

FCC RF Test Report

APPLICANT	: Motorola Mobility LLC
EQUIPMENT	: Mobile Cellular Phone
BRAND NAME	: Motorola
MODEL NAME	: XT2175-1
FCC ID	: IHDT56AC1
STANDARD	:47 CFR Part 2, Part 27 Subpart Q
CLASSIFICATION	: PCS Licensed Transmitter Held to Ear (PCE)
TEST DATE(S)	: Sep. 08, 2021 ~ Sep. 16, 2021

We, Sporton International (Kunshan) 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 (Kunshan) Inc., the test report shall not be reproduced except in full.

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Reviewed by: Jason Jia / Supervisor

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Approved by: Alex Wang / Manager



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG172703D	Rev. 01	Initial issue of report	Oct. 19, 2021



Report Section	FCC Rule	Description	Limit	Result	Remark		
3.4	§2.1046	Conducted Output Power	-	Reporting Only	-		
3.5	§27.50 (k)(4)	Peak-to-Average Ratio	<13dB	PASS			
3.6	§27.50 (k)(3)	EIRP	EIRP < 1W (30dBm)	PASS	-		
3.7	§2.1049	Occupied Bandwidth	-	Reporting Only	-		
3.8	§2.1051 §27.53 (n)(2)	Conducted Band Edge Measurement	-13dBm/MHz	PASS	-		
3.9	.9 §2.1051 §27.53 (n)(2) Conducted Spurious Emission		-13dBm/MHz	PASS	-		
3.10	§2.1055 §27.54	Frequency Stability Temperature & Voltage	Within the band	PASS	-		
4.4	§2.1053 §27.53 (n)(2) Radiated Spurious Emission		-13dBm/MHz	PASS	Under limit 45.73 dB at 10476.000 MHz		
Declaratio	Declaration of Conformity:						

SUMMARY OF TEST RESULT

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

Motorola Mobility LLC

222 W,Merchandise Mart Plaza, Chicago IL 60654 USA

1.2 Manufacturer

Motorola Mobility LLC

222 W, Merchandise Mart Plaza, Chicago IL 60654 USA

1.3 Product Feature of Equipment Under Test

Product Feature				
Equipment	Mobile Cellular Phone			
Brand Name	Motorola			
Model Name	XT2175-1			
FCC ID	IHDT56AC1			
IMEI Code	Conducted: N/A Radiation: 350506880020724			
HW Version	IW Version DVT2			
SW Version	SW Version RRX31.Q3-38			
EUT Stage	Identical Prototype			

1.4 Product Specification of Equipment Under Test

Product Feature				
Tx/Rx FrequencyLTE Band 42: 3450 MHz ~ 3550 MHz				
Bandwidth	5MHz / 10MHz / 15MHz / 20MHz			
Maximum Output Power to Antenna	LTE Band 42 : 23.82 dBm			
Antenna Gain	LTE Band 42 : -6.5 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 Power and Emission Designator

LTE Band 42		QPSK		16QAM/64QAM/256QAM	
BW (MHz)	Frequency Range (MHz)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)
20	3460 ~ 3540	0.0540	17M9G7D	0.0442	17M9W7D

Note: All modulations have been tested, only the worst test results of PSK & QAM are shown in the report.

1.7 Testing Site

Sporton International (Kunshan) Inc. is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Test Firm	Sporton International (Kunshan) Inc.			
	No. 1098, Pengxi North Road, Kunshan Economic Development Zone			
Test Site	Jiangsu Province 215300 People's Republic of China			
Location	TEL : +86-512-57900158			
	FAX : +86-512-579009	58		
	Sporton Site	FCC Designation	FCC Test Firm	
Test Site No.	No.	No.	Registration No.	
	03CH04-KS TH01-KS	CN1257	314309	

1.8 Test Software

Item Site		Manufacturer	Name	Version
1.	03CH04-KS	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 Subpart Q
- ANSI C63.26-2015
- FCC KDB 971168 Power Meas License Digital Systems D01 v03r01
- FCC KDB 412172 D01 Determining ERP and EIRP v01r01
- ٠

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.

1.10Specification	of Accessory
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Specification of Access	Specification of Accessory					
AC Adapter 1(US)	Brand Name	Motorola(Salcomp)	Model Name	MC-331		
AC Adapter 1(EU)	Brand Name	Motorola(Salcomp)	Model Name	MC-332		
AC Adapter 1(UK)	Brand Name	Motorola(Salcomp)	Model Name	MC-333		
AC Adapter 1(AR)	Brand Name	Motorola(Salcomp)	Model Name	MC-336		
AC Adapter 1(BR)	Brand Name	Motorola(Salcomp)	Model Name	MC-337		
AC Adapter 1(PRC)	Brand Name	Motorola(Salcomp)	Model Name	MC-338		
AC Adapter 1(CHILE)	Brand Name	Motorola(Salcomp)	Model Name	MC-339		
AC Adapter 2(US)	Brand Name	Motorola(Chenyang)	Model Name	MC-331		
AC Adapter 2(EU)	Brand Name	Motorola(Chenyang)	Model Name	MC-332		
AC Adapter 2(AR)	Brand Name	Motorola(Chenyang)	Model Name	MC-336		
AC Adapter 2(BR)	Brand Name	Motorola(Chenyang)	Model Name	MC-337		
AC Adapter 3(US)	Brand Name	Motorola(Acbel)	Model Name	MC-331		
AC Adapter 3(EU)	Brand Name	Motorola(Acbel)	Model Name	MC-332		
AC Adapter 3(UK)	Brand Name	Motorola(Acbel)	Model Name	MC-333		
Battery 1	Brand Name	Motorola(ATL)	Model Name	MB50		
Earphone 1	Brand Name	Motorola(Lyand)	Model Name	MH191(SH38C81577)		
Earphone 2	Brand Name	Motorola(LCHSE)	Model Name	MH191(SH38C81576)		
Type C to audio cable	Brand Name	Motorola(Luxshare)	Model Name	SC18C27844		
Type C to HDMI cable	Brand Name	Motorola(Linxee)	Model Name	SC18D02146		
USB Cable 1	Brand Name	Motorola(Saibao)	Model Name	SC18D22297		
USB Cable 2	Brand Name	Motorola(Cabletech)	Model Name	SC18D22298		
USB Cable 3	Brand Name	Motorola(Luxshare)	Model Name	SC18D22299		



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.

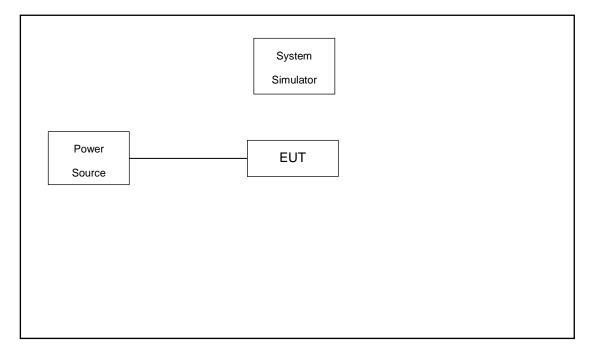
Radiated measurements are performed by rotating the EUT in three different orthogonal test planes to find the maximum emission.

