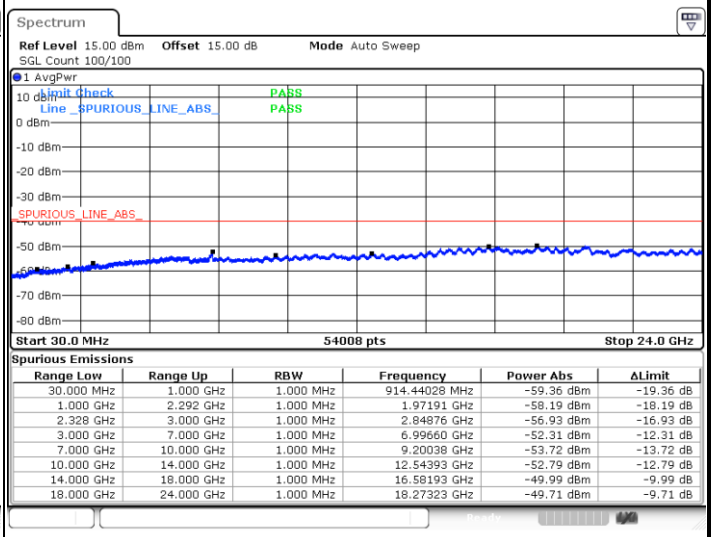


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	965.33983 MHz	-59.45 dBm	-19.45 dB
1.000 GHz	2.292 GHz	1.000 MHz	1.96545 GHz	-58.17 dBm	-18.17 dB
2.328 GHz	3.000 GHz	1.000 MHz	2.85387 GHz	-57.06 dBm	-17.06 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.98580 GHz	-52.24 dBm	-12.24 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.20138 GHz	-53.73 dBm	-13.73 dB
10.000 GHz	14.000 GHz	1.000 MHz	12.55043 GHz	-52.60 dBm	-12.60 dB
14.000 GHz	18.000 GHz	1.000 MHz	16.57593 GHz	-50.03 dBm	-10.03 dB
18.000 GHz	24.000 GHz	1.000 MHz	18.30322 GHz	-49.70 dBm	-9.70 dB

Date: 9.JUL.2020 06:42:15

Middle Channel / 16QAM



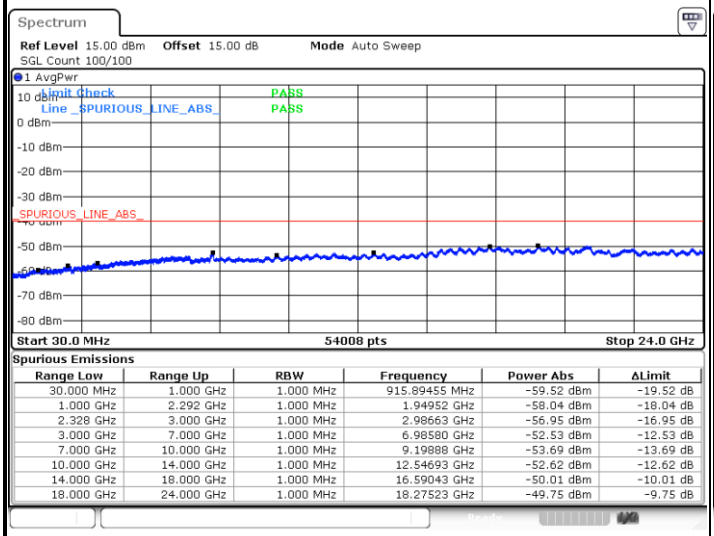
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	914.44028 MHz	-59.36 dBm	-19.36 dB
1.000 GHz	2.292 GHz	1.000 MHz	1.97191 GHz	-58.19 dBm	-18.19 dB
2.328 GHz	3.000 GHz	1.000 MHz	2.84876 GHz	-56.93 dBm	-16.93 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.99660 GHz	-52.31 dBm	-12.31 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.20038 GHz	-53.72 dBm	-13.72 dB
10.000 GHz	14.000 GHz	1.000 MHz	12.54393 GHz	-52.79 dBm	-12.79 dB
14.000 GHz	18.000 GHz	1.000 MHz	16.58193 GHz	-49.99 dBm	-9.99 dB
18.000 GHz	24.000 GHz	1.000 MHz	18.27323 GHz	-49.71 dBm	-9.71 dB

