

# TEST REPORT

**Report Number:** 14523778-E16V3

**Applicant :** APPLE, INC  
1 APPLE PARK WAY  
CUPERTINO, CA 95014, U.S.A.

**Model :** A2847

**Brand :** APPLE

**FCC ID :** BCG-E8431A

**EUT Description :** SMARTPHONE

**Test Standard(s) :** FCC 47 CFR Part 2, Part 22, Part 27, and Part 96

**Date Of Issue:**  
2023-08-29

**Prepared by:**  
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Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
V1	2023-08-04	Initial Review	Mengistu Mekuria
V2	2023-08-28	Address TCB Questions sections 1, 2, 4, 6.2, 9.1	Mengistu Mekuria
V3	2023-08-29	Addressed TCB Questions at Section 10	Tewodros Woldemichael

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# 1. ATTESTATION OF TEST RESULTS

Applicant Name and Address	APPLE, INC 1 APPLE PARK WAY CUPERTINO, CA 95014, U.S.A.
Model	A2847
Brand	APPLE
FCC ID	BCG-E8431A
EUT Description	SMARTPHONE
Serial Number	PV2DL69JHL, MN6T009G39, C07GVM000FQ000046Y (CONDUCTED) AND FC2F7V909F, R409717T71 (RADIATED)
Sample Receipt Date	2023-02-05
Date Tested	2023-02-05 to 2023-07-12
Applicable Standards	FCC 47 CFR Part 2, Part 22, Part 27, and Part 96
Test Results	COMPLIES

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document.

Approved & Released By: 	Reviewed By: 	Prepared By: 
Dan Corona Operations Leader UL Verification Services Inc.	Tewodros Woldemichael Laboratory Engineer UL Verification Services Inc.	Matthew Wu Laboratory Engineer UL Verification Services Inc.

## 2. SUMMARY OF TEST RESULTS

This report contains data provided by the customer which can impact the validity of results. UL Verification Services Inc. is only responsible for the validity of results after the integration of the data provided by the customer.

Requirement Description	Band	Requirement Clause Number (FCC)	Result	Remarks
RF Conducted Output Power		2.1046	Complies	
Effective Radiated Power	5	22.913 (a)(5)	Complies	
Equivalent Isotropic Radiated power	7, 41 48	27.50 (h) (2) 96.41 (b)	Complies	
Occupied Bandwidth	5, 7, 41, 48	2.1049	Complies	
Band Edge and Emission Mask	5, 7, 41, 48	2.1051, 22.917 (a), 27.53 (m)(4) &(m)(6), 96.41(e)	Complies	
Out of Band Emissions	5, 7, 41, 48	2.1051, 22.917 (a), 27.53 (m)(4) &(m)(6), 96.41(e)	Complies	
Frequency Stability	5, 7, 41, 48	2.1055, 22.355, 27.54	Complies	
Peak-to-Average Ratio	5, 7, 41, 48	27.50 (d) (5), 96.41 (g)	Complies	
Field Strength of Spurious Radiation	5, 7, 41, 48	2.1053, 22.917 (a), 27.53 (m)(4) &(m)(6), 96.41(e)	Complies	

### 3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with the following:

- ANSI C63.26:2015
- FCC 47 CFR Part 2, Part 22, Part 27 and Part 96
- [FCC KDB 971168 D01 v03r01](#): Power Meas License Digital Systems
- [FCC KDB 971168 D02 v02r02](#): Misc Rev Approv License Devices
- [FCC KDB 412172 D01 v01r01](#): Determining ERP and EIRP

### 4. FACILITIES AND ACCREDITATION

UL Verification Services Inc. is accredited by A2LA, certification #0751.05, for all testing performed within the scope of this report. Testing was performed at the locations noted below.

	Address	ISED CABID	ISED Company Number	FCC Registration
<input checked="" type="checkbox"/>	Building 1: 47173 Benicia Street, Fremont, CA 94538, USA	US0104	2324A	550739
<input type="checkbox"/>	Building 2: 47266 Benicia Street, Fremont, CA 94538, USA			
<input checked="" type="checkbox"/>	Building 3: 843 Auburn Court, Fremont, CA 94538, USA			
<input type="checkbox"/>	Building 4: 47658 Kato Rd, Fremont, CA 94538, USA			
<input checked="" type="checkbox"/>	Building 5: 47670 Kato Rd, Fremont, CA 94538, USA			



## 5. DECISION RULES AND MEASUREMENT UNCERTAINTY

### 5.1. METROLOGICAL TRACEABILITY

All test and measuring equipment utilized to perform the tests documented in this report are calibrated on a regular basis, with a maximum time between calibrations of one year or the manufacturers' recommendation, whichever is less, and where applicable is traceable to recognized national standards.

### 5.2. DECISION RULES

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4:2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

### 5.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	U <sub>Lab</sub>
Conducted Antenna Port Emission Measurement	1.940
Power Spectral Density	2.466
Time Domain Measurements Using SA	3.39
RF Power Measurement Direct Method Using Power Meter	0.450 Peak; 1.300 Ave.
Radio Frequency (Spectrum Analyzer)	141.16 Hz
Occupied Bandwidth	1.22%
Worst Case Conducted Disturbance, 9KHz to 0.15 MHz	3.78 db
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.40 db
Worst Case Radiated Disturbance, 9KHz to 30 MHz	2.87 db
Worst Case Radiated Disturbance, 30 to 1000 MHz	6.01 db
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.73 db
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.51 db
Worst Case Radiated Disturbance, 26000 to 40000 MHz	5.29 db

Uncertainty figures are valid to a confidence level of 95%.

### 5.4. SAMPLE CALCULATION

#### RADIATED EMISSIONS

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)  
36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

## 6. EQUIPMENT UNDER TEST

### 6.1. DESCRIPTION OF EUT

The Apple iPhone is a smartphone with cellular GSM, GPRS, EGPRS, UMTS, LTE, 5G NR1, 5G NR2, IEEE 802.11a/b/g/n/ac/ax, Bluetooth (BT), Ultra-Wideband (UWB), GPS, NFC, 802.15.4ab-NB and MSS technologies. The rechargeable battery is not user accessible.

Testing was performed on the parent model and is used to support the application for the parent and variants identified in this report based on the test plan submitted and approved via KDB inquiry by the FCC and by ISED-Canada.

### 6.2. MAXIMUM OUTPUT POWER

#### ERP/EIRP TEST PROCEDURE

ANSI C63.26:2015  
KDB 971168 D01 Section 5.6

$ERP/EIRP = P_{Meas} + GT - LC$

where: ERP/EIRP = effective or equivalent radiated power, respectively (expressed in the same units as  $P_{Meas}$ , typically dBW or dBm);

$P_{Meas}$  = measured transmitter output power or PSD, in dBm or dBW;

GT = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);

LC = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

For devices utilizing multiple antennas, KDB 662911 provides guidance for determining the effective array transmit antenna gain term to be used in the above equation.

EUT includes different power levels for head use configuration and body use configuration and the below tables contain the highest of all configurations average conducted and ERP/EIRP output powers as follows:

**OUTPUT POWER FOR LTE BAND 5**

Part 22H								
ERP Limit (W)		7.00						
Antenna Gain (dBi)_(Ant1)		-4.80						
Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	ERP Average (dBm)	ERP Average (W)	99% BW (kHz)	Emission Designator
3+5	QPSK	825.5	846.5	25.70	18.75	0.075	7469	7M47G7W
	16QAM			25.70	18.75	0.075	7470	7M47D7W
5+3	QPSK	826.5	847.5	25.70	18.75	0.075	7476	7M48G7W
	16QAM			25.70	18.75	0.075	7481	7M48D7W
5+10	QPSK	826.5	844.0	25.70	18.75	0.075	13865	13M9G7W
	16QAM			24.70	17.75	0.060	13882	13M9D7W
10+5	QPSK	829.0	846.5	25.70	18.75	0.075	13865	13M9G7W
	16QAM			24.70	17.75	0.060	13883	13M9D7W
10+10	QPSK	829.0	844.0	25.70	18.75	0.075	18759	18M8G7W
	16QAM			24.70	17.75	0.060	18719	18M7D7W

**OUTPUT POWER FOR LTE BAND 7**

Part 27								
EIRP Limit (W)		2.00						
Antenna Gain (dBi)_(Ant3)		0.90						
Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (kHz)	Emission Designator
10+20	QPSK	2505.5	2560.0	25.00	25.90	0.389	28137	28M1G7W
	16QAM			24.00	24.90	0.309	28081	28M1D7W
20+10	QPSK	2510.0	2564.5	25.00	25.90	0.389	28127	28M1G7W
	16QAM			24.00	24.90	0.309	28125	28M1D7W
15+15	QPSK	2507.5	2562.5	25.00	25.90	0.389	28683	28M7G7W
	16QAM			24.00	24.90	0.309	28655	28M7D7W
15+20	QPSK	2507.8	2560.0	25.00	25.90	0.389	32977	33M0G7W
	16QAM			24.00	24.90	0.309	32893	32M9D7W
20+15	QPSK	2510.0	2562.2	25.00	25.90	0.389	32947	32M9G7W
	16QAM			24.00	24.90	0.309	32938	32M9D7W
20+20	QPSK	2510.0	2560.0	25.00	25.90	0.389	37839	37M8G7W
	16QAM			24.00	24.90	0.309	37778	37M8D7W

**OUTPUT POWER FOR LTE BAND 41**

Part 27								
EIRP Limit (W)		2.00						
Antenna Gain (dBi) (Ant3)		-0.10						
Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (kHz)	Emission Designator
5+20	QPSK	2499.3	2680.0	28.00	27.90	0.617	23322	23M3G7W
	16QAM			26.50	26.40	0.437	23335	23M3D7W
20+5	QPSK	2506.0	2686.7	28.00	27.90	0.617	23257	23M3G7W
	16QAM			26.50	26.40	0.437	23221	23M2D7W
10+20	QPSK	2501.5	2680.0	28.00	27.90	0.617	28085	28M1G7W
	16QAM			26.50	26.40	0.437	28004	28M0D7W
20+10	QPSK	2506.0	2684.5	28.00	27.90	0.617	28028	28M0G7W
	16QAM			27.25	27.15	0.519	28011	28M0D7W
15+15	QPSK	2503.5	2682.5	28.00	27.90	0.617	28680	28M7G7W
	16QAM			26.50	26.40	0.437	28622	28M6D7W
15+20	QPSK	2503.8	2680.0	28.00	27.90	0.617	32858	32M9G7W
	16QAM			26.50	26.40	0.437	32876	32M9D7W
20+15	QPSK	2506.0	2682.2	28.00	27.90	0.617	32810	32M8G7W
	16QAM			26.50	26.40	0.437	32882	32M9D7W
20+20	QPSK	2506.0	2680.0	28.00	27.90	0.617	37621	37M6G7W
	16QAM			26.50	26.40	0.437	37761	37M8D7W

**OUTPUT POWER FOR LTE BAND 48**

Part 96								
EIRP Limit (W) 10MHz		0.20						
Antenna Gain (dBi) (Ant9)		1.40						
Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (kHz)	Emission Designator
5+20	QPSK	3553.3	3690.0	21.10	22.50	0.178	23335	23M3G7W
	16QAM			21.10	22.50	0.178	23219	23M2D7W
20+5	QPSK	3560.0	3696.7	21.10	22.50	0.178	23304	23M3G7W
	16QAM			21.10	22.50	0.178	23272	23M3D7W
10+20	QPSK	3555.5	3690.0	21.10	22.50	0.178	28040	28M0G7W
	16QAM			21.10	22.50	0.178	28098	28M1D7W
20+10	QPSK	3560.0	3694.5	21.10	22.50	0.178	28133	28M1G7W
	16QAM			21.10	22.50	0.178	28054	28M1D7W
15+20	QPSK	3557.8	3690.0	21.10	22.50	0.178	32830	32M8G7W
	16QAM			21.10	22.50	0.178	32919	32M9D7W
20+15	QPSK	3560.0	3692.2	21.10	22.50	0.178	33023	33M0G7W
	16QAM			21.10	22.50	0.178	32751	32M8D7W
20+20	QPSK	3560.0	3690.0	21.10	22.50	0.178	37689	37M7G7W
	16QAM			21.10	22.50	0.178	37668	37M7D7W

### 6.3. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was version: 0.13.02.

### 6.4. MAXIMUM ANTENNA GAIN

The antenna(s) gain(s) and type, as provided by the manufacturer' are as follows:

LTE and 5G NR Bands	Frequency Range (MHz)	ANT 1 Antenna Gain (dBi)	ANT 2 Antenna Gain (dBi)	ANT 3 Antenna Gain (dBi)	ANT 4 Antenna Gain (dBi)	ANT 7 Antenna Gain (dBi)	ANT 8 Antenna Gain (dBi)	ANT 9 Antenna Gain (dBi)
LTE Band 5, 5G NR n5	824 – 849	-4.8	-5.9	-7.1				
LTE Band 7, 5G NR n7	2500 – 2570	-0.8	-3.2	0.9	-1.2			
LTE Band 41, 5G NR n41	2496 – 2690	-1.8	-3.3	-0.1	-1.6			
LTE Band 48, 5G NR n48	3550 – 3700				-2.8	-1.6	-6.0	1.4

## 6.5. WORST-CASE CONFIGURATION AND MODE

The EUT supports LTE dual carrier Bands of: Band 5, Band 7, Band 41, and Band 48.

The worst-case scenario for all measurements is based on the average conducted output power measurement investigation results. Output power measurements were measured on QPSK, 16QAM and 64QAM modulations. It was found that QPSK and 16QAM results were worst case. All testing was performed using QPSK and 16QAM modulations to represent the worst case. For testing purposes emissions on sections 8 and 9 were measured while QPSK was set at or above target power for all bands. Conducted tests were performed on the worst-case antenna port because it has the highest conducted power. The worst-case antenna port is shown in the table below.

LTE Bands	Worst case Antenna Port for Conducted Power
LTE BAND 5, 7, and 41	Ant 1
LTE BAND 48	Ant 7

For Band Edge and Emission Mask: The highest BW combo and sample lower BW combinations were tested. Combination pairs of the same BW are considered generally equivalent. The RB combinations were selected such that the signal is active closest to the band limit, as this is the worst case.

For Out of Band Emissions: The highest combination and a sample lower combination was tested. The highest power RB combination was selected as worst case.

The EUT was investigated in three orthogonal orientations X/Y/Z on all ANT 1, ANT2, ANT3, ANT4, ANT7, ANT8 and ANT 9 antennas to determine the worst-case orientation. The following table exhibit the worst-case orientation for different frequency bands. The full tests of the EUT have made upon the orientations that shown in the table below.

Frequency Bands	ANT1	ANT2	ANT3	ANT4	ANT7	ANT8	ANT9
663 – 849 MHz	Z	Z	N/A	N/A	N/A	N/A	N/A
2300 – 2700 MHz	X	X	Y	Y	N/A	N/A	N/A
3300 – 3980 MHz	N/A	N/A	N/A	Y	Y	X	X

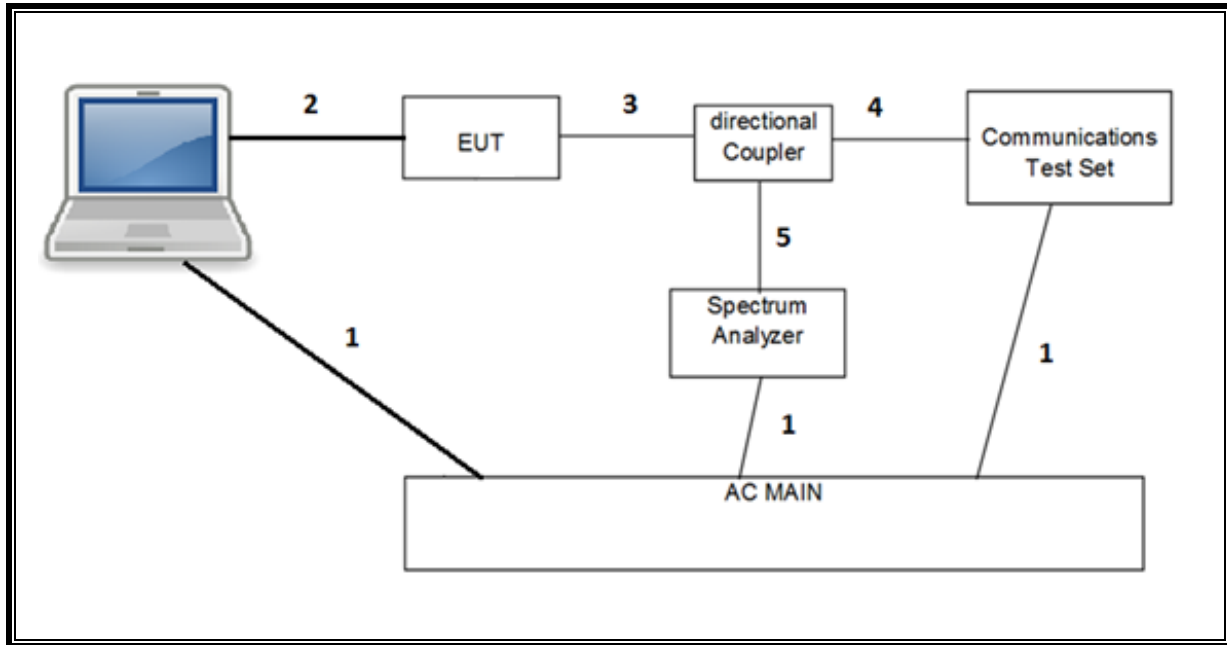
Radiated spurious emissions were investigated from 9kHz to 30MHz, 30MHz-1GHz and above 1GHz. There were no emissions found with less than 20dB of margin from 9kHz to 1GHz.

For interband transmission of multiple channels in Ant 1 and Ant 2 in Cellular bands, tests were conducted for various configurations having the highest power, least separation in frequencies and widest operation bandwidths. No noticeable new emission was found.

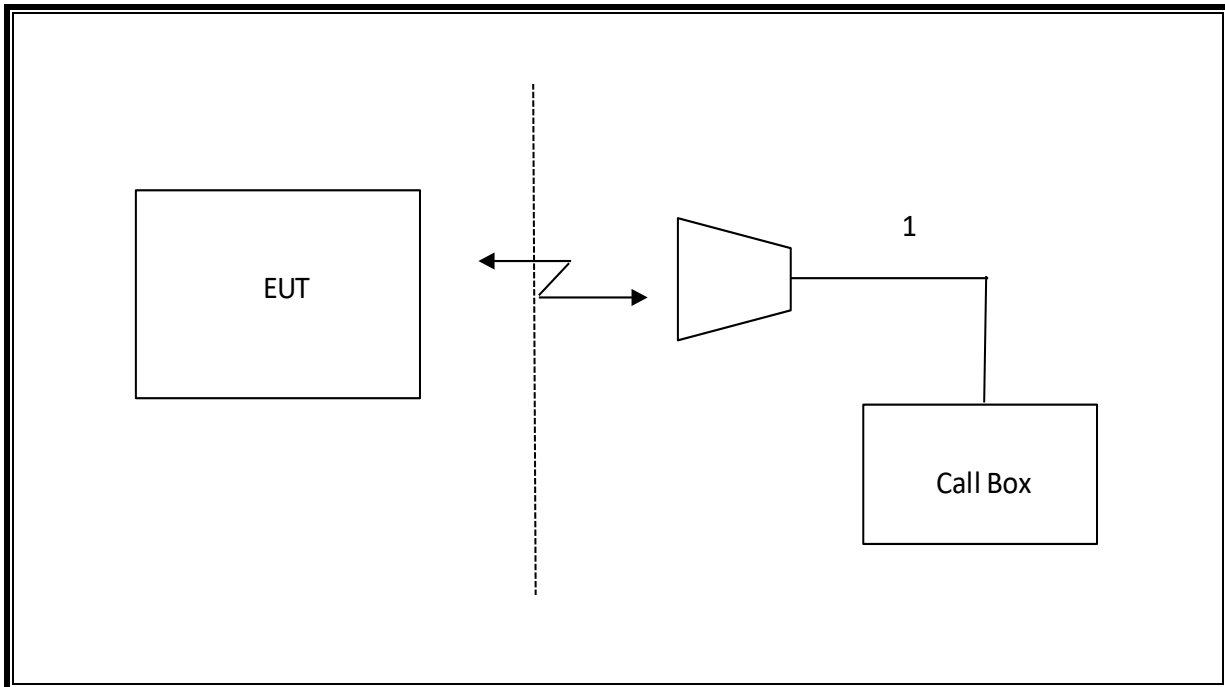
## 6.6. DESCRIPTION OF TEST SETUP

SUPPORT TEST EQUIPMENT						
Description	Manufacturer	Model	Serial Number	FCC ID/ DoC		
Laptop	Apple	MacBook Pro	HRP082673	BCGA1708		
AC/DC adapter	Apple	A1718	C4H64450HH3GN8RA6	--		
I/O CABLES (RF CONDUCTED TEST)						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC	3	US 115V	Un-shielded	2.0	N/A
2	USB	1	DC	Un-shielded	1.0	N/A
3	RF In/Out	1	EUT	Un-shielded	0.6	N/A
4	RF In/Out	1	Communication Test Set	Un-shielded	1.2	N/A
5	RF In/Out	1	Barrel	N/A	N/A	N/A
I/O CABLES (RF RADIATED TEST)						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	RF In/Out	1	Antenna	Un-shielded	5.0	N/A

**CONDUCTED SETUP**



**RADIATED SETUP**





## 7. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	Asset	Cal Due
*Antenna, Horn 1-18GHz	ETS Lindgren	3117	79834	06/08/2023
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences	JB3	85151	04/30/2024
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight	N9030A	85313	02/29/2024
Spectrum Analyzer, PXA	Keysight	N9030B	222074	07/16/2023
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight	N9030A	85201	02/29/2024
Spectrum Analyzer, PXA	Keysight	N9030B	85214	07/18/2023
Spectrum Analyzer, PXA	Keysight	N9030B	222073	07/22/2023
PXA Signal Analyzer	Keysight	N9030B	222073	07/22/2023
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	230548	02/29/2024
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	201498	02/29/2024
Directional Coupler	KRYTAR	152610	198816	09/23/2023
Directional Coupler	KRYTAR	152610	198817	09/23/2023
Directional Coupler	KRYTAR	152610	135712	09/23/2023
Power Meter, P-series single channel	Keysight	N1912A	90630	01/24/2024
Power Meter, P-series single channel	Keysight	N1912A	90719	01/31/2024
Power Meter, P-series single channel	Agilent	N1911A	82174	01/31/2024
Power Sensor, P- series, 50MHz to 18GHz, Wideband	Keysight	N1921A	90389	01/31/2024
Filter, BRF 2495 – 2690 MHz	Micro-Tronics	155050	155055	12/28/2023
Filter, BRF 3.4 – 3.8GHz	Micro-Tronics	208398	208398	08/19/2023
Wideband Communication Test Set, Call Box	Rohde & Schwarz	CMW500	222792	02/29/2024
Wideband Communication Test Set, Call Box	Rohde & Schwarz	CMW500	230298	02/29/2024
Wideband Communication Test Set, Call Box	Rohde & Schwarz	CMW500	230295	02/29/2024
Wideband Communication Test Set, Call Box	Rohde & Schwarz	CMW500	22796	02/29/2024
Wideband Communication Test Set, Call Box	Rohde & Schwarz	CMW500	230297	02/29/2024
*Chamber, Environmental	Cincinnati Sub Zero	ZPHS-8-3.5-SCT/WC	82472	11/16/2023
*Amplifier, 218GHz to 26.5GHz	Ampical	AMP18G26.5-60	215705	02/26/2023
*Amplifier, 26.5GHz to 40GHz	Ampical	AMP26G40-65	172346	02/29/2024
Antenna, Horn 18 to 26.5GHz	ARA	MWH-1826/B	172362	03/31/2024
Antenna, Horn 26.5GHz to 40GHz	ARA	MWH-2640/B	172365	03/31/2024
*Antenna, Active Loop 100KHz to 30MHz	ELECTRO-METRICS	EM-6872	219911	05/10/2023
*Antenna, Active Loop 30Hz to 1MHz	ELECTRO-METRICS	EM-6871	219909	05/10/2023
10dB Fixed Attenuator	Pasternack Enterprises	PE7087-10	236360	N/A
10dB Fixed Attenuator	Pasternack Enterprises	PE7087-10	236285	N/A
10dB Fixed Attenuator	Pasternack Enterprises	PE7087-10	236355	N/A
UL AUTOMATION SOFTWARE				
CLT Software	UL	UL RF	Ver 3.4, May 20, 2022	
Power Measurement Software	UL	UL RF	Ver 3.1.4, April 29, 2022	
Radiated test software	UL	UL RF	Ver 9.5, Jan 21, 2022	

### NOTES:

- \* Testing is completed before equipment expiration date.

