

# TEST REPORT

**Report Number :** 14982489-E20V2

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

**Model :** A3082

**Brand :** APPLE

**FCC ID :** BCG-E8692A

**EUT Description :** SMARTPHONE

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

**Date Of Issue:**

2024-08-21

**Prepared by:**

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Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
V1	2024-07-18	Initial Review	--
V2	2024-08-21	Updated TCB Feedback Selection 1,2,6,7,10	Eric Ting

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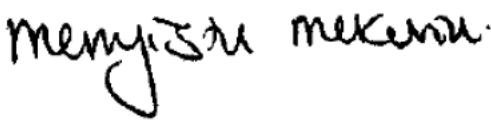


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# 1. ATTESTATION OF TEST RESULTS

Applicant Name and Address	APPLE, INC 1 APPLE PARK WAY CUPERTINO, CA 95014, U.S.A.	
Model	A3082	
Brand	APPLE	
FCC ID	BCG-E8692A	
EUT Description	SMARTPHONE	
Serial Number	C7HH28000240000HBR, C7HH57000DM0000HBU, C7HH6000590000HBR (Conducted) and Radiated: HJWN3127DQ & THVY70QKM3	
Sample Receipt Date	2023-11-15	
Date Tested	2023-11-15 to 2024-06-14	
Applicable Standards	FCC 47 CFR Part 2, Part 22, and Part 27	
Test Results	COMPLIES	
<p>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.</p> <p>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.</p> <p>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.</p>		
Approved & Released By:	Reviewed By:	Prepared By:
		
Mengistu Mekuria Staff Engineer UL Verification Services Inc.	Tewodros Woldemichael Laboratory Engineer UL Verification Services Inc.	Matthew Wu Laboratory Engineer Associate 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 correctly integrating customer-provided data with measurements performed by UL Verification Services Inc.

Below is a list of the data provided by the customer:

1. Antenna gain (see section 6.4.)

Requirement Description	Requirement Clause Number (FCC)	Result*	Remarks
RF Conducted Output Power	2.1046	Complies	
Effective Radiated Power	22.913 (a)(5)	Complies	
Equivalent Isotropic Radiated power	27.50 (h) (2)	Complies	
Occupied Bandwidth	2.1049	Complies	
Band Edge and Emission Mask	2.1051, 22.917 (a), 27.53 (m)(4) &(m)(6)	Complies	
Out of Band Emissions	2.1051, 22.917 (a), 27.53 (m)(4) &(m)(6)	Complies	
Frequency Stability	2.1055, 22.355, 27.54	Complies	
Peak-to-Average Ratio	27.50 (d) (5), part 22	Complies	
Field Strength of Spurious Radiation	2.1053, 22.917 (a), 27.53 (m)(4) &(m)(6)	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, and Part 27
- [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 type="checkbox"/>	Building 1: 47173 Benicia Street, Fremont, CA 94538, USA	US0104	2324A	550739
<input checked="" 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	1.300 db Peak 0.450 db 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, WCDMA, LTE, 5G NR1, 5G NR2, IEEE 802.11a/b/g/n/ac/ax/be, Bluetooth (BT), Ultra-Wideband (UWB), Global Positioning System (GPS), Near-Field Communication (NFC), Narrow-Band (NB) UNII, 802.15.4, 802.15.4ab-Narrow Band (NB), WPT and Mobile Satellite Service (MSS) technologies. The rechargeable battery is not user accessible. This device is not user-serviceable and requires special tools to disassemble.

### 6.2. MAXIMUM OUTPUT POWER

#### ERP/EIRP TEST PROCEDURE

ANSI C63.26:2015  
KDB 971168 D01 Section 5.6

$$\text{ERP/EIRP} = \text{PMeas} + \text{GT} - \text{LC}$$

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

PMeas = 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 (FCC)**

Part 22H								
EIRP Limit (W)		7.00						
Antenna Gain (dBi)		-5.10						
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	18.45	0.070	7512	7M51G7W
	16QAM			25.61	18.36	0.069	7496	7M50D7W
5+3	QPSK	826.5	847.5	25.70	18.45	0.070	7513	7M51G7W
	16QAM			25.56	18.31	0.068	7520	7M52D7W
5+10	QPSK	826.5	844.0	25.70	18.45	0.070	13872	13M9G7W
	16QAM			25.64	18.39	0.069	13852	13M9D7W
10+5	QPSK	829.0	846.5	25.70	18.45	0.070	13907	13M9G7W
	16QAM			25.66	18.41	0.069	13873	13M9D7W
10+10	QPSK	829.0	844.0	25.70	18.45	0.070	18744	18M7G7W
	16QAM			25.52	18.27	0.067	18765	18M8D7W

**OUTPUT POWER FOR LTE BAND 7**

Part 27								
EIRP Limit (W)		2.00						
Antenna Gain (dBi)		0.30						
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	25.30	0.339	28126	28M1G7W
	16QAM			24.00	24.30	0.269	28109	28M1D7W
20+10	QPSK	2510.0	2564.5	25.00	25.30	0.339	28152	28M2G7W
	16QAM			24.00	24.30	0.269	28157	28M2D7W
15+15	QPSK	2507.5	2562.5	25.00	25.30	0.339	28625	28M6G7W
	16QAM			24.00	24.30	0.269	28729	28M7D7W
15+20	QPSK	2507.8	2560.0	25.00	25.30	0.339	32895	32M9G7W
	16QAM			24.00	24.30	0.269	32844	32M8D7W
20+15	QPSK	2510.0	2562.2	25.00	25.30	0.339	32896	32M9G7W
	16QAM			24.00	24.30	0.269	32871	32M9D7W
20+20	QPSK	2510.0	2560.0	25.00	25.30	0.339	37734	37M7G7W
	16QAM			24.00	24.30	0.269	37747	37M7D7W