Dend	Bandwidth (MHz) Modulation		RB #	Test Channel
Band	eg. 5M, 10M, 15M, 20M	eg. QPSK, 16QAM, 256QAM,	1RB, Partial RB, Full RB	L/M/H
LTE Band 42	5M, 10M, 15M, 20M	QPSK, 16QAM, 64QAM, 256QAM,	1RB, Partial RB, Full RB	L, M, H
LTE Band 42	20M	QPSK, 16QAM, 64QAM, 256QAM,	Full RB	М
LTE Band 42	5M, 10M, 15M, 20M	QPSK, 16QAM, 64QAM, 256QAM	1RB	L, M, H
LTE Band 42	20M	QPSK, 16QAM	Full RB	М
LTE Band 42	5M, 10M, 15M, 20M	QPSK, 16QAM, 64QAM, 256QAM,	1RB, Full RB	L, H
LTE Band 42	5M, 10M, 15M, 20M	QPSK	1RB	L, M, H
LTE Band 42	10M	QPSK	Full RB	М
LTE Band 42	Worst case from maximum power			М
	LTE Band 42 LTE Band 42 LTE Band 42 LTE Band 42 LTE Band 42 LTE Band 42	Band eg. 5M, 10M, 15M, 20M LTE Band 42 5M, 10M, 15M, 20M LTE Band 42 20M LTE Band 42 5M, 10M, 15M, 20M LTE Band 42 10M	Band eg. 5M, 10M, 15M, 20M eg. QPSK, 16QAM, 256QAM, LTE Band 42 5M, 10M, 15M, 20M QPSK, 16QAM, 64QAM, 256QAM, LTE Band 42 20M QPSK, 16QAM, 64QAM, 256QAM, LTE Band 42 20M QPSK, 16QAM, 64QAM, 256QAM, LTE Band 42 5M, 10M, 15M, 20M QPSK, 16QAM, 64QAM, 256QAM, LTE Band 42 5M, 10M, 15M, 20M QPSK, 16QAM, 64QAM, 256QAM, LTE Band 42 5M, 10M, 15M, 20M QPSK, 16QAM, 64QAM, 256QAM, LTE Band 42 5M, 10M, 15M, 20M QPSK, 16QAM, 64QAM, 256QAM, LTE Band 42 5M, 10M, 15M, 20M QPSK, 16QAM, 64QAM, 256QAM, LTE Band 42 5M, 10M, 15M, 20M QPSK, 16QAM, 64QAM, 256QAM, LTE Band 42 5M, 10M, 15M, 20M QPSK LTE Band 42 5M, 10M, 15M, 20M QPSK LTE Band 42 10M QPSK	Band IRB. Partial RB, Full RB eg. 5M, 10M, 15M, 20M eg. QPSK, 16QAM, 256QAM, 1RB, Partial RB, Full RB LTE Band 42 5M, 10M, 15M, 20M QPSK, 16QAM, 64QAM, 256QAM, 1RB, Partial RB, Full RB LTE Band 42 20M QPSK, 16QAM, 64QAM, 256QAM, Full RB LTE Band 42 5M, 10M, 15M, 20M QPSK, 16QAM, 64QAM, 256QAM, Full RB LTE Band 42 5M, 10M, 15M, 20M QPSK, 16QAM, 64QAM, 256QAM, 1RB LTE Band 42 5M, 10M, 15M, 20M QPSK, 16QAM, 64QAM, 256QAM, 1RB LTE Band 42 5M, 10M, 15M, 20M QPSK, 16QAM, 64QAM, 256QAM, 1RB, Full RB LTE Band 42 5M, 10M, 15M, 20M QPSK, 16QAM, 64QAM, 256QAM, 1RB, Full RB LTE Band 42 5M, 10M, 15M, 20M QPSK, 16QAM, 64QAM, 256QAM, 1RB, Full RB LTE Band 42 5M, 10M, 15M, 20M QPSK 1RB LTE Band 42 10M QPSK Full RB

Note: The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.



2.2 Connection Diagram of Test System



2.3 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	Base Station	Anritsu	MT8821C	N/A	N/A	Unshielded, 1.8 m
2.	Power Supply	GWINSTEK	PSS-2002	N/A	N/A	Unshielded, 1.8 m



2.4 Measurement Results Explanation Example

For all conducted test items:

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

The spectrum analyzer offset is derived from RF cable loss.

Offset = RF cable loss.

Following shows an offset computation example with cable loss 9.02 dB.

Example :

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

= 9.02 (dB)

2.5 Frequency List of Low/Middle/High Channels

LTE Band 42 Channel and Frequency List								
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest				
20	Channel	42190	42590	42990				
20	Frequency	3460	3500	3540				
45	Channel	42165	42590	43015				
15	Frequency	3457.5	3500	3542.5				
10	Channel	42140	42590	43040				
	Frequency	3455	3500	3545				
5	Channel	42115	42590	43065				
5	Frequency	3452.5	3500	3547.5				



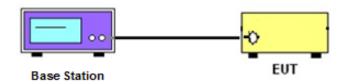
3 Conducted Test Items

3.1 Measuring Instruments

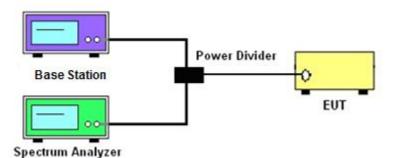
See list of measuring instruments of this test report.

3.2 Test Setup

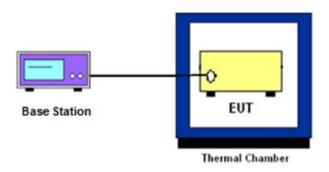
3.2.1 Conducted Output Power



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 Limit

§ 27.50 (k)(3)

Mobile devices are limited to 1Watt (30 dBm) EIRP. Mobile devices operating in these bands must employ a means for limiting power to the minimum necessary for successful communications

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.
- 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.
- 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 (n)(2)

For mobile operations in the 3450-3550 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz.

Compliance with this paragraph is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed, but limited to a maximum of 200 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 kHz.

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 but limited to a maximum of 200 kHz in the 1MHz band immediately outside and adjacent to the band edge.
- 5. Beyond the 1 MHz and 5 MHz removed from the band edge, set RBW \geq 500KHz.
- 6. Beyond the 5 MHz removed from the band edge, set RBW = 1MHz.
- 7. Set spectrum analyzer with RMS detector.
- 8. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
- 9. Checked that all the results comply with the emission limit line.



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 shall not exceed -13 dBm/MHz.

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.
- 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. Checked that all the results comply with the emission limit line.



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.

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.



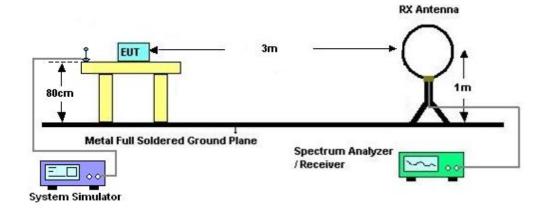
4 Radiated Test Items

4.1 Measuring Instruments

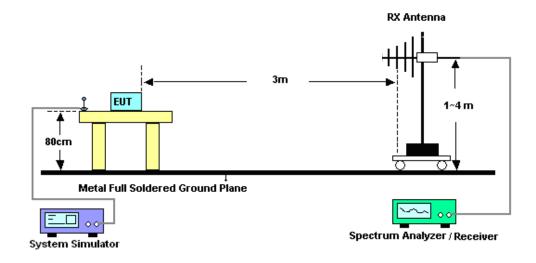
See list of measuring instruments of this test report.

4.2 Test Setup

4.2.1 For radiated test below 30MHz

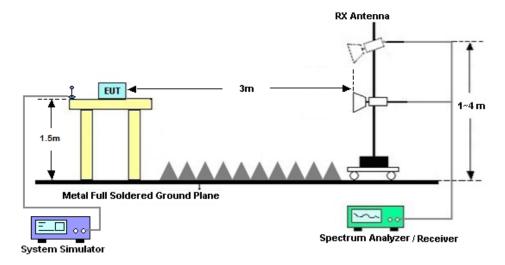


4.2.2 For radiated test from 30MHz to 1GHz





4.2.3 For radiated test above 1GHz



4.3 Test Result of Radiated Test

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

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 C63.26.

The power of any emission outside of the authorized operating frequency ranges shall not exceed -13 dBm/MHz.

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.