## 8. RF OUTPUT POWER VERIFICATION

### RULE PART(S)

FCC: §2.1046, §22.913, §27.50, §96.41

### RESULT

EUT includes different power levels for head use configuration and body use configuration and the below tables contain the highest of all configurations average conducted output powers as follows:

### 8.1.1. LTE BAND 5

<b>Test Engineer ID:</b>	25780	<b>Test Date:</b>	2/10/2023
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#### OUTPUT POWER FOR LTE BAND 5 (3.0MHz + 5.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Conducted Average (dBm)											
							ANT 1				ANT 2				ANT 3			
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
3MHz / 5MHz	825.5	829.4	1	14	1	0	25.64	25.70	25.70	24.51	24.61	24.70	24.70	23.68	25.32	25.40	24.40	23.40
			15	0	25	0	25.70	25.26	25.35	24.78	24.69	24.41	24.29	23.93	25.37	25.30	24.40	23.33
	834.0	837.9	1	14	1	0	25.59	25.36	24.78	24.12	14.80	24.64	23.72	23.34	25.33	25.33	24.21	23.18
			15	0	25	0	25.68	25.25	24.69	24.14	24.68	24.43	23.79	23.00	25.40	25.28	24.29	23.31
	842.5	846.5	1	14	1	0	25.59	25.09	24.82	23.69	24.59	24.29	23.74	22.83	25.31	25.29	24.26	23.35
			15	0	25	0	25.70	25.17	24.50	23.96	24.70	24.24	23.43	22.97	25.16	25.03	24.07	23.16

#### OUTPUT POWER FOR LTE BAND 5 (5.0MHz + 3.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Conducted Average (dBm)											
							ANT 1				ANT 2				ANT 3			
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
5MHz / 3MHz	826.5	830.4	1	24	1	0	25.54	25.7	25.7	24.3	24.55	24.70	24.70	23.61	25.32	25.40	24.40	23.40
			25	0	15	0	25.69	25.35	25.59	24.75	24.70	24.29	24.40	23.93	25.39	25.26	24.35	23.40
	835.0	838.9	1	24	1	0	25.51	25.22	24.69	23.75	24.53	24.42	23.39	22.96	25.34	25.35	24.19	23.22
			25	0	15	0	25.70	25.08	24.70	23.89	24.70	24.30	23.59	23.18	25.40	25.23	24.29	23.32
	843.6	847.5	1	24	1	0	25.58	24.84	25.05	23.63	24.54	24.21	23.76	22.85	25.10	25.02	23.95	22.96
			25	0	15	0	25.68	25.11	24.76	23.92	24.67	24.14	23.41	23.00	24.99	24.84	23.89	22.98

#### OUTPUT POWER FOR LTE BAND 5 (5.0MHz + 10.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Conducted Average (dBm)											
							ANT 1				ANT 2				ANT 3			
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
5MHz / 10MHz	826.5	833.7	1	24	1	0	25.55	24.50	23.30	20.61	24.65	23.63	22.70	19.70	25.31	24.40	23.37	20.35
			25	0	50	0	23.70	22.70	22.70	20.60	22.66	21.68	21.70	19.46	23.39	22.32	22.38	20.40
	831.6	838.8	1	24	1	0	25.37	24.70	23.70	20.60	24.70	23.70	22.00	19.55	25.35	24.36	23.40	20.35
			25	0	50	0	23.74	22.66	22.65	20.60	22.66	21.70	21.67	19.43	23.36	22.32	22.40	20.40
	836.8	844.0	1	24	1	0	25.70	24.46	23.68	20.70	24.61	23.59	22.69	19.53	25.38	24.32	23.38	20.35
			25	0	50	0	23.70	22.66	22.65	20.70	22.67	21.70	21.67	19.45	23.40	22.36	22.40	20.39

#### OUTPUT POWER FOR LTE BAND 5 (10.0MHz + 5.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Conducted Average (dBm)											
							ANT 1				ANT 2				ANT 3			
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
10MHz / 5MHz	829.0	836.2	1	49	1	0	25.70	24.65	23.27	20.70	24.70	23.67	22.11	19.65	25.27	24.24	23.34	20.28
			50	0	25	0	23.70	22.70	22.70	20.70	22.70	21.70	21.70	19.70	23.40	22.40	22.40	20.39
	834.3	841.5	1	49	1	0	25.67	24.57	23.28	20.67	24.67	23.60	22.09	19.70	25.29	24.26	23.30	20.31
			50	0	25	0	23.70	22.68	22.65	20.67	22.67	21.69	21.70	19.68	23.40	22.40	22.36	20.40
	839.3	846.5	1	49	1	0	25.70	24.70	23.35	20.55	24.67	23.70	22.00	19.68	25.28	24.36	23.24	20.33
			50	0	25	0	23.69	22.68	22.66	20.67	22.65	21.70	21.67	19.67	23.40	22.38	22.33	20.38

#### OUTPUT POWER FOR LTE BAND 5 (10.0MHz + 10.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Conducted Average (dBm)											
							ANT 1				ANT 2				ANT 3			
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
10MHz / 10MHz	829.0	838.9	1	49	1	0	25.70	24.60	23.22	20.59	24.70	23.70	22.07	19.54	25.31	24.35	23.22	20.23
			1	0	1	49	15.20	15.20	13.73	15.13	14.19	14.20	14.20	14.04	14.90	14.90	14.90	14.82
			50	0	50	0	23.68	22.69	22.66	20.70	22.69	21.68	21.63	19.70	23.40	22.32	22.36	20.36
	831.5	841.4	1	49	1	0	25.66	24.54	23.28	20.62	24.65	23.57	22.11	19.57	25.29	24.29	23.30	20.24
			1	0	1	49	15.19	15.11	15.20	15.11	14.17	14.16	13.69	14.04	14.89	14.89	14.87	14.89
			50	0	50	0	23.70	22.70	22.65	20.70	22.69	21.69	21.63	19.69	23.40	22.35	22.39	20.40
834.1	844.0	1	49	1	0	25.67	24.70	23.35	20.70	24.65	23.57	22.21	19.70	25.33	24.28	23.33	20.21	
		1	0	1	49	15.15	15.19	15.19	15.20	14.20	14.18	13.49	14.20	14.89	14.85	14.85	14.82	
			50	0	50	0	23.69	22.70	22.70	20.69	22.70	21.70	21.70	19.69	23.40	22.33	22.38	20.36

### 8.1.2. LTE BAND 7

<b>Test Engineer ID:</b>	25780	<b>Test Date:</b>	2/13/2023
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#### OUTPUT POWER FOR LTE BAND 7 (10.0MHz + 20.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Conducted Average (dBm)															
							ANT 1				ANT 2				ANT 3				ANT 4			
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
10MHz / 20MHz	2505.5	2519.9	1	49	1	0	25.65	24.70	23.36	19.88	23.58	22.58	21.04	18.62	22.94	21.85	22.00	19.60	22.70	21.70	20.70	17.63
			50	0	100	0	23.69	22.56	22.58	20.56	21.58	20.62	20.63	18.62	22.94	21.85	22.00	19.60	20.70	19.70	19.70	17.63
	2525.6	2540.0	1	49	1	0	25.63	24.65	23.70	20.19	23.61	22.55	21.15	18.61	25.00	24.00	22.98	20.00	22.28	21.28	20.46	17.29
			50	0	100	0	23.63	22.70	22.70	20.70	21.62	20.60	20.61	18.62	23.12	22.00	21.96	19.75	20.18	19.49	19.55	17.45
2545.6	2560.0	1	49	1	0	25.70	24.70	23.30	18.74	23.70	22.70	21.70	18.67	24.86	23.86	23.00	19.83	22.49	21.45	19.24	17.40	
		50	0	100	0	23.70	22.45	22.55	20.58	21.70	20.70	20.70	18.70	22.97	21.86	21.82	19.59	20.64	19.66	19.67	17.54	

#### OUTPUT POWER FOR LTE BAND 7 (20.0MHz + 10.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Conducted Average (dBm)															
							ANT 1				ANT 2				ANT 3				ANT 4			
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
20MHz / 10MHz	2510.0	2524.4	1	99	1	0	25.70	24.61	23.70	20.30	23.54	22.63	20.06	18.12	25.00	24.00	23.00	19.74	22.70	21.70	20.70	17.70
			100	0	50	0	23.70	22.62	22.57	20.55	21.63	20.64	20.63	18.63	22.93	21.93	21.24	19.66	20.64	19.70	19.70	17.66
	2530.1	2544.5	1	99	1	0	25.16	23.87	22.91	20.70	23.56	22.63	21.44	18.53	24.85	23.91	23.34	19.72	21.99	21.04	20.56	17.60
			100	0	50	0	23.46	22.70	22.70	20.70	21.63	20.62	20.62	18.62	23.00	22.00	22.00	19.71	20.32	19.70	19.4	17.33
2550.1	2564.5	1	99	1	0	22.65	24.70	23.20	20.49	23.70	22.70	21.70	18.63	24.99	23.94	22.84	20.00	22.63	21.70	19.45	17.67	
		100	0	50	0	23.68	22.23	22.27	20.36	21.70	20.70	20.70	18.70	22.93	21.88	21.15	19.67	20.62	19.70	19.70	17.60	

#### OUTPUT POWER FOR LTE BAND 7 (15.0MHz + 15.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Conducted Average (dBm)															
							ANT 1				ANT 2				ANT 3				ANT 4			
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
15MHz / 15MHz	2507.5	2522.5	1	74	1	0	25.70	24.64	23.51	20.70	23.67	22.70	20.66	18.51	25.00	23.86	22.95	19.83	22.70	21.70	20.70	17.70
			75	0	75	0	23.70	22.43	22.49	20.49	21.70	20.62	20.67	18.66	22.14	21.97	21.97	19.96	20.63	19.69	19.67	17.59
	2527.5	2542.5	1	74	1	0	25.69	24.70	23.49	20.19	23.65	22.64	21.36	18.54	24.98	23.96	23.00	20.00	22.06	21.63	20.64	17.66
			75	0	75	0	23.69	22.70	22.70	20.31	20.78	20.70	20.63	18.65	23.00	21.97	21.97	19.98	20.35	19.39	19.42	17.27
2547.5	2562.5	1	74	1	0	25.61	24.41	22.23	20.62	23.70	22.60	21.70	18.59	24.92	24.00	22.98	19.86	22.56	21.52	19.15	17.54	
		75	0	75	0	23.65	22.35	22.38	20.45	20.83	19.85	20.70	18.70	22.13	22.00	22.00	20.00	20.63	19.70	19.70	17.57	

#### OUTPUT POWER FOR LTE BAND 7 (15.0MHz + 20.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Conducted Average (dBm)															
							ANT 1				ANT 2				ANT 3				ANT 4			
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
15MHz / 20MHz	2507.8	2524.9	1	74	1	0	25.70	24.70	23.70	20.70	23.65	22.69	21.70	18.58	24.85	23.84	22.91	19.95	22.70	21.70	20.70	17.70
			75	0	100	0	23.70	22.70	22.27	20.45	21.70	20.70	20.29	18.56	22.93	21.95	21.96	19.94	20.58	19.70	19.70	17.54
	2525.3	2542.4	1	74	1	0	25.20	24.27	23.51	20.16	23.70	22.70	21.58	18.70	25.00	24.00	23.00	20.00	22.11	21.66	20.69	17.68
			75	0	100	0	23.65	22.62	22.17	20.38	21.64	20.60	20.70	18.45	22.99	22.00	22.00	20.02	20.37	19.44	19.52	17.34
2542.9	2560.0	1	74	1	0	25.45	24.60	23.70	20.52	23.36	22.35	21.31	17.76	24.76	23.74	22.32	19.83	22.37	21.86	19.18	17.46	
		75	0	100	0	23.52	22.50	22.70	20.25	21.54	20.51	20.14	18.41	22.85	21.87	21.87	19.86	20.55	19.63	19.75	17.51	

#### OUTPUT POWER FOR LTE BAND 7 (20.0MHz + 15.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Conducted Average (dBm)															
							ANT 1				ANT 2				ANT 3				ANT 4			
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
20MHz / 15MHz	2510.0	2527.1	1	99	1	0	25.70	24.70	23.62	20.70	23.68	22.59	21.70	18.70	24.96	23.93	22.83	19.79	22.70	21.70	20.70	17.70
			100	0	75	0	23.70	22.70	22.70	20.46	21.70	20.70	20.70	18.67	23.00	21.95	21.96	19.95	20.65	19.63	19.58	17.63
	2527.6	2544.7	1	99	1	0	25.55	24.13	23.67	20.10	23.70	22.70	21.67	18.70	25.00	24.00	23.00	19.93	22.08	21.54	20.45	17.64
			100	0	75	0	23.61	22.55	22.55	20.34	21.69	20.60	20.59	18.58	23.00	22.00	22.00	20.00	20.41	19.43	19.49	17.49
2545.1	2562.2	1	99	1	0	25.46	24.67	23.62	20.67	22.81	21.61	21.05	18.53	24.70	23.60	21.97	19.57	22.68	21.69	19.08	17.59	
		100	0	75	0	23.58	22.52	22.58	20.35	21.57	20.50	20.46	18.45	22.87	21.81	21.82	19.82	20.70	19.70	19.70	17.66	

#### OUTPUT POWER FOR LTE BAND 7 (20.0MHz + 20.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Conducted Average (dBm)															
							ANT 1				ANT 2				ANT 3				ANT 4			
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
20MHz / 20MHz	2510.0	2529.8	1	99	1	0	25.70	24.70	23.70	20.70	23.64	22.67	21.60	18.58	24.91	23.86	22.87	19.92	22.70	21.70	20.70	17.70
			100	0	100	0	23.70	22.70	22.70	20.46	21.70	20.70	20.70	18.67	23.00	21.95	21.96	19.95	20.65	19.63	19.58	17.63
			1	99	1	0	25.55	24.17	23.65	20.06	23.70	22.70	21.70	18.70	25.00	24.00	23.00	20.00	22.03	21.29	20.60	17.07
			100	0	100	0	23.68	22.64	22.70	20.67	21.67	20.59	20.70	18.64	23.00	22.00	22.00	20.00	20.43	19.64	19.64	17.64
	2525.1	2544.9	1	99	1	0	25.54	24.43	22.62	20.40	23.28	22.09	21.62	17.97	24.75	23.77	22.30	19.72	22.35	21.59	19.23	17.37
			100	0	100	0	23.68	22.64	22.70	20.67	21.67	20.59	20.70	18.64	23.00	22.00	22.00	20.00	20.43	19.64	19.64	17.64
			1	99	1	0	25.54	24.43	22.62	20.40	23.28	22.09	21.62	17.97	24.75	23.77	22.30	19.72	22.35	21.59	19.23	17.37
			100	0	100	0	23.64	22.48	21.39	20.51	21.70	20.59	20.62	18.60	22.86	21.84	21.84	19.83	20.49	19.70	19.70	17.68

**8.1.3. LTE BAND 41**

<b>Test Engineer ID:</b>	25602	<b>Test Date:</b>	2/17/2023
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**OUTPUT POWER FOR LTE BAND 41 (5.0MHz + 20.0MHz)**

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB		SCC1 RB		Conducted Average (dBm)															
			Size	Offset	Size	Offset	ANT 1				ANT 2				ANT 3				ANT 4			
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
5MHz / 20MHz	2499.3	2511.0	1	24	1	0	22.55	22.67	22.56	22.50	22.91	22.86	22.91	22.82	21.13	21.17	21.16	21.05	21.20	21.30	21.23	21.18
			25	0	100	0	22.70	22.69	22.67	22.68	23.00	23.00	23.00	23.00	21.20	21.20	21.20	21.20	21.30	21.29	21.30	21.30
	1	24	1	0	28.70	27.20	26.70	23.57	28.70	27.20	26.70	23.58	28.00	26.50	26.00	22.91	27.70	26.20	25.70	26.20	22.68	
	25	0	100	0	26.70	25.70	25.70	23.70	26.70	25.70	25.70	23.70	26.00	25.00	25.00	23.00	25.70	24.70	24.70	24.70	22.70	
2668.3	2680.0	1	24	1	0	27.70	26.20	25.70	22.60	28.00	26.46	26.00	22.84	27.00	25.50	25.00	21.84	26.30	24.80	24.30	21.14	
		25	0	100	0	25.70	24.69	24.70	22.70	26.00	24.97	25.00	23.00	25.00	24.00	24.00	22.00	24.30	23.30	23.30	21.30	

**OUTPUT POWER FOR LTE BAND 41 (20.0MHz + 5.0MHz)**

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB		SCC1 RB		Conducted Average (dBm)															
			Size	Offset	Size	Offset	ANT 1				ANT 2				ANT 3				ANT 4			
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
20MHz / 5MHz	2506.0	2517.7	1	99	1	0	26.70	26.20	26.20	22.61	27.00	26.50	26.50	22.89	25.20	24.70	24.70	21.17	25.30	24.80	24.80	21.24
			100	0	25	0	22.70	22.70	22.70	22.70	23.00	23.00	22.98	23.00	21.20	21.20	21.20	21.20	21.30	21.30	21.30	21.30
	1	99	1	0	28.70	27.20	26.70	23.66	28.70	27.20	26.70	23.66	28.00	26.50	26.00	22.90	27.70	26.20	25.70	22.60		
	100	0	25	0	26.70	25.70	25.70	23.70	26.70	25.70	25.68	23.69	26.00	25.00	25.00	23.00	25.70	24.70	24.70	22.70		
2675.0	2686.7	1	99	1	0	27.70	26.20	25.47	22.70	28.00	26.50	26.00	22.94	27.00	25.50	25.00	21.91	26.30	24.80	24.30	21.25	
		100	0	25	0	25.70	24.70	24.70	22.67	26.00	24.99	25.00	23.00	25.00	24.00	24.00	22.00	24.30	23.30	23.30	21.30	

**OUTPUT POWER FOR LTE BAND 41 (10.0MHz + 20.0MHz)**

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB		SCC1 RB		Conducted Average (dBm)															
			Size	Offset	Size	Offset	ANT 1				ANT 2				ANT 3				ANT 4			
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
10MHz / 20MHz	2501.5	2515.9	1	49	1	0	22.63	22.63	22.54	22.53	22.87	22.99	22.92	22.84	21.08	21.10	21.08	21.11	21.29	21.30	21.30	21.30
			50	0	100	0	22.70	22.68	22.68	22.67	23.00	23.00	23.00	23.00	21.20	21.20	21.20	21.20	21.30	21.25	21.22	21.20
	1	49	1	0	28.70	27.20	26.7	23.68	28.60	27.20	26.70	23.51	28.00	26.50	26.00	22.92	27.51	26.20	25.70	22.43		
	50	0	100	0	26.70	25.70	25.7	23.70	26.70	25.70	25.70	23.70	26.00	25.00	25.00	23.00	25.70	24.70	24.70	22.70		
2665.6	2680.0	1	49	1	0	27.70	26.20	25.70	22.62	28.00	26.50	26.00	22.81	27.00	25.50	25.00	21.76	26.30	24.80	24.30	21.23	
		50	0	100	0	25.70	24.60	24.70	22.70	26.00	24.99	25.00	23.00	25.00	24.00	24.00	22	24.30	23.30	23.30	21.30	

**OUTPUT POWER FOR LTE BAND 41 (20.0MHz + 10.0MHz)**

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB		SCC1 RB		Conducted Average (dBm)															
			Size	Offset	Size	Offset	ANT 1				ANT 2				ANT 3				ANT 4			
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
20MHz / 10MHz	2506.0	2520.4	1	99	1	0	26.70	26.20	25.79	22.52	27.00	26.50	26.50	22.89	26.20	26.08	25.63	22.69	26.19	25.61	25.10	22.22
			100	0	50	0	22.33	22.66	22.67	22.70	23.00	23.00	23.00	23.00	22.65	22.64	22.64	22.64	22.00	22.00	21.98	21.98
	1	99	1	0	28.70	27.20	26.70	23.63	28.70	27.20	26.70	23.67	28.00	27.25	26.74	23.80	27.70	26.81	26.33	23.40		
	100	0	50	0	26.70	25.70	25.70	23.70	26.70	25.70	25.69	23.70	27.02	26.01	26.01	23.98	26.49	25.51	25.51	23.52		
2670.1	2684.5	1	99	1	0	27.70	26.20	25.70	22.70	28.00	26.50	26.00	22.96	27.00	26.46	25.96	23.06	27.11	25.61	25.12	22.11	
		100	0	50	0	25.70	24.65	24.70	22.69	26.00	25.00	24.98	23.00	26.09	25.09	25.09	23.09	25.18	24.21	24.20	22.21	

**OUTPUT POWER FOR LTE BAND 41 (15.0MHz + 15.0MHz)**

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB		SCC1 RB		Conducted Average (dBm)															
			Size	Offset	Size	Offset	ANT 1				ANT 2				ANT 3				ANT 4			
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
15MHz / 15MHz	2503.5	2518.5	1	74	1	0	27.70	26.20	25.70	22.53	28.00	26.50	26.00	22.83	26.20	24.70	24.20	21.11	26.30	24.80	24.30	21.30
			75	0	75	0	22.69	22.69	22.67	22.70	23.00	23.00	23.00	23.00	21.20	21.20	21.20	21.20	21.30	21.30	21.30	20.89
	1	74	1	0	28.70	27.20	26.70	23.68	28.70	27.20	26.70	23.65	28.00	26.50	26.00	22.85	27.70	26.20	25.70	22.59		
	75	0	75	0	26.70	25.70	25.70	23.70	26.70	25.70	25.70	23.70	26.00	25.00	25.00	23.00	25.70	24.70	24.70	22.70		
2667.5	2682.5	1	74	1	0	27.70	26.20	25.70	22.70	28.00	26.50	26.00	22.94	27.00	25.50	25.00	21.92	26.30	24.80	24.30	21.23	
		75	0	75	0	25.70	24.67	24.70	22.69	26.00	25.00	24.98	23.00	25.00	23.99	24.00	22.00	24.30	23.30	23.30	21.30	

**OUTPUT POWER FOR LTE BAND 41 (15.0MHz + 20.0MHz)**

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB		SCC1 RB		Conducted Average (dBm)															
			Size	Offset	Size	Offset	ANT 1				ANT 2				ANT 3				ANT 4			
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
15MHz / 20MHz	2503.8	2520.9	1	74	1	0	27.70	26.13	25.09	22.64	28.00	26.50	26.00	22.93	26.20	24.70	24.20	21.12	26.3	24.80	24.30	21.30
			75	0	100	0	22.70	22.70	22.70	22.70	23.00	23.00	23.00	23.00	21.20	21.20	21.20	21.20	21.30	21.30	21.30	20.82
	1	74	1	0	28.70	27.20	26.70	23.64	28.61	27.20	26.70	23.62	28.00	26.50	26.00	22.90	27.55	26.20	25.70	22.41		
	75	0	100	0	26.70	25.70	25.46	23.70	26.70	25.70	25.70	23.70	26.00	25.00	25.00	23.00	25.70	24.70	24.70	22.70		
2662.9	2680.0	1	74	1	0	27.70	26.20	25.70	22.66	28.00	26.50	26.00	22.91	27.00	25.50	25.00	21.80	26.30	24.80	24.30	21.13	
		75	0	100	0	25.70	24.7	24.70	22.70	26.00	25.00	25.00	23.00	25.00	24.00	24.00	22.00	24.30	23.30	23.30	21.30	

**OUTPUT POWER FOR LTE BAND 41 (20.0MHz + 15.0MHz)**

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB		SCC1 RB		Conducted Average (dBm)															
			Size	Offset	Size	Offset	ANT 1				ANT 2				ANT 3				ANT 4			
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
20MHz / 15MHz	2506.0	2523.1	1	99	1	0	27.70	26.20	25.70	22.53	28.00	26.50	26.00	22.90	26.20	24.70	24.20	21.17	26.30	24.80	24.30	21.30
			100	0	75	0	22.69	22.70	22.70	22.70	23.00	23.00	23.00	23.00	21.20	21.20	21.20	21.20	21.30	21.30	21.30	21.02
	1	99	1	0	28.70	27.20	26.70	23.56	28.68	27.20	26.70	23.64	28.00	26.50	26.00	22.80	27.57					

**OUTPUT POWER FOR LTE BAND 41 (20.0MHz + 20.0MHz)**

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Conducted Average (dBm)																
							ANT 1				ANT 2				ANT 3				ANT 4				
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	
20MHz/ 20MHz	2506.0	2525.8	1	99	1	0	27.70	26.20	25.70	22.52	28.00	26.50	26.00	23.00	26.20	24.70	24.20	21.20	26.30	24.80	24.30	21.30	
			1	0	1	99	14.70	14.69	14.63	14.65	15.00	15.00	15.00	15.00	13.20	13.20	13.20	13.20	13.30	13.30	13.30	13.30	13.30
			100	0	100	0	22.67	22.70	22.65	22.67	23.00	23.00	23.00	23.00	21.20	21.20	21.18	21.30	21.30	21.30	21.30	21.30	21.14
	2583.1	2602.9	1	99	1	0	<b>28.70</b>	<b>27.20</b>	<b>26.70</b>	23.62	<b>28.65</b>	<b>27.20</b>	<b>26.70</b>	<b>23.70</b>	<b>28.00</b>	<b>26.50</b>	<b>26.00</b>	22.58	<b>27.59</b>	<b>26.20</b>	<b>25.70</b>	22.40	
			1	0	1	99	20.20	20.11	20.14	20.11	20.20	20.20	20.20	19.50	19.50	19.50	19.50	19.20	19.20	19.20	19.20	19.20	
			100	0	100	0	26.70	25.70	25.70	<b>23.70</b>	26.70	25.70	25.70	<b>23.70</b>	26.00	25.00	25.00	<b>23.00</b>	25.70	24.70	24.70	<b>22.70</b>	
	2660.2	2680.0	1	99	1	0	27.70	26.20	25.70	22.58	28.00	26.50	26.00	23.00	27.00	25.50	25.00	21.73	26.30	24.80	24.30	21.15	
			1	0	1	99	19.20	19.20	19.20	19.20	19.50	19.50	19.50	19.50	18.50	18.50	18.50	18.50	17.80	17.80	17.80	17.80	
			100	0	100	0	25.70	24.70	24.70	22.70	26.00	24.98	25.00	23.00	25.00	24.00	24.00	22.00	24.30	23.30	23.30	21.30	

### 8.1.4. LTE BAND 48

Test Engineer ID:	25602	Test Date:	2/8/2023
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#### OUTPUT POWER FOR LTE BAND 48 (5.0MHz + 20.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Conducted Average (dBm)																	
							ANT 7				ANT 8				ANT 9				ANT 4					
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM		
5MHz / 20MHz	3553.3	3565.0	1 25	24 0	1 100	1 0	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	19.2	19.2	19.2	19.2			
							14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	12.7	12.7	12.7	12.7
							24.00	24.00	24.00	21.00	23.98	24.00	23.58	20.93	21.10	21.10	21.10	21.00	22.7	22.7	22.7	19.7		
3615.8	3627.5	1 25	24 0	1 100	1 0	22.00	22.00	22.00	21.00	22.00	22.00	22.00	22.00	21.00	21.10	21.10	21.00	20.7	20.7	20.7	19.7			
						14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	12.7	12.7	12.7	12.7	
						20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	19.2	19.2	19.2	19.2	
3678.3	3690.0	1 25	24 0	1 100	1 0	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	12.7	12.7	12.7	12.7			
						20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	19.2	19.2	19.2	19.2	
						14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	12.7	12.7	12.7	12.7	

#### OUTPUT POWER FOR LTE BAND 48 (20.0MHz + 5.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Conducted Average (dBm)																
							ANT 7				ANT 8				ANT 9				ANT 4				
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	
20MHz / 5MHz	3560.0	3571.7	1 100	99 0	25 0	1 0	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	19.20	19.20	19.20	19.20		
							14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	12.70	12.70	12.70	12.70
							24.00	24.00	24.00	21.00	23.94	24.00	23.58	20.84	21.10	21.10	21.10	21.00	22.70	22.70	22.70	19.70	
3622.5	3634.2	1 100	99 0	25 0	1 0	22.00	22.00	22.00	21.00	22.00	22.00	22.00	22.00	21.00	21.10	21.10	21.00	20.70	20.70	20.70	19.70		
						14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	12.70	12.70	12.70	12.70	
						20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	19.20	19.20	19.20	19.20
3685.0	3696.7	1 100	99 0	25 0	1 0	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	12.70	12.70	12.70	12.70			
						20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	19.20	19.20	19.20	19.20	
						14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	12.70	12.70	12.70	12.70	

#### OUTPUT POWER FOR LTE BAND 48 (10.0MHz + 20.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Conducted Average (dBm)															
							ANT 7				ANT 8				ANT 9				ANT 4			
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
10MHz / 20MHz	3555.5	3569.9	1 50	49 0	100 0	1 0	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	18.70	18.70	18.70	18.70		
							15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	13.70	13.70	13.70	13.70		
							24.00	24.00	24.00	20.90	24.50	24.50	23.64	20.86	21.10	21.10	21.10	21.00	23.20	23.20	22.70	19.70
3615.6	3630.0	1 50	49 0	100 0	1 0	21.50	21.50	21.50	21.00	21.50	21.50	21.50	21.00	21.10	21.10	20.97	20.20	20.20	20.20	19.70		
						15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	13.70	13.70	13.70	13.70
						20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	18.70	18.70	18.70	18.70
3675.6	3690.0	1 50	49 0	100 0	1 0	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	13.70	13.70	13.70	13.70			
						20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	18.70	18.70	18.70	18.70
						15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	13.70	13.70	13.70	13.70

#### OUTPUT POWER FOR LTE BAND 48 (20.0MHz + 10.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Conducted Average (dBm)																		
							ANT 7				ANT 8				ANT 9				ANT 4						
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM			
20MHz / 10MHz	3560.0	3574.4	1 100	99 0	50 0	1 0	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	18.70	18.70	18.70	18.70					
							15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	13.70	13.70	13.70	13.70			
							24.00	24.00	24.00	20.84	24.46	24.50	23.59	20.82	21.10	21.10	21.10	21.00	23.20	23.20	22.70	19.70			
3620.1	3634.5	1 100	99 0	50 0	1 0	21.50	21.50	21.50	21.00	21.50	21.50	21.50	21.00	21.10	21.10	21.10	21.00	20.20	20.20	20.20	19.70				
						15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	13.70	13.70	13.70	13.70
						20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	18.70	18.70	18.70	18.70		
3680.1	3694.5	1 100	99 0	50 0	1 0	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	13.70	13.70	13.70	13.70					
						20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	18.70	18.70	18.70	18.70			
						15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	13.70	13.70	13.70	13.70		

#### OUTPUT POWER FOR LTE BAND 48 (15.0MHz + 20.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Conducted Average (dBm)																		
							ANT 7				ANT 8				ANT 9				ANT 4						
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM			
15MHz / 20MHz	3557.8	3574.9	1 75	74 0	100 0	1 0	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	18.70	18.70	18.70	18.70				
							15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	13.70	13.70	13.70	13.70		
							24.00	24.00	24.00	20.90	25.00	25.00	24.00	20.89	21.10	21.10	21.10	21.00	23.70	23.70	22.70	19.70			
3615.3	3632.4	1 75	74 0	100 0	1 0	21.50	21.50	21.50	21.00	21.50	21.50	21.50	21.00	21.10	21.10	21.10	21.00	20.20	20.20	20.20	19.70				
						15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	13.70	13.70	13.70	13.70
						20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	18.70	18.70	18.70	18.70		
3672.9	3690.0	1 75	74 0	100 0	1 0	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	13.70	13.70	13.70	13.70					
						20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	18.70	18.70	18.70	18.70			
						15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	13.70	13.70	13.70	13.70		

#### OUTPUT POWER FOR LTE BAND 48 (20.0MHz + 15.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Conducted Average (dBm)																		
							ANT 7				ANT 8				ANT 9				ANT 4						
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM			
20MHz / 15MHz	3560.0	3577.1	1 100	99 0	75 0	1 0	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	18.70	18.70	18.70	18.70					
							15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	13.70	13.70	13.70	13.70
							24.00	24.00	24.00	21.00	25.00	25.00	24.00	21.00	21.10	21.10	21.10	20.96	23.70	23.70	22.70	19.70			
3617.6	3634.7	1 100	99 0	75 0	1 0	21.50	21.50	21.50	17.64	21.50	21.50	21.50	19.26	21.10	21.10	21									

## 9. CONDUCTED TEST RESULTS

### 9.1. OCCUPIED BANDWIDTH

#### RULE PART(S)

FCC: §2.1049

#### LIMITS

For reporting purposes only

#### TEST PROCEDURE

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the middle channel in each band. The 99% and -26dB bandwidths was also measured and recorded.