**OUTPUT POWER FOR LTE BAND 41**

Part 27								
EIRP Limit (W)		2.00						
Antenna Gain (dBi)		-0.30						
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	27.70	0.589	23374	23M4G7W
	16QAM			26.50	26.20	0.417	23287	23M3D7W
20+5	QPSK	2506.0	2686.7	28.00	27.70	0.589	23304	23M3G7W
	16QAM			26.50	26.20	0.417	23295	23M3D7W
10+20	QPSK	2501.5	2680.0	28.00	27.70	0.589	28035	28M0G7W
	16QAM			26.50	26.20	0.417	27964	28M0D7W
20+10	QPSK	2506.0	2684.5	28.00	27.70	0.589	28078	28M1G7W
	16QAM			26.50	26.20	0.417	28070	28M1D7W
15+15	QPSK	2503.5	2682.5	28.00	27.70	0.589	28697	28M7G7W
	16QAM			26.50	26.20	0.417	28651	28M7D7W
15+20	QPSK	2503.8	2680.0	28.00	27.70	0.589	32775	32M8G7W
	16QAM			26.50	26.20	0.417	32850	32M9D7W
20+15	QPSK	2506.0	2682.2	28.00	27.70	0.589	32859	32M9G7W
	16QAM			26.50	26.20	0.417	32844	32M8D7W
20+20	QPSK	2506.0	2680.0	28.00	27.70	0.589	37749	37M7G7W
	16QAM			26.50	26.20	0.417	37629	37M6D7W

### 6.3. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was version: 0.02.01.

### 6.4. MAXIMUM ANTENNA GAIN

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

LTE 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	824 – 849	-5.1	-4.7					
LTE Band 7	2500 – 2570	-3.2	-1.4	0.3	-0.7			
LTE Band 41 (FCC)	2496 – 2690	-2.4	-1.4	-0.3	-1.2			

## 6.5. WORST-CASE CONFIGURATION AND MODE

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

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

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, and ANT4 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

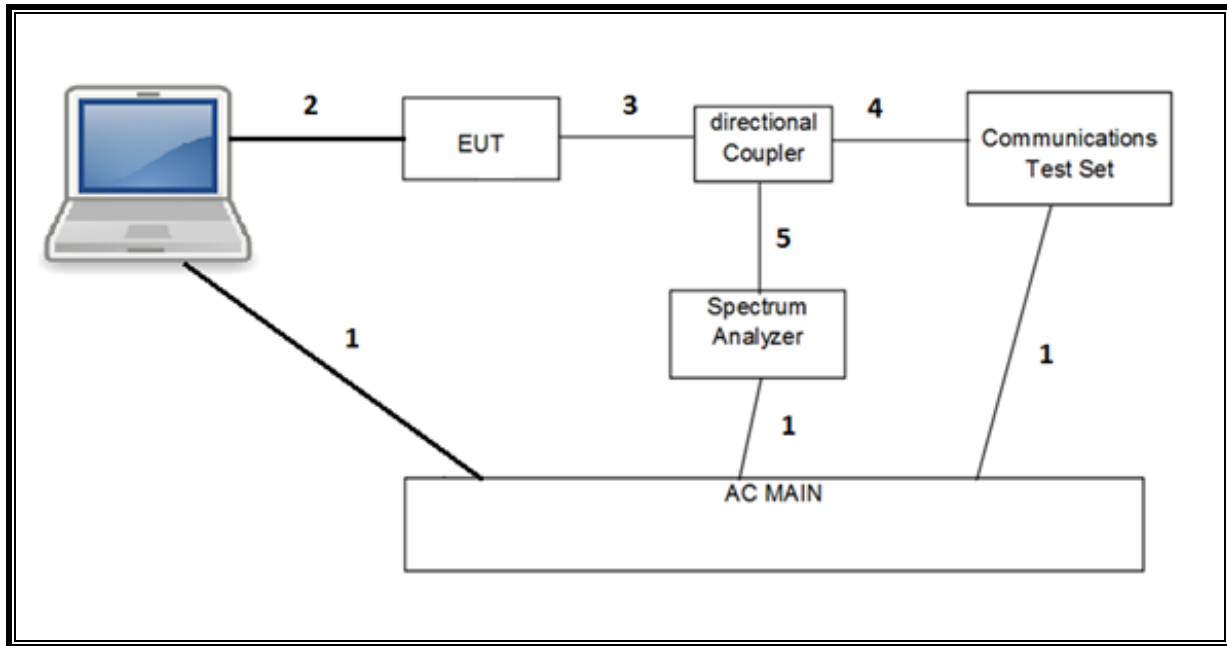
Radiated spurious emissions were investigated from 9kHz to 30MHz, 30MHz-1GHz and above 1GHz. There were no emissions found with less than 20dB of margin from 9kHz to 1GHz.

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.