5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Nov. 01, 2020	Sep. 08, 2021~ Sep. 16, 2021	Oct. 31, 2021	Conducted (TH01-KS)
Power divider	STI	STI08-0055	-	0.5~40GHz	Aug. 26, 2021	Sep. 08, 2021~ Sep. 16, 2021	Aug. 25, 2022	Conducted (TH01-KS)
Temperature & humidity chamber	Hongzhan	LP-150U	H2014011440	-40~+150°C 20%~95%RH	Jul. 12, 2021	Sep. 08, 2021~ Sep. 16, 2021	Jul. 11, 2022	Conducted (TH01-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150244	10Hz-44G,MAX 30dB	Apr. 13, 2021	Sep. 15, 2021	Apr. 12, 2022	Radiation (03CH04-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Nov. 01, 2020	Sep. 15, 2021	Oct. 31, 2021	Radiation (03CH04-KS)
Bilog Antenna	TeseQ	CBL6111D	49922	30MHz-1GHz	Jun. 07, 2021	Sep. 15, 2021	Jun. 06, 2022	Radiation (03CH04-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75957	1GHz~18GHz	Nov. 01, 2020	Sep. 15, 2021	Oct. 31, 2021	Radiation (03CH04-KS)
SHF-EHF Horn	Com-power	AH-840	101115	18GHz~40GHz	Jan. 06, 2021	Sep. 15, 2021	Jan. 05, 2022	Radiation (03CH04-KS)
Amplifier	SONOMA	310N	187289	9KHz-1GHz	Jan. 06, 2021	Sep. 15, 2021	Jan. 05, 2022	Radiation (03CH04-KS)
Amplifier	MITEQ	EM18G40G GA	060728	18~40GHz	Jan. 07, 2021	Sep. 15, 2021	Jan. 06, 2022	Radiation (03CH04-KS)
high gain Amplifier	MITEQ	AMF-7D-00 101800-30-1 0P	2025788	1Ghz-18Ghz	Jan. 06, 2021	Sep. 15, 2021	Jan. 05, 2022	Radiation (03CH04-KS)
Amplifier	Keysight	83017A	MY57280106	500MHz~26.5GHz	Oct. 14, 2020	Sep. 15, 2021	Oct. 13, 2021	Radiation (03CH04-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Sep. 15, 2021	NCR	Radiation (03CH04-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Sep. 15, 2021	NCR	Radiation (03CH04-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Sep. 15, 2021	NCR	Radiation (03CH04-KS)

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 = $2Uc(y)$)	3.3dB
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Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.8dB
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Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence	2.8dB
of 95% (U = 2Uc(y))	2.000

----- THE END ------



Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power) and EIRP

LTE Band 42:

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	EIRP(W)		
	Cha	nnel		43190	43340	43490			
	Frequen	cy (MHz)		3560	3575	3590	L	М	н
20	QPSK	1	0	23.64	23.82	23.69	0.0518	0.0540	0.0524
20	QPSK	1	99	23.81	23.78	23.76	0.0538	0.0535	0.0532
20	QPSK	100	0	22.97	23.03	23.02	0.0444	0.0450	0.0449
20	16QAM	1	0	22.89	22.95	22.88	0.0436	0.0442	0.0435
20	64QAM	1	0	21.48	21.55	21.48	0.0315	0.0320	0.0315
20	256QAM	1	0	19.21	19.21	19.17	0.0187	0.0187	0.0185
	Cha	nnel		43165	43340	43515	EIRP(W)		
	Frequen	cy (MHz)		3557.5	3575	3592.5	L	М	н
15	QPSK	1	0	23.81	23.81	23.76	0.0538	0.0538	0.0532
15	16QAM	1	0	22.89	22.95	22.82	0.0436	0.0442	0.0429
	Cha	nnel		43140	43340	43540	EIRP(W)		
	Frequen	cy (MHz)		3555	3575	3595	L	М	Н
10	QPSK	1	0	23.77	23.78	23.70	0.0533	0.0535	0.0525
10	16QAM	1	0	22.75	22.89	22.84	0.0422	0.0436	0.0431
	Channel				43340	43565	EIRP(W)		
	Frequen	cy (MHz)		3552.5	3575	3597.5	L	М	н
5	QPSK	1	0	23.74	23.78	23.71	0.0530	0.0535	0.0526
5	16QAM	1	0	22.83	22.92	22.83	0.0430	0.0439	0.0430

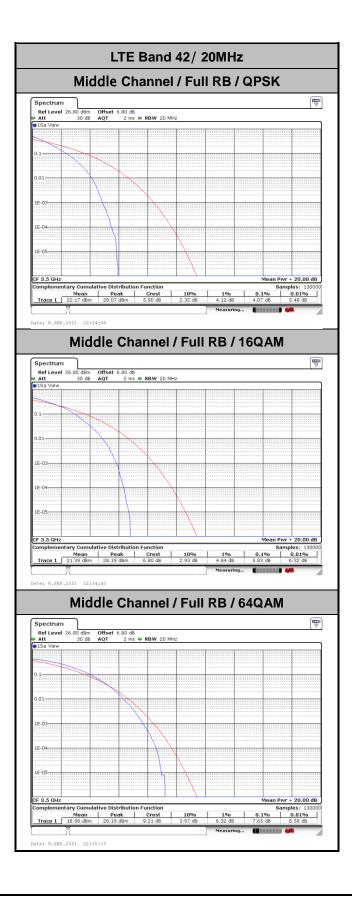


LTE Band 42

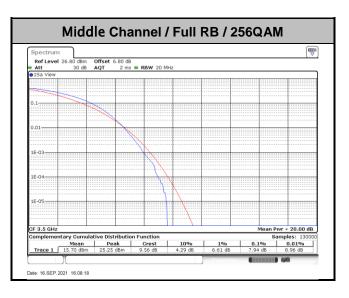
Peak-to-Average Ratio

Mode					
Mod.	QPSK	16QAM	64QAM	256QAM	Limit: 13dB
RB Size	Full RB	Full RB	Full RB	Full RB	Result
Middle CH	4.87	5.83	7.65	7.94	PASS











26dB Bandwidth

Mode	LTE Band 42 : 26dB BW(MHz)					
BW	20MHz					
Mod.	QPSK	16QAM				
Middle CH	19.30	18.78				

Μ	ddle	Channel	/ 20MHz	/ QPSK		Middle Channel / 20MHz / 16QAM				M		
Spectrum Ref Level 26.80 dBn Att 30 dB Count 100/100 12Pk Max 30 dB		0 dB — RBW 300 kH 9 µs — VBW 1 MH				Spectrun Ref Level Att SGL Count	26.80 dBr 30 d	n Offset 6.80 dB ∈ B SWT 18.9 µs ∈				(T
0 dBm		s Sammen M	M1[1] M1[1] Bw O factor	m	15.91 dBm 926470 GHz 26.00 dB 000000 MHz 181.0	20 dBm			~~~~~	M1[1] M1 ndBX O factor	^:	13.66 dB 3.5049150 GH 26.00 d 18.781000000 MH 186.
) dBm	J			+2 +2		0 dBm					72	
90 dBm						-30 dBm -40 dBm -50 dBm	m				m	~~~~~
60 dBm 70 dBm		100			n 40.0 MHz	-60 dBm			1001	nte		Span 40.0 MHz
arker		100	i pis	sha	11 40.0 MH2	Marker	-		1001	pts		span 40.0 MHz
Type Ref Trc M1 1 T1 1 T2 1	X-value 3.492647 3.49033 3.50963	GHz -10.30 d	3m ndB	Function Resu	lt 19.301 MHz 26.00 dB 181.0	Type Re M1 T1 T2 T2	f Trc 1 1 1	X-value 3.504915 GHz 3.490609 GHz 3.509391 GHz	Y-value 13.66 dBn -13.01 dBn -12.61 dBn	n ndB	Functio	n Result 18.781 MHz 26.00 dB 186.6



Occupied Bandwidth

Mode	LTE Band 42 : 99%OBW(MHz)					
BW	20MHz					
Mod.	QPSK	16QAM				
Middle CH	17.90	17.86				