#### RESULTS

There is no limit required and power is the same for low, middle and high channel; therefore, only middle channel was tested. Only QPSK plots are reported to show setting parameter complies with testing method/procedure.



**LTE BAND 5**

Band	Mode	RB Allocation/RB Offset	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 5	3MHz + 5MHz BAND QPSK	15/0 + 25/0	836.5	7.4685	8.005
	3MHz + 5MHz BAND 16QAM			7.4704	8.095
	5MHz + 3MHz BAND QPSK	25/0 + 15/0		7.4757	7.919
	5MHz + 3MHz BAND 16QAM			7.4812	8.069
	5MHz + 10MHz BAND QPSK	25/0 + 50/0		13.865	14.50
	5MHz + 10MHz BAND 16QAM			13.882	14.68
	10MHz + 5MHz BAND QPSK	50/0 + 25/0		13.865	14.58
	10MHz + 5MHz BAND 16QAM			13.883	14.52
	10MHz + 10MHz BAND QPSK	50/0 + 50/0		18.759	19.87
	10MHz + 10MHz BAND 16QAM			18.719	19.76

**LTE Band 7**

Band	Mode	RB Allocation/RB Offset	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 7	10MHz + 20MHz BAND QPSK	50/0 + 100/0	2535	28.137	30.42
	10MHz + 20MHz BAND 16QAM			28.081	30.38
	20MHz + 10MHz BAND QPSK	100/0 + 50/0		28.127	30.21
	20MHz + 10MHz BAND 16QAM			28.125	30.33
	15MHz + 15MHz BAND QPSK	75/0 + 75/0		28.683	30.98
	15MHz + 15MHz BAND 16QAM			28.655	31.08
	15MHz + 20MHz BAND QPSK	75/0 + 100/0		32.977	35.53
	15MHz + 20MHz BAND 16QAM			32.893	35.50
	20MHz + 15MHz BAND QPSK	100/0 + 75/0		32.947	35.35
	20MHz + 15MHz BAND 16QAM			32.938	35.45
	20MHz + 20MHz BAND QPSK	100/0 + 100/0		37.839	40.35
	20MHz + 20MHz BAND 16QAM			37.778	40.28

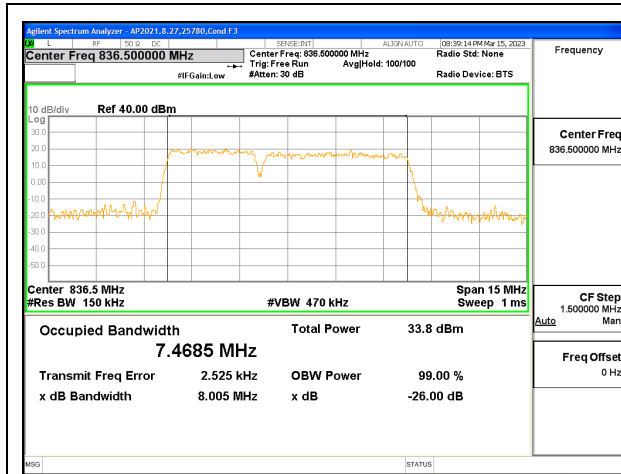
**LTE BAND 41**

Band	Mode	RB Allocation/RB Offset	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 41 (FCC)	5MHz + 20MHz BAND QPSK	25/0 + 100/0	2593	23.322	25.11
	5MHz + 20MHz BAND 16QAM			23.335	24.99
	20MHz + 5MHz BAND QPSK	100/0 + 25/0		23.257	25.02
	20MHz + 5MHz BAND 16QAM			23.221	24.90
	10MHz + 20MHz BAND QPSK	50/0 + 100/0		28.085	30.00
	10MHz + 20MHz BAND 16QAM			28.004	30.02
	20MHz + 10MHz BAND QPSK	100/0 + 50/0		28.028	30.12
	20MHz + 10MHz BAND 16QAM			28.011	29.86
	15MHz + 15MHz BAND QPSK	75/0 + 75/0		28.680	30.63
	15MHz + 15MHz BAND 16QAM			28.622	30.76
	15MHz + 20MHz BAND QPSK	75/0 + 100/0		32.858	35.07
	15MHz + 20MHz BAND 16QAM			32.876	35.02
	20MHz + 15MHz BAND QPSK	100/0 + 75/0		32.810	35.06
	20MHz + 15MHz BAND 16QAM			32.882	34.92
	20MHz + 20MHz BAND QPSK	100/0 + 100/0		37.621	40.42
	20MHz + 20MHz BAND 16QAM			37.761	39.99

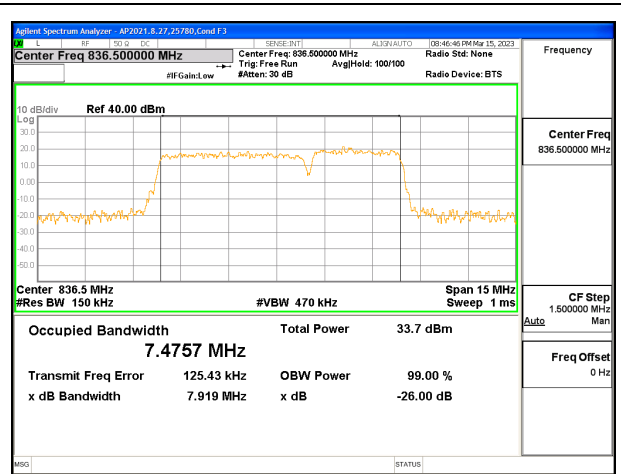
**LTE BAND 48**

Band	Mode	RB Allocation/RB Offset	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 48	5MHz + 20MHz BAND QPSK	25/0 + 100/0	3625	23.335	25.16
	5MHz + 20MHz BAND 16QAM			23.219	24.74
	20MHz + 5MHz BAND QPSK	100/0 + 25/0		23.304	25.15
	20MHz + 5MHz BAND 16QAM			23.272	24.88
	10MHz + 20MHz BAND QPSK	50/0 + 100/0		28.040	30.12
	10MHz + 20MHz BAND 16QAM			28.098	29.90
	20MHz + 10MHz BAND QPSK	100/0 + 50/0		28.133	30.49
	20MHz + 10MHz BAND 16QAM			28.054	30.07
	15MHz + 20MHz BAND QPSK	75/0 + 100/0		32.830	35.12
	15MHz + 20MHz BAND 16QAM			32.919	35.18
	20MHz + 15MHz BAND QPSK	100/0 + 75/0		33.023	34.94
	20MHz + 15MHz BAND 16QAM			32.751	34.94
	20MHz + 20MHz BAND QPSK	100/0 + 100/0		37.689	39.94
	20MHz + 20MHz BAND 16QAM			37.668	39.81

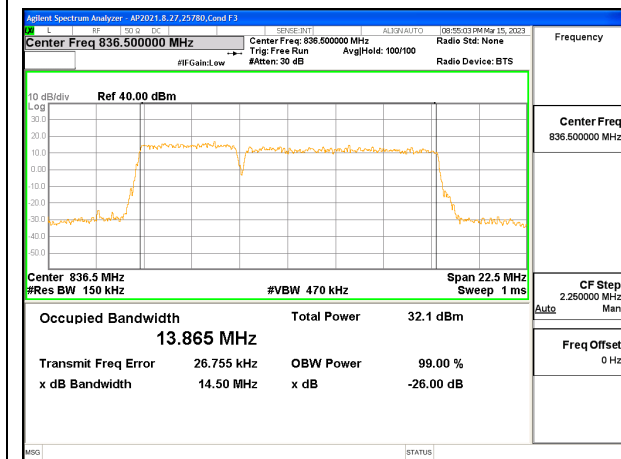
### 9.1.1. LTE BAND 5



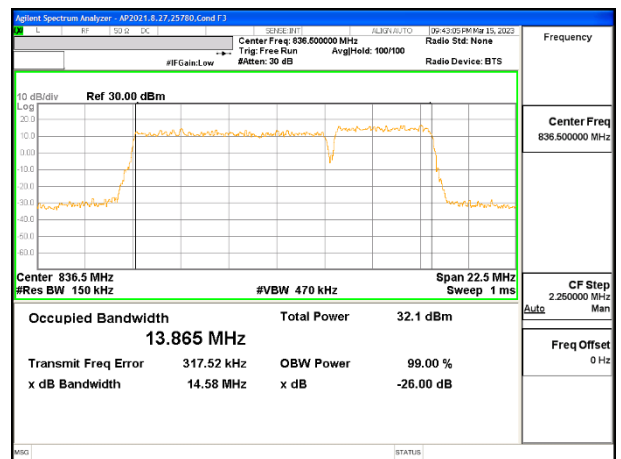
LTE B5 3MHz + 5MHz QPSK RB15-0 + RB25-0



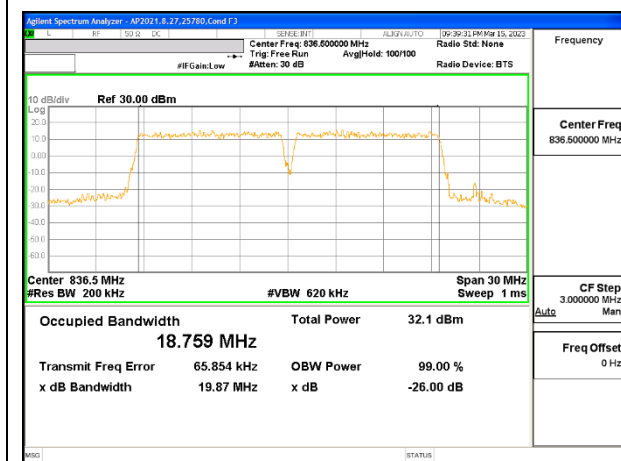
LTE B5 5MHz + 3MHz QPSK RB25-0 + RB15-0



LTE B5 5MHz + 10MHz QPSK RB25-0 + RB50-0

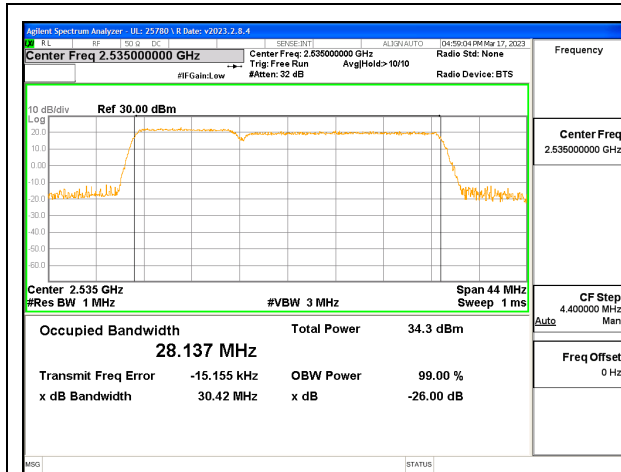


LTE B5 10MHz + 5MHz QPSK RB50-0 + RB25-0

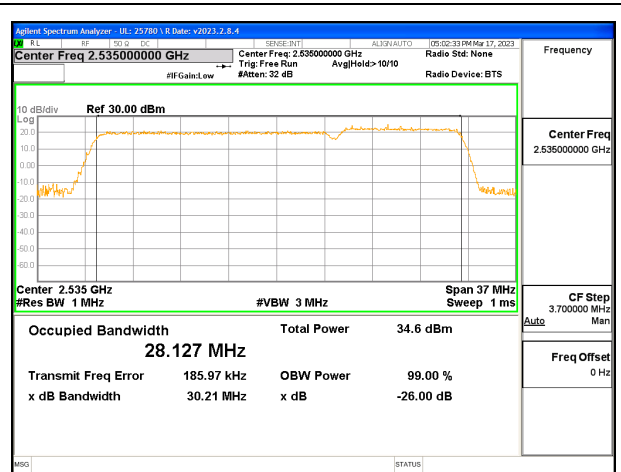


LTE B5 10MHz + 10MHz QPSK RB50-0 + RB50-0

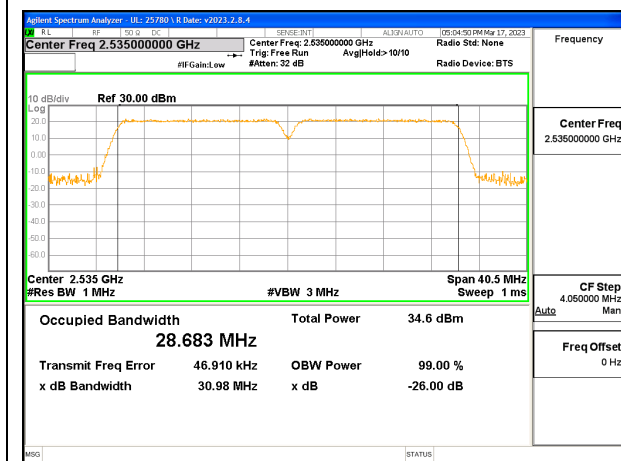
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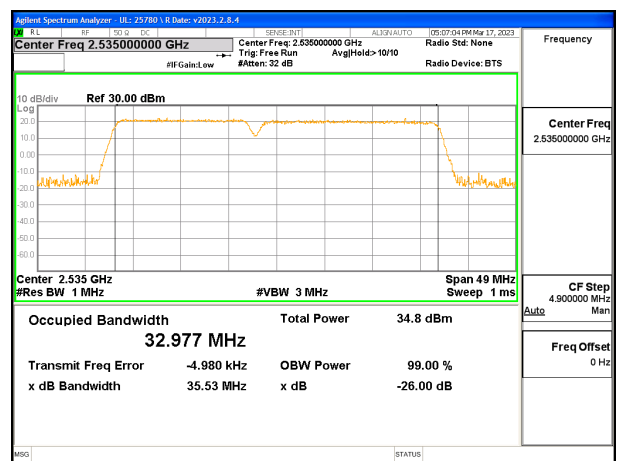
LTE B7 10MHz + 20MHz QPSK RB50-0 + RB100-0



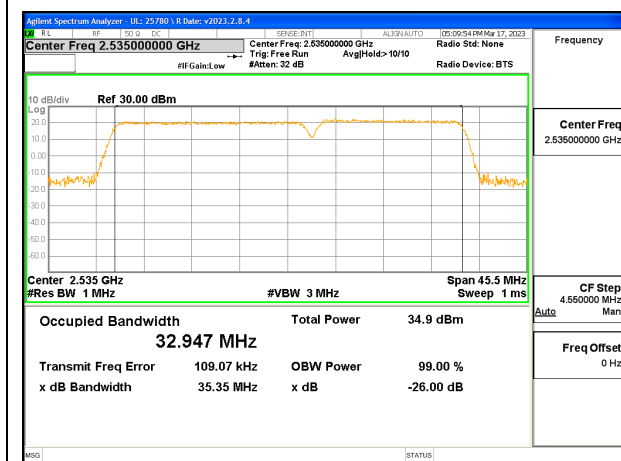
LTE B7 20MHz + 10MHz QPSK RB100-0 + RB50-0



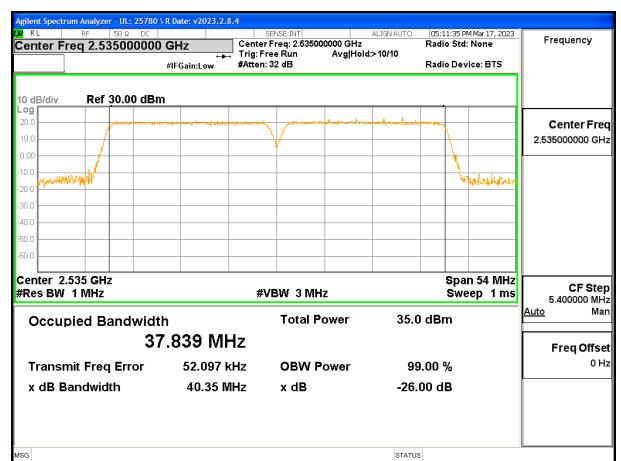
LTE B7 15MHz + 15MHz QPSK RB75-0 + RB75-0



LTE B7 15MHz + 20MHz QPSK RB75-0 + RB100-0

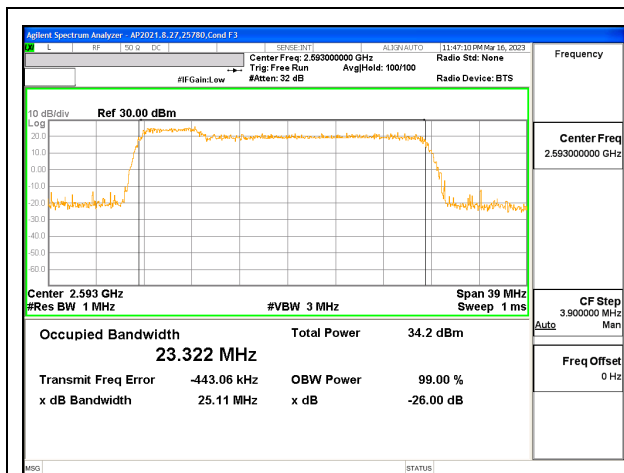


LTE B7 20MHz + 15MHz QPSK RB100-0 + RB75-0

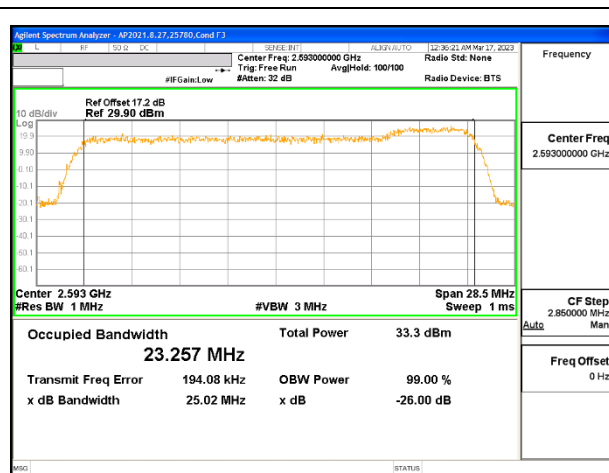


LTE B7 20MHz + 20MHz QPSK RB100-0 + RB100-0

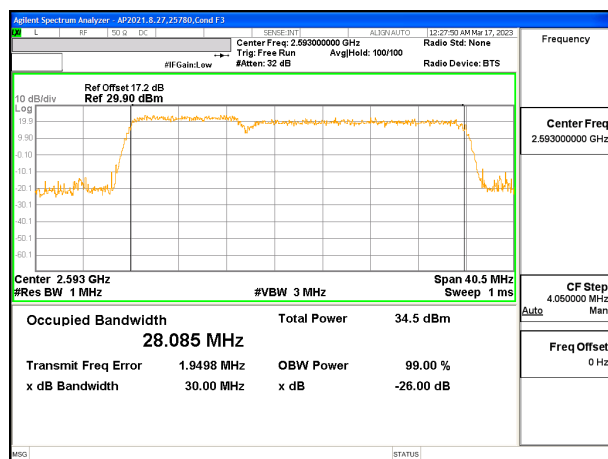
### 9.1.3. LTE BAND 41



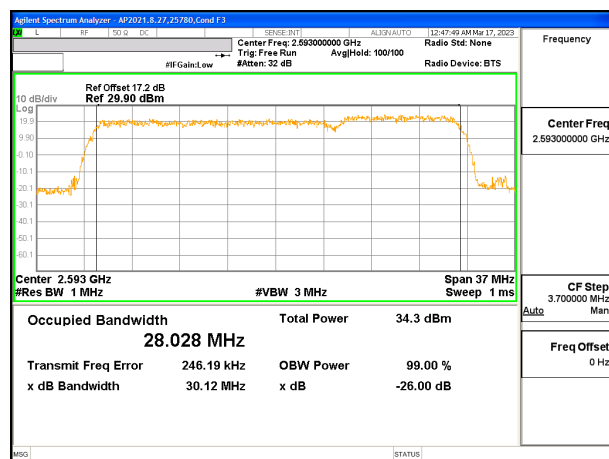
LTE B41 5MHz + 20MHz QPSK RB25-0 + RB100-0



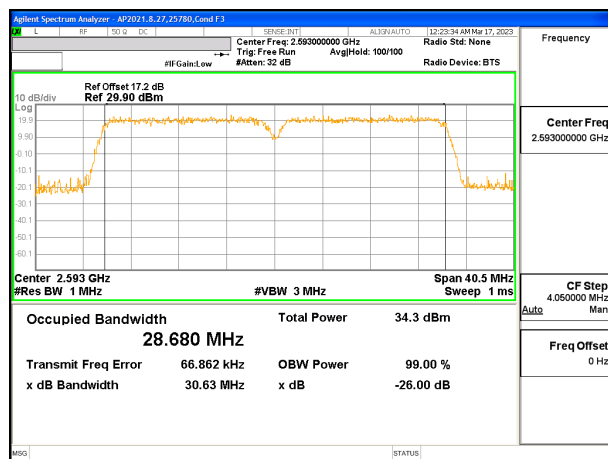
LTE B41 20MHz + 5MHz QPSK RB100-0 + RB25-0



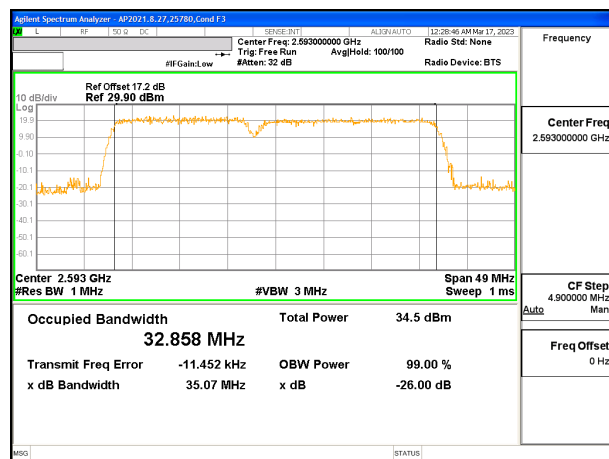
LTE B41 10MHz + 20MHz QPSK RB50-0 + RB100-0



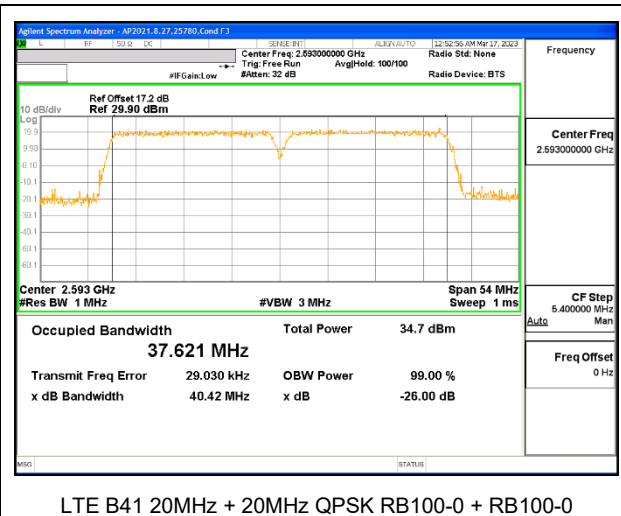
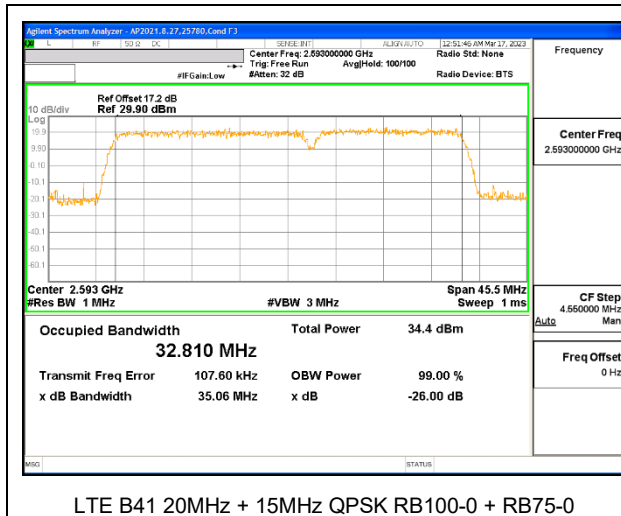
LTE B41 20MHz + 10MHz QPSK RB100-0 + RB50-0



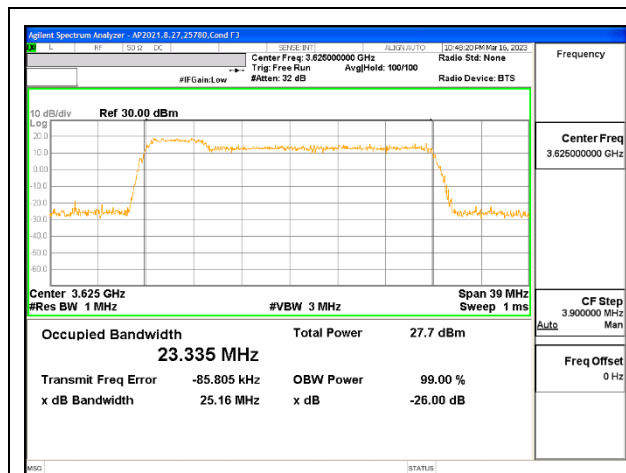
LTE B41 15MHz + 15MHz QPSK RB75-0 + RB75-0



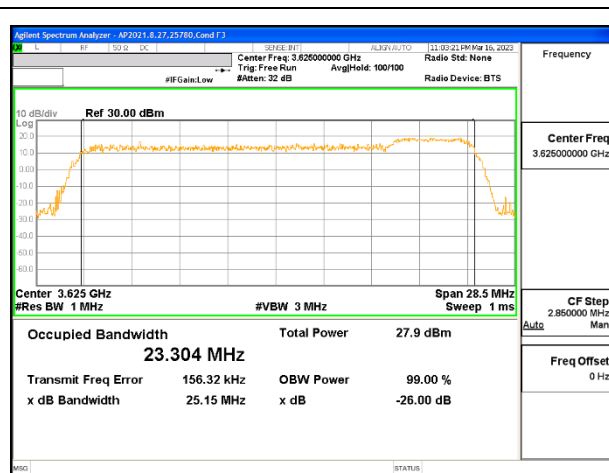
LTE B41 15MHz + 20MHz QPSK RB75-0 + RB100-0



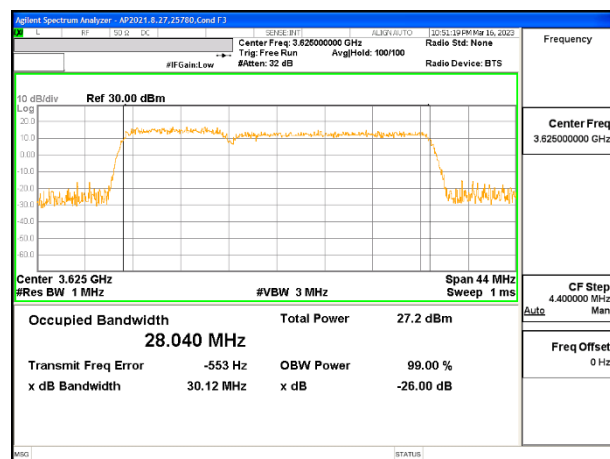
### 9.1.4. LTE BAND 48



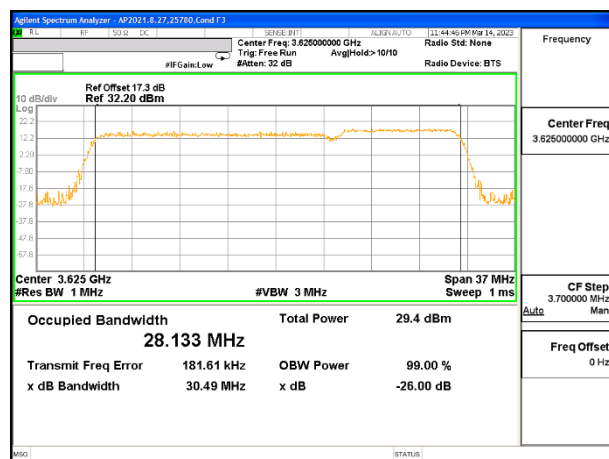
LTE B48 5MHz + 20MHz QPSK RB25-0 + RB100-0