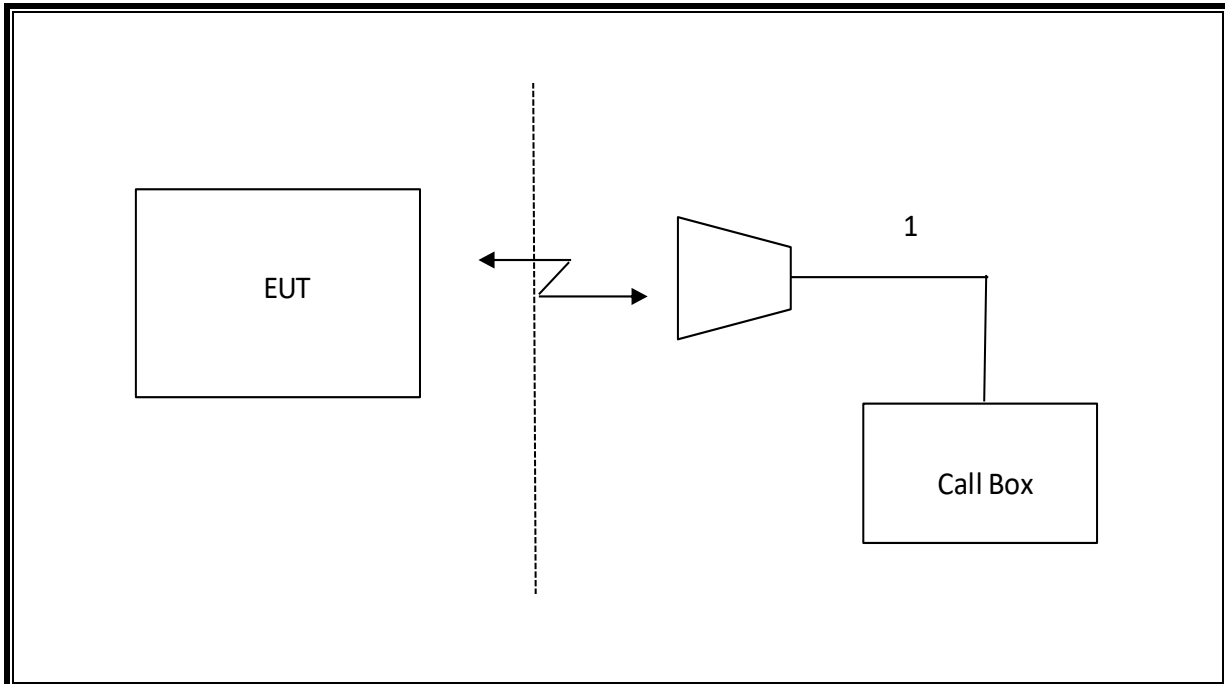
## 6.6. DESCRIPTION OF TEST SETUP

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	80430	2024-08-31
Antenna, Horn 1-18GHz	ETS Lindgren	3117	79834	2024-06-30
Antenna, Broadband Hybrid, 30MHz to 3000MHz	SUNAR	JB3	222009	2024-10-31
RF Filter Box, 1-18GHz	UL-FR1	NA	217255	2024-10-31
RF Filter Box, 1-18GHz	UL-FR1	RATS 2	226781	2024-09-30
Amplifier, 10KHz to 1GHz, 32dB	Sonoma	310N	430250	2024-09-30
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	169936	2025-02-28
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	169935	2025-02-28
Wideband Communication Test Set, Call Box	R&S GmbH & Co. KG	CMW500	85943	2025-02-28
Directional Coupler	KRYTAR	152610	198816	2024-10-31
Directional Coupler	KRYTAR	152610	231664	2025-01-22
Power Meter, P-series single channel	Keysight	N1912A	90719	2025-01-31
Power Sensor, P - series, 50MHz to 18GHz, Wideband	Keysight	N1921A	81319	2025-01-31
Filter, HPF 1.2GHz	Wainwright Instruments GmbH	WHKX6-948-1.2/15G-40ST	99	2024-10-31
Spectrum Analyzer, PXA, 2Hz to 44GHz	Keysight	N9030B	231739	2025-01-31
Spectrum Analyzer, PXA, 2Hz to 44GHz	Keysight	N9030B	245120	2025-02-28
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight	N9030A	85212	2025-02-28
Wideband Communication Test Set, Call Box	R&S GmbH & Co. KG	CMW500	222793	2025-02-28
Wideband Communication Test Set, Call Box	R&S GmbH & Co. KG	CMW500	222797	2025-02-28
Chamber, Environmental	Thermotron Corp.	SM-16C Mini-Max	179936	2024-06-30
Transmitting Antenna, Horn Antenna	TEKBOX Digital Solutions	TBMA4	226709	C.N.R.
Antenna, Horn 18 to 26.5GHz	A.R.A.	MWH-1826/B	199659	2024-12-31
*Amplifier 18-26.5GHz, +5Vdc, -54dBm P1dB	AMPLICAL	AMP18G26.5-60	234683	2024-03-29
DC Power Supply	GWINSTEK	GPS18500	N/A	C.N.R.
Antenna, Passive Loop 30Hz - 1MHz	ELECTRO-METRICS	EM-6871	170014	2024-08-31
Antenna, Passive Loop 100KHz - 30MHz	ELECTRO-METRICS	EM-6872	170016	2024-08-31
UL AUTOMATION SOFTWARE				
CLT Software	UL	UL RF	V2023.11.21.0	
Power Measurement Software	UL	UL RF	V2023.08.14.0	
Radiated test software	UL	UL RF	Ver 9.5 2023-05-01	

### NOTES:

- \* Testing is completed before equipment expiration date.
- \*\* Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.



## 8. RF OUTPUT POWER MEASUREMENTS

### RULE PART(S)

FCC: §2.1046, §22.913, §27.50

### 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. RF OUTPUT POWER

### 8.1.1. LTE BAND 5

Test Engineer ID:	25780	Test Date:	11/29/2023
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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			
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
3MHz / 5MHz	825.5	829.4	1	14	1	0	25.56	25.50	24.56	23.63	25.15	24.99	24.05	23.01
			15	0	25	0	25.60	25.61	24.82	23.84	25.20	24.93	23.99	23.05
	834.0	837.9	1	14	1	0	25.39	24.39	23.46	22.42	25.07	24.41	23.36	22.27
			15	0	25	0	25.36	24.43	23.45	22.45	24.94	24.33	23.25	22.20
	842.5	846.5	1	14	1	0	25.70	24.91	23.92	22.86	25.12	24.40	23.33	22.35
			15	0	25	0	25.59	24.73	23.82	22.86	24.97	24.37	23.29	22.34

#### 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			
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
5MHz / 3MHz	826.5	830.4	1	24	1	0	25.48	25.4	24.41	23.4	25.11	24.83	23.87	22.82
			25	0	15	0	25.55	25.56	24.68	23.71	25.20	24.73	23.82	22.87
	835.0	838.9	1	24	1	0	25.52	24.06	23.06	21.96	24.49	24.49	23.49	22.41
			25	0	15	0	25.24	24.31	23.33	22.33	24.85	24.30	23.34	22.37
	843.6	847.5	1	24	1	0	25.70	24.77	23.85	22.81	25.06	24.33	23.18	22.29
			25	0	15	0	25.29	24.46	23.56	22.58	24.70	24.20	23.23	22.24