Date: 9.JUL.2020 06:47:31

LTE Band 30 / 5MHz

Highest Channel / QPSK

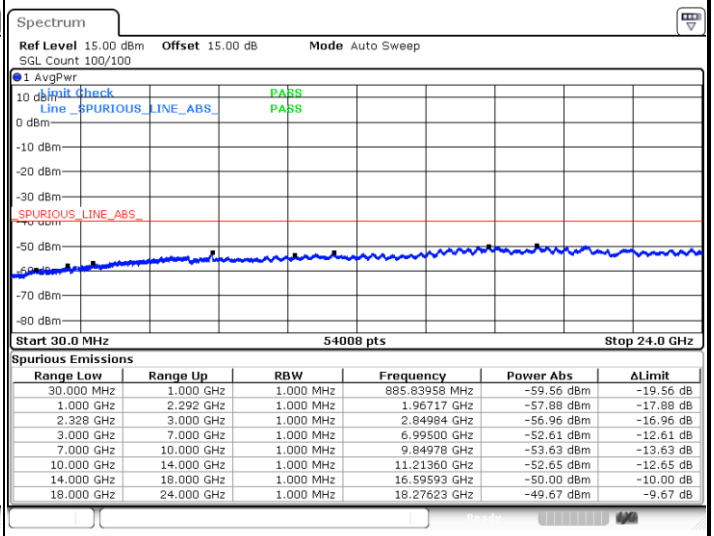


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	915.89455 MHz	-59.52 dBm	-19.52 dB
1.000 GHz	2.292 GHz	1.000 MHz	1.94952 GHz	-58.04 dBm	-18.04 dB
2.328 GHz	3.000 GHz	1.000 MHz	2.98663 GHz	-56.95 dBm	-16.95 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.98580 GHz	-52.53 dBm	-12.53 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.19888 GHz	-53.69 dBm	-13.69 dB
10.000 GHz	14.000 GHz	1.000 MHz	12.54693 GHz	-52.62 dBm	-12.62 dB
14.000 GHz	18.000 GHz	1.000 MHz	16.59043 GHz	-50.01 dBm	-10.01 dB
18.000 GHz	24.000 GHz	1.000 MHz	18.27523 GHz	-49.75 dBm	-9.75 dB

Date: 9.JUL.2020 06:43:24

Highest Channel / 16QAM



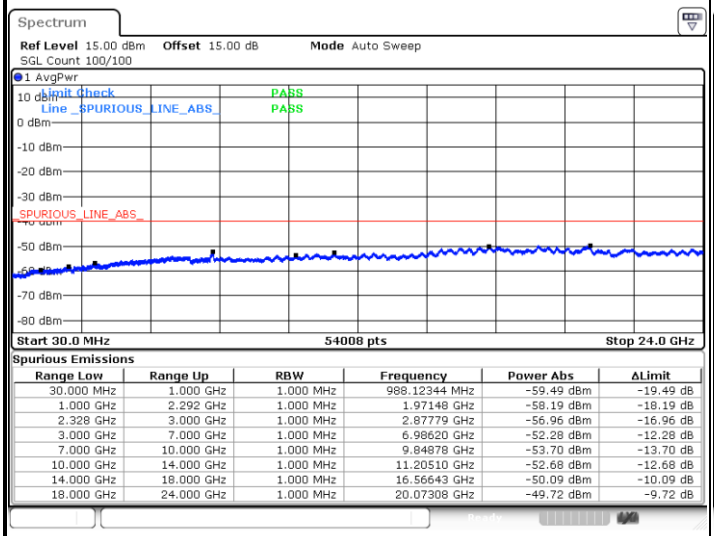
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	885.83958 MHz	-59.56 dBm	-19.56 dB
1.000 GHz	2.292 GHz	1.000 MHz	1.96717 GHz	-57.88 dBm	-17.88 dB
2.328 GHz	3.000 GHz	1.000 MHz	2.84984 GHz	-56.96 dBm	-16.96 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.99500 GHz	-52.61 dBm	-12.61 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.84978 GHz	-53.63 dBm	-13.63 dB
10.000 GHz	14.000 GHz	1.000 MHz	11.21360 GHz	-52.65 dBm	-12.65 dB
14.000 GHz	18.000 GHz	1.000 MHz	16.59593 GHz	-50.00 dBm	-10.00 dB
18.000 GHz	24.000 GHz	1.000 MHz	18.27623 GHz	-49.67 dBm	-9.67 dB