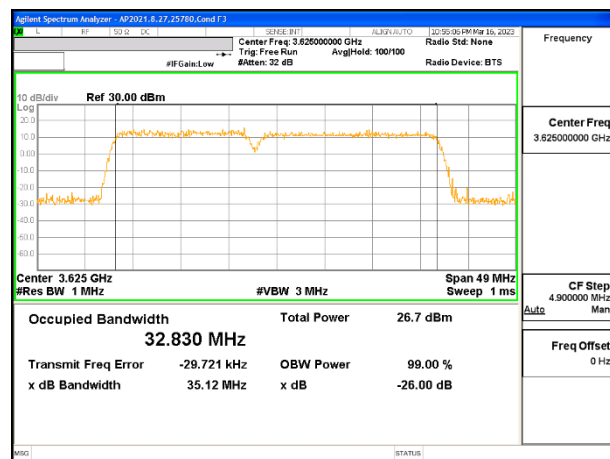
LTE B48 20MHz + 5MHz QPSK RB100-0 + RB25-0



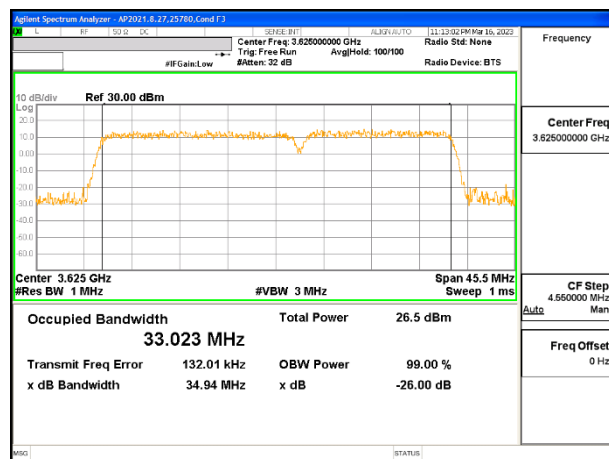
LTE B48 10MHz + 20MHz QPSK RB50-0 + RB100-0



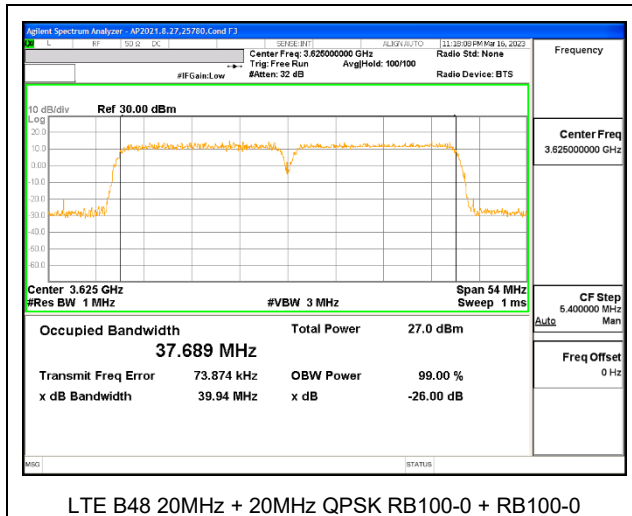
LTE B48 20MHz + 10MHz QPSK RB100-0 + RB50-0



LTE B48 15MHz + 20MHz QPSK RB75-0 + RB100-0



LTE B48 20MHz + 15MHz QPSK RB100-0 + RB75-0





## 9.2. EMISSION MASK AND ADJACENT CHANNEL POWER

### TEST PROCEDURE

The transmitter output was connected to a R&S CMW500 Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

For each band edge measurement:

- Set the spectrum analyzer span to include the block edge frequency.
- Set a marker to point the corresponding band edge frequency in each test case.
- Set display line at -13 dBm
- Set resolution bandwidth to at least 1% of emission bandwidth.

### TEST PROCEDURE FOR FCC PART 27

(m)(6) Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed; for mobile digital stations, in the 1 megahertz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed, except when the 1 megahertz band is 2495-2496 MHz, in which case a resolution bandwidth of at least one percent may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 megahertz or 1 percent of emission bandwidth, as specified; or 1 megahertz or 2 percent for mobile digital stations, except in the band 2495-2496 MHz). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. With respect to television operations, measurements must be made of the separate visual and aural operating powers at sufficiently frequent intervals to ensure compliance with the rules.

### TEST PROCEDURE FOR FCC PART 96

(3) Measurement procedure.

(i) Compliance with this provision 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 authorized frequency channel, a resolution bandwidth of no less than one percent of the fundamental emission bandwidth may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full reference bandwidth (i.e., 1 MHz or 1 percent of emission bandwidth, as specified). The fundamental emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

(ii) When measuring unwanted emissions to demonstrate compliance with the limits, the CBSD and End User Device nominal carrier frequency/channel shall be adjusted as close to the licensee's authorized frequency block edges, both upper and lower, as the design permits.

(iii) Compliance with emission limits shall be demonstrated using either average (RMS)-detected or peak-detected power measurement techniques.

### RESULTS

### 9.2.1. LTE BAND 5

#### LIMITS

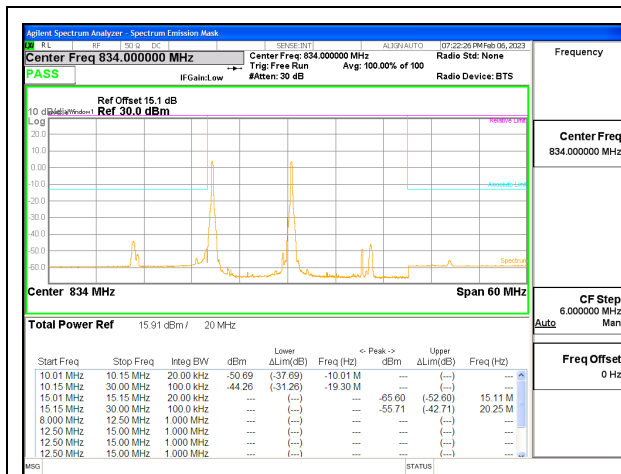
FCC: §22.917

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB.

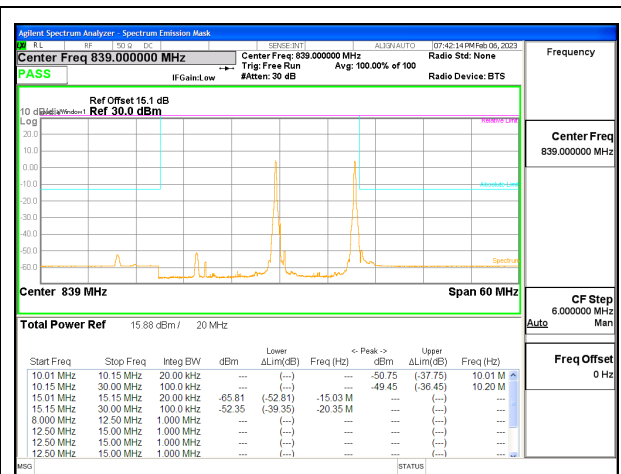
Equipment shall meet the unwanted emission limits specified below:

- (i) In the first 1.0 MHz band immediately outside and adjacent to each of the sub-bands specified in Section 5.1, the power of emissions per any 1% of the occupied bandwidth shall be attenuated below the transmitter output power P (dBW) by at least  $43 + 10 \log(p)$  dB.
- (ii) After the first 1.0 MHz immediately outside and adjacent to each of the sub-bands, the power of emissions in any 100 kHz bandwidth shall be attenuated below the transmitter output power P (dBW) by at least  $43 + 10 \log(p)$  dB. If the measurement is performed using 1% of the occupied bandwidth, power integration over 100 kHz is required.

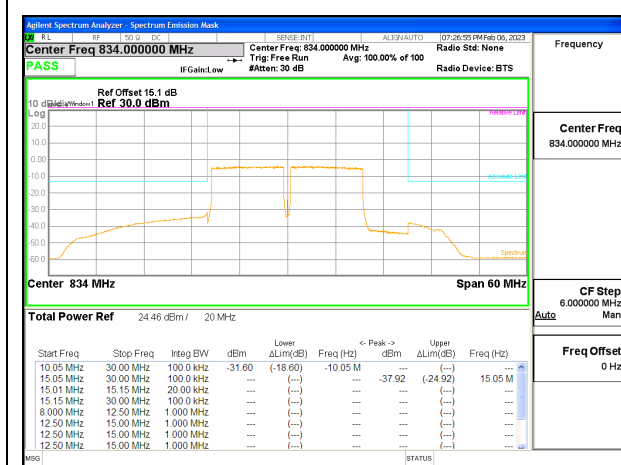
p is the output power specified in watts.



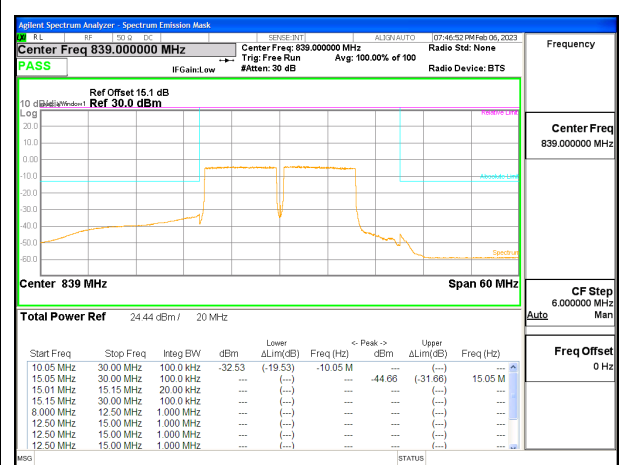
LTE B5 10MHz + 10MHz QPSK Low Ch RB1-0 + RB1-0



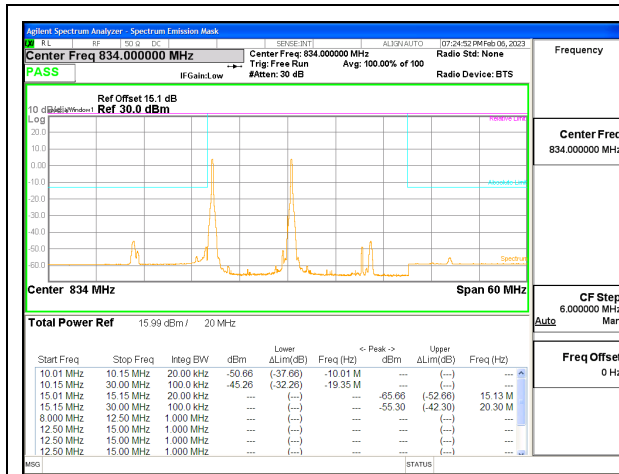
LTE B5 10MHz + 10MHz QPSK High Ch RB1-49 + RB1-49



LTE B5 10MHz + 10MHz QPSK Low Ch RB50-0 + RB50-0



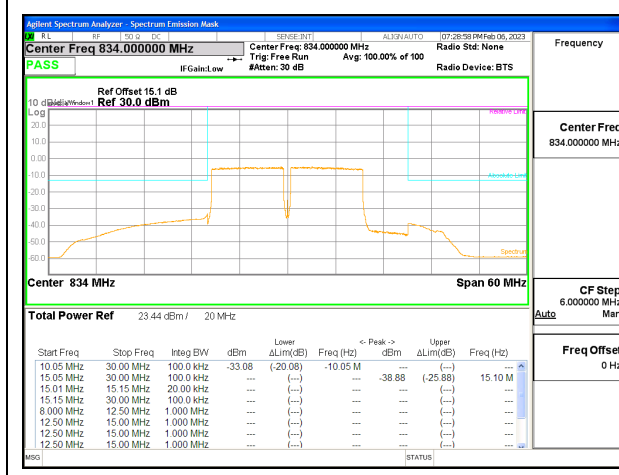
LTE B5 10MHz + 10MHz QPSK High Ch RB50-0 + RB50-0



LTE B5 10MHz + 10MHz 16QAM Low Ch RB1-0 + RB1-0



LTE B5 10MHz + 10MHz 16QAM High Ch RB1-49 + RB1-49



LTE B5 10MHz + 10MHz 16QAM Low Ch RB50-0 + RB50-0

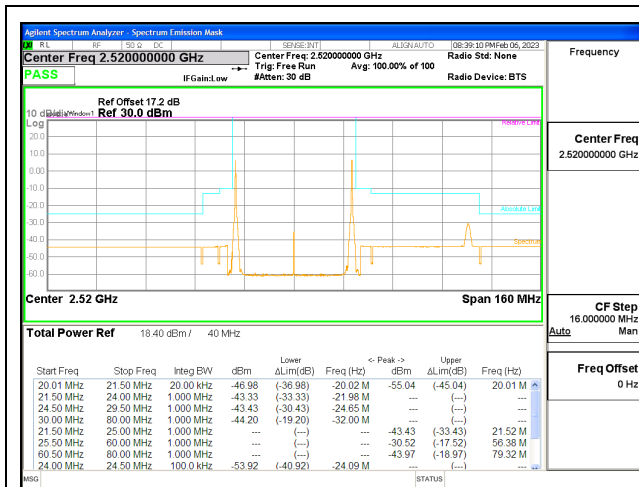


LTE B5 10MHz + 10MHz 16QAM High Ch RB50-0 + RB50-0

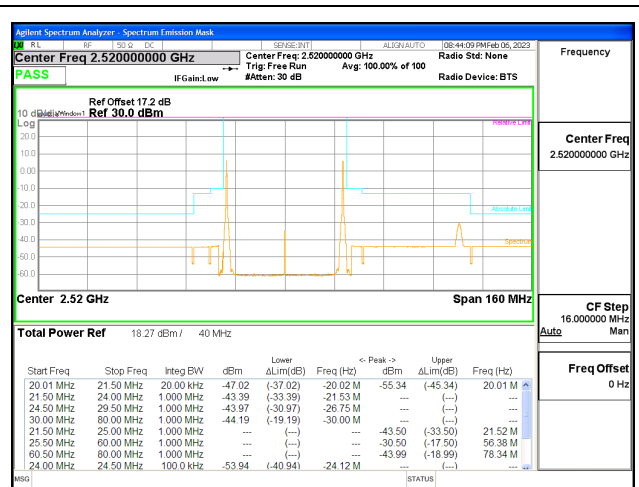
### 9.2.2. LTE BAND 7

#### LIMITS

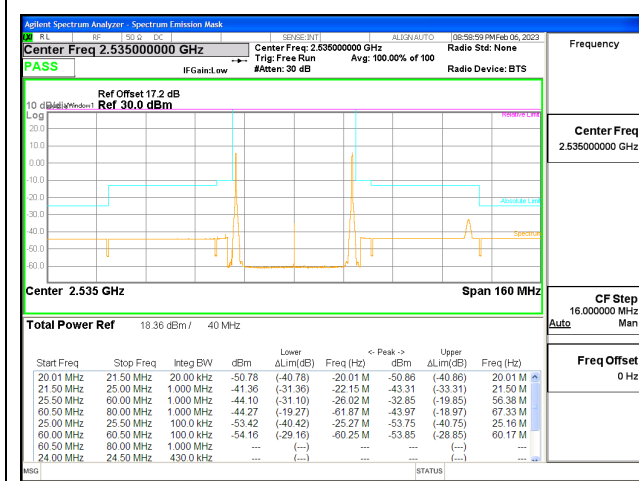
FCC: §27.53(m)(4) For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.



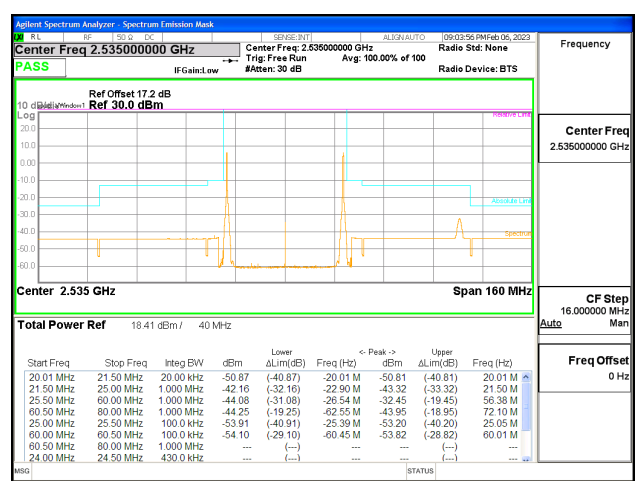
LTE B7 20MHz + 20MHz QPSK Low Ch RB1-0 + RB1-99



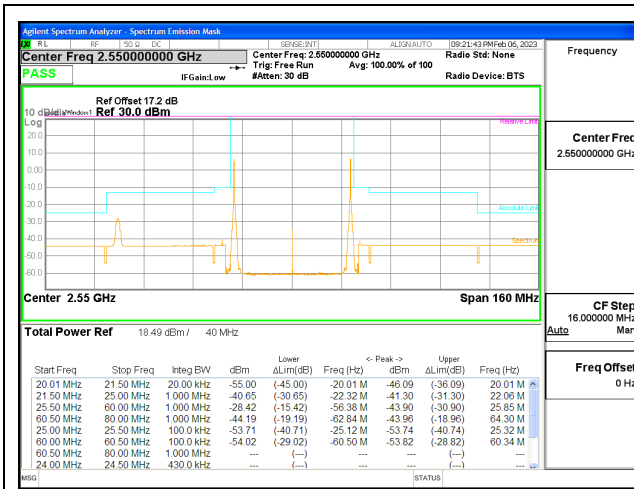
LTE B7 20MHz + 20MHz 16QAM Low Ch RB1-0 + RB1-99



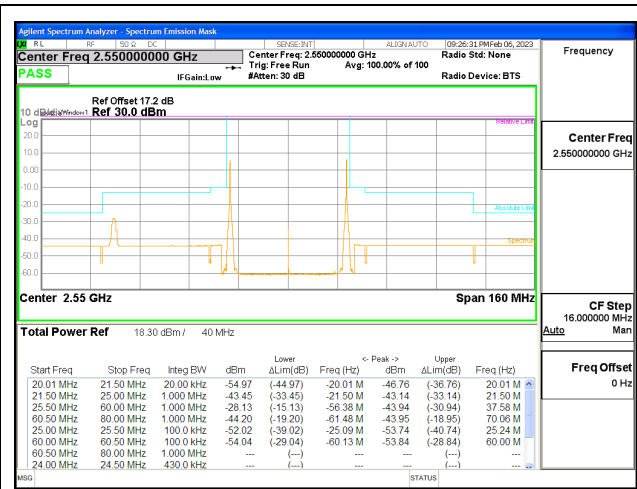
LTE B7 20MHz + 20MHz QPSK Mid Ch RB1-0 + RB1-99



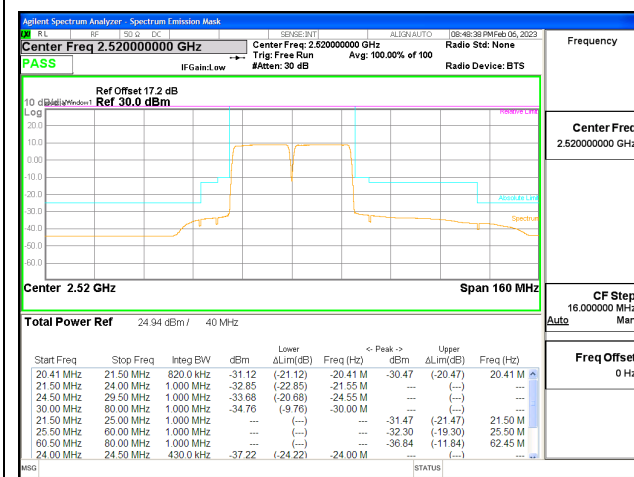
LTE B7 20MHz + 20MHz 16QAM Mid Ch RB1-0 + RB1-99



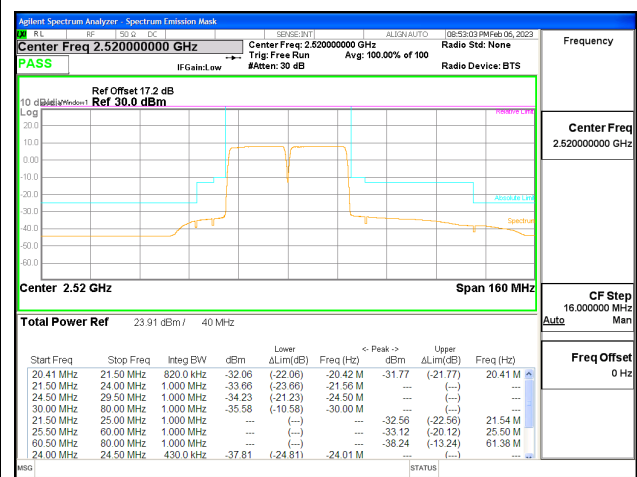
LTE B7 20MHz + 20MHz QPSK High Ch RB1-0 + RB1-99



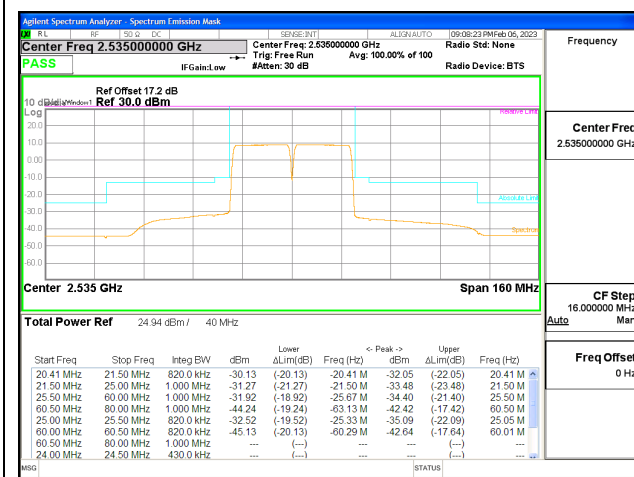
LTE B7 20MHz + 20MHz 16QAM High Ch RB1-0 + RB1-99



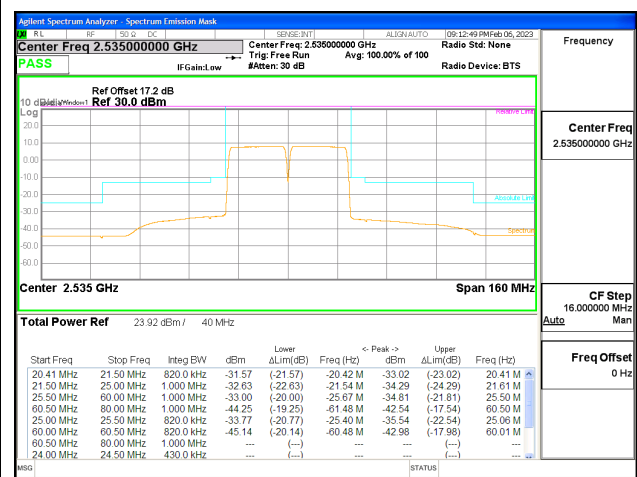
LTE B7 20MHz + 20MHz QPSK Low Ch RB100-0 + RB100-0



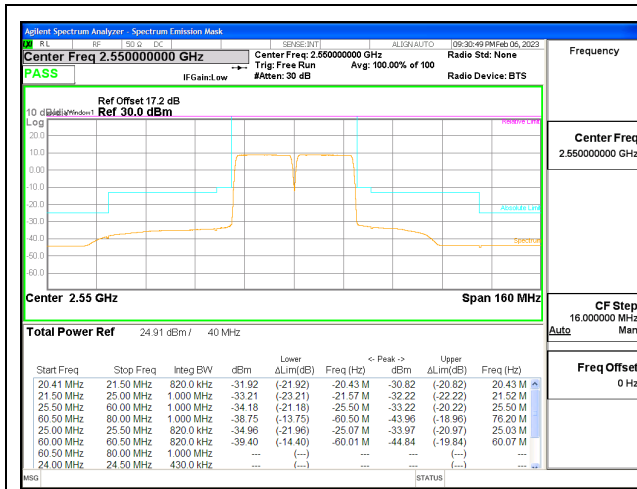
LTE B7 20MHz + 20MHz 16QAM Low Ch RB100-0 + RB100-0



LTE B7 20MHz + 20MHz QPSK Mid Ch RB100-0 + RB100-0



LTE B7 20MHz + 20MHz 16QAM Mid Ch RB100-0 + RB100-0



LTE B7 20MHz + 20MHz QPSK High Ch RB100-0 + RB100-0

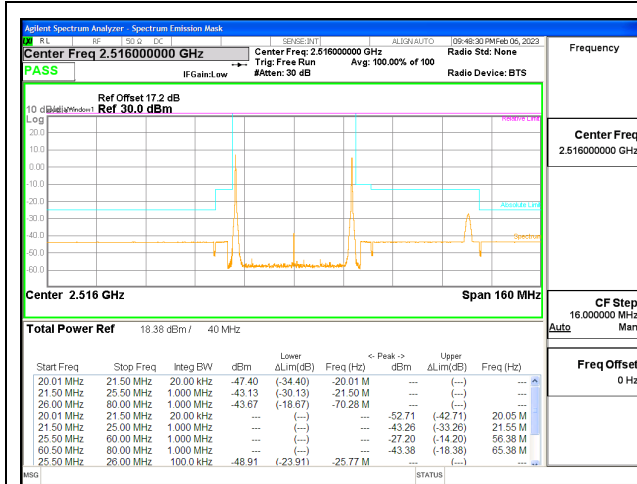


LTE B7 20MHz + 20MHz 16QAM High Ch RB100-0 + RB100-0

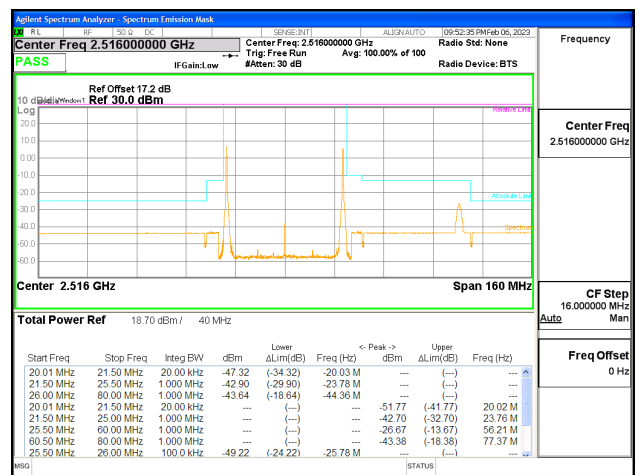
### 9.2.3. LTE BAND 41

#### LIMITS

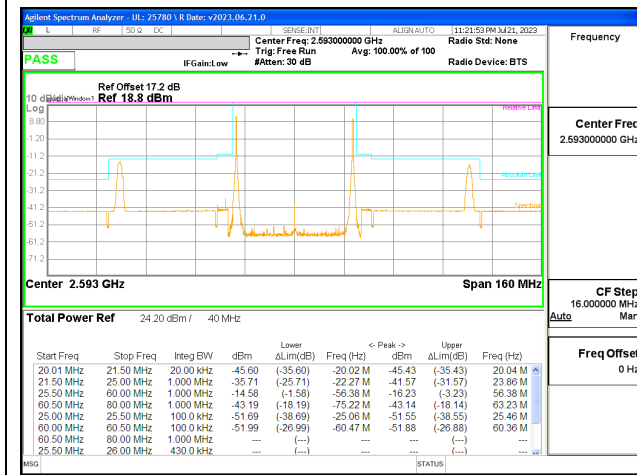
FCC: §27.53(m)(4) For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.