#### 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			
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
5MHz / 10MHz	826.5	833.7	1	24	1	0	25.70	25.58	24.54	21.39	25.18	24.75	23.72	20.57
			25	0	50	0	24.52	23.52	23.55	21.50	23.70	22.69	22.71	20.71
	831.6	838.8	1	24	1	0	25.65	25.61	23.73	21.42	25.11	24.72	23.52	20.57
			25	0	50	0	24.54	23.54	23.56	21.54	23.72	22.72	22.72	20.71
	836.8	844.0	1	24	1	0	25.62	25.64	23.23	21.43	25.20	24.81	22.63	20.65
			25	0	50	0	24.63	23.62	23.63	21.62	23.76	22.76	22.76	20.75

#### 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			
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
10MHz / 5MHz	829.0	836.2	1	49	1	0	25.67	25.47	23.86	21.43	25.10	24.61	23.54	20.69
			50	0	25	0	24.55	23.55	23.54	21.52	23.73	22.72	22.73	20.73
	834.3	841.5	1	49	1	0	25.66	25.50	23.22	21.51	25.15	24.60	22.68	20.70
			50	0	25	0	24.60	23.58	23.59	21.57	23.76	22.74	22.76	20.76
	839.3	846.5	1	49	1	0	25.70	25.66	23.99	21.65	25.20	24.74	23.16	20.76
			50	0	25	0	24.70	23.71	23.65	21.68	23.81	22.79	22.81	20.80

#### 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			
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
10MHz / 10MHz	829.0	838.9	1	49	1	0	25.65	25.31	23.72	21.42	25.18	24.67	23.64	20.59
			1	0	1	49	16.05	16.04	16.04	16.05	15.29	15.29	15.26	15.29
			50	0	50	0	24.52	23.51	23.52	21.49	23.80	22.79	22.83	20.80
	831.5	841.4	1	49	1	0	25.70	25.44	23.26	21.09	25.16	24.65	23.39	20.69
			1	0	1	49	16.11	16.12	16.11	15.64	15.28	15.31	15.23	15.24
			50	0	50	0	24.56	23.57	23.59	21.20	23.80	22.79	22.81	20.80
834.1	844.0	1	49	1	0	25.66	25.52	23.21	21.42	25.20	24.73	22.91	20.73	
		1	0	1	49	16.12	16.11	16.17	16.13	15.27	15.30	15.31	15.30	
			50	0	50	0	24.61	23.61	23.62	21.59	23.83	22.82	22.83	20.81

**8.1.2. LTE BAND 7**

<b>Test Engineer ID:</b>	25780	<b>Test Date:</b>	12/18/2023
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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	<b>25.70</b>	<b>24.70</b>	<b>23.70</b>	<b>20.70</b>	<b>23.70</b>	<b>22.70</b>	<b>21.50</b>	<b>18.70</b>	24.62	23.84	22.63	19.68	<b>22.70</b>	<b>21.70</b>	<b>20.70</b>	<b>17.70</b>
			50	0	100	0	23.70	22.70	22.69	<b>20.70</b>	21.69	20.70	20.70	18.69	22.80	21.82	21.82	19.63	20.70	19.70	19.70	<b>17.70</b>
	2525.6	2540.0	1	49	1	0	25.67	24.59	23.53	20.62	<b>23.70</b>	<b>22.70</b>	21.31	18.59	24.80	<b>24.00</b>	<b>23.00</b>	19.83	22.48	21.49	20.68	17.59
			50	0	100	0	23.61	22.62	22.70	20.62	21.69	20.67	20.68	<b>18.70</b>	<b>22.85</b>	21.85	21.85	<b>20.00</b>	20.55	19.53	19.44	17.55
	2545.6	2560.0	1	49	1	0	<b>25.70</b>	24.40	23.19	19.85	23.60	22.46	21.20	17.82	<b>25.00</b>	23.99	21.58	<b>20.00</b>	22.18	21.21	20.23	16.56
			50	0	100	0	23.68	22.67	22.58	20.67	21.70	20.68	20.62	18.68	23.00	22.00	22.00	<b>20.00</b>	20.55	19.53	19.28	17.53

**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	25.49	<b>24.70</b>	22.20	20.67	<b>23.70</b>	<b>22.70</b>	21.28	<b>18.70</b>	24.67	23.78	22.74	19.88	<b>22.70</b>	<b>21.70</b>	20.33	<b>17.70</b>
			100	0	50	0	23.63	22.64	22.68	20.65	21.68	20.69	20.70	18.67	22.80	21.79	21.97	19.71	20.70	19.70	19.70	<b>17.70</b>
	2530.1	2544.5	1	99	1	0	25.55	24.67	22.23	<b>20.70</b>	23.68	22.62	21.24	18.56	24.42	23.68	<b>23.00</b>	<b>20.00</b>	22.55	21.45	<b>19.70</b>	17.57
			100	0	50	0	23.61	22.61	22.70	20.59	21.66	20.67	20.69	18.65	22.80	21.83	22.00	19.77	20.55	19.52	19.59	17.55
	2550.1	2564.5	1	99	1	0	<b>25.70</b>	24.50	<b>23.70</b>	19.87	23.53	22.26	<b>21.70</b>	17.62	<b>25.00</b>	<b>24.00</b>	21.82	19.68	22.56	21.55	20.60	16.87
			100	0	50	0	23.70	22.70	22.69	<b>20.70</b>	21.70	20.70	20.70	<b>18.70</b>	23.00	22.00	21.10	<b>20.00</b>	20.56	19.56	19.68	17.57