Date: 9.JUL.2020 06:45:23

LTE Band 30 / 10MHz

Middle Channel / QPSK

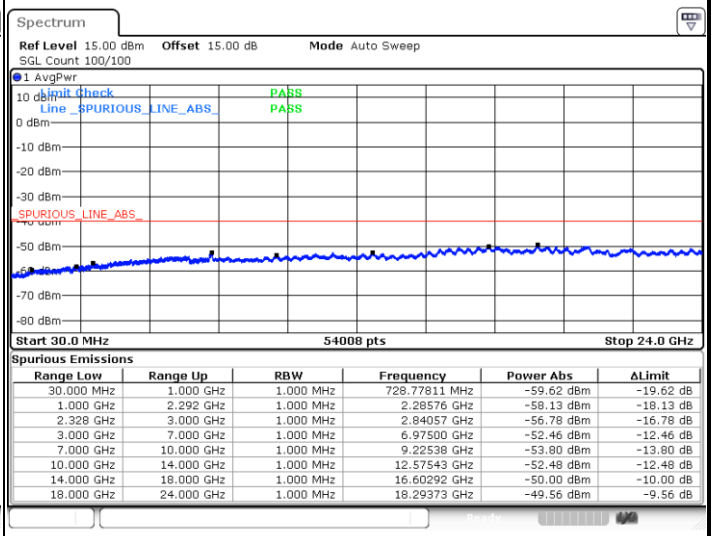


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	988.12344 MHz	-59.49 dBm	-19.49 dB
1.000 GHz	2.292 GHz	1.000 MHz	1.97148 GHz	-58.19 dBm	-18.19 dB
2.328 GHz	3.000 GHz	1.000 MHz	2.87779 GHz	-56.96 dBm	-16.96 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.98620 GHz	-52.28 dBm	-12.28 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.84878 GHz	-53.70 dBm	-13.70 dB
10.000 GHz	14.000 GHz	1.000 MHz	11.20510 GHz	-52.68 dBm	-12.68 dB
14.000 GHz	18.000 GHz	1.000 MHz	16.56643 GHz	-50.09 dBm	-10.09 dB
18.000 GHz	24.000 GHz	1.000 MHz	20.07308 GHz	-49.72 dBm	-9.72 dB