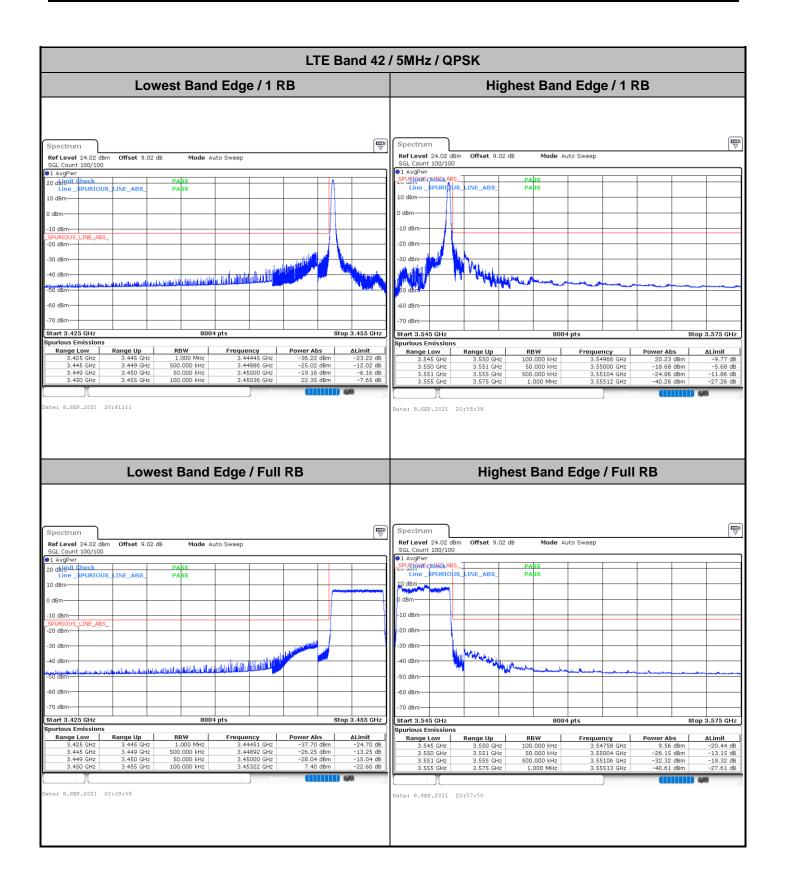
Middle Channel / 20MHz / QPSK	Middle Channel / 20MHz / 16QAM
Spectrum	Spectrum
Ref Level 26.80 dBm Offset 6.80 dB RBW 300 kHz	Ref Level 26.80 dBm Offset 6.80 dB RBW 300 kHz
Att 30 dB SWT 18.9 µs VBW 1 MHz Mode Auto FFT	Att 30 dB SWT 18.9 µs VBW 1 MHz Mode Auto FFT
Count 100/100	Count 100/100
M1[1] 16.	
20 dBm 3.49944	GHz 20 dBm M1 3.5054350 GHz
10 dBm T1 T2 17.9020979	MHz 10 dam
10 dBm	
0 dBm	0 dBm
-10 dBm	-10 dBm-
-20 dBm	-20 dBm
man and a second s	
30,080,	
-40 dBm	-40 dBm
-50 dBm	-50 dBm
-60 dBm-	-60 dBm
00.0011	
-70 dBm	-70 dBm
CF 3.5 GHz 1001 pts Span 40.	
larker	Marker
Type Ref Trc X-value Y-value Function Function Result M1 1 3.499441 GHz 16.18 dBm	Type Ref Trc X-value Y-value Function Function Result M1 1 3.505435 GHz 15.49 dBm 1
T1 1 3.491049 GHz 12.30 dBm Occ Bw 17.90209790	
T2 1 3.508951 GHz 12.83 dBm	T2 1 3.508951 GHz 10.63 dBm
Measuring 🗰 🚧	Measuring