**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	25.66	<b>24.70</b>	23.23	<b>20.70</b>	<b>23.70</b>	<b>22.70</b>	21.36	18.61	<b>25.00</b>	23.82	22.81	19.92	<b>22.70</b>	<b>21.70</b>	20.54	<b>17.70</b>
			75	0	75	0	23.67	22.68	22.64	<b>20.70</b>	21.70	20.70	20.70	<b>18.70</b>	22.84	21.79	21.80	19.82	20.70	19.70	19.70	<b>17.70</b>
	2527.5	2542.5	1	74	1	0	25.62	24.67	<b>23.70</b>	20.69	23.68	22.67	21.50	<b>18.70</b>	24.93	22.96	<b>23.00</b>	19.83	22.49	21.54	<b>20.70</b>	17.54
			75	0	75	0	23.63	22.63	22.70	20.67	21.68	20.66	20.65	<b>18.70</b>	22.84	21.81	21.82	19.84	20.59	19.55	19.59	17.56
	2547.5	2562.5	1	74	1	0	<b>25.70</b>	24.37	23.40	19.62	23.37	22.15	<b>21.61</b>	18.67	<b>23.86</b>	<b>24.00</b>	21.34	<b>20.00</b>	22.17	21.32	20.40	16.49
			75	0	75	0	23.70	22.70	22.63	20.69	21.68	20.67	20.61	18.68	23.00	22.00	22.00	<b>20.00</b>	20.56	19.54	19.52	17.55

**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	25.68	<b>24.70</b>	23.24	<b>20.70</b>	23.68	<b>22.70</b>	21.45	<b>18.70</b>	<b>25.00</b>	23.79	22.84	19.91	<b>22.70</b>	<b>21.70</b>	20.57	<b>17.70</b>
			75	0	100	0	23.67	22.69	22.64	<b>20.70</b>	21.66	20.67	20.70	18.69	22.80	21.81	21.81	19.82	20.70	19.70	19.70	<b>17.70</b>
	2525.3	2542.4	1	74	1	0	25.63	24.67	<b>23.70</b>	20.57	<b>23.70</b>	22.68	21.45	18.68	24.49	23.35	<b>23.00</b>	19.69	22.48	21.50	<b>20.70</b>	17.52
			75	0	100	0	23.64	22.67	22.68	20.68	21.66	20.69	20.67	18.68	22.87	21.85	21.85	19.85	20.60	19.60	19.41	17.59
	2542.9	2560.0	1	74	1	0	<b>25.70</b>	24.48	23.41	19.82	23.45	22.45	<b>21.61</b>	18.67	<b>23.86</b>	<b>24.00</b>	21.65	<b>20.00</b>	22.19	21.21	20.36	16.52
			75	0	100	0	23.70	22.70	22.70	<b>20.70</b>	21.70	20.70	20.68	<b>18.70</b>	23.00	22.00	22.00	<b>20.00</b>	20.55	19.56	19.54	17.58

**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	<b>25.70</b>	<b>24.70</b>	23.67	<b>20.70</b>	<b>23.70</b>	22.68	21.31	<b>18.70</b>	24.65	23.70	22.50	19.73	<b>22.70</b>	<b>21.70</b>	20.32	<b>17.70</b>
			100	0	75	0	23.70	22.70	22.64	<b>20.70</b>	21.70	20.70	20.70	18.69	22.83	21.81	21.81	19.80	20.70	19.70	19.70	<b>17.70</b>
	2527.6	2544.7	1	99	1	0	25.64	24.39	<b>23.70</b>	20.56	23.66	<b>22.70</b>	21.46	18.60	24.42	23.73	<b>23.00</b>	19.73	22.50	21.51	<b>20.70</b>	17.63
			100	0	75	0	23.68	22.54	22.70	20.56	21.65	20.66	20.66	18.66	22.87	21.86	21.86	19.89	20.58	19.57	19.39	17.62
	2545.1	2562.2	1	99	1	0	25.69	24.10	23.44	19.45	23.10	22.20	<b>21.47</b>	18.69	<b>25.00</b>	<b>24.00</b>	21.43	<b>20.00</b>	22.34	21.36	20.42	16.63
			100	0	75	0	23.63	22.59	22.67	20.60	21.68	20.70	20.67	<b>18.70</b>	23.00	22.00	22.00	<b>20.00</b>	20.58	19.59	19.61	17.61

**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	25.57	24.67	23.14	<b>20.70</b>	<b>23.70</b>	<b>22.70</b>	21.22	18.60	23.56	<b>24.00</b>	22.66	19.97	<b>22.70</b>	<b>21.70</b>	20.29	<b>17.70</b>
			100	0	100	0	23.59	22.63	22.70	20.63	21.70	20.70	20.70	<b>18.70</b>	22.89	21.88	21.87	19.85	20.70	19.70	19.70	<b>17.70</b>
	2525.1	2544.9	1	99	1	0	25.60	<b>24.70</b>	<b>23.70</b>	20.66	23.69	22.65	<b>21.52</b>	<b>18.70</b>	24.46	23.92	<b>23.00</b>	19.83	22.33	21.47	<b>20.70</b>	17.55
			100	0	100	0	23.68	22.69	22.70	20.69	21.66	20.67	20.61	18.68	21.22	21.92	21.92	19.92	20.48	19.09	19.33	17.68
	2540.2	2560.0	1	99	1	0	<b>25.70</b>	24.52	23.54	19.83	23.38	22.42	21.33	17.71	<b>25.00</b>	23.93	21.40	<b>20.00</b>	21.89	21.12	20.44	17.60
			100	0	100	0	23.70	22.70	22.70	<b>20.70</b>	21.69	20.69	20.59	18.65	23.00	22.00	22.00	<b>20.00</b>	20.48	19.66	19.60	17.65

### 8.1.3. LTE BAND 41

Test Engineer ID:	28774	Test Date:	1/312023
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#### OUTPUT POWER FOR LTE BAND 41 (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 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	22.39	22.70	22.63	22.66	22.95	23.00	22.95	22.82	21.20	21.20	21.20	21.30	21.30	21.30	21.30	
			25	0	100	0	22.53	22.53	22.70	22.70	23.00	22.95	23.00	23.00	21.15	20.93	21.15	21.20	21.16	21.01	20.98	21.14
	2583.8	2595.5	1	24	1	0	28.70	27.20	26.70	23.70	28.70	27.20	26.70	23.70	28.00	26.50	26.00	23.00	27.70	26.20	25.70	22.70
			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	22.70
2668.3	2680.0	1	24	1	0	27.70	26.20	25.70	22.70	28.00	26.50	26.00	23.00	27.00	25.50	25.00	22.00	26.30	24.80	24.30	21.30	
		25	0	100	0	25.70	24.70	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 + 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				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	22.62	27.00	26.50	26.50	22.96	25.20	24.70	24.70	21.19	25.30	24.80	24.80	21.30
			100	0	25	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	20.45
	2590.5	2602.2	1	99	1	0	28.70	27.20	26.70	23.69	28.70	27.20	26.70	23.62	28.00	26.50	26.00	22.97	26.93	26.20	25.70	22.70
			100	0	25	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	22.15
2675.0	2686.7	1	99	1	0	27.70	26.20	25.70	22.61	28.00	26.50	26.00	22.96	27.00	25.50	25.00	21.89	26.30	24.80	24.30	21.30	
		100	0	25	0	25.70	24.70	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	20.54	