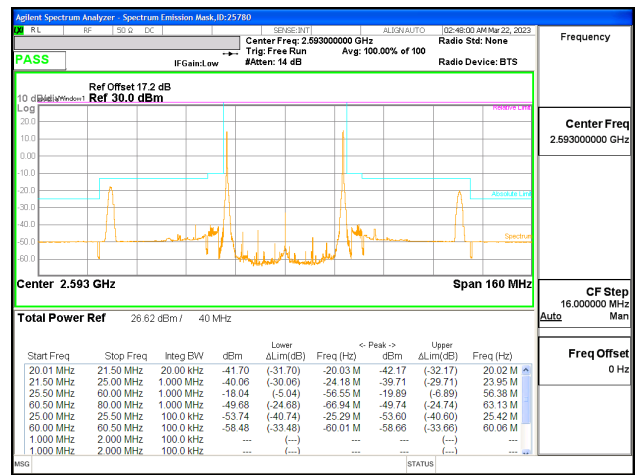
LTE B41 20MHz + 20MHz QPSK Low Ch RB1-0 + RB1-99



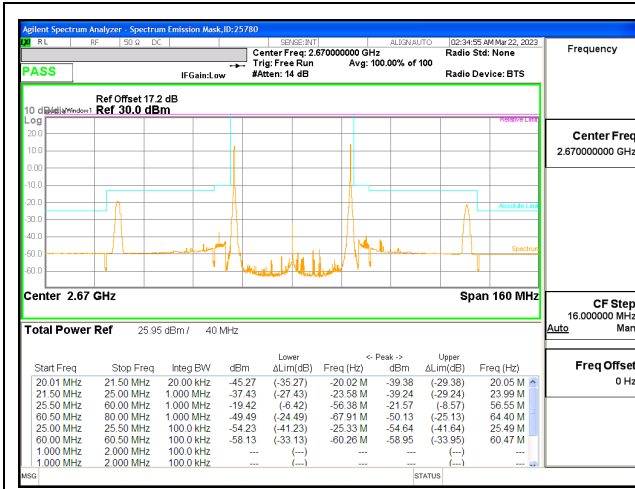
LTE B41 20MHz + 20MHz 16QAM Low Ch RB1-0 + RB1-99



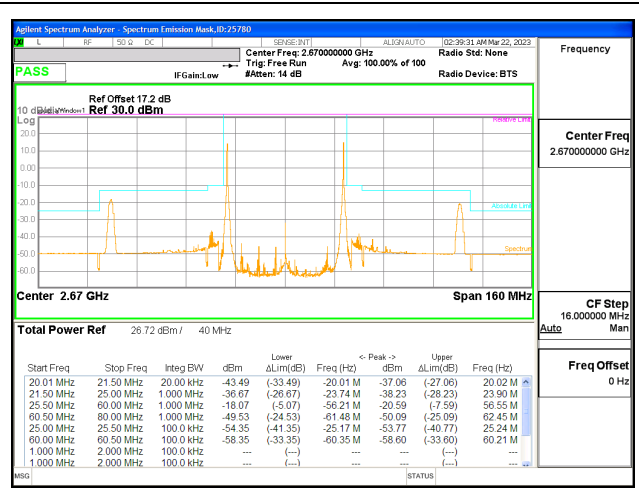
LTE B41 20MHz + 20MHz QPSK Mid Ch RB1-0 + RB1-99



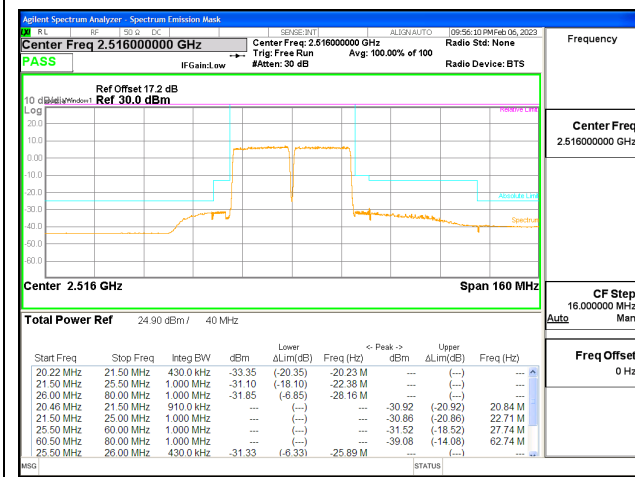
LTE B41 20MHz + 20MHz 16QAM Mid Ch RB1-0 + RB1-99



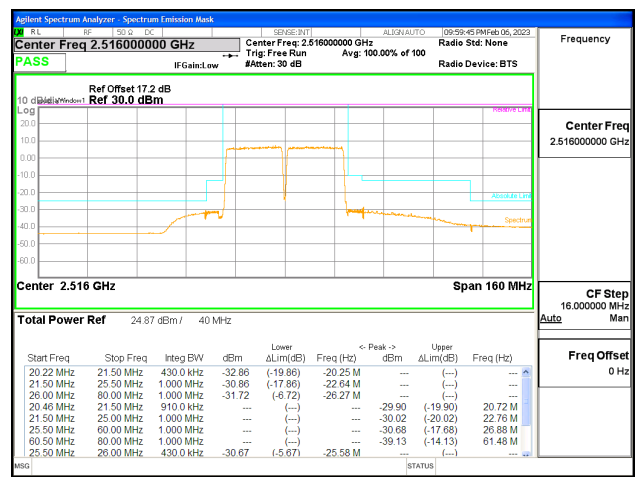
LTE B41 20MHz + 20MHz QPSK High Ch RB1-0 + RB1-99



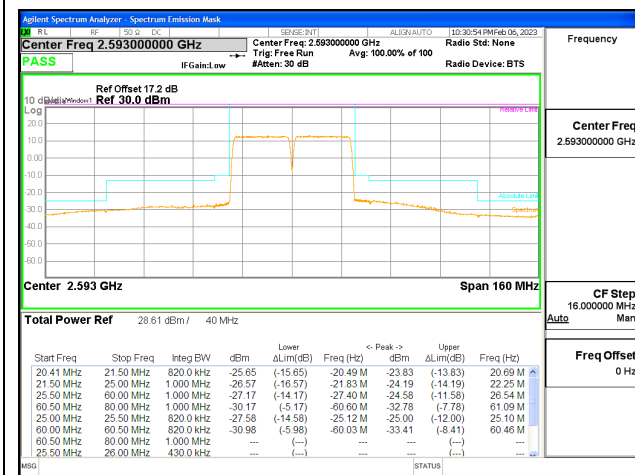
LTE B41 20MHz + 20MHz 16QAM High Ch RB1-0 + RB1-99



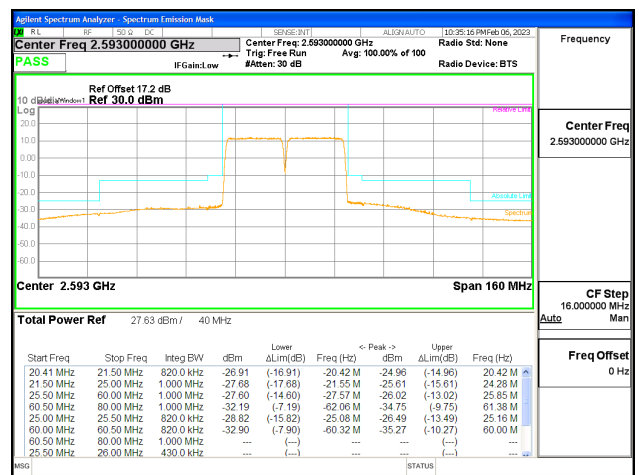
LTE B41 20MHz + 20MHz QPSK Low Ch RB100-0 + RB100-0



LTE B41 20MHz + 20MHz 16QAM Low Ch RB100-0 + RB100-0

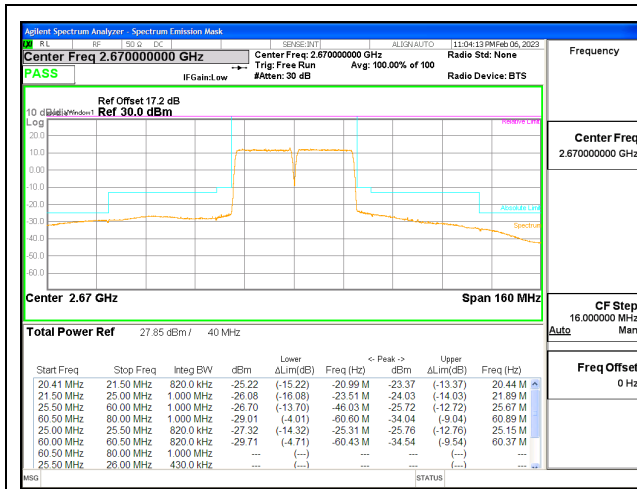


LTE B41 20MHz + 20MHz QPSK Mid Ch RB100-0 + RB100-0

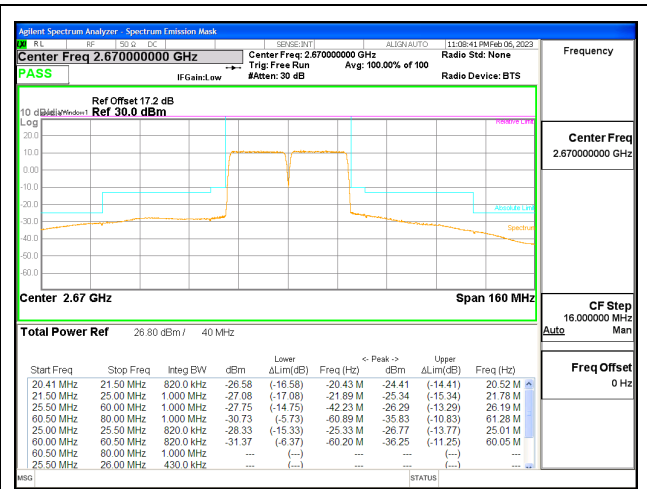


LTE B41 20MHz + 20MHz 16QAM Mid Ch RB100-0 + RB100-0





LTE B41 20MHz + 20MHz QPSK High Ch RB100-0 + RB100-0



LTE B41 20MHz + 20MHz 16QAM High Ch RB100-0 + RB100-0

## 9.2.4. LTE BAND 48

### LIMITS

FCC: §96.41

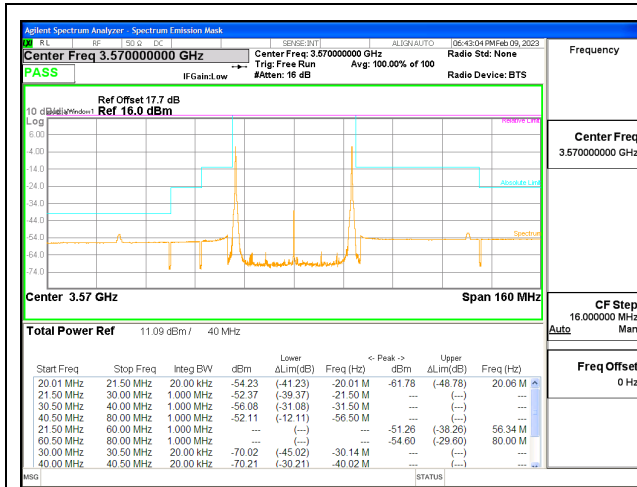
(e) 3.5 GHz Emissions and Interference Limits—

(1) General protection levels

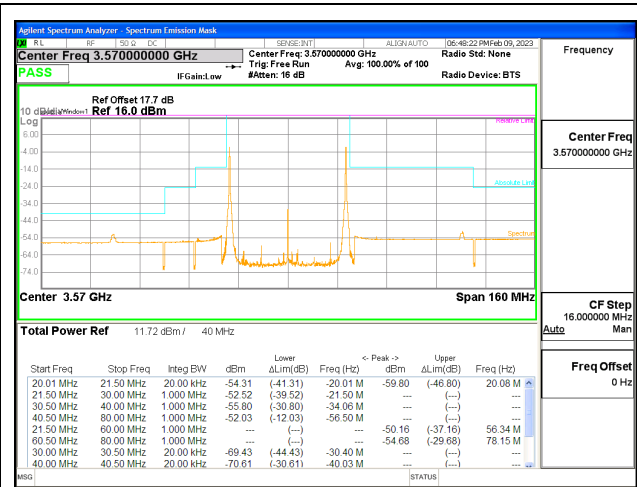
(ii) Except as otherwise specified in paragraph (e)(2) of this section, for channel and frequency assignments made by a CBSD to End User Devices, the conducted power of any End User Device emission outside the fundamental emission (whether in or outside of the authorized band) shall not exceed  $-13$  dBm/MHz within 0 to B megahertz (where B is the bandwidth in megahertz of the assigned channel or multiple contiguous channels of the End User Device) above the upper CBSD-assigned channel edge and within 0 to B megahertz below the lower CBSD-assigned channel edge. At all frequencies greater than B megahertz above the upper CBSD assigned channel edge and less than B megahertz below the lower CBSD-assigned channel edge, the conducted power of any End User Device emission shall not exceed  $-25$  dBm/MHz. Notwithstanding the emission limits in this paragraph, the Adjacent Channel Leakage Ratio for End User Devices shall be at least 30 dB.

(2) Additional protection levels. Notwithstanding paragraph (e)(1) of this section, for CBSDs and End User Devices, the conducted power of emissions below 3540 MHz or above 3710 MHz shall not exceed  $-25$  dBm/MHz, and the conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed  $-40$  dBm/MHz.  
licensees.

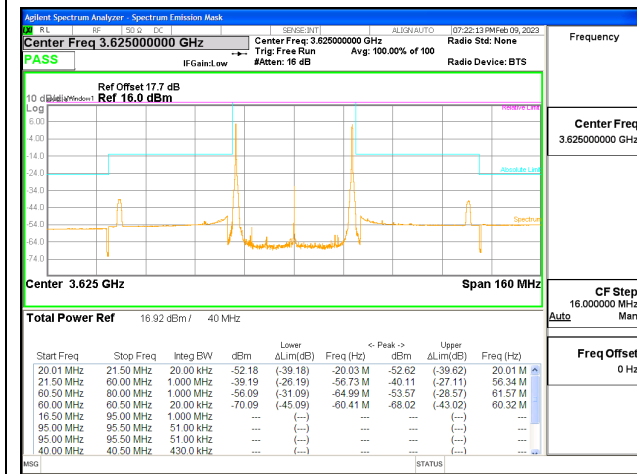
**LTE BAND 48EMISSION MASK**



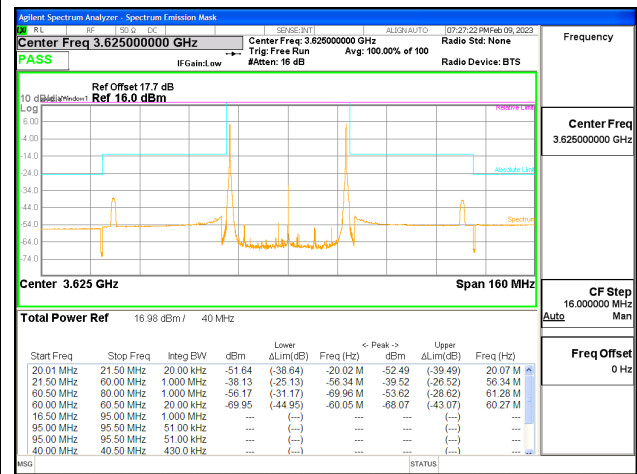
LTE B48 20MHz + 20MHz QPSK Low Ch RB1-0 + RB1-99



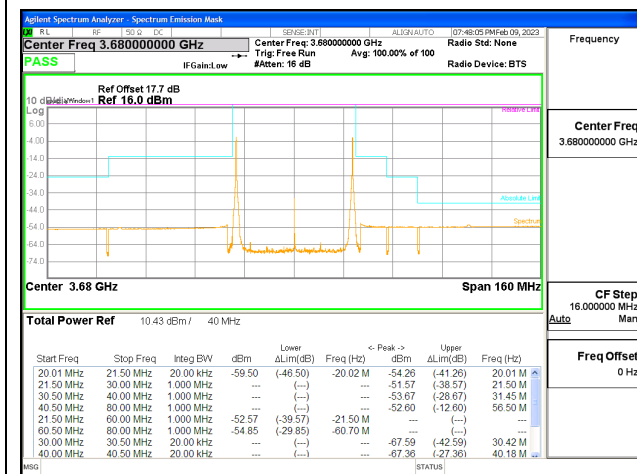
LTE B48 20MHz + 20MHz 16QAM Low Ch RB1-0 + RB1-99



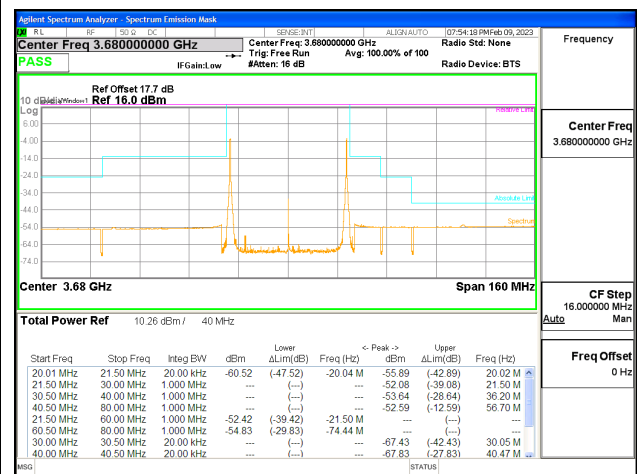
LTE B48 20MHz + 20MHz QPSK Mid Ch RB1-0 + RB1-99



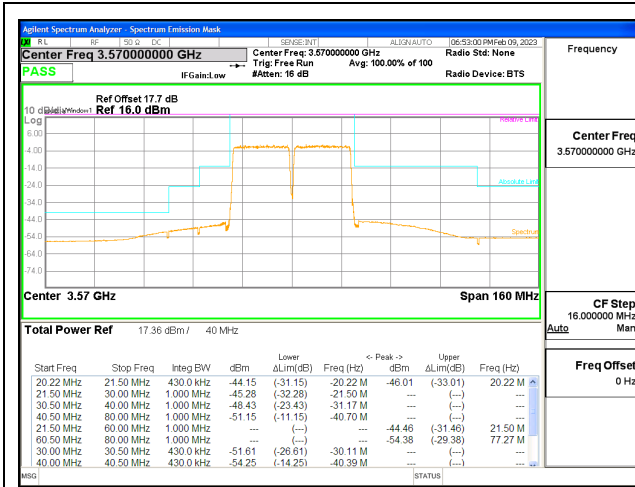
LTE B48 20MHz + 20MHz 16QAM Mid Ch RB1-0 + RB1-99



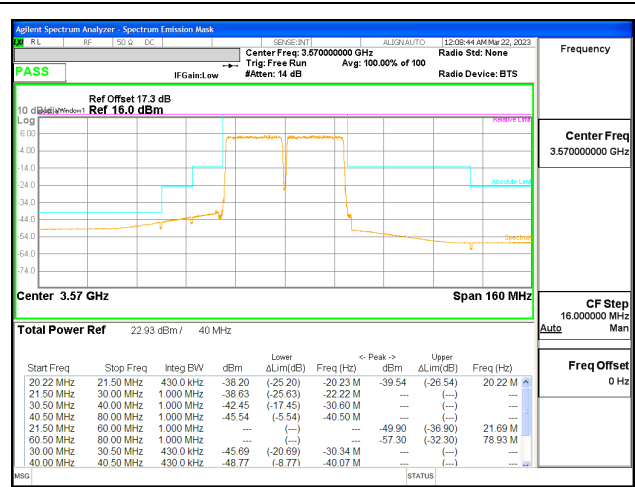
LTE B48 20MHz + 20MHz QPSK High Ch RB1-0 + RB1-99



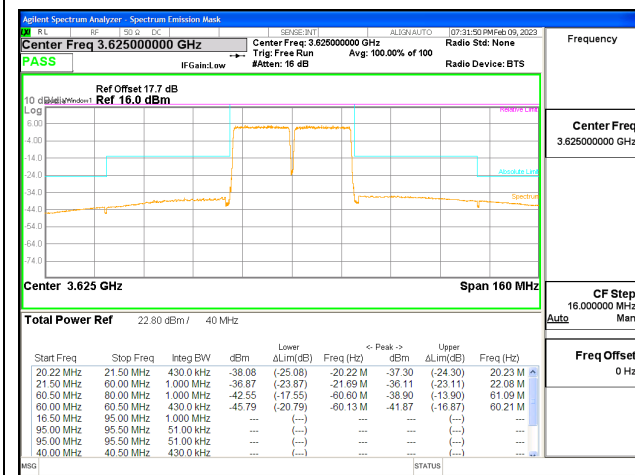
LTE B48 20MHz + 20MHz 16QAM High Ch RB1-0 + RB1-99



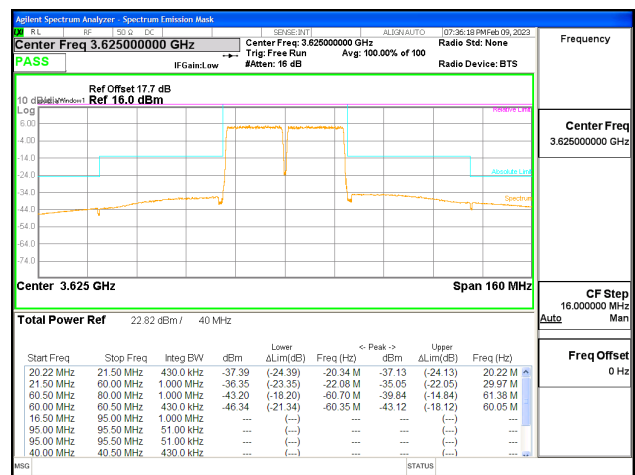
LTE B48 20MHz + 20MHz QPSK Low Ch RB100-0 + RB100-0



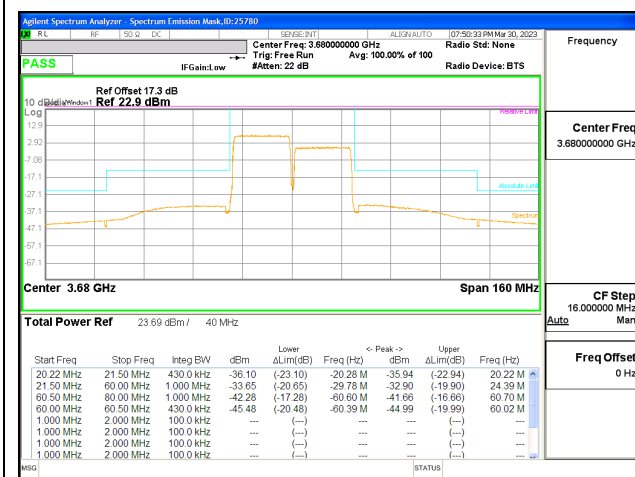
LTE B48 20MHz + 20MHz 16QAM Low Ch RB100-0 + RB100-0



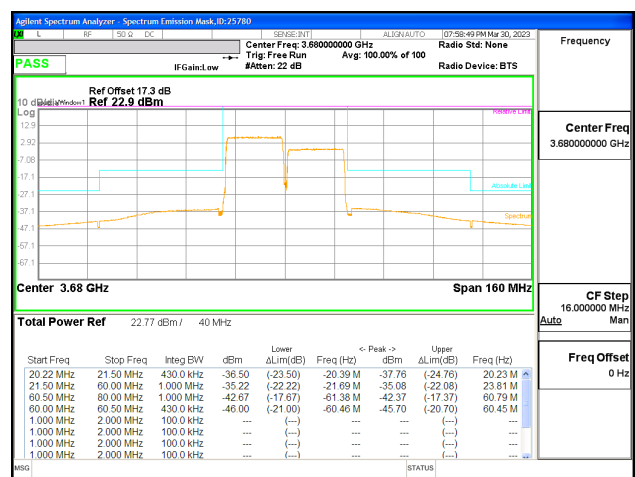
LTE B48 20MHz + 20MHz QPSK Mid Ch RB100-0 + RB100-0



LTE B48 20MHz + 20MHz 16QAM Mid Ch RB100-0 + RB100-0

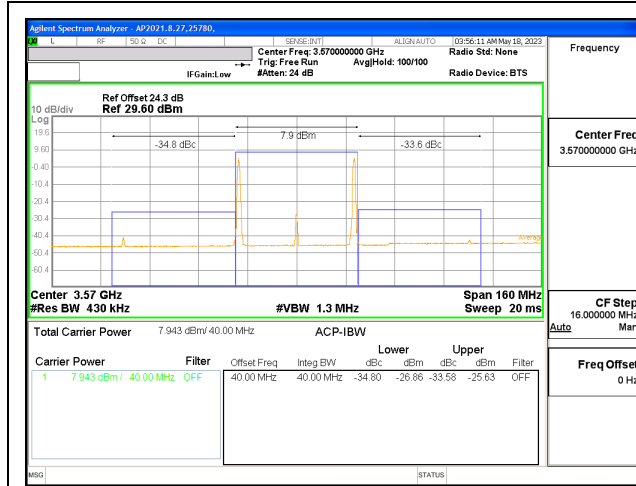


LTE B48 20MHz + 20MHz QPSK High Ch RB100-0 + RB100-0



LTE B48 20MHz + 20MHz 16QAM High Ch RB100-0 + RB100-0

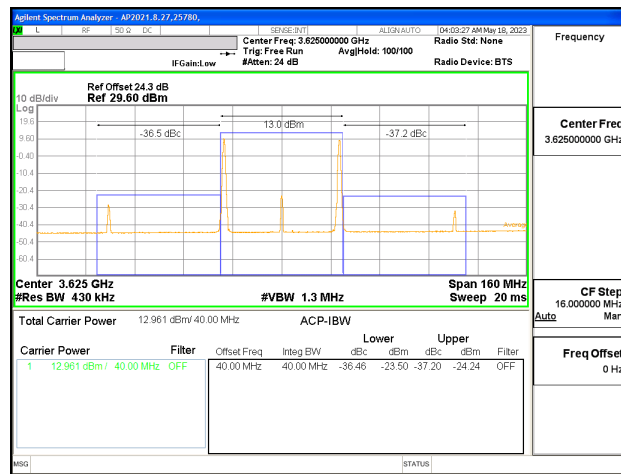
**LTE BAND 48 ADJACENT CHANNEL POWER**



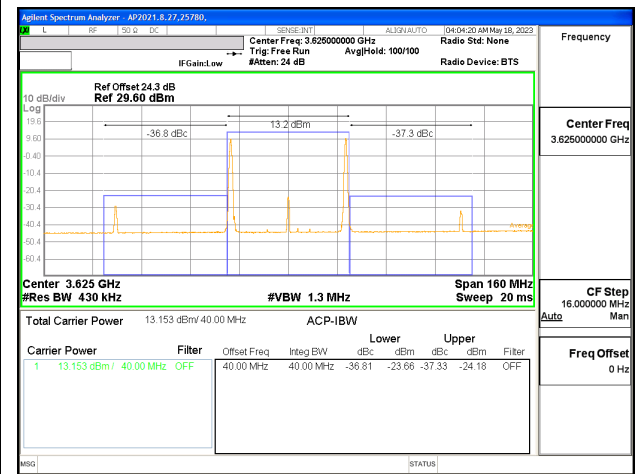
LTE B48 20MHz + 20MHz QPSK Low Ch RB1-0 + RB1-99



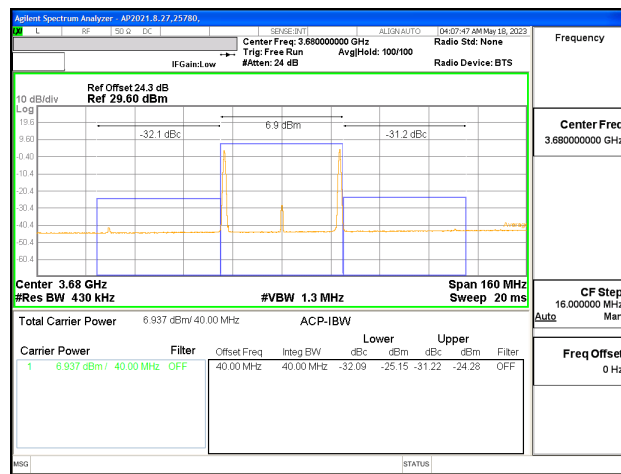
LTE B48 20MHz + 20MHz 16QAM Low Ch RB1-0 + RB1-99