Date: 9.JUL.2020 06:58:34

Middle Channel / 16QAM



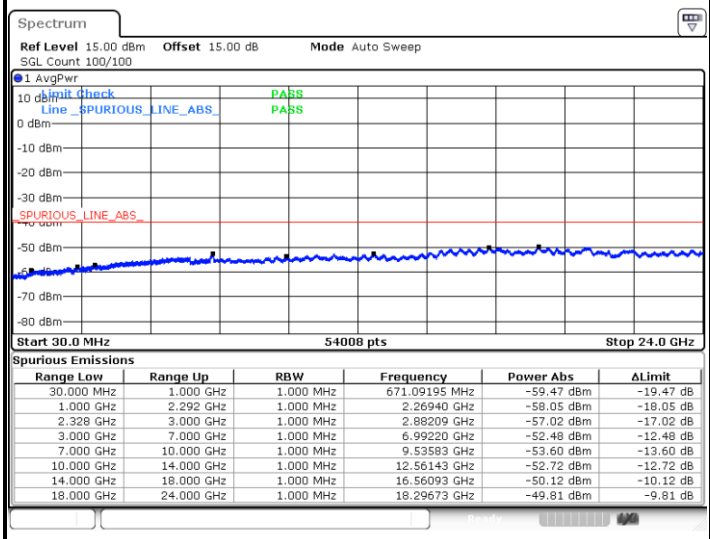
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	728.77811 MHz	-59.62 dBm	-19.62 dB
1.000 GHz	2.292 GHz	1.000 MHz	2.28576 GHz	-58.13 dBm	-18.13 dB
2.328 GHz	3.000 GHz	1.000 MHz	2.84057 GHz	-56.78 dBm	-16.78 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.97500 GHz	-52.46 dBm	-12.46 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.22538 GHz	-53.80 dBm	-13.80 dB
10.000 GHz	14.000 GHz	1.000 MHz	12.57543 GHz	-52.48 dBm	-12.48 dB
14.000 GHz	18.000 GHz	1.000 MHz	16.60292 GHz	-50.00 dBm	-10.00 dB
18.000 GHz	24.000 GHz	1.000 MHz	18.29373 GHz	-49.56 dBm	-9.56 dB

Date: 9.JUL.2020 06:57:30

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	671.09195 MHz	-59.47 dBm	-19.47 dB
1.000 GHz	2.292 GHz	1.000 MHz	2.26940 GHz	-58.05 dBm	-18.05 dB
2.328 GHz	3.000 GHz	1.000 MHz	2.88209 GHz	-57.02 dBm	-17.02 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.99220 GHz	-52.48 dBm	-12.48 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.53583 GHz	-53.60 dBm	-13.60 dB
10.000 GHz	14.000 GHz	1.000 MHz	12.56143 GHz	-52.72 dBm	-12.72 dB
14.000 GHz	18.000 GHz	1.000 MHz	16.56093 GHz	-50.12 dBm	-10.12 dB
18.000 GHz	24.000 GHz	1.000 MHz	18.29673 GHz	-49.81 dBm	-9.81 dB

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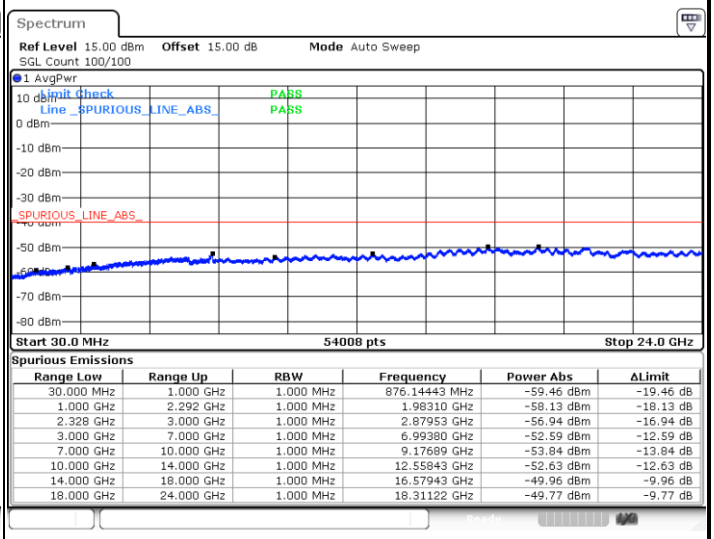
Middle Channel / 64QAM