#### OUTPUT POWER FOR LTE BAND 41 (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	2501.5	2515.9	1	49	1	0	22.57	22.62	22.62	22.59	22.89	22.95	22.99	22.86	21.20	21.20	21.18	21.20	21.30	21.21	21.18	21.06
			50	0	100	0	22.70	22.70	22.70	22.70	23.00	23.00	23.00	23.00	21.12	21.08	21.20	21.08	21.30	21.28	21.18	21.29
	2583.6	2598.0	1	49	1	0	28.70	27.20	26.7	23.70	28.70	27.20	26.70	23.70	28.00	26.50	26.00	23.00	27.70	26.20	25.70	22.70
			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	22.70	28.00	26.50	26.00	23.00	27.00	25.50	25.00	22	26.30	24.80	24.30	21.30	
		50	0	100	0	25.70	24.70	24.70	22.70	26.00	25.00	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 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	2506.0	2520.4	1	99	1	0	26.70	26.20	26.20	22.62	27.00	26.50	26.50	22.97	25.20	24.70	24.70	21.20	25.30	24.80	24.80	21.30
			100	0	50	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	20.60
	2588.1	2602.5	1	99	1	0	28.70	27.20	26.70	23.62	28.70	27.20	26.70	23.65	28.00	26.50	26.00	22.91	27.70	26.20	25.70	22.70
			100	0	50	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	22.15
2670.1	2684.5	1	99	1	0	27.70	26.20	25.70	22.54	28.00	26.50	26.00	22.93	27.00	25.50	25.00	21.84	26.30	24.80	24.30	21.30	
		100	0	50	0	25.70	24.70	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	20.57	

#### OUTPUT POWER FOR LTE BAND 41 (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	2503.5	2518.5	1	74	1	0	27.70	26.20	25.70	22.58	27.95	26.50	26.00	22.88	26.20	24.70	24.20	21.20	26.30	24.80	24.30	21.30
			75	0	75	0	22.70	22.70	22.70	22.70	23.00	22.96	22.98	22.99	21.17	21.18	21.17	21.18	20.33	20.37	20.32	20.33
	2585.5	2600.5	1	74	1	0	28.70	27.20	26.70	23.61	28.70	27.20	26.70	23.61	28.00	26.50	26.00	22.94	27.70	26.20	25.70	22.70
			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	22.12
2667.5	2682.5	1	74	1	0	27.70	26.20	25.70	22.53	27.99	26.50	26.00	22.87	27.00	25.50	25.00	21.99	26.30	24.80	24.30	21.30	
		75	0	75	0	25.70	24.70	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	20.98	

#### OUTPUT POWER FOR LTE BAND 41 (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	2503.8	2520.9	1	74	1	0	26.70	26.20	26.20	22.52	27.82	26.50	26.50	22.91	25.20	24.70	24.70	21.20	25.3	24.80	24.80	21.30
			75	0	100	0	22.68	22.70	22.68	22.70	22.97	22.97	22.99	23.00	21.11	21.14	21.12	21.13	20.36	20.44	20.40	20.41
	2583.3	2600.4	1	74	1	0	28.70	27.20	26.70	23.59	28.33	27.20	26.70	23.60	28.00	26.50	26.00	22.88	27.70	26.20	25.70	22.70
			75	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	22.11
2662.9	2680.0	1	74	1	0	27.70	26.20	25.70	22.54	27.85	26.50	26.00	22.92	27.00	25.50	25.00	21.95	26.30	24.80	24.30	21.30	
		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	20.67	

#### OUTPUT POWER FOR LTE BAND 41 (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	2506.0	2523.1	1	99	1	0	27.70	26.20	25.70	22.57	28.00	26.50	26.00	22.97	26.20	24.70	24.20	21.13	26.30	24.80	24.30	21.30
			100	0	75	0	22.68	22.69	22.70	22.70	22.97	22.96	22.98	23.00	21.17	21.20	21.17	21.17	20.58	20.67	20.59	20.57
	2585.6	2602.7	1	99	1	0	28.70	27.20	26.70	23.64	28.70	27.20	26.70	23.70	28.00	26.50	26.00	22.82	27.70	26.20	25.70	22.70
			100	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	21.92
2665.1	2682.2	1	99	1	0	27.70	26.20	25.70	22.55	28.00	26.50	26.00	22.85	27.00	25.50	25.00	21.86	26.30	24.80	24.30	21.30	
		100	0	75	0	25.70	24.70	24.70	22.70	26.00	25.00	25.00	23.00	25.00	24.00	24.00	22.00	24.3	23.30	23.30	20.89	

**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	27.09	25.60	25.09	22.13	27.83	25.90	25.17	22.04	25.47	24.00	23.49	20.46	25.90	23.82	22.75	19.97
			1	0	1	99	14.70	14.67	14.49	14.50	14.96	14.94	14.90	15.00	12.91	13.20	13.04	13.07	12.55	13.00	13.25	13.30
			100	0	100	0	22.70	22.69	22.70	22.70	22.98	22.96	23.00	22.99	21.18	21.20	21.17	21.17	21.23	21.30	21.25	21.30
	2583.1	2602.9	1	99	1	0	<b>28.70</b>	<b>27.20</b>	<b>26.70</b>	<b>23.70</b>	<b>28.70</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>	<b>23.00</b>	<b>27.70</b>	<b>26.20</b>	<b>25.70</b>	<b>22.70</b>
			1	0	1	99	20.20	20.07	20.15	20.18	20.19	20.17	20.20	20.20	19.47	19.50	19.35	19.49	18.71	19.08	19.20	18.95
			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	22.70	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	19.14	19.08	19.02	19.20	19.79	19.70	19.74	19.80	18.49	18.39	18.38	18.50	17.60	17.49	17.56	17.80
			100	0	100	0	25.70	24.70	24.71	22.70	26.00	25.00	25.02	23.00	25.00	24.00	24.02	22.00	24.30	23.30	23.35	21.30