Conducted Band Edge

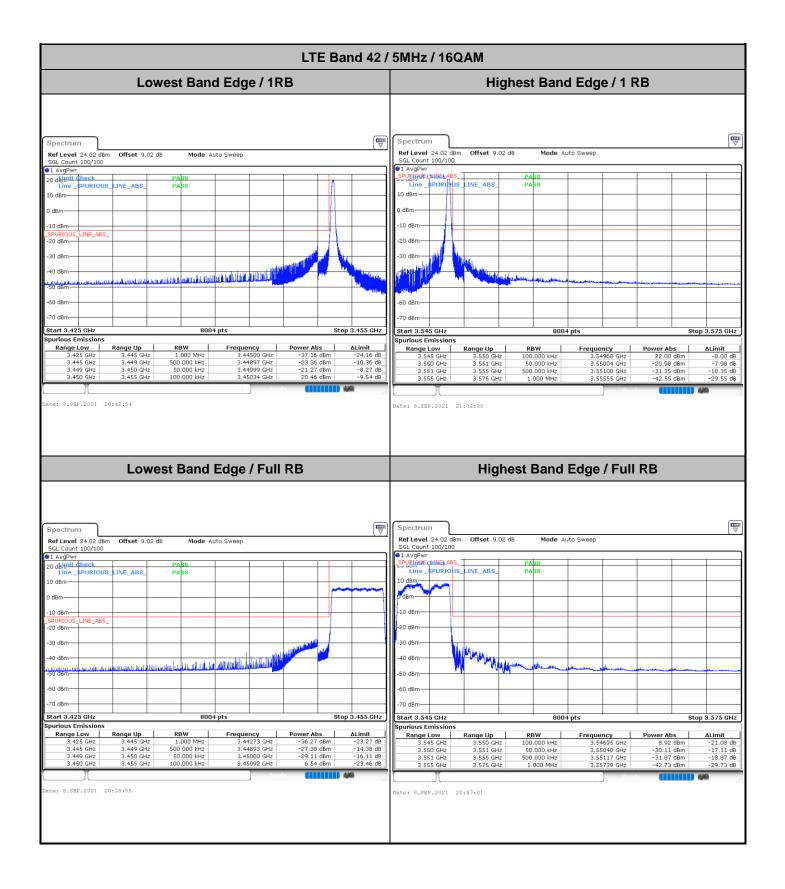






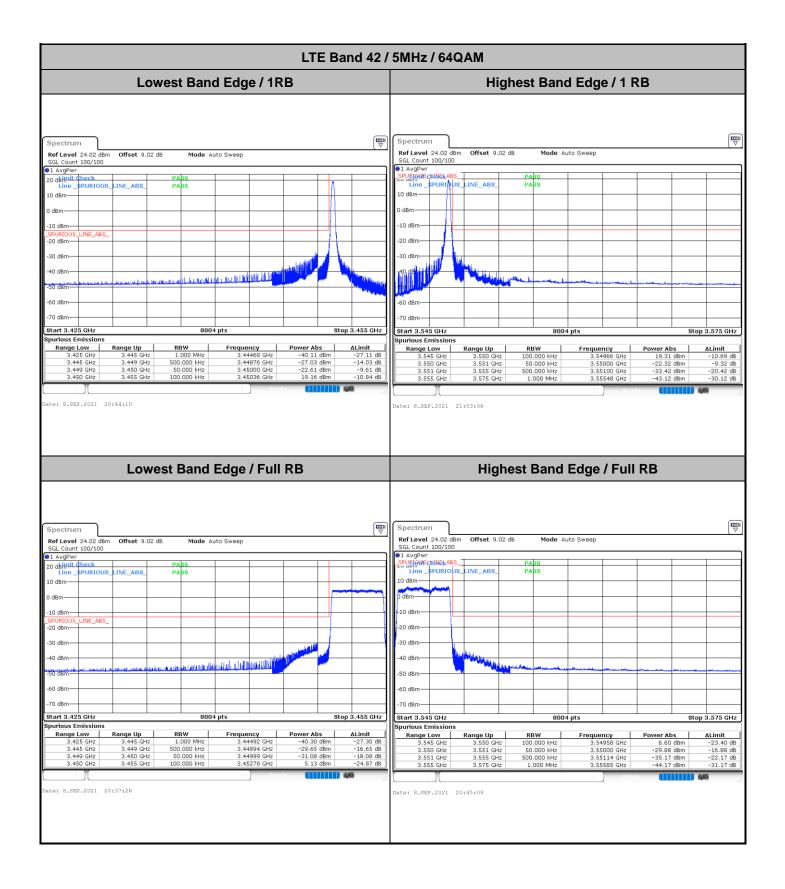




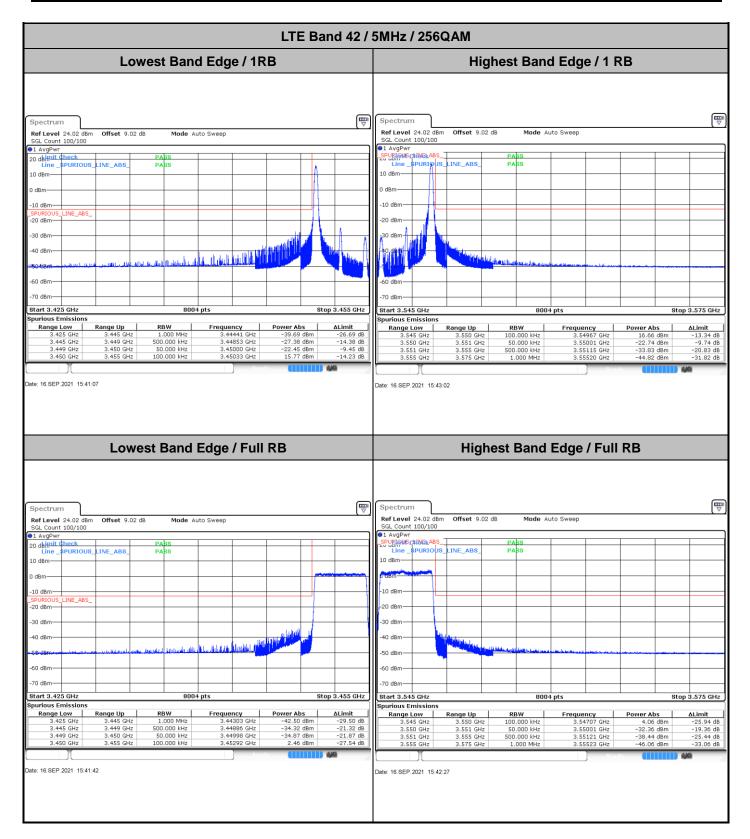




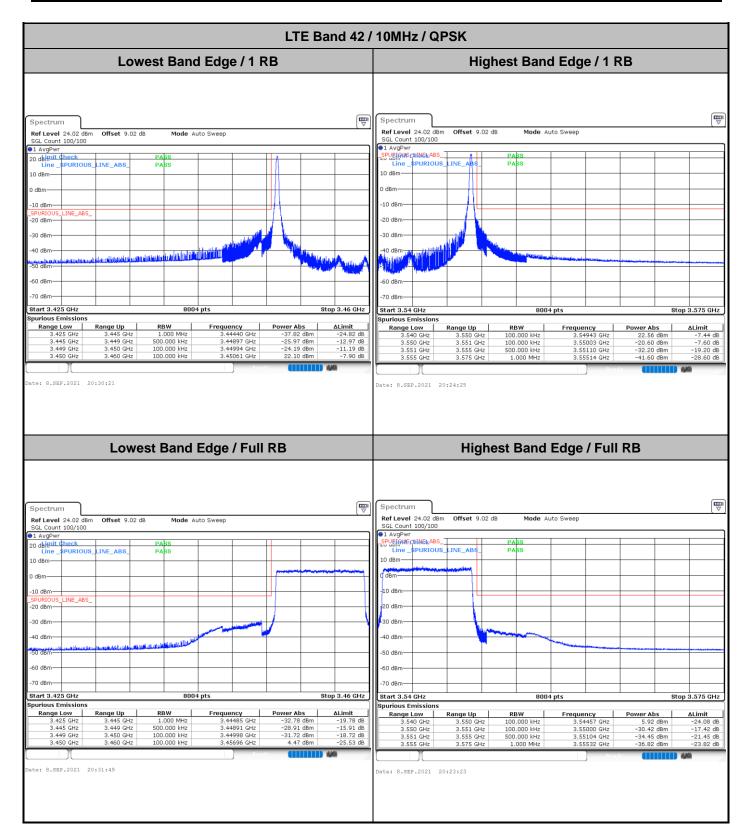






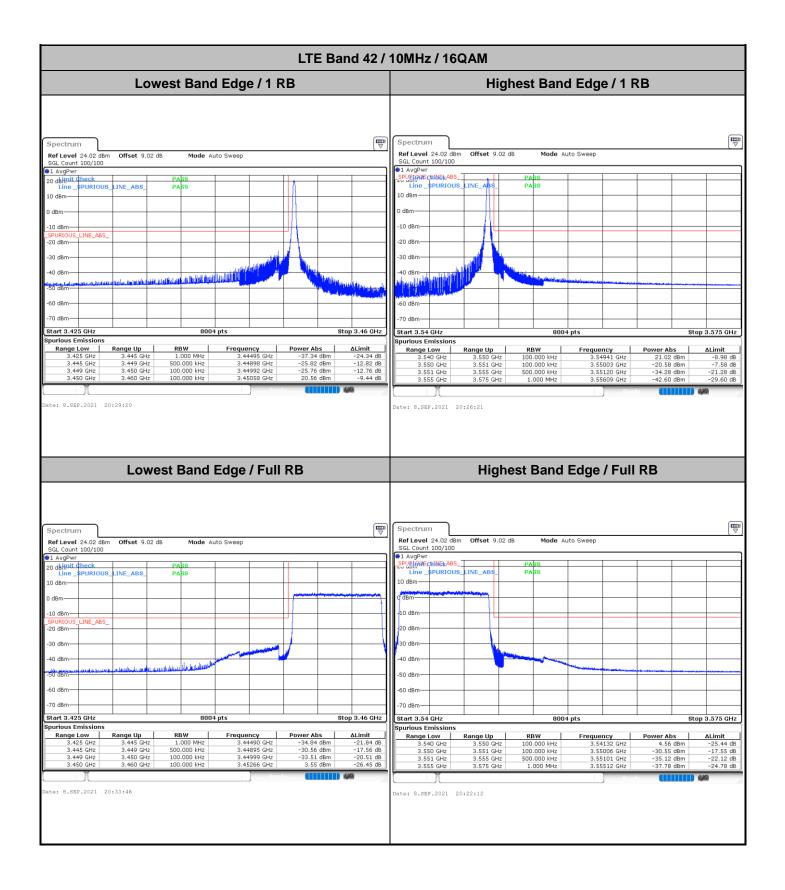






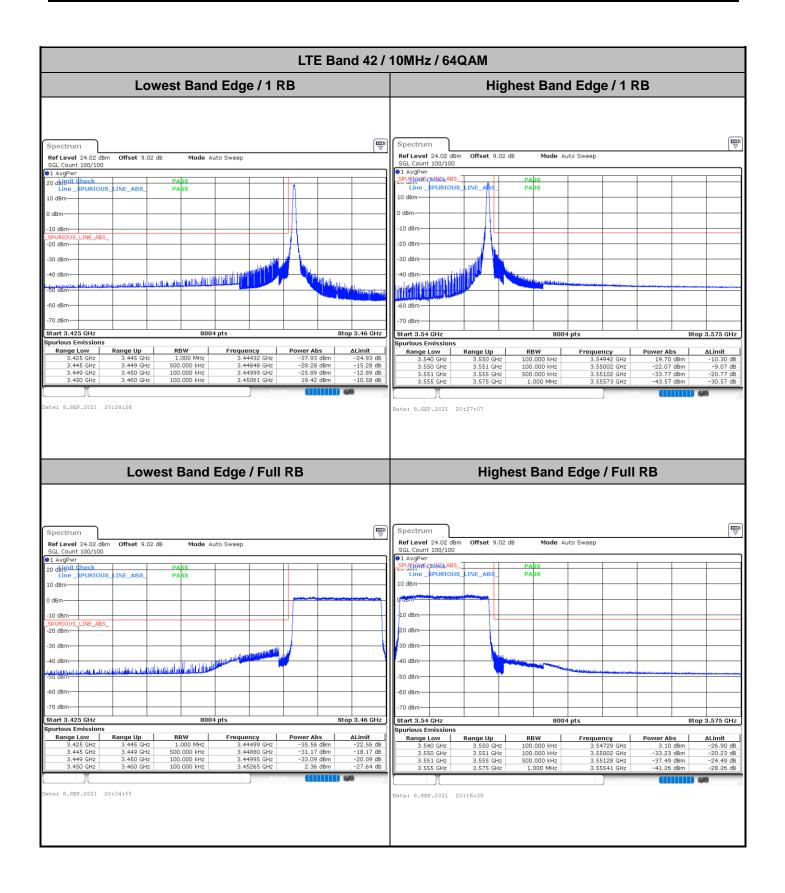




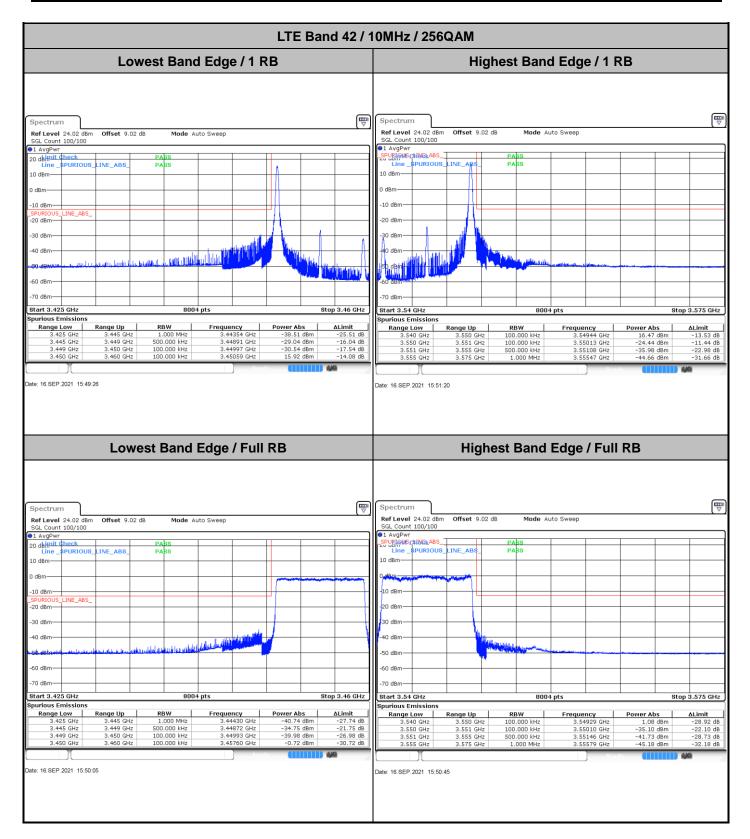




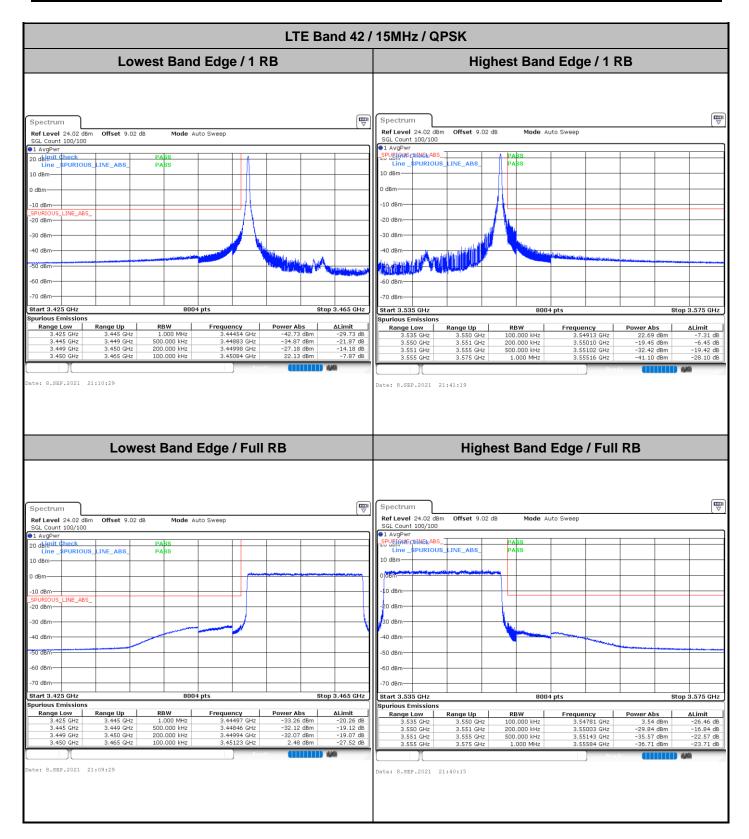






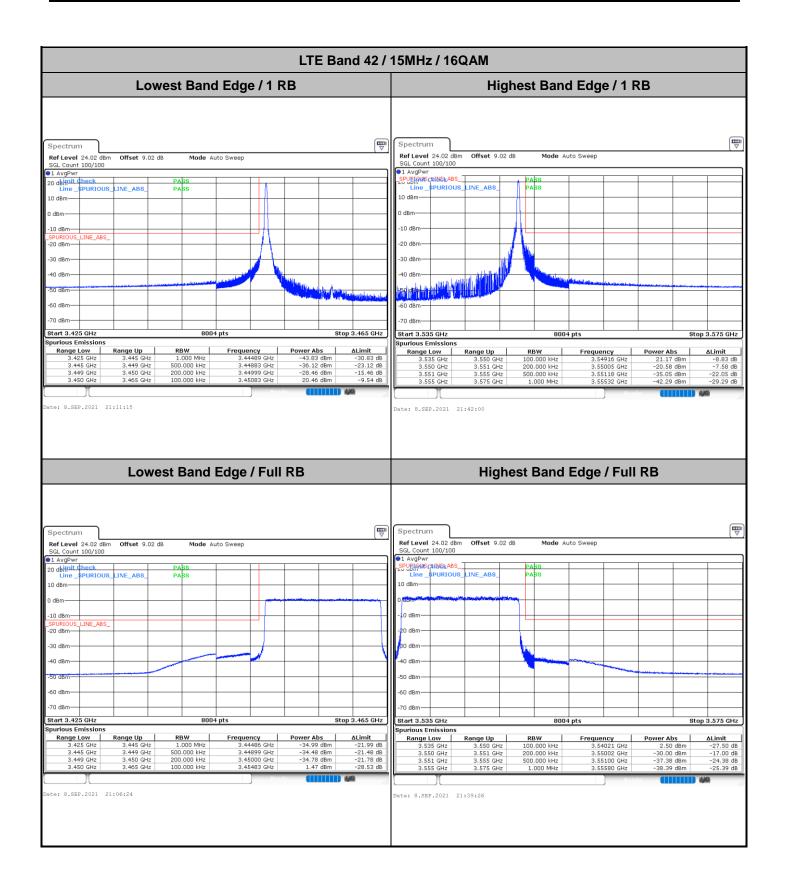






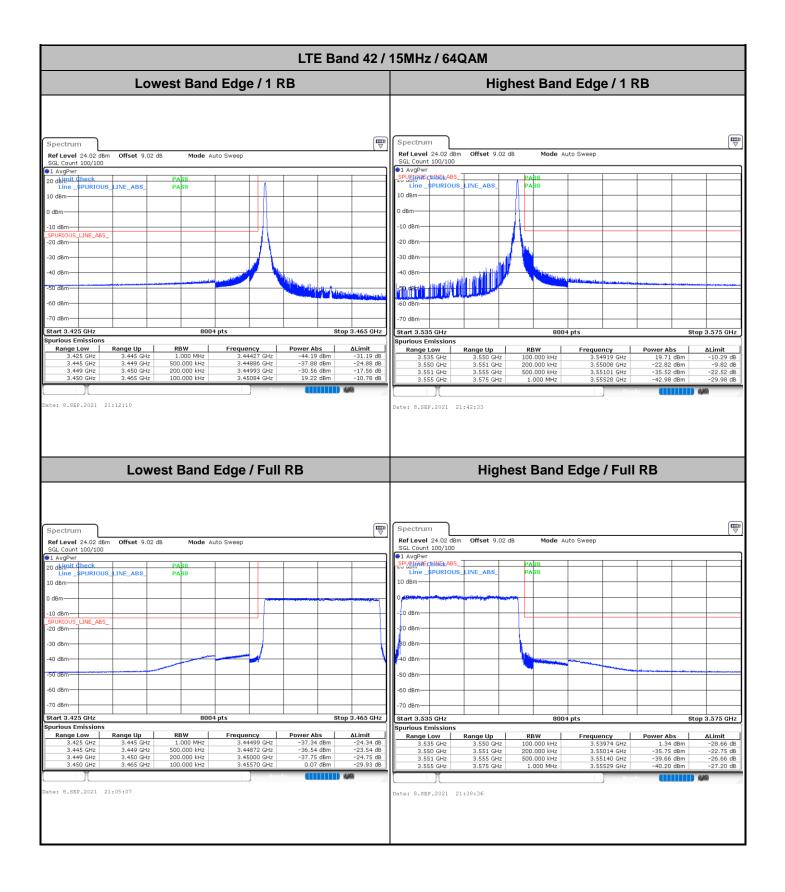




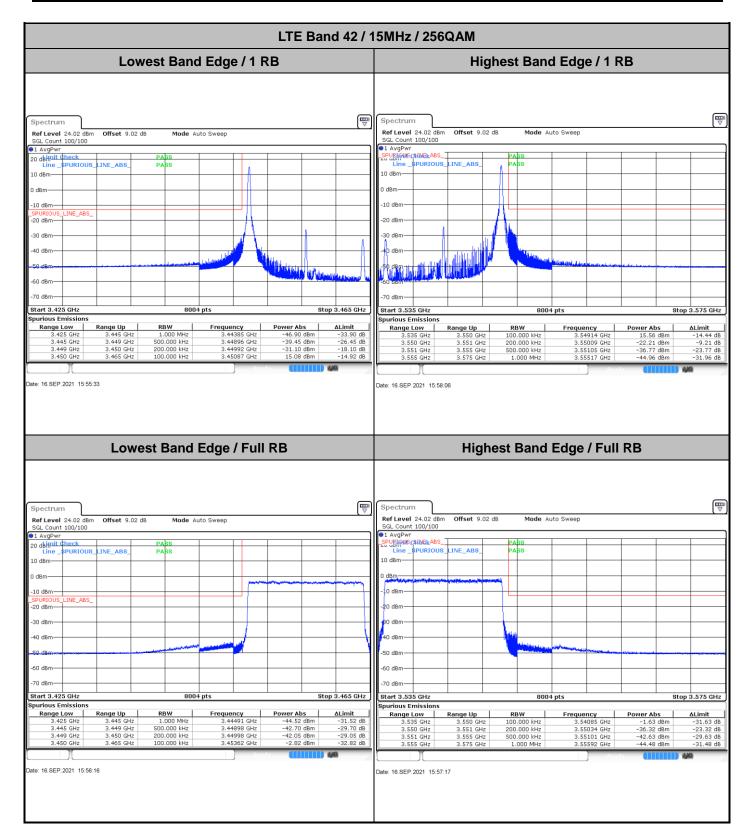




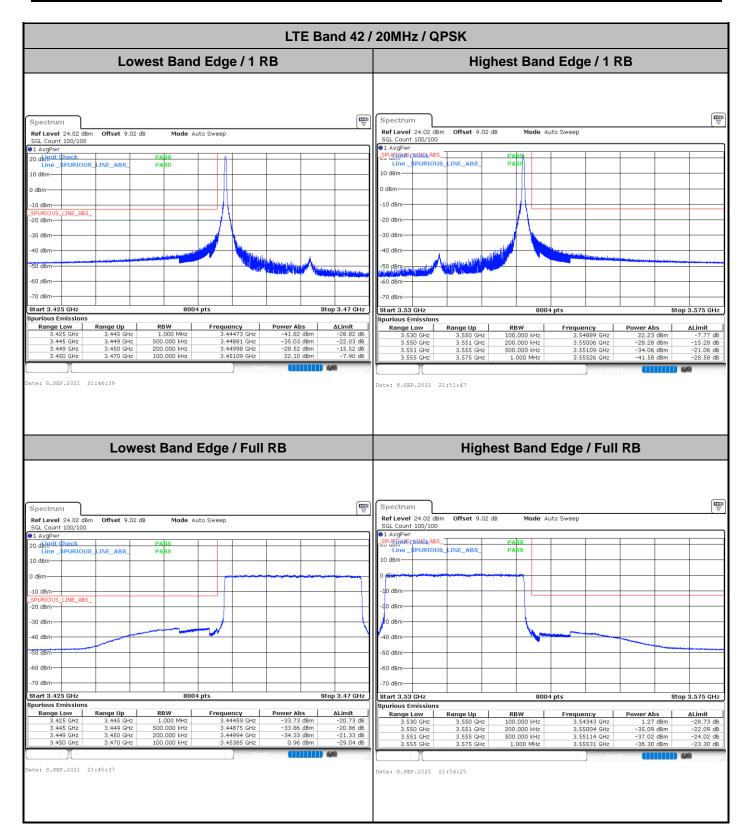






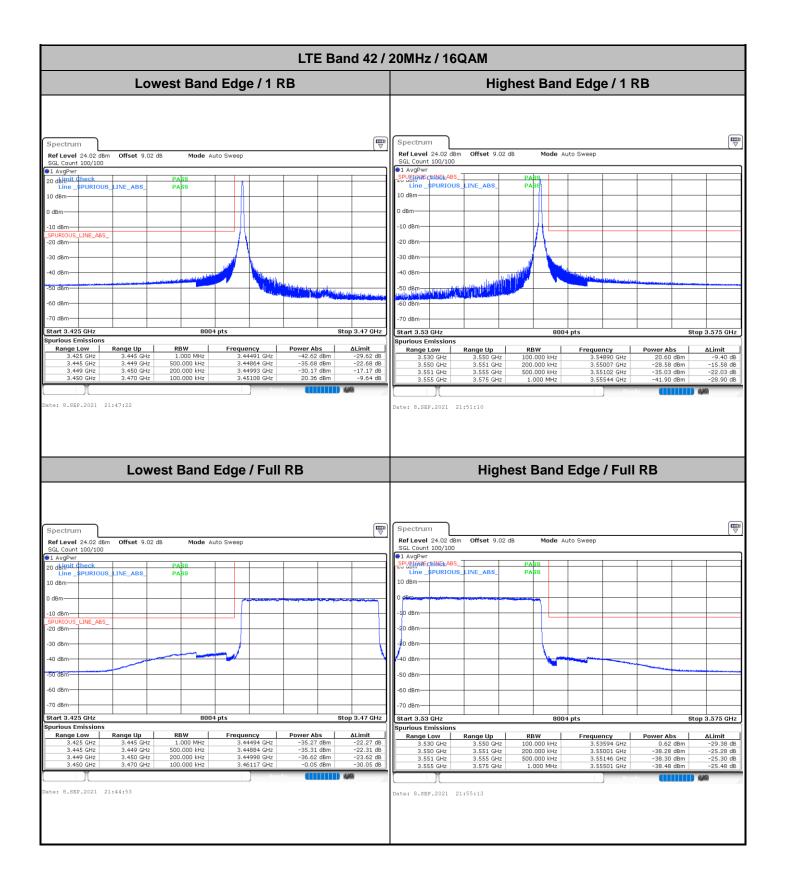






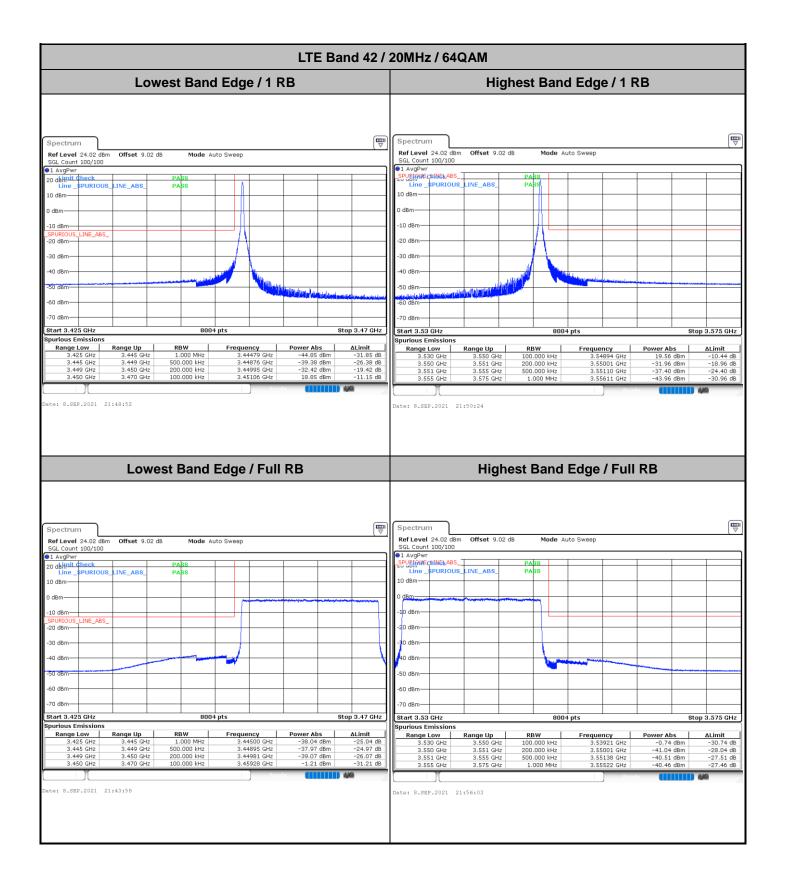




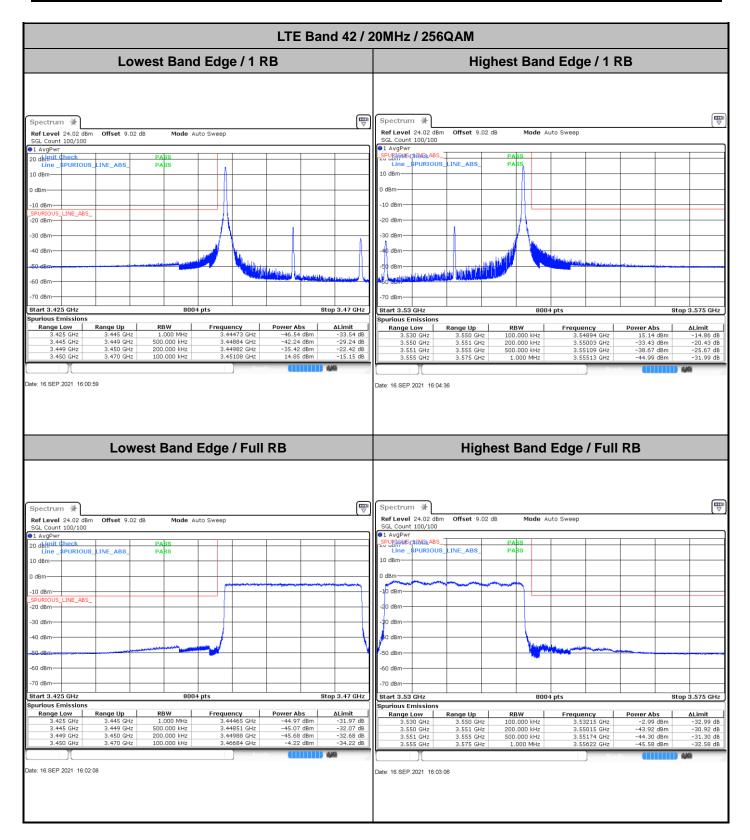














Conducted Spurious Emission