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	876.14443 MHz	-59.46 dBm	-19.46 dB
1.000 GHz	2.292 GHz	1.000 MHz	1.98310 GHz	-58.13 dBm	-18.13 dB
2.328 GHz	3.000 GHz	1.000 MHz	2.87953 GHz	-56.94 dBm	-16.94 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.99380 GHz	-52.59 dBm	-12.59 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.17689 GHz	-53.84 dBm	-13.84 dB
10.000 GHz	14.000 GHz	1.000 MHz	12.55843 GHz	-52.63 dBm	-12.63 dB
14.000 GHz	18.000 GHz	1.000 MHz	16.57943 GHz	-49.96 dBm	-9.96 dB
18.000 GHz	24.000 GHz	1.000 MHz	18.31122 GHz	-49.77 dBm	-9.77 dB

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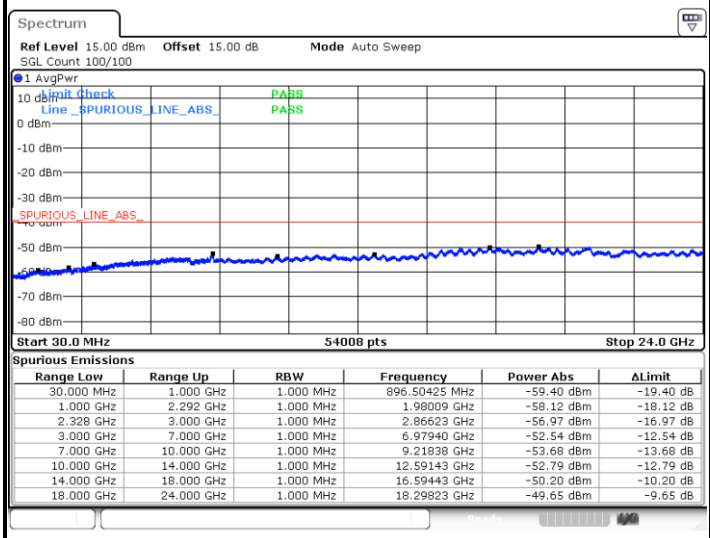
Highest Channel / 64QAM



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	896.50425 MHz	-59.40 dBm	-19.40 dB
1.000 GHz	2.292 GHz	1.000 MHz	1.98009 GHz	-58.12 dBm	-18.12 dB
2.328 GHz	3.000 GHz	1.000 MHz	2.86623 GHz	-56.97 dBm	-16.97 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.97940 GHz	-52.54 dBm	-12.54 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.21838 GHz	-53.68 dBm	-13.68 dB
10.000 GHz	14.000 GHz	1.000 MHz	12.59143 GHz	-52.79 dBm	-12.79 dB
14.000 GHz	18.000 GHz	1.000 MHz	16.59443 GHz	-50.20 dBm	-10.20 dB
18.000 GHz	24.000 GHz	1.000 MHz	18.29823 GHz	-49.65 dBm	-9.65 dB

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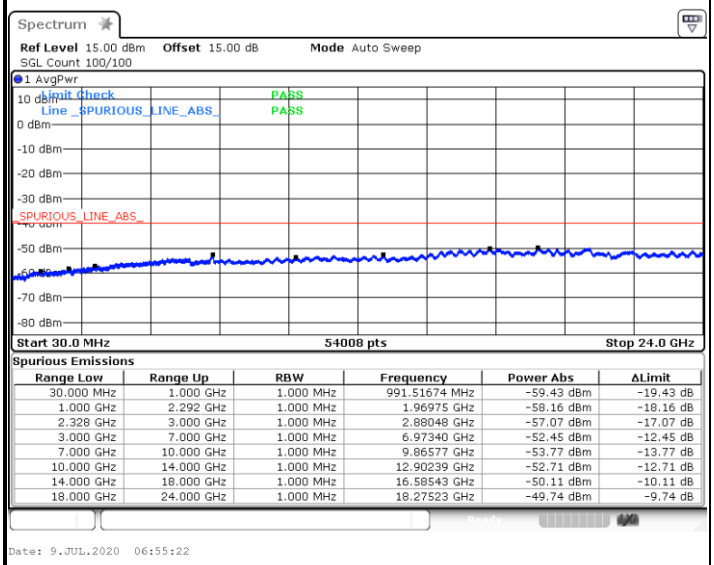
LTE Band 30 / 10MHz	
Middle Channel / 64QAM	