## 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	7.5121	8.039
	3MHz + 5MHz BAND 16QAM			7.4957	8.000
	5MHz + 3MHz BAND QPSK	25/0 + 15/0		7.5132	7.999
	5MHz + 3MHz BAND 16QAM			7.5195	8.005
	5MHz + 10MHz BAND QPSK	25/0 + 50/0		13.872	14.61
	5MHz + 10MHz BAND 16QAM			13.852	14.63
	10MHz + 5MHz BAND QPSK	50/0 + 25/0		13.907	14.55
	10MHz + 5MHz BAND 16QAM			13.873	14.60
	10MHz + 10MHz BAND QPSK	50/0 + 50/0		18.744	19.80
	10MHz + 10MHz BAND 16QAM			18.765	19.96

**LTE Band 7**

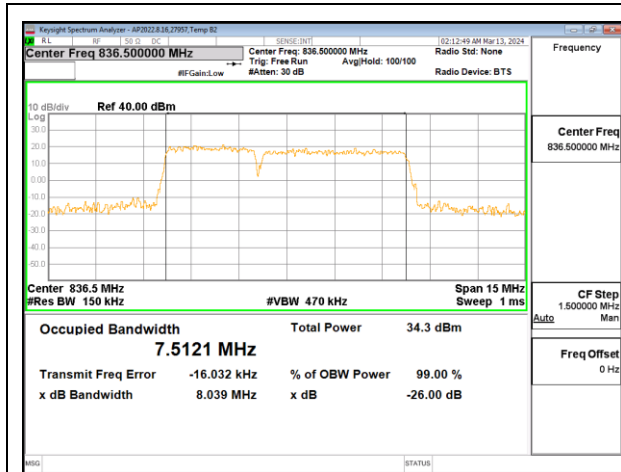
Band	Mode	RB Allocation/RB Offset	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 7	10MHz + 20MHz BAND QPSK	50/0 + 100/0	2535	28.126	30.20
	10MHz + 20MHz BAND 16QAM			28.109	30.07
	20MHz + 10MHz BAND QPSK	100/0 + 50/0		28.152	30.06
	20MHz + 10MHz BAND 16QAM			28.157	30.27
	15MHz + 15MHz BAND QPSK	75/0 + 75/0		28.625	30.83
	15MHz + 15MHz BAND 16QAM			28.729	30.68
	15MHz + 20MHz BAND QPSK	75/0 + 100/0		32.895	35.10
	15MHz + 20MHz BAND 16QAM			32.844	35.00
	20MHz + 15MHz BAND QPSK	100/0 + 75/0		32.896	35.29
	20MHz + 15MHz BAND 16QAM			32.871	35.07
	20MHz + 20MHz BAND QPSK	100/0 + 100/0		37.734	40.14
	20MHz + 20MHz BAND 16QAM			37.747	40.09

**LTE BAND 41 (FCC)**

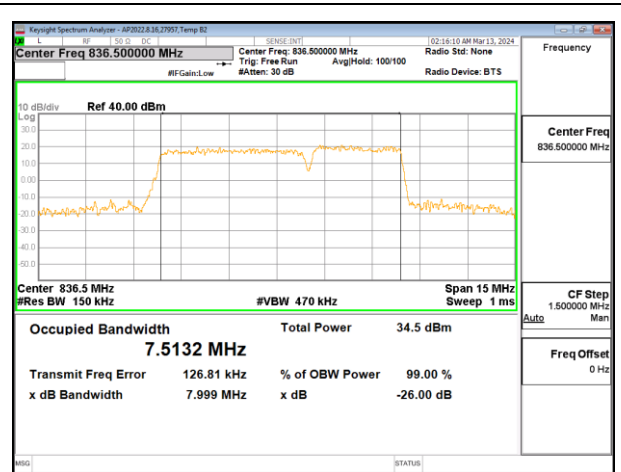
Band	Mode	RB Allocation/RB Offset	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 41 (FCC)	5MHz + 20MHz BAND QPSK	25/0 + 100/0	2593	23.374	24.93
	5MHz + 20MHz BAND 16QAM			23.287	24.97
	20MHz + 5MHz BAND QPSK	100/0 + 25/0		23.304	25.13
	20MHz + 5MHz BAND 16QAM			23.295	24.82
	10MHz + 20MHz BAND QPSK	50/0 + 100/0		28.035	30.10
	10MHz + 20MHz BAND 16QAM			27.964	29.89
	20MHz + 10MHz BAND QPSK	100/0 + 50/0		28.078	30.23
	20MHz + 10MHz BAND 16QAM			28.070	30.00
	15MHz + 15MHz BAND QPSK	75/0 + 75/0		28.697	30.64
	15MHz + 15MHz BAND 16QAM			28.651	30.62
	15MHz + 20MHz BAND QPSK	75/0 + 100/0		32.775	35.07
	15MHz + 20MHz BAND 16QAM			32.850	34.96
	20MHz + 15MHz BAND QPSK	100/0 + 75/0		32.859	35.32
	20MHz + 15MHz BAND 16QAM			32.844	35.23
	20MHz + 20MHz BAND QPSK	100/0 + 100/0		37.749	39.88
	20MHz + 20MHz BAND 16QAM			37.629	39.87