Spectrum Offset 9 Ref Level 0.00 dbm Offset 9 SGL Count 100/100 IAVEMOUS 11 AvgBwr Limit Check U dbm IAVEMOUS 20 dbm IAVE 21 0.000 GH2	PA3S C PA3S C<	Auto Sweep	Cy Power 73 MHz -48 303 GHz -45 60 GHz -45 60 GHz -42 70 GHz -442 79 GHz -42 79 GHz -38	Abs .77 dBm .90 dBm .68 dBm .21 dBm .54 dBm .91 dBm .31 dBm .10 dBm	top 40.0 GHz ALimit -35.77 dB -32.99 dB -31.21 dB -22.91 dB -22.91 dB -22.91 dB -22.91 dB -22.91 dB -22.91 dB -22.91 dB -22.91 dB -21.92 dB	Ref Level 0 SGL Court 11 91 AvgPwr Limit dim 12 dim 92 dim 90 dim 90 dim 90 dim 90 dim 90 dim 90 dim 1.000 2.000 1.000 2.000 1.000 2.000 1.000 2.000 1.000 2.000	00/100 inck unious inch uniou	e Up RB 000 GHz 1.C 000 GHz 1.C 000 GHz 1.C 000 GHz 1.C 000 GHz 1.C	Mode Auto S			(top 40.0 GHz
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	-80 dBm-											
	-90 dBm-	+										
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		Emissions										