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	991.51674 MHz	-59.43 dBm	-19.43 dB
1.000 GHz	2.292 GHz	1.000 MHz	1.96975 GHz	-58.16 dBm	-18.16 dB
2.328 GHz	3.000 GHz	1.000 MHz	2.88048 GHz	-57.07 dBm	-17.07 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.97340 GHz	-52.45 dBm	-12.45 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.86577 GHz	-53.77 dBm	-13.77 dB
10.000 GHz	14.000 GHz	1.000 MHz	12.90239 GHz	-52.71 dBm	-12.71 dB
14.000 GHz	18.000 GHz	1.000 MHz	16.58543 GHz	-50.11 dBm	-10.11 dB
18.000 GHz	24.000 GHz	1.000 MHz	18.27523 GHz	-49.74 dBm	-9.74 dB

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	0.0003	PASS
40	Normal Voltage	0.0003	
30	Normal Voltage	0.0002	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0006	
0	Normal Voltage	0.0005	
-10	Normal Voltage	0.0000	
-20	Normal Voltage	0.0001	
-30	Normal Voltage	0.0003	
20	Maximum Voltage	0.0003	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0002	

Note:

1. Normal Voltage =7.74 V. ; Battery End Point (BEP) =7.2 V. ; Maximum Voltage =8.9 V.
2. Note: The frequency fundamental emissions stay within the authorized frequency block.

Appendix B. Test Results of Radiated Test

Radiated Spurious Emission

Top antenna:

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	4610.50	-63.50	-40	-23.50	-58.92	-69.75	6.30	12.55	H
	6915.75	-60.96	-40	-20.96	-60.34	-64.36	8.25	11.65	H
	9221.00	-57.77	-40	-17.77	-61.82	-60.12	9.50	11.85	H
	11526.25	-55.29	-40	-15.29	-63.04	-56.37	10.97	12.05	H
	4610.50	-63.21	-40	-23.21	-58.69	-69.46	6.30	12.55	V
	6915.75	-60.63	-40	-20.63	-60.15	-64.03	8.25	11.65	V
	9221.00	-58.94	-40	-18.94	-61.72	-61.29	9.50	11.85	V
	11526.25	-54.43	-40	-14.43	-62.6	-55.51	10.97	12.05	V
Middle	4615.50	-63.28	-40	-23.28	-58.73	-69.53	6.45	12.70	H
	6923.25	-59.80	-40	-19.80	-59.18	-63.20	8.40	11.80	H
	9231.00	-57.82	-40	-17.82	-61.87	-60.17	9.65	12.00	H
	11538.75	-55.43	-40	-15.43	-63.22	-56.51	11.12	12.20	H
	4615.50	-63.02	-40	-23.02	-58.54	-69.27	6.45	12.70	V
	6923.25	-60.31	-40	-20.31	-59.83	-63.71	8.40	11.80	V
	9231.00	-58.73	-40	-18.73	-61.51	-61.08	9.65	12.00	V
	11538.75	-54.78	-40	-14.78	-62.96	-55.86	11.12	12.20	V
Highest	4620.50	-63.39	-40	-23.39	-58.84	-69.64	6.61	12.86	H
	6930.75	-60.83	-40	-20.83	-60.28	-64.21	8.56	11.94	H
	9241.00	-57.87	-40	-17.87	-61.92	-60.22	9.81	12.16	H
	11551.25	-55.11	-40	-15.11	-62.93	-56.16	11.28	12.33	H
	4620.50	-63.19	-40	-23.19	-58.71	-69.44	6.61	12.86	V
	6930.75	-60.83	-40	-20.83	-60.39	-64.21	8.56	11.94	V
	9241.00	-58.86	-40	-18.86	-61.64	-61.21	9.81	12.16	V
	11551.25	-54.55	-40	-14.55	-62.75	-55.60	11.28	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	4611.00	-63.58	-40	-23.58	-59.00	-69.83	6.45	12.70	H
	6916.50	-60.87	-40	-20.87	-60.25	-64.27	8.40	11.80	H
	9222.00	-57.17	-40	-17.17	-61.22	-59.52	9.65	12.00	H
	4611.00	-62.37	-40	-22.37	-57.85	-68.62	6.45	12.70	V
	6916.50	-60.68	-40	-20.68	-60.2	-64.08	8.40	11.80	V
	9222.00	-59.03	-40	-19.03	-61.81	-61.38	9.65	12.00	V