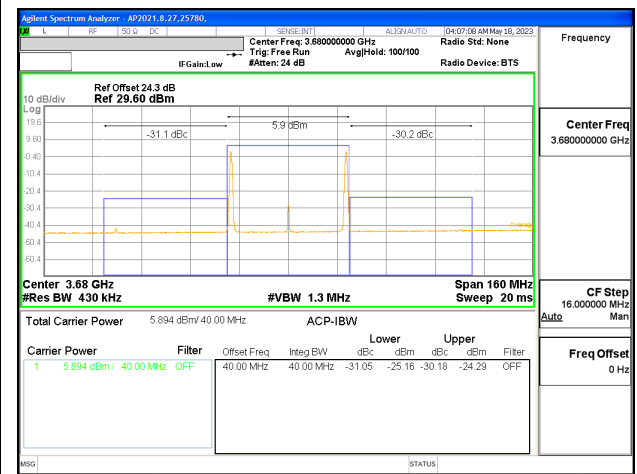
LTE B48 20MHz + 20MHz QPSK Mid Ch RB1-0 + RB1-99



LTE B48 20MHz + 20MHz 16QAM Mid Ch RB1-0 + RB1-99



LTE B48 20MHz + 20MHz QPSK High Ch RB1-0 + RB1-99



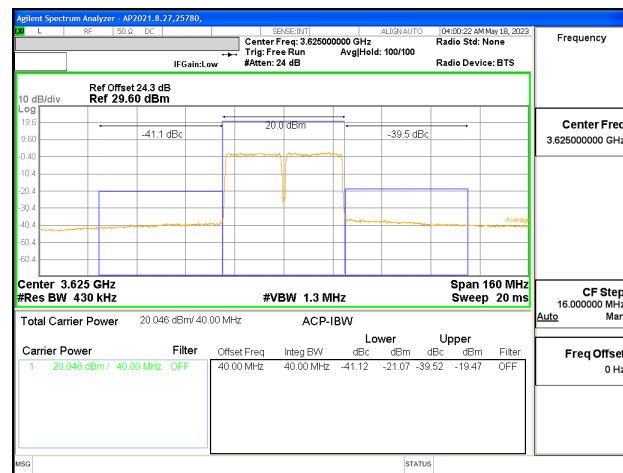
LTE B48 20MHz + 20MHz 16QAM High Ch RB1-0 + RB1-99



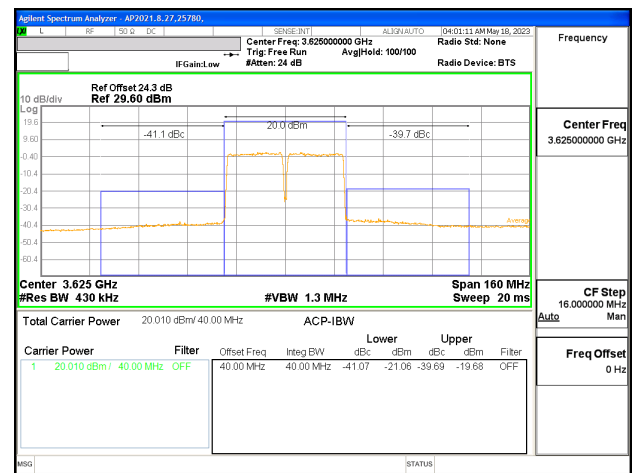
LTE B48 20MHz + 20MHz QPSK Low Ch RB100-0 + RB100-0



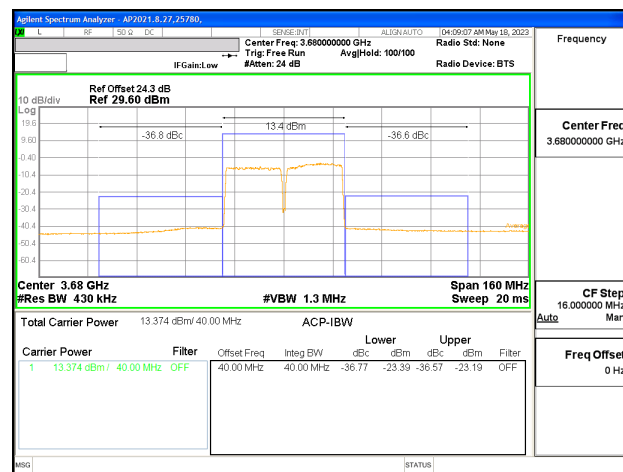
LTE B48 20MHz + 20MHz 16QAM Low Ch RB100-0 + RB100-0



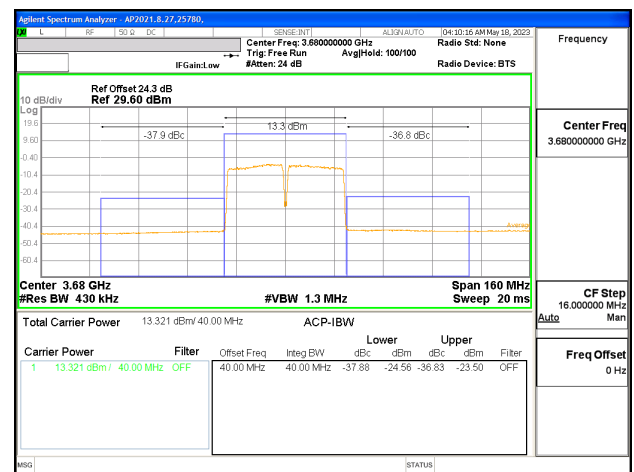
LTE B48 20MHz + 20MHz QPSK Mid Ch RB100-0 + RB100-0



LTE B48 20MHz + 20MHz 16QAM Mid Ch RB100-0 + RB100-0



LTE B48 20MHz + 20MHz QPSK High Ch RB100-0 + RB100-0



LTE B48 20MHz + 20MHz 16QAM High Ch RB100-0 + RB100-0

### **9.3. OUT OF BAND EMISSIONS**

#### **TEST PROCEDURE**

The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case emissions were caught.

For each out of band emissions measurement:

- Set display line at -13 dBm to band 5 and -25 dBm to band 7 and 41
- Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz.  
(NOTE: Worst case set RBW/VBW to 1MHz/3MHz)

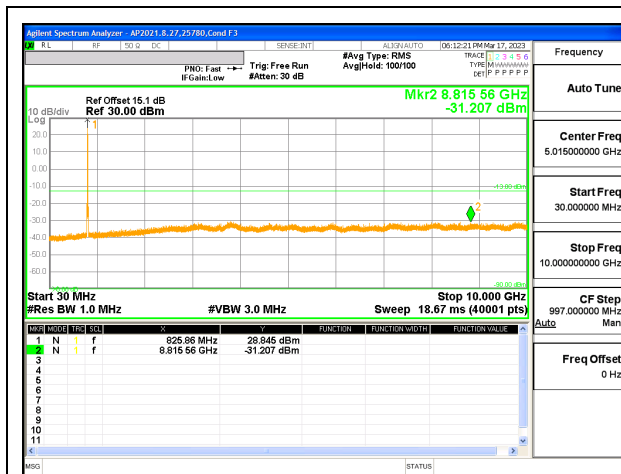
#### **RESULTS**

### 9.3.1. LTE BAND 5

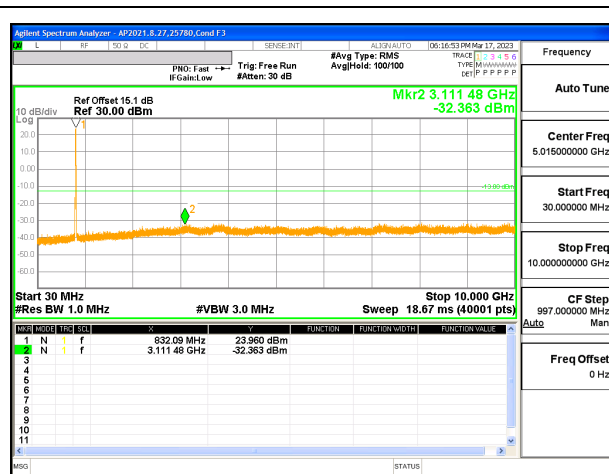
#### LIMITS

FCC: §22.917

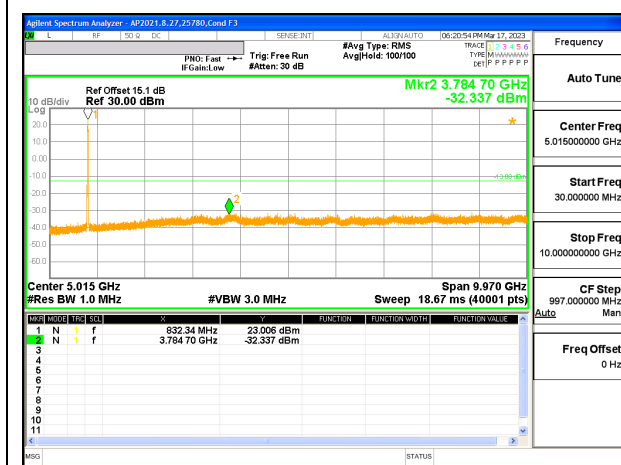
The minimum permissible attenuation level of any spurious emissions is 43 + 10 log (P) dB where transmitting power (P) in Watts.



LTE B5 10MHz + 10MHz QPSK Low Ch RB1-49 + RB1-0



LTE B5 10MHz + 10MHz QPSK Middle Ch RB1-49 + RB1-0



LTE B5 10MHz + 10MHz QPSK High Ch RB1-49 + RB1-0

Intentionally Blank

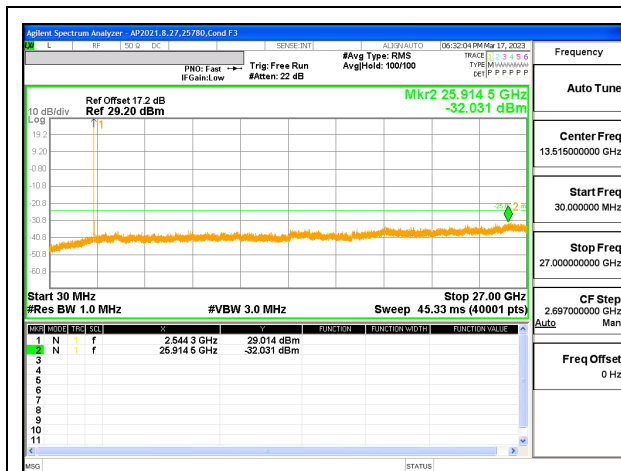


### 9.3.2. LTE BAND 7

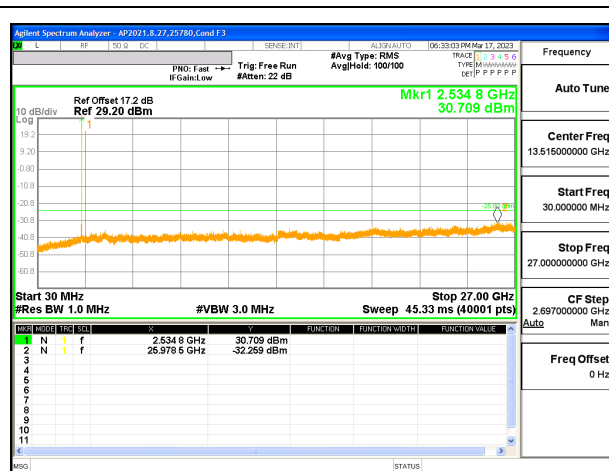
#### LIMITS

FCC: §27.53 (m)

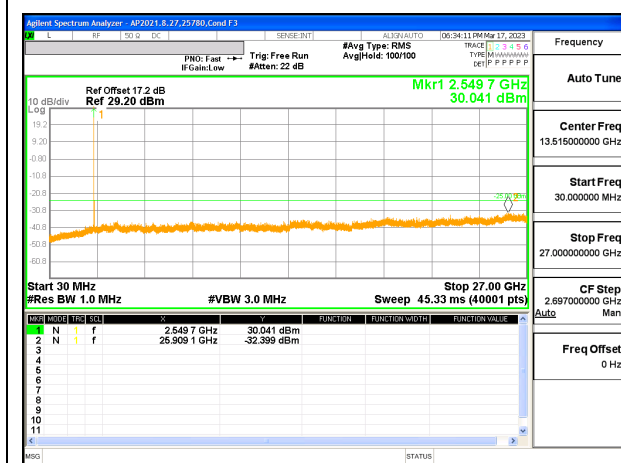
The minimum permissible attenuation level of any spurious emissions is 55 + 10 log (P) dB where transmitting power (P) in Watts.



LTE B7 20MHz + 20MHz QPSK Low Ch RB1-99 + RB1-0



LTE B7 20MHz + 20MHz QPSK Middle Ch RB1-99 + RB1-0



LTE B7 20MHz + 20MHz QPSK High Ch RB1-99 + RB1-0

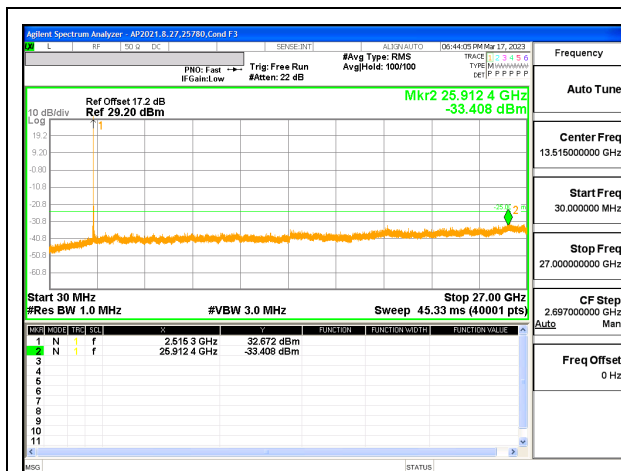
Intentionally Blank

### 9.3.3. LTE BAND 41

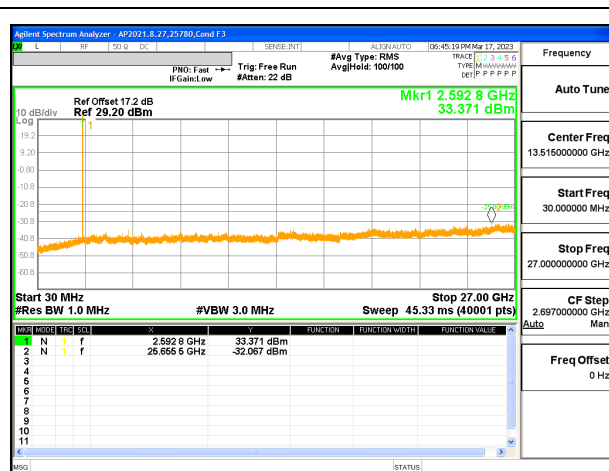
#### LIMITS

FCC: §27.53 (m)

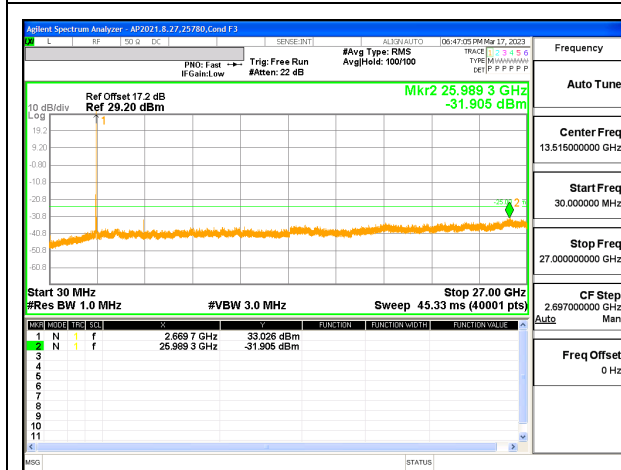
The minimum permissible attenuation level of any spurious emissions is  $55 + 10 \log (P)$  dB where transmitting power (P) in Watts.



LTE B41 20MHz + 20MHz QPSK Low Ch RB1-99 + RB1-0



LTE B41 20MHz + 20MHz QPSK Middle Ch RB1-99 + RB1-0



LTE B41 20MHz + 20MHz QPSK High Ch RB1-99 + RB1-0

Intentionally Blank

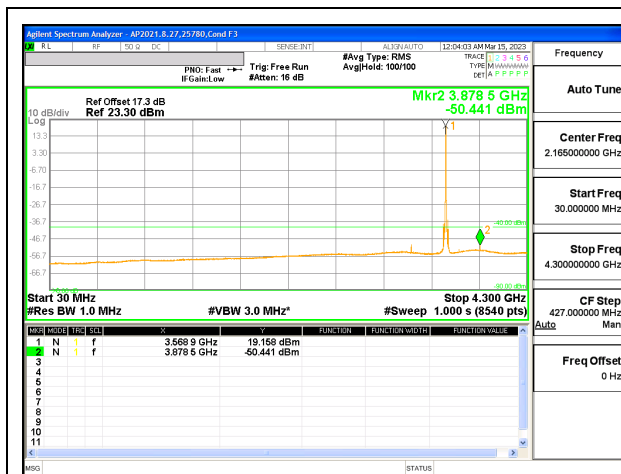
### 9.3.4. LTE BAND 48

#### LIMITS

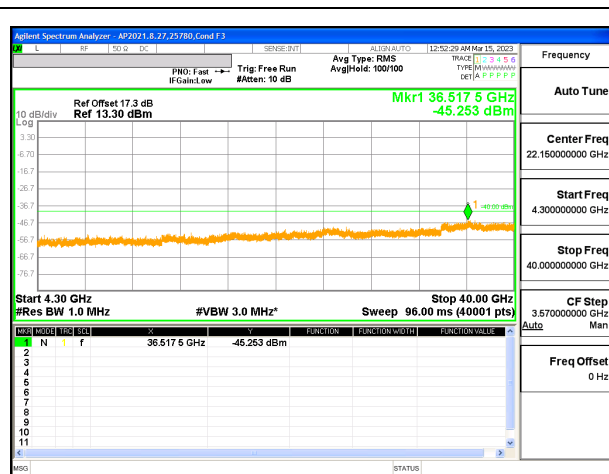
FCC: §96.14

(e) 3.5 GHz Emissions and Interference Limits—

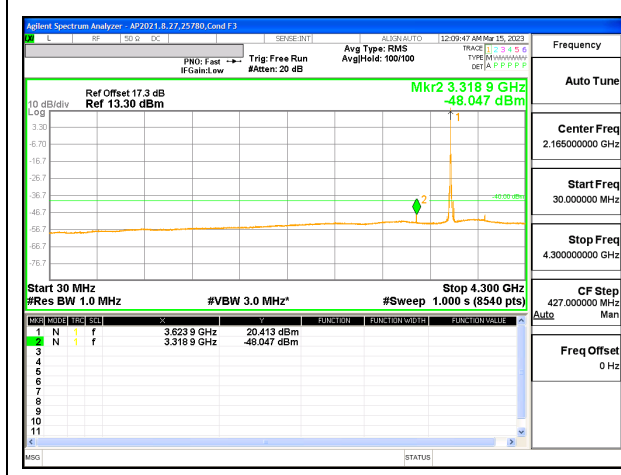
(2) Additional protection levels. Notwithstanding paragraph (e)(1) of this section, for CBSDs and End User Devices, the conducted power of emissions below 3540 MHz or above 3710 MHz shall not exceed -25 dBm/MHz, and the conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed -40dBm/MHz.



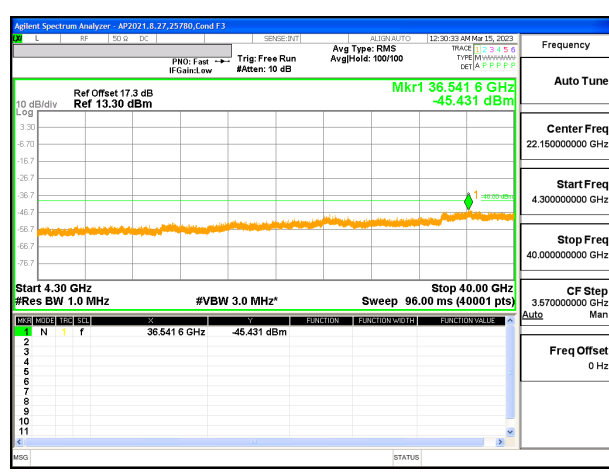
LTE B48 20MHz + 20MHz QPSK Low Ch RB1-99 + RB1-0  
 (30MHz to 4.5GHz)



LTE B48 20MHz + 20MHz QPSK Low Ch RB1-99 + RB1-0  
 (4.5GHz to 40GHz)



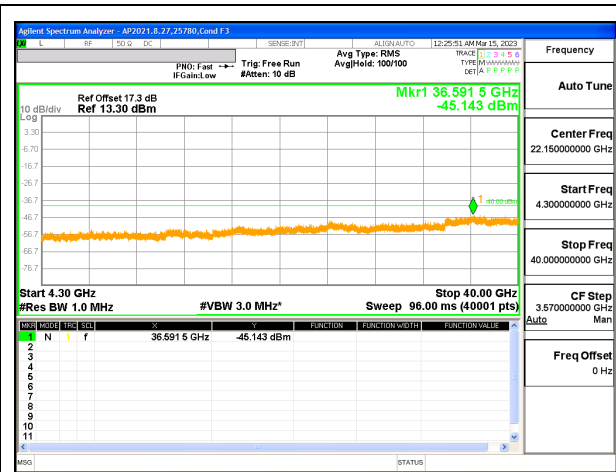
LTE B48 20MHz + 20MHz QPSK Middle Ch RB1-99 + RB1-0  
 (30MHz to 4.5GHz)



LTE B48 20MHz + 20MHz QPSK Middle Ch RB1-99 + RB1-0  
 (4.5GHz to 40GHz)



LTE B48 20MHz + 20MHz QPSK High Ch RB1-99 + RB1-0  
 (30MHz to 4.5GHz)



LTE B48 20MHz + 20MHz QPSK High Ch RB1-99 + RB1-0  
 (4.5GHz to 40GHz)

## 9.4. FREQUENCY STABILITY

### **TEST PROCEDURE**

Use CMW 500 with Frequency Error measurement capability.

- Temp. = -30°C to +50°C
- Voltage = (85% - 115%)

Low voltage, 3.23VDC, Normal, 3.8VDC and High voltage, 4.37VDC.  
End Voltage, 3.2VDC.

### **Frequency Stability vs Temperature:**

The EUT is placed inside a temperature chamber. The temperature is set to 20°C and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured. The temperature is increased by 10 degrees, allowed to stabilize and soak, and then the measurement is repeated. This is repeated until +50°C is reached.

### **Frequency Stability vs Voltage:**

The peak frequency error is recorded (worst-case).

### **RESULTS**

See the following pages.

**9.4.1. LTE BAND 5**

**LIMITS**

FCC §22.355

The carrier frequency shall not depart from the reference frequency in excess of ±2.5 ppm for mobile stations.

<b>Test Engineer ID:</b>	32061	<b>Test Date:</b>	3/6/2023
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**QPSK (10MHz + 10MHz BANDWIDTH)**

Band		5		Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		824	849	2.5	Within Authorized Frequency Block (Hz)			
Temperature	Voltage	Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)					
Normal (20°C)	Normal	824.2950	848.6800					
Extreme (50°C)		824.2950	848.6800	26.2	0.031	Yes		
Extreme (40°C)		824.2950	848.6800	33.4	0.040	Yes		
Extreme (30°C)		824.2950	848.6800	28.0	0.033	Yes		
Extreme (10°C)		824.2950	848.6800	10.4	0.012	Yes		
Extreme (0°C)		824.2950	848.6800	-16.7	-0.020	Yes		
Extreme (-10°C)		824.2950	848.6800	-24.4	-0.029	Yes		
Extreme (-20°C)		824.2950	848.6800	-31.5	-0.038	Yes		
Extreme (-30°C)		824.2950	848.6800	-33.9	-0.040	Yes		
20°C	15%	824.2950	848.6800	28.6	0.034	Yes		
	-15%	824.2950	848.6800	29.3	0.035	Yes		
	End Point Voltage	824.2950	848.6800	33.0	0.039	Yes		

**9.4.2. LTE BAND 7**

**LIMITS**

FCC: §27.54

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

<b>Test Engineer ID:</b>	32061	<b>Test Date:</b>	3/16/2023
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**QPSK (20MHz + 20MHz BANDWIDTH)**

Band	7	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		2500	2570		Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)
Temperature	Voltage	Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)			
Normal (20°C)	Normal	2500.6300	2569.4200			
Extreme (50°C)		2500.6300	2569.4200	48.4	0.019	Yes
Extreme (40°C)		2500.6301	2569.4201	63.9	0.025	Yes
Extreme (30°C)		2500.6300	2569.4200	49.9	0.020	Yes
Extreme (10°C)		2500.6300	2569.4200	19.6	0.008	Yes
Extreme (0°C)		2500.6300	2569.4200	-45.7	-0.018	Yes
Extreme (-10°C)		2500.6299	2569.4199	-53.1	-0.021	Yes
Extreme (-20°C)		2500.6299	2569.4199	-72.9	-0.029	Yes
Extreme (-30°C)		2500.6299	2569.4199	-73.3	-0.029	Yes
20°C		15%	2500.6300	2569.4200	45.7	0.018
	-15%	2500.6301	2569.4201	54.6	0.022	Yes
	End Point Voltage	2500.6301	2569.4201	57.7	0.023	Yes

### 9.4.3. LTE BAND 41

#### LIMITS

FCC: §27.54

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

<b>Test Engineer ID:</b>	32061	<b>Test Date:</b>	3/16/2023
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#### QPSK (20MHz + 20MHz BANDWIDTH)

Condition		2496	2690	Frequency Error Reading (Hz)	0	Within Authorized Frequency Block (Hz)
Temperature	Voltage	Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)		Frequency Stability (ppm)	
Normal (20°C)	Normal	2496.6800	2689.4200			
Extreme (50°C)		2496.6801	2689.4201	52.5	0.020	Yes
Extreme (40°C)		2496.6801	2689.4201	62.2	0.024	Yes
Extreme (30°C)		2496.6801	2689.4201	50.0	0.019	Yes
Extreme (10°C)		2496.6800	2689.4200	12.6	0.005	Yes
Extreme (0°C)		2496.6800	2689.4200	-44.4	-0.017	Yes
Extreme (-10°C)		2496.6799	2689.4199	-59.2	-0.023	Yes
Extreme (-20°C)		2496.6799	2689.4199	-77.8	-0.030	Yes
Extreme (-30°C)		2496.6799	2689.4199	-78.1	-0.030	Yes
20°C	15%	2496.6800	2689.4200	48.8	0.019	Yes
	-15%	2496.6800	2689.4200	49.2	0.019	Yes
	End Point Voltage	2496.6801	2689.4201	50.5	0.019	Yes



### 9.4.4. LTE BAND 48

Test Engineer ID:	28774	Test Date:	3/15/2023
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#### QPSK (20MHz + 20MHz BANDWIDTH)

Band	48	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		3550	3700		Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)
Temperature	Voltage	Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)			
Normal (20°C)	Normal	3500.7040	3699.2540			
Extreme (50°C)		3500.7041	3699.2541	58.7	0.016	Yes
Extreme (40°C)		3500.7041	3699.2541	65.3	0.018	Yes
Extreme (30°C)		3500.7041	3699.2541	65.1	0.018	Yes
Extreme (10°C)		3500.7040	3699.2540	21.3	0.006	Yes
Extreme (0°C)		3500.7040	3699.2540	-24.2	-0.007	Yes
Extreme (-10°C)		3500.7039	3699.2539	-53.8	-0.015	Yes
Extreme (-20°C)		3500.7039	3699.2539	-57.3	-0.016	Yes
Extreme (-30°C)		3500.7039	3699.2539	-76.0	-0.021	Yes
20°C	15%	3500.7039	3699.2539	-68.9	-0.019	Yes
	-15%	3500.7039	3699.2539	-67.9	-0.019	Yes
	End Point Voltage	3500.7039	3699.2539	-67.6	-0.019	Yes

## 9.5. PEAK-TO-AVERAGE POWER RATIO

### LIMIT

In addition, the peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 dB for more than 0.1% of the time and shall use a signal corresponding to the highest PAPR during periods of continuous transmission.