	Range	le Low	Range Up		BW	Freque		Power Abs		_imit		
		.000 MHz	1.000 GHz		.000 MHz		834 MHz	-48.80 dB		35.80 dB		
		.000 GHz .575 GHz	3.425 GHz 7.000 GHz		.000 MHz		075 GHz 203 GHz	-46.22 dB -33.30 dB		33.22 dB 20.30 dB		
		.000 GHz	7.000 GHz 10.000 GHz		.000 MHz		203 GHZ	-33.30 dB -44.16 dB		20.30 dB 31.16 dB		
		.000 GHz	14.000 GHz	1	.000 MHz	13.99	975 GHz	-42.54 dB	m -2	29.54 dB		
	7.	.000 GHz	18.000 GHz		.000 MHz		629 GHz	-37.97 dB	m -2	24.97 dB		
	7. 10. 14.		27.000 GHz 40.000 GHz		.000 MHz		275 GHz	-38.44 dB -34.15 dB		25.44 dB 21.15 dB		
	7. 10. 14. 18.	.000 GHz				00.01						

Sporton International (Kunshan) Inc. TEL : +86-512-57900158 FAX : +86-512-57900958 FCC ID : IHDT56AC1



Ref Level 0.00 dbm Offset 9.02 db Mode Auto Sweep SdL Count 100/100 BArgBwr			L	TE Band	42 / 10MHz				
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I AvgPwr PASS PASS 10 dBm	e: 6.58F.2021 22:09:49	Spectrum	Hi	ghest Cha					
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-20 dbm	e: 6.5ar.2021 22:09:49	Ref Level 0.00 dBm SGL Count 100/100 1 AvgPwr Limit ¢heck	Offset 9.02 dB	Mode Au	annel / QPSK				
40 dBm	e: 6.5ar.2021 22:09:49	Ref Level 0.00 dBm SGL Count 100/100 1 AvgPwr Limit Check -10 dBm	Offset 9.02 dB	Mode Au	annel / QPSK				
Botom Image: Construction of the second	e: 6.58F.2021 22:09:49	Ref Level 0.00 dBm SGL Count 100/100 1 AvgPwr Limit check -10 dBmPPURIOUS -20 dBmPPURIOUS_LINE_ABS	Offset 9.02 dB	Mode Au	annel / QPSK				
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Sporton International (Kunshan) Inc. TEL : +86-512-57900158 FAX : +86-512-57900958 FCC ID : IHDT56AC1



			LTE Band	42 / 15MHz				
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