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

Bottom antenna:

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	4610.50	-61.13	-40	-21.13	-56.55	-67.38	6.30	12.55	H
	6915.75	-60.95	-40	-20.95	-60.33	-64.35	8.25	11.65	H
	9221.00	-57.10	-40	-17.10	-61.15	-59.45	9.50	11.85	H
	11526.25	-55.41	-40	-15.41	-63.16	-56.49	10.97	12.05	H
	4610.50	-60.96	-40	-20.96	-56.44	-67.21	6.30	12.55	V
	6915.75	-60.68	-40	-20.68	-60.2	-64.08	8.25	11.65	V
	9221.00	-59.03	-40	-19.03	-61.81	-61.38	9.50	11.85	V
	11526.25	-55.03	-40	-15.03	-63.2	-56.11	10.97	12.05	V
Middle	4615.50	-59.82	-40	-19.82	-55.27	-66.07	6.45	12.70	H
	6923.25	-60.54	-40	-20.54	-59.92	-63.94	8.40	11.80	H
	9231.00	-57.98	-40	-17.98	-62.03	-60.33	9.65	12.00	H
	11538.75	-55.42	-40	-15.42	-63.21	-56.50	11.12	12.20	H
	4615.50	-61.67	-40	-21.67	-57.19	-67.92	6.45	12.70	V
	6923.25	-60.51	-40	-20.51	-60.03	-63.91	8.40	11.80	V
	9231.00	-59.39	-40	-19.39	-62.17	-61.74	9.65	12.00	V
	11538.75	-54.92	-40	-14.92	-63.1	-56.00	11.12	12.20	V
Highest	4620.50	-61.00	-40	-21.00	-56.45	-67.25	6.61	12.86	H
	6930.75	-60.48	-40	-20.48	-59.93	-63.86	8.56	11.94	H
	9241.00	-57.68	-40	-17.68	-61.73	-60.03	9.81	12.16	H
	11551.25	-55.16	-40	-15.16	-62.98	-56.21	11.28	12.33	H
	4620.50	-62.18	-40	-22.18	-57.7	-68.43	6.61	12.86	V
	6930.75	-60.66	-40	-20.66	-60.22	-64.04	8.56	11.94	V
	9241.00	-59.08	-40	-19.08	-61.86	-61.43	9.81	12.16	V
	11551.25	-54.97	-40	-14.97	-63.17	-56.02	11.28	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	4611.00	-63.39	-40	-23.39	-58.81	-69.64	6.45	12.70	H
	6916.50	-60.66	-40	-20.66	-60.04	-64.06	8.40	11.80	H
	9222.00	-57.17	-40	-17.17	-61.22	-59.52	9.65	12.00	H
	4611.00	-63.32	-40	-23.32	-58.8	-69.57	6.45	12.70	V
	6916.50	-60.74	-40	-20.74	-60.26	-64.14	8.40	11.80	V
	9222.00	-59.01	-40	-19.01	-61.79	-61.36	9.65	12.00	V

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