### RESULT

Test was performed on Antenna 1; full resource block (FRB) for each bandwidth was used to measure as the worst case. The results from all CCDF measurements are passed with 13dB peak-to-average ratio criteria.

#### 9.5.1. LTE BAND 5

<b>Test Engineer ID:</b>	25602	<b>Test Date:</b>	3/18/2023
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Band	Bandwidth (MHz)	PCC f (MHz)	SCC1 f (MHz)	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
					Peak	Average	
Band 5	3MHz / 5MHz	834.0	837.9	QPSK	32.41	26.06	6.35
				16QAM	32.39	26.05	6.34
	5 MHz / 3MHz	835.0	838.9	QPSK	32.23	26.06	6.17
				16QAM	32.36	25.89	6.47
	5MHz / 10MHz	831.6	838.8	QPSK	32.59	24.26	8.33
				16QAM	32.68	23.27	9.41
	10MHz / 5MHz	834.3	841.5	QPSK	32.82	24.24	8.58
				16QAM	32.69	23.26	9.43
	10MHz / 10MHz	831.5	841.4	QPSK	32.73	24.24	8.49
				16QAM	32.83	23.24	9.59
Duty Cycle Correction Factor (dB) =			0.00				
Peak-to-Average Power Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor							

#### 9.5.2. LTE BAND 7

<b>Test Engineer ID:</b>	25602	<b>Test Date:</b>	3/18/2023
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Band	Bandwidth (MHz)	PCC f (MHz)	SCC1 f (MHz)	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
					Peak	Average	
Band 7	10MHz / 20MHz	2525.6	2540.0	QPSK	32.31	24.53	7.78
				16QAM	32.43	23.56	8.87
	20MHz / 10MHz	2530.1	2544.5	QPSK	32.72	24.51	8.21
				16QAM	32.72	23.51	9.21
	15 MHz / 15MHz	2527.5	2542.5	QPSK	32.51	24.52	7.99
				16QAM	32.58	23.54	9.04
	15MHz / 20MHz	2525.3	2542.4	QPSK	32.46	24.49	7.97
				16QAM	32.47	23.51	8.96
	20MHz / 15MHz	2527.6	2544.7	QPSK	32.58	24.47	8.11
				16QAM	32.67	23.51	9.16
	20MHz / 20MHz	2525.1	2544.9	QPSK	32.58	24.51	8.07
				16QAM	32.66	23.48	9.18
Duty Cycle Correction Factor (dB) =			0.00				
Peak-to-Average Power Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor							

### 9.5.3. LTE BAND 41

<b>Test Engineer ID:</b>	25602	<b>Test Date:</b>	3/18/2023
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Band	Bandwidth (MHz)	PCC f (MHz)	SCC1 f (MHz)	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
					Peak	Average	
Band 41 (FCC)	5MHz / 20MHz	2583.8	2595.5	QPSK	34.99	23.74	4.26
				16QAM	34.95	22.73	5.23
	20MHz / 5MHz	2590.5	2602.2	QPSK	34.89	23.71	4.19
				16QAM	34.87	22.72	5.16
	10MHz / 20MHz	2583.6	2598.0	QPSK	34.68	23.72	3.97
				16QAM	34.75	22.71	5.05
	20MHz / 10MHz	2588.1	2602.5	QPSK	34.93	23.72	4.22
				16QAM	34.95	22.72	5.24
	15MHz / 15MHz	2585.5	2600.5	QPSK	34.89	23.7	4.20
				16QAM	34.87	22.72	5.16
	15MHz / 20MHz	2583.3	2600.4	QPSK	34.73	23.71	4.03
				16QAM	34.73	22.69	5.05
	20MHz / 15MHz	2585.6	2602.7	QPSK	34.81	23.71	4.11
				16QAM	34.85	22.67	5.19
	20MHz / 20MHz	2583.1	2602.9	QPSK	34.87	23.67	4.21
				16QAM	34.76	22.68	5.09
Duty Cycle Correction Factor (dB) =			6.99				
Peak-to-Average Power Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor							

### 9.5.4. LTE BAND 48

<b>Test Engineer ID:</b>	25780	<b>Test Date:</b>	4/27/2022
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Band	Bandwidth (MHz)	PCC f (MHz)	SCC1 f (MHz)	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)	
					Peak	Average		
Band 48 (FCC)	5MHz / 20MHz	3615.8	3627.5	QPSK	32.67	20.19	5.49	
				16QAM	32.65	19.22	6.44	
	20MHz / 5MHz	3622.5	3634.2	QPSK	32.61	20.2	5.42	
				16QAM	32.59	19.22	6.38	
	10MHz / 20MHz	3615.6	3630.0	QPSK	32.72	20.22	5.51	
				16QAM	32.70	19.23	6.48	
	20MHz / 10MHz	3620.1	3634.5	QPSK	32.70	20.23	5.48	
				16QAM	32.63	19.21	6.43	
	15MHz / 20MHz	3615.3	3632.4	QPSK	32.68	20.21	5.48	
				16QAM	32.56	19.22	6.35	
	20MHz / 15MHz	3617.6	3634.7	QPSK	32.71	20.19	5.53	
				16QAM	32.63	19.20	6.44	
	20MHz / 20MHz	3615.1	3634.9	QPSK	32.73	20.19	5.55	
				16QAM	32.62	19.21	6.42	
	Duty Cycle Correction Factor (dB) =			6.99				
	Peak-to-Average Power Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor							

## 10. RADIATED TEST RESULTS

### Radiated measurement using the Field Strength Method

Using the test configuration shown in Figure 6 below, we measure the radiated emissions directly from the EUT and convert the measured field strength or received power to ERP or EIRP, as required, for comparison to the applicable limits. As stated in 5.5.1 of ANSI C63.26-2015, the field strength measurement method using a test site validated to the requirements of ANSI C63.4 is an alternative to the substitution measurement method.

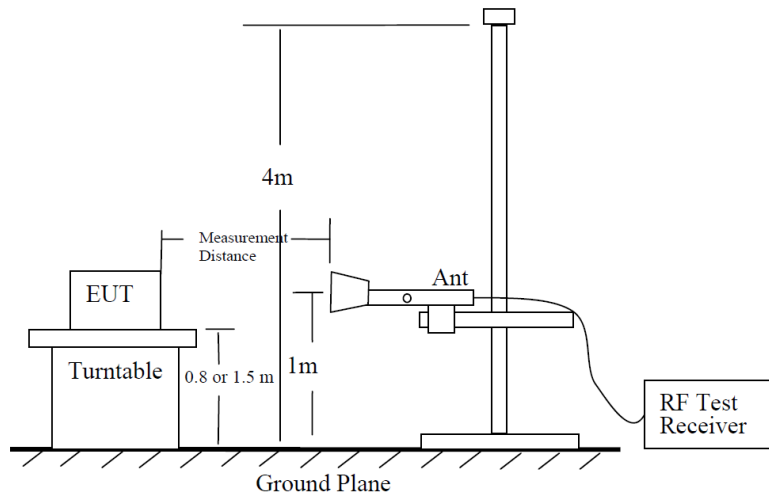


Figure 6—Test site-up for radiated ERP and/or EIRP measurements

### Radiated Power Measurement Calculation According to ANSI C63.26-2015

- a)  $E \text{ (dB}\mu\text{V/m)} = \text{Measured amplitude level (dB}\mu\text{V)} + \text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)}$ .
- b)  $E \text{ (dB}\mu\text{V/m)} = \text{Measured amplitude level (dBm)} + 107 + \text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)}$ .
- c)  $E \text{ (dB}\mu\text{V/m)} = \text{EIRP (dBm)} - 20\log(D) + 104.8$ ; where D is the measurement distance (in the far field region) in m.
- d)  $\text{EIRP (dBm)} = E \text{ (dB}\mu\text{V/m)} + 20\log(D) - 104.8$ ; where D is the measurement distance (in the far field region) in m.

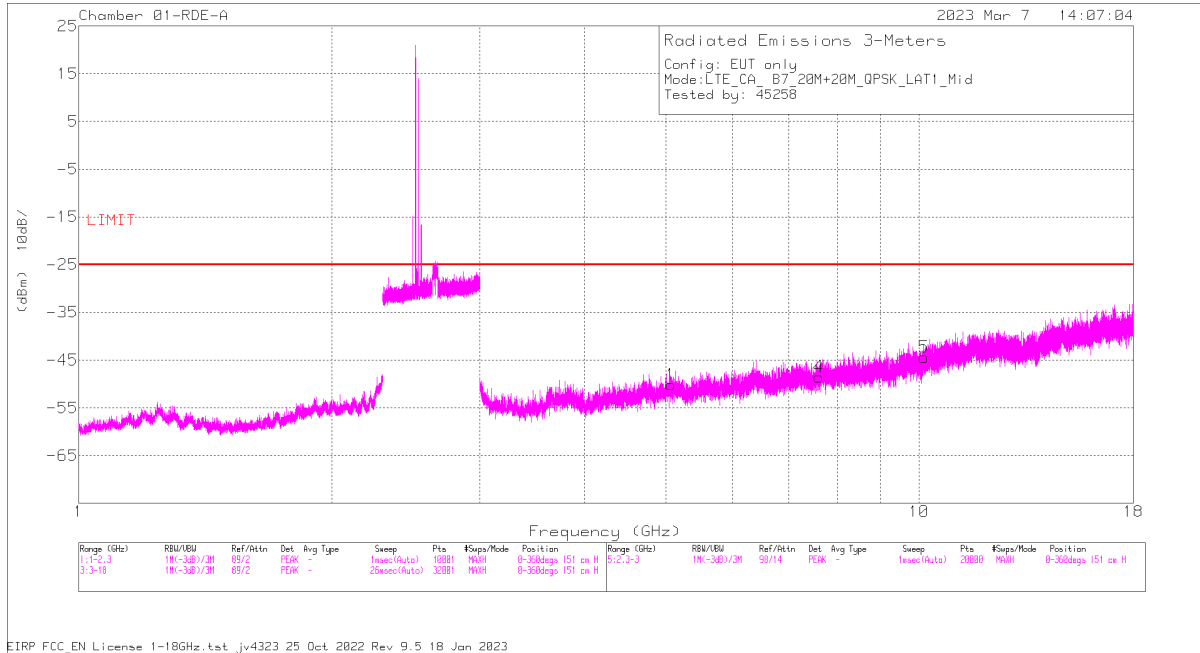
So, from d)

The measuring distance is usually at 3m, then  $20 \cdot \log(3) = 9.5424$

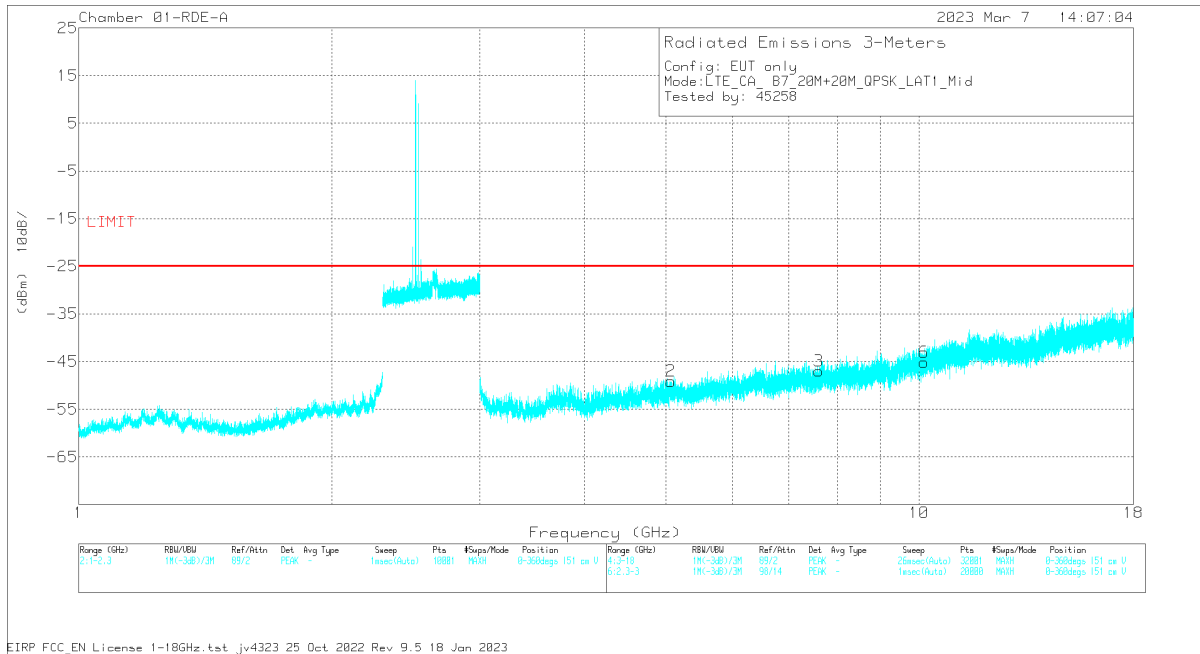
Then,  $\text{EIRP (dBm)} = E \text{ (dB}\mu\text{V/m)} + 9.5424 - 104.8 = E \text{ (dB}\mu\text{V/m)} - 95.2576$

Note: Confidence check of each chamber is performed daily to see if any degradation from expected/normal reading reference data. Ambient check of each chamber is performed monthly.

**Example Plot**



Horizontal Polarity



Vertical Polarity

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	EIRP CF	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
5.07000	33.23	Pk	34.3	.7	-95.2	-23.2	-50.17	-25	-25.17	H
5.070469	34.26	Pk	34.3	.7	-95.2	-23.2	-49.14	-25	-24.14	V
7.605469	29.97	Pk	35.5	.4	-95.2	-19.16	-48.49	-25	-23.49	H
7.605469	31.52	Pk	35.5	.4	-95.2	-19.16	-46.94	-25	-21.94	V
10.140938	30.14	Pk	37	.6	-95.2	-16.95	-44.41	-25	-19.41	H
5.070000	33.23	Pk	34.3	.7	-95.2	-23.2	-50.17	-25	-25.17	H

Pk - Peak detector

## 10.1. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 1

### TEST PROCEDURE

KDB 971168 D01/D02 v02r02

All tests above 1GHz were done with a Resolution Bandwidth of 1MHz, and a Video Bandwidth of 3MHz.

### RESULTS

**10.1.1. LTE BAND 5**

**LIMIT**

FCC: §22.917(a)

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

**QPSK LTE BAND 5 (10.0MHZ + 10.0MHZ BANDWIDTH)**

Project #:	4790592300
Date:	04/6/2023
Test Engineer:	19226
Configuration:	EUT only
Mode	LTE Band 5 QPSK 10MHz + 10MHz
Chamber #:	05-RDE-D

Frequency (GHz)	Meter Reading (dBm)	Det	80402 ACF(dB) - 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
<b>Low Channel, 829MHz + 838.9MHz</b>									
1.665839	59.71	Pk	28.3	-95.2	-48.72	-55.91	-13	-42.91	V
1.666363	59.78	Pk	28.3	-95.2	-48.78	-55.90	-13	-42.90	H
2.501976	59.95	Pk	32.6	-95.2	-48.05	-50.70	-13	-37.70	V
2.503515	59.77	Pk	32.6	-95.2	-47.94	-50.77	-13	-37.77	H
3.333280	56.20	Pk	32.9	-95.2	-46.02	-52.12	-13	-39.12	H
3.335735	55.99	Pk	32.9	-95.2	-46.08	-52.39	-13	-39.39	V
<b>Mid Channel, 831.6MHz + 841.5MHz</b>									
1.672509	59.84	Pk	28.4	-95.2	-48.68	-55.64	-13	-42.64	H
1.674054	59.57	Pk	28.4	-95.2	-48.72	-55.95	-13	-42.95	V
2.50785	58.9	Pk	32.6	-95.2	-48.06	-51.76	-13	-38.76	V
2.512576	58.74	Pk	32.6	-95.2	-47.98	-51.84	-13	-38.84	H
3.344841	55.87	Pk	32.9	-95.2	-46.00	-52.43	-13	-39.43	H
3.345052	56.65	Pk	32.9	-95.2	-46.00	-51.65	-13	-38.65	V
<b>High Channel, 834.1MHz + 844MHz</b>									
1.675347	60.16	Pk	28.4	-95.2	-48.69	-55.33	-13	-42.33	V
1.677667	59.73	Pk	28.5	-95.2	-48.77	-55.74	-13	-42.74	H
2.514273	57.97	Pk	32.6	-95.2	-47.98	-52.61	-13	-39.61	H
2.518253	58.70	Pk	32.6	-95.2	-48.04	-51.94	-13	-38.94	V
3.353389	56.3	Pk	32.9	-95.2	-46.15	-52.15	-13	-39.15	V
3.356759	55.86	Pk	32.9	-95.2	-46.22	-52.66	-13	-39.66	H



### 10.1.2. LTE BAND 7

#### LIMIT

FCC: §27.53 (m)

At least 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section

#### QPSK LTE BAND 7 (20.0MHZ + 20.0MHZ BANDWIDTH)

Project #:	4790592300
Date:	04/7/2023
Test Engineer:	19226
Configuration:	EUT only
Mode	LTE Band 7 QPSK 20MHz + 20MHz
Chamber #:	05-RDE-D

Frequency (GHz)	Meter Reading (dBm)	Det	80402 ACF(dB) - 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
<b>Low Channel, 2510MHz + 2529.8MHz</b>									
5.040469	58.85	Pk	34.4	-95.2	-47.73	-49.68	-25	-24.68	H
5.040860	58.12	Pk	34.4	-95.2	-47.75	-50.43	-25	-25.43	V
7.559236	56.01	Pk	35.8	-95.2	-45.71	-49.10	-25	-24.10	V
7.564662	56.37	Pk	35.8	-95.2	-45.78	-48.81	-25	-23.81	H
10.076961	57.03	Pk	37.5	-95.2	-45.44	-46.11	-25	-21.11	H
10.081931	56.39	Pk	37.4	-95.2	-45.42	-46.83	-25	-21.83	V
<b>Mid Channel, 2525.1MHz + 2544.9MHz</b>									
5.070136	57.93	Pk	34.5	-95.2	-47.94	-50.71	-25	-25.71	H
5.071899	57.86	Pk	34.5	-95.2	-47.89	-50.73	-25	-25.73	V
7.603856	56.33	Pk	35.7	-95.2	-45.72	-48.89	-25	-23.89	H
7.608335	55.88	Pk	35.7	-95.2	-45.53	-49.15	-25	-24.15	V
10.141957	56.46	Pk	37.5	-95.2	-45.44	-46.68	-25	-21.68	V
10.145190	56.28	Pk	37.5	-95.2	-45.56	-46.98	-25	-21.98	H
<b>High Channel, 2540.2MHz + 2560MHz</b>									
5.097591	58.61	Pk	34.5	-95.2	-47.62	-49.71	-25	-24.71	H
5.100358	59.32	Pk	34.5	-95.2	-47.75	-49.13	-25	-24.13	V
7.648139	55.77	Pk	35.7	-95.2	-45.53	-49.26	-25	-24.26	H
7.649802	55.47	Pk	35.7	-95.2	-45.49	-49.52	-25	-24.52	V
10.199087	55.93	Pk	37.5	-95.2	-45.19	-46.96	-25	-21.96	V
10.200308	55.78	Pk	37.5	-95.2	-45.18	-47.100	-25	-22.10	H

### 10.1.3. LTE BAND 41

#### LIMIT

FCC: §27.53 (m)

At least 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section.

#### QPSK LTE BAND 41 (20.0MHZ + 20.0MHZ BANDWIDTH)

Project #:	4790592300
Date:	6/7/2023
Test Engineer:	32934
Configuration:	EUT only
Mode	Band 41 QPSK 20MHz + 20MHz
Chamber #:	01-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	200786 ACF (dB/m)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
<b>Low Channel, 2506MHz + 2525.8MHz</b>										
5.042344	39.83	Pk	34.6	.6	-95.2	-31.03	-51.20	-25	-26.20	V
5.054531	39.44	Pk	34.6	.6	-95.2	-30.88	-51.44	-25	-26.44	H
7.573594	35.47	Pk	35.9	.4	-95.2	-27.25	-50.68	-25	-25.68	H
7.586250	35.42	Pk	36.0	.5	-95.2	-27.18	-50.46	-25	-25.46	V
10.107656	33.61	Pk	37.5	.7	-95.2	-25.17	-48.56	-25	-23.56	H
10.146094	32.66	Pk	37.6	.6	-95.2	-25.04	-49.38	-25	-24.38	V
<b>Mid Channel, 2583.1MHz + 2602.9MHz</b>										
5.213906	38.11	Pk	34.7	1	-95.2	-30.53	-51.92	-25	-26.92	H
5.218125	38.10	Pk	34.7	1	-95.2	-30.58	-51.98	-25	-26.98	V
7.802813	36.58	Pk	35.9	.4	-95.2	-27.11	-49.43	-25	-24.43	H
7.802813	35.25	Pk	35.9	.4	-95.2	-27.11	-50.76	-25	-25.76	V
10.380000	33.05	Pk	37.7	.8	-95.2	-24.81	-48.46	-25	-23.46	V
10.403438	33.95	Pk	37.7	.8	-95.2	-24.63	-47.38	-25	-22.38	H
<b>High Channel, 2660.2MHz + 2680MHz</b>										
5.344219	38.94	Pk	34.7	.6	-95.2	-30.11	-51.07	-25	-26.07	V
5.370938	38.51	Pk	34.7	.6	-95.2	-30.37	-51.76	-25	-26.76	H
8.007170	39.48	Pk	36.0	.3	-95.2	-26.68	-46.10	-25	-21.10	V
8.018438	34.93	Pk	36.0	.3	-95.2	-26.61	-50.58	-25	-25.58	H
10.696875	33.03	Pk	37.7	.5	-95.2	-24.22	-48.19	-25	-23.19	V
10.740469	32.31	Pk	37.7	.8	-95.2	-24.03	-48.42	-25	-23.42	H

## 10.2. FIELD STRENGTH OF SPURIOUS RADIATION, ANT2

### TEST PROCEDURE

KDB 971168 D01/D02 v02r02

All tests above 1GHz were done with a Resolution Bandwidth of 1MHz, and a Video Bandwidth of 3MHz.

### RESULTS

### 10.2.1. LTE BAND 5

#### LIMIT

FCC: §22.917(a)

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

#### QPSK LTE BAND 5 (10.0MHZ + 10.0MHZ BANDWIDTH)

Project #:	4790592300
Date:	04/10/2023
Test Engineer:	19226
Configuration:	EUT only
Mode	LTE Band 5 QPSK 10MHz + 10MHz
Chamber #:	05-RDE-D

Frequency (GHz)	Meter Reading (dBm)	Det	80402 ACF(dB) - 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
<b>Low Channel, 829MHz + 838.9MHz</b>									
1.671230	60.01	Pk	28.4	-95.2	-48.64	-55.43	-13	-42.43	H
1.672064	59.78	Pk	28.4	-95.2	-48.66	-55.68	-13	-42.68	V
2.498812	59.67	Pk	32.6	-95.2	-48.15	-51.08	-13	-38.08	H
2.501262	59.76	Pk	32.6	-95.2	-48.01	-50.85	-13	-37.85	V
3.334985	55.98	Pk	32.9	-95.2	-46.09	-52.41	-13	-39.41	H
3.338085	56.03	Pk	32.9	-95.2	-45.95	-52.22	-13	-39.22	V
<b>Mid Channel, 831.6MHz + 841.5MHz</b>									
1.673396	59.94	Pk	28.4	-95.2	-48.7	-55.56	-13	-42.56	V
1.677312	59.72	Pk	28.5	-95.2	-48.77	-55.75	-13	-42.75	H
2.50894	59.61	Pk	32.6	-95.2	-48.02	-51.01	-13	-38.01	H
2.510847	59.67	Pk	32.6	-95.2	-47.89	-50.82	-13	-37.82	V
3.346726	55.72	Pk	32.9	-95.2	-45.97	-52.55	-13	-39.55	H
3.347361	55.9	Pk	32.9	-95.2	-46.06	-52.46	-13	-39.46	V
<b>High Channel, 834.1MHz + 844MHz</b>									
1.675104	59.87	Pk	28.4	-95.2	-48.68	-55.61	-13	-42.61	V
1.677633	60.41	Pk	28.5	-95.2	-48.77	-55.06	-13	-42.06	H
2.508697	58.97	Pk	32.6	-95.2	-48.04	-51.67	-13	-38.67	V
2.512646	59.63	Pk	32.6	-95.2	-47.98	-50.95	-13	-37.95	H
3.346124	55.85	Pk	32.9	-95.2	-45.94	-52.39	-13	-39.39	V
3.349585	55.76	Pk	32.9	-95.2	-46.22	-52.76	-13	-39.76	H

### 10.2.2. LTE BAND 7

#### LIMIT

FCC: §27.53 (m)

At least 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section.

#### QPSK LTE BAND 7 (20.0MHZ + 20.0MHZ BANDWIDTH)

Project #:	4790592300
Date:	04/10/2023
Test Engineer:	19226
Configuration:	EUT only
Mode	LTE Band 7 QPSK 20MHz + 20MHz
Chamber #:	05-RDE-D

Frequency (GHz)	Meter Reading (dBm)	Det	80402 ACF(dB) - 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
<b>Low Channel, 2510MHz + 2529.8MHz</b>									
5.036533	57.20	Pk	34.4	-95.2	-47.58	-51.18	-25	-26.18	H
5.039273	57.84	Pk	34.4	-95.2	-47.68	-50.64	-25	-25.64	V
7.561830	55.61	Pk	35.8	-95.2	-45.85	-49.64	-25	-24.64	V
7.562666	55.39	Pk	35.8	-95.2	-45.84	-49.85	-25	-24.85	H
10.081132	56.94	Pk	37.4	-95.2	-45.50	-46.36	-25	-21.36	V
10.082210	57.00	Pk	37.4	-95.2	-45.42	-46.22	-25	-21.22	H
<b>Mid Channel, 2525.1MHz + 2544.9MHz</b>									
5.070295	57.77	Pk	34.5	-95.2	-47.93	-50.86	-25	-25.86	V
5.071765	57.77	Pk	34.5	-95.2	-47.89	-50.82	-25	-25.82	H
7.601112	56.29	Pk	35.7	-95.2	-45.70	-48.91	-25	-23.91	V
7.610636	54.85	Pk	35.7	-95.2	-45.67	-50.32	-25	-25.32	H
10.135506	56.06	Pk	37.5	-95.2	-45.24	-46.88	-25	-21.88	V
10.142313	56.42	Pk	37.5	-95.2	-45.43	-46.71	-25	-21.71	H
<b>High Channel, 2540.2MHz + 2560MHz</b>									
5.097854	57.47	Pk	34.5	-95.2	-47.62	-50.85	-25	-25.85	V
5.098521	57.94	Pk	34.5	-95.2	-47.64	-50.40	-25	-25.40	H
7.647265	55.42	Pk	35.7	-95.2	-45.48	-49.56	-25	-24.56	H
7.654329	55.26	Pk	35.8	-95.2	-45.39	-49.53	-25	-24.53	V
10.202693	55.79	Pk	37.5	-95.2	-45.29	-47.20	-25	-22.20	H
10.203950	56.07	Pk	37.5	-95.2	-45.34	-46.97	-25	-21.97	V

### 10.2.3. LTE BAND 41

#### LIMIT

FCC: §27.53 (m)

At least 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section.

#### QPSK LTE BAND 41 (20.0MHZ + 20.0MHZ BANDWIDTH)

Project #:	4790592300
Date:	6/7/2023
Test Engineer:	32934
Configuration:	EUT only
Mode	Band 41 QPSK 20MHz + 20MHz
Chamber #:	01-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	200786 ACF (dB/m)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
<b>Low Channel, 2506MHz + 2525.8MHz</b>										
5.027813	39.51	Pk	34.5	.7	-95.2	-30.93	-51.42	-25	-26.42	H
5.054531	39.44	Pk	34.6	.6	-95.2	-30.88	-51.44	-25	-26.44	V
7.54472	38.81	Pk	35.9	.3	-95.2	-27.27	-47.46	-25	-22.46	V
7.585781	35.83	Pk	36	.5	-95.2	-27.16	-50.03	-25	-25.03	H
10.099219	33.50	Pk	37.5	.7	-95.2	-25.18	-48.68	-25	-23.68	V
10.109063	33.89	Pk	37.5	.7	-95.2	-25.15	-48.26	-25	-23.26	H
<b>Mid Channel, 2583.1MHz + 2602.9MHz</b>										
5.189063	39	Pk	34.7	.8	-95.2	-30.63	-51.33	-25	-26.33	V
5.21625	38.69	Pk	34.7	1	-95.2	-30.54	-51.35	-25	-26.35	H
7.742849	38.19	Pk	35.9	.3	-95.2	-27.07	-47.88	-25	-22.88	V
7.820156	36.19	Pk	36.0	.4	-95.2	-26.92	-49.53	-25	-24.53	H
10.400625	33.63	Pk	37.7	.8	-95.2	-24.61	-47.68	-25	-22.68	H
10.405781	34.24	Pk	37.7	.8	-95.2	-24.63	-47.09	-25	-22.09	V
<b>High Channel, 2660.2MHz + 2680MHz</b>										
5.344688	38.26	Pk	34.7	.5	-95.2	-30.13	-51.87	-25	-26.87	V
5.351719	38.95	Pk	34.7	.5	-95.2	-29.98	-51.03	-25	-26.03	H
8.026875	35.63	Pk	36.0	.3	-95.2	-26.61	-49.88	-25	-24.88	V
8.047969	35.24	Pk	36.0	.4	-95.2	-26.65	-50.21	-25	-25.21	H
10.672969	33.33	Pk	37.8	.5	-95.2	-24.47	-48.04	-25	-23.04	V
10.726406	32.98	Pk	37.7	.6	-95.2	-24.01	-47.93	-25	-22.93	H

### **10.3. FIELD STRENGTH OF SPURIOUS RADIATION, ANT3**

#### **TEST PROCEDURE**

KDB 971168 D01/D02 v02r02

All tests above 1GHz were done with a Resolution Bandwidth of 1MHz, and a Video Bandwidth of 3MHz.

#### **RESULTS**

### 10.3.1. LTE BAND 5

#### LIMIT

FCC: §22.917(a)

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

#### QPSK LTE BAND 5 (10.0MHZ + 10.0MHZ BANDWIDTH)

Project #:	4790592300
Date:	04/11/2023
Test Engineer:	19226
Configuration:	EUT only
Mode	LTE Band 5 QPSK 10MHz + 10MHz
Chamber #:	05-RDE-D

Frequency (GHz)	Meter Reading (dBm)	Det	80402 ACF(dB) - 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
<b>Low Channel, 829MHz + 838.9MHz</b>									
1.669668	59.86	Pk	28.3	-95.2	-48.77	-55.81	-13	-42.81	H
1.670233	60.26	Pk	28.4	-95.2	-48.72	-55.26	-13	-42.26	V
2.499925	60.37	Pk	32.6	-95.2	-48.09	-50.32	-13	-37.32	V
2.506478	59.17	Pk	32.6	-95.2	-48.02	-51.45	-13	-38.45	H
3.33311	56.64	Pk	32.9	-95.2	-46.02	-51.68	-13	-38.68	V
3.335971	56.05	Pk	32.9	-95.2	-46.07	-52.32	-13	-39.32	H
<b>Mid Channel, 831.6MHz + 841.5MHz</b>									
1.676169	60.58	Pk	28.5	-95.2	-48.71	-54.83	-13	-41.83	V
1.676274	60.25	Pk	28.5	-95.2	-48.72	-55.17	-13	-42.17	H
2.509472	59.45	Pk	32.6	-95.2	-48.04	-51.19	-13	-38.19	V
2.509537	59.13	Pk	32.6	-95.2	-48.04	-51.51	-13	-38.51	H
3.347637	56.67	Pk	32.9	-95.2	-46.13	-51.76	-13	-38.76	V
3.348297	56.06	Pk	32.9	-95.2	-46.21	-52.45	-13	-39.45	H
<b>High Channel, 834.1MHz + 844MHz</b>									
1.678533	60.16	Pk	28.5	-95.2	-48.73	-55.27	-13	-42.27	V
1.679219	59.96	Pk	28.5	-95.2	-48.68	-55.42	-13	-42.42	H
2.514586	58.67	Pk	32.6	-95.2	-47.96	-51.89	-13	-38.89	V
2.514942	58.97	Pk	32.6	-95.2	-47.94	-51.57	-13	-38.57	H
3.357809	55.92	Pk	32.9	-95.2	-46.24	-52.62	-13	-39.62	V
3.358717	56.25	Pk	32.9	-95.2	-46.15	-52.20	-13	-39.20	H



### 10.3.2. LTE BAND 7

#### LIMIT

FCC: §27.53 (m)

At least 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section.

#### QPSK LTE BAND 7 (20.0MHZ + 20.0MHZ BANDWIDTH)

Project #:	4790592300
Date:	04/11/2023
Test Engineer:	19226
Configuration:	EUT only
Mode	LTE Band 7 QPSK 20MHz + 20MHz
Chamber #:	05-RDE-D

Frequency (GHz)	Meter Reading (dBm)	Det	80402 ACF(dB) - 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
<b>Low Channel, 2510MHz + 2529.8MHz</b>									
5.036025	58.03	Pk	34.4	-95.2	-47.64	-50.41	-25	-25.41	H
5.043430	58.05	Pk	34.4	-95.2	-47.78	-50.53	-25	-25.53	V
7.558108	56.02	Pk	35.8	-95.2	-45.76	-49.14	-25	-24.14	H
7.561440	55.87	Pk	35.8	-95.2	-45.79	-49.32	-25	-24.32	V
10.077346	56.51	Pk	37.5	-95.2	-45.39	-46.58	-25	-21.58	V
10.080848	56.57	Pk	37.5	-95.2	-45.50	-46.63	-25	-21.63	H
<b>Mid Channel, 2525.1MHz + 2544.9MHz</b>									
5.070171	57.54	Pk	34.5	-95.2	-47.94	-51.10	-25	-26.10	V
5.071659	58.03	Pk	34.5	-95.2	-47.88	-50.55	-25	-25.55	H
7.601226	55.49	Pk	35.7	-95.2	-45.70	-49.71	-25	-24.71	H
7.604381	55.98	Pk	35.7	-95.2	-45.75	-49.27	-25	-24.27	V
10.139550	56.78	Pk	37.5	-95.2	-45.43	-46.35	-25	-21.35	H
10.141605	56.20	Pk	37.5	-95.2	-45.47	-46.97	-25	-21.97	V
<b>High Channel, 2540.2MHz + 2560MHz</b>									
5.095825	57.55	Pk	34.5	-95.2	-47.58	-50.73	-25	-25.73	H
5.099942	57.75	Pk	34.5	-95.2	-47.78	-50.73	-25	-25.73	V
7.648401	54.99	Pk	35.7	-95.2	-45.50	-50.01	-25	-25.01	V
7.648792	55.33	Pk	35.7	-95.2	-45.47	-49.64	-25	-24.64	H
10.199383	56.28	Pk	37.5	-95.2	-45.18	-46.60	-25	-21.60	V
10.199603	56.32	Pk	37.5	-95.2	-45.18	-46.56	-25	-21.56	H

### 10.3.3. LTE BAND 41

#### LIMIT

FCC: §27.53 (m)

At least 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section.

#### QPSK LTE BAND 41 (20.0MHZ + 20.0MHZ BANDWIDTH)

Project #:	4790592300
Date:	6/7/2023
Test Engineer:	32934
Configuration:	EUT only
Mode	Band 41 QPSK 20MHz + 20MHz
Chamber #:	01-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	200786 ACF (dB/m)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
<b>Low Channel, 2506MHz + 2525.8MHz</b>										
5.030625	39.63	Pk	34.5	.7	-95.2	-31.02	-51.39	-25	-26.39	V
5.040000	38.94	Pk	34.6	.6	-95.2	-31.04	-52.10	-25	-27.10	H
7.567500	35.23	Pk	35.9	.4	-95.2	-27.17	-50.84	-25	-25.84	H
7.585313	35.38	Pk	36.0	.5	-95.2	-27.15	-50.47	-25	-25.47	V
10.101563	33.70	Pk	37.5	.7	-95.2	-25.12	-48.42	-25	-23.42	H
10.125000	33.16	Pk	37.5	.7	-95.2	-24.93	-48.77	-25	-23.77	V
<b>Mid Channel, 2583.1MHz + 2602.9MHz</b>										
5.162258	42.01	Pk	34.7	.7	-95.2	-30.55	-48.34	-25	-23.34	V
5.217656	38.01	Pk	34.7	1	-95.2	-30.56	-52.05	-25	-27.05	H
7.804688	36.00	Pk	35.9	.4	-95.2	-27.07	-49.97	-25	-24.97	V
7.875469	37.81	Pk	36.0	.4	-95.2	-26.67	-47.66	-25	-22.66	H
10.398281	34.01	Pk	37.7	.8	-95.2	-24.58	-47.27	-25	-22.27	H
10.405313	35.82	Pk	37.7	.8	-95.2	-24.63	-45.51	-25	-20.51	V
<b>High Channel, 2660.2MHz + 2680MHz</b>										
5.316094	38.29	Pk	34.7	.8	-95.2	-30.54	-51.95	-25	-26.95	V
5.362969	38.70	Pk	34.7	.5	-95.2	-30.19	-51.49	-25	-26.49	H
8.020313	34.07	Pk	36	.3	-95.2	-26.63	-51.46	-25	-26.46	V
8.038594	35.50	Pk	36	.4	-95.2	-26.58	-49.88	-25	-24.88	H
10.718438	32.89	Pk	37.7	.6	-95.2	-24.05	-48.06	-25	-23.06	H
10.720313	32.29	Pk	37.7	.6	-95.2	-23.97	-48.58	-25	-23.58	V

## **10.4. FIELD STRENGTH OF SPURIOUS RADIATION, ANT4**

### **TEST PROCEDURE**

KDB 971168 D01/D02 v02r02

All tests above 1GHz were done with a Resolution Bandwidth of 1MHz, and a Video Bandwidth of 3MHz.

### **RESULTS**

**10.4.1. LTE BAND 7**

**LIMIT**

FCC: §27.53 (m)

At least 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section.

**QPSK LTE BAND 7 (20.0MHZ + 20.0MHZ BANDWIDTH)**

Project #:	4790592300
Date:	6/19/2023
Test Engineer:	25196
Configuration:	EUT only
Mode	LTE Band 7 QPSK 20MHz + 20MHz
Chamber #:	01-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	200786 ACF (dB/m)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
<b>Low Channel, 2510MHz + 2529.8MHz</b>										
5.001563	37.14	Pk	34.4	.8	-95.2	-30.90	-53.76	-25	-28.76	V
5.014688	38.68	Pk	34.5	.8	-95.2	-30.68	-51.90	-25	-26.90	H
7.513125	34.31	Pk	35.9	.3	-95.2	-26.94	-51.63	-25	-26.63	V
7.521094	34.32	Pk	35.9	.3	-95.2	-26.98	-51.66	-25	-26.66	H
10.043906	33.20	Pk	37.4	.7	-95.2	-25.19	-49.09	-25	-24.09	H
10.046250	33.41	Pk	37.4	.7	-95.2	-25.14	-48.83	-25	-23.83	V
<b>Mid Channel, 2525.1MHz + 2544.9MHz</b>										
5.018438	39.35	Pk	34.5	.8	-95.2	-30.83	-51.38	-25	-26.38	V
5.032969	38.91	Pk	34.5	.7	-95.2	-31.00	-52.09	-25	-27.09	H
7.557188	35.46	Pk	36.0	.3	-95.2	-27.24	-50.68	-25	-25.68	V
7.569844	34.96	Pk	35.9	.4	-95.2	-27.16	-51.10	-25	-26.10	H
10.073438	32.98	Pk	37.5	.7	-95.2	-25.11	-49.13	-25	-24.13	V
10.093594	33.04	Pk	37.5	.6	-95.2	-25.03	-49.09	-25	-24.09	H
<b>High Channel, 2540.2MHz + 2560MHz</b>										
5.092500	38.86	Pk	34.7	.8	-95.2	-30.73	-51.57	-25	-26.57	V
5.109375	38.53	Pk	34.7	.8	-95.2	-30.95	-52.12	-25	-27.12	H
7.667813	35.47	Pk	35.9	.3	-95.2	-26.96	-50.49	-25	-25.49	V
7.678594	34.89	Pk	35.9	.5	-95.2	-26.91	-50.82	-25	-25.82	H
10.254844	34.11	Pk	37.6	.7	-95.2	-25.04	-47.83	-25	-22.83	V
10.268906	34.12	Pk	37.6	.7	-95.2	-24.97	-47.75	-25	-22.75	H

### 10.4.2. LTE BAND 41

#### LIMIT

FCC: §27.53 (m)

At least 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section.

#### QPSK LTE BAND 41 (20.0MHZ + 20.0MHZ BANDWIDTH)

Project #:	4790592300
Date:	6/8/2023
Test Engineer:	32934
Configuration:	EUT only
Mode	Band 41 QPSK 20MHz + 20MHz
Chamber #:	01-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	200786 ACF (dB/m)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
<b>Low Channel, 2506MHz + 2525.8MHz</b>										
5.041406	38.45	Pk	34.6	.6	-95.2	-31.06	-52.61	-25	-27.61	V
5.058750	35.87	Pk	34.6	.6	-95.2	-30.88	-55.01	-25	-30.01	H
7.587188	34.54	Pk	36.0	.5	-95.2	-27.20	-51.36	-25	-26.36	H
7.587188	34.86	Pk	36.0	.5	-95.2	-27.20	-51.04	-25	-26.04	V
10.089844	32.50	Pk	37.5	.6	-95.2	-25.15	-49.75	-25	-24.75	V
10.124531	31.02	Pk	37.5	.7	-95.2	-24.88	-50.86	-25	-25.86	H
<b>Mid Channel, 2583.1MHz + 2602.9MHz</b>										
5.208750	36.52	Pk	34.7	1	-95.2	-30.47	-53.45	-25	-28.45	H
5.217656	36.77	Pk	34.7	1	-95.2	-30.56	-53.29	-25	-28.29	V
7.811719	33.42	Pk	35.9	.4	-95.2	-27.00	-52.48	-25	-27.48	V
7.825313	33.32	Pk	36.0	.4	-95.2	-26.94	-52.42	-25	-27.42	H
10.388906	31.97	Pk	37.7	.8	-95.2	-24.51	-49.24	-25	-24.24	V
10.424531	32.24	Pk	37.7	.8	-95.2	-24.76	-49.22	-25	-24.22	H
<b>High Channel, 2660.2MHz + 2680MHz</b>										
5.335313	36.29	Pk	34.6	.7	-95.2	-30.23	-53.84	-25	-28.84	V
5.362969	36.82	Pk	34.7	.5	-95.2	-30.19	-53.37	-25	-28.37	H
8.043281	34.90	Pk	36.0	.4	-95.2	-26.52	-50.42	-25	-25.42	H
8.070938	32.39	Pk	35.9	.3	-95.2	-26.47	-53.08	-25	-28.08	V
10.714688	31.18	Pk	37.7	.5	-95.2	-24.07	-49.89	-25	-24.89	H
10.733438	31.17	Pk	37.7	.7	-95.2	-24.01	-49.64	-25	-24.64	V

**10.4.3. LTE BAND 48 (FCC)**

**LIMIT**

FCC: §96.41

(e) 3.5 GHz Emissions and Interference Limits—

(2) Additional protection levels. Notwithstanding paragraph (d)(1) of this section, the conducted power of any emissions below 3530 MHz or above 3720 MHz shall not exceed -40dBm/MHz.

**QPSK LTE BAND 48 (20.0MHZ + 20.0MHZ BANDWIDTH)**

Project #:	4790592300
Date:	6/8/2023
Test Engineer:	32934
Configuration:	EUT only
Mode	Band 48 QPSK 20MHz + 20MHz
Chamber #:	3-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	200786 ACF (dB/m)	T1792 3400-3800MHz BRF	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
<b>Low Channel, 3560MHz + 3579.8MHz</b>										
7.156219	25.18	RMS	35.7	.6	-95.2	-27.10	-60.82	-40	-20.82	H
7.156219	25.12	RMS	35.7	.6	-95.2	-27.10	-60.88	-40	-20.88	V
10.708564	24.48	RMS	37.7	.5	-95.2	-24.10	-56.62	-40	-16.62	V
10.710607	26.32	RMS	37.7	.5	-95.2	-24.01	-54.69	-40	-14.69	H
14.308444	20.28	RMS	39.4	.7	-95.2	-20.08	-54.90	-40	-14.90	V
14.315494	20.19	RMS	39.5	.7	-95.2	-20.13	-54.94	-40	-14.94	H
<b>Mid Channel, 3615.1MHz + 3634.9MHz</b>										
7.251834	25.33	RMS	35.8	.6	-95.2	-26.88	-60.35	-40	-20.35	V
7.370363	25.17	RMS	35.8	.7	-95.2	-26.93	-60.46	-40	-20.46	H
10.873928	24.52	RMS	37.7	.5	-95.2	-24.10	-56.58	-40	-16.58	H
10.922681	21.98	RMS	37.7	.6	-95.2	-23.81	-58.73	-40	-18.73	V
14.544178	19.39	RMS	39.8	.8	-95.2	-19.59	-54.80	-40	-14.8	H
14.548144	19.35	RMS	39.8	.8	-95.2	-19.59	-54.84	-40	-14.84	V
<b>High Channel, 3670.2MHz + 3690MHz</b>										
7.383141	25.35	RMS	35.8	.7	-95.2	-27.00	-60.35	-40	-20.35	H
7.390631	25.48	RMS	35.8	.7	-95.2	-26.96	-60.18	-40	-20.18	V
11.039437	25.07	RMS	37.8	.6	-95.2	-23.40	-55.13	-40	-15.13	H
11.077341	22.21	RMS	37.8	.7	-95.2	-23.41	-57.90	-40	-17.90	V
14.733647	19.90	RMS	40.1	.9	-95.2	-19.60	-53.90	-40	-13.90	V
14.750831	19.87	RMS	40.1	.8	-95.2	-19.48	-53.91	-40	-13.91	H

## **10.5. FIELD STRENGTH OF SPURIOUS RADIATION, ANT7**

### **TEST PROCEDURE**

KDB 971168 D01/D02 v02r02

All tests above 1GHz were done with a Resolution Bandwidth of 1MHz, and a Video Bandwidth of 3MHz.

### **RESULTS**

**10.5.1. LTE BAND 48**

**LIMIT**

FCC: §96.41

(e) 3.5 GHz Emissions and Interference Limits—

(2) Additional protection levels. Notwithstanding paragraph (d)(1) of this section, the conducted power of any emissions below 3530 MHz or above 3720 MHz shall not exceed -40dBm/MHz.

**QPSK LTE BAND 48 (20.0MHZ + 20.0MHZ BANDWIDTH)**

Project #:	4790592300
Date:	6/8/2023
Test Engineer:	32934
Configuration:	EUT only
Mode	Band 48 QPSK 20MHz + 20MHz
Chamber #:	01-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	200786 ACF (dB/m)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
<b>Low Channel, 2510MHz + 2529.8MHz</b>										
7.032803	25.36	RMS	35.7	.6	-95.2	-27.31	-60.85	-40	-20.85	V
7.156659	25.10	RMS	35.7	.6	-95.2	-27.17	-60.97	-40	-20.97	H
10.660069	22.79	RMS	37.8	.6	-95.2	-24.54	-58.55	-40	-18.55	V
10.733213	22.37	RMS	37.7	.6	-95.2	-24.01	-58.54	-40	-18.54	H
14.274075	20.48	RMS	39.4	.7	-95.2	-20.12	-54.74	-40	-14.74	V
14.323425	20.19	RMS	39.4	.7	-95.2	-20.11	-55.02	-40	-15.02	H
<b>Mid Channel, 2585.1MHz + 2604.9MHz</b>										
7.268138	25.26	RMS	35.8	.6	-95.2	-26.92	-60.46	-40	-20.46	H
7.281846	24.98	RMS	35.8	.5	-95.2	-26.96	-60.88	-40	-20.88	V
10.90065	22.05	RMS	37.7	.6	-95.2	-23.88	-58.73	-40	-18.73	H
10.900650	21.98	RMS	37.7	.6	-95.2	-23.88	-58.80	-40	-18.80	V
14.521266	19.54	RMS	39.7	.8	-95.2	-19.84	-55.00	-40	-1.005	V
14.546381	19.47	RMS	39.8	.8	-95.2	-19.61	-54.74	-40	-14.74	H
<b>High Channel, 2660.2MHz + 2680MHz</b>										
7.381378	25.30	RMS	35.8	.7	-95.2	-27.00	-60.40	-40	-20.40	H
7.394156	25.46	RMS	35.8	.6	-95.2	-27.09	-60.43	-40	-20.43	V
11.089238	22.23	RMS	37.8	.7	-95.2	-23.46	-57.93	-40	-17.93	H
11.108625	22.14	RMS	37.8	.7	-95.2	-23.35	-57.91	-40	-17.91	V
14.747747	19.71	RMS	40.1	.8	-95.2	-19.67	-54.26	-40	-14.26	V
14.772863	19.73	RMS	40.2	.8	-95.2	-20.16	-54.63	-40	-14.63	H



## **10.6. FIELD STRENGTH OF SPURIOUS RADIATION, ANT8**

### **TEST PROCEDURE**

KDB 971168 D01/D02 v02r02

All tests above 1GHz were done with a Resolution Bandwidth of 1MHz, and a Video Bandwidth of 3MHz.

### **RESULTS**

**10.6.1. LTE BAND 48**

**LIMIT**

FCC: §96.41

(e) 3.5 GHz Emissions and Interference Limits—

(2) Additional protection levels. Notwithstanding paragraph (d)(1) of this section, the conducted power of any emissions below 3530 MHz or above 3720 MHz shall not exceed -40dBm/MHz.

**PSK LTE BAND 48 (20.0MHZ + 20.0MHZ BANDWIDTH)**

Project #:	4790592300
Date:	6/8/2022
Test Engineer:	32934
Configuration:	EUT only
Mode	Band 48 QPSK 20MHz + 20MHz
Chamber #:	01-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	200786 ACF (dB/m)	T1792 3400-3800MHz BRF	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
<b>Low Channel, 3560MHz + 3579.8MHz</b>										
7.144322	28.77	Pk	35.7	.6	-95.2	-27.17	-57.30	-40	-17.30	V
7.156659	28.64	Pk	35.7	.6	-95.2	-27.17	-57.43	-40	-17.43	H
10.696641	27.03	Pk	37.7	.5	-95.2	-24.25	-54.22	-40	-14.22	V
10.733213	26.50	Pk	37.7	.6	-95.2	-24.01	-54.41	-40	-14.41	H
14.298750	25.36	Pk	39.4	.6	-95.2	-20.39	-50.23	-40	-10.23	V
14.323425	24.67	Pk	39.4	.7	-95.2	-20.11	-50.54	-40	-10.54	H
<b>Mid Channel, 3615.1MHz + 3634.9MHz</b>										
7.243022	25.31	RMS	35.8	.5	-95.2	-26.98	-60.57	-40	-20.57	V
7.268138	25.25	RMS	35.8	.6	-95.2	-26.92	-60.47	-40	-20.47	H
10.90065	22.05	RMS	37.7	.6	-95.2	-23.88	-58.73	-40	-18.73	H
10.919156	22.08	RMS	37.7	.6	-95.2	-23.77	-58.59	-40	-18.59	V
14.496591	19.81	RMS	39.7	.7	-95.2	-19.89	-54.88	-40	-14.88	V
14.546381	19.48	RMS	39.8	.8	-95.2	-19.61	-54.73	-40	-14.73	H
<b>High Channel, 3670.2MHz + 3690MHz</b>										
7.381378	25.32	RMS	35.8	.7	-95.2	-27.00	-60.38	-40	-20.38	H
7.394156	25.52	RMS	35.8	.6	-95.2	-27.09	-60.37	-40	-20.37	V
11.051344	21.84	RMS	37.8	.6	-95.2	-23.51	-58.47	-40	-18.47	V
11.070291	22.20	RMS	37.8	.6	-95.2	-23.50	-58.10	-40	-18.10	H
14.697075	19.80	RMS	40.0	.9	-95.2	-19.88	-54.38	-40	-14.38	V
14.747747	19.87	RMS	40.1	.8	-95.2	-19.67	-54.1	-40	-14.10	H

## 10.7. FIELD STRENGTH OF SPURIOUS RADIATION, ANT9

### TEST PROCEDURE

KDB 971168 D01/D02 v02r02

All tests above 1GHz were done with a Resolution Bandwidth of 1MHz, and a Video Bandwidth of 3MHz.

### RESULTS

**10.7.1. LTE BAND 48**

**LIMIT**

FCC: §96.41

(e) 3.5 GHz Emissions and Interference Limits—

(2) Additional protection levels. Notwithstanding paragraph (d)(1) of this section, the conducted power of any emissions below 3530 MHz or above 3720 MHz shall not exceed -40dBm/MHz.

**QPSK LTE BAND 48 (20.0MHZ + 20.0MHZ BANDWIDTH)**

Project #:	4790592300
Date:	6/8/2022
Test Engineer:	32934
Configuration:	EUT only
Mode	Band 48 QPSK 20MHz + 20MHz
Chamber #:	01-RDE-B

Frequency (GHz)	Meter Reading (dBUV)	Det	200786 ACF (dB/m)	T1792 3400-3800MHz BRF	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
<b>Low Channel, 3560MHz + 3579.8MHz</b>										
7.156659	25.21	RMS	35.7	.6	-95.2	-27.17	-60.86	-40	-20.86	H
7.168997	25.37	RMS	35.7	.6	-95.2	-27.07	-60.60	-40	-20.60	V
10.733213	22.44	RMS	37.7	.6	-95.2	-24.01	-58.47	-40	-18.47	H
10.770225	22.26	RMS	37.7	.6	-95.2	-24.08	-58.72	-40	-18.72	V
14.274075	20.50	RMS	39.4	.7	-95.2	-20.12	-54.72	-40	-14.72	V
14.323425	20.22	RMS	39.4	.7	-95.2	-20.11	-54.99	-40	-14.99	H
<b>Mid Channel, 3615.1MHz + 3634.9MHz</b>										
7.230684	25.15	RMS	35.8	.5	-95.2	-26.93	-60.68	-40	-20.68	V
7.267917	25.20	RMS	35.8	.6	-95.2	-26.93	-60.53	-40	-20.53	H
10.879148	22.12	RMS	37.7	.5	-95.2	-24.10	-58.98	-40	-18.98	V
10.90065	22.00	RMS	37.7	.6	-95.2	-23.88	-58.78	-40	-18.78	H
14.546381	19.40	RMS	39.8	.8	-95.2	-19.61	-54.81	-40	-14.81	H
14.571497	19.30	RMS	39.8	.8	-95.2	-20.13	-55.43	-40	-15.43	V
<b>High Channel, 3670.2MHz + 3690MHz</b>										
7.330706	25.31	RMS	35.8	.5	-95.2	-26.81	-60.40	-40	-20.40	V
7.381378	25.40	RMS	35.8	.7	-95.2	-27.00	-60.30	-40	-20.30	H
11.070291	22.13	RMS	37.8	.6	-95.2	-23.50	-58.17	-40	-18.17	V
11.089238	22.31	RMS	37.8	.7	-95.2	-23.46	-57.85	-40	-17.85	H
14.772863	19.86	RMS	40.2	.8	-95.2	-20.16	-54.50	-40	-14.50	H
14.798419	19.82	RMS	40.2	1	-95.2	-19.90	-54.08	-40	-14.08	V

## 11. SETUP PHOTOS

Please refer to 14523778-EP1V1 for Setup Photo Report for setup photos.

**END OF REPORT**