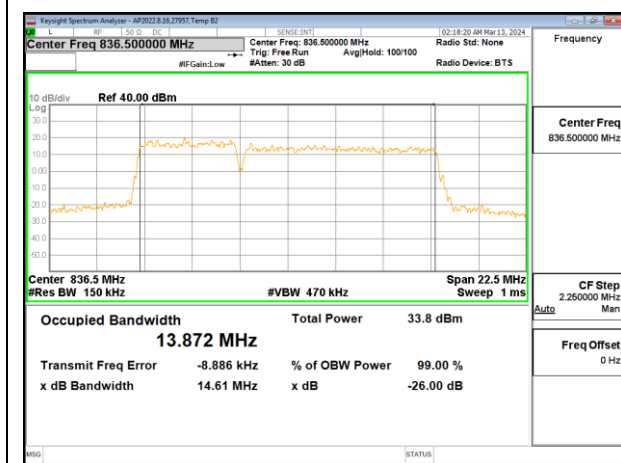
9.1.1.LTE BAND 5



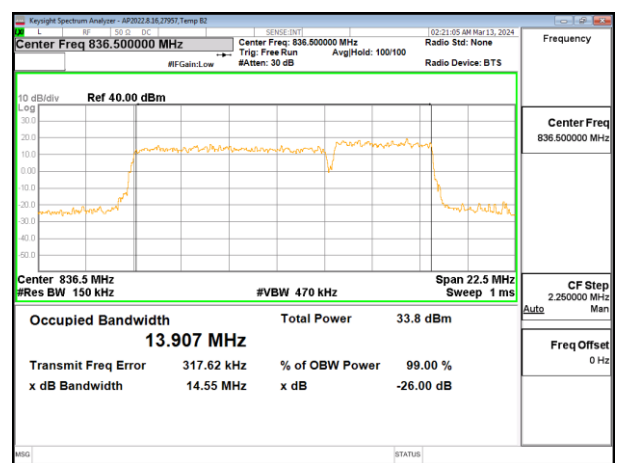
LTE B5 3MHz + 5MHz QPSK RB15-0 + RB25-0



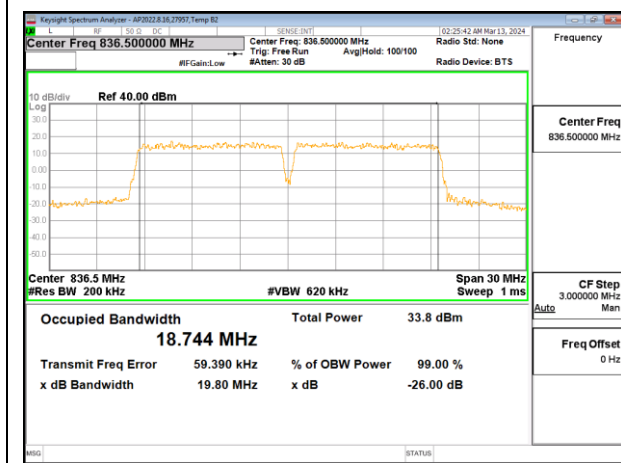
LTE B5 5MHz + 3MHz QPSK RB25-0 + RB15-0



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



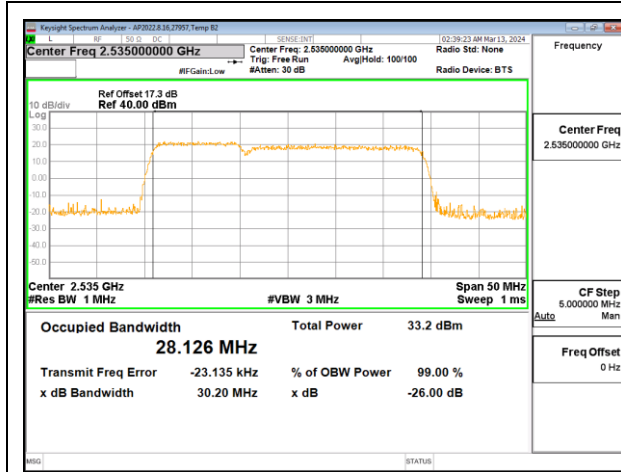
LTE B5 10MHz + 5MHz QPSK RB50-0 + RB25-0



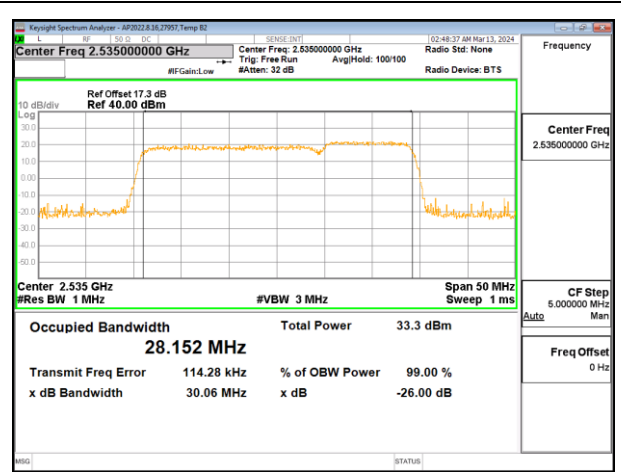
LTE B5 10MHz + 10MHz QPSK RB50-0 + RB50-0

Intentionally Blank

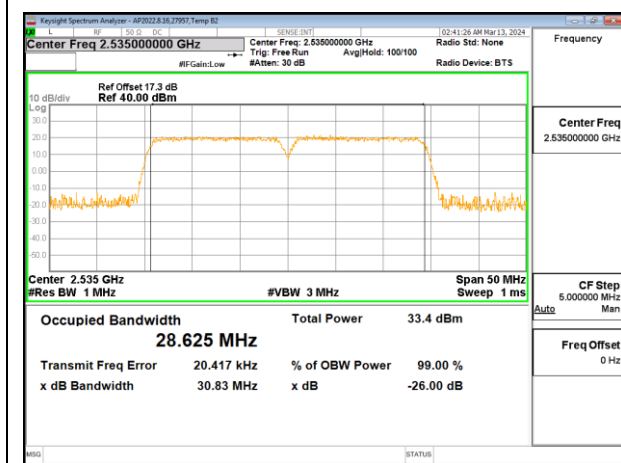
9.1.2. LTE BAND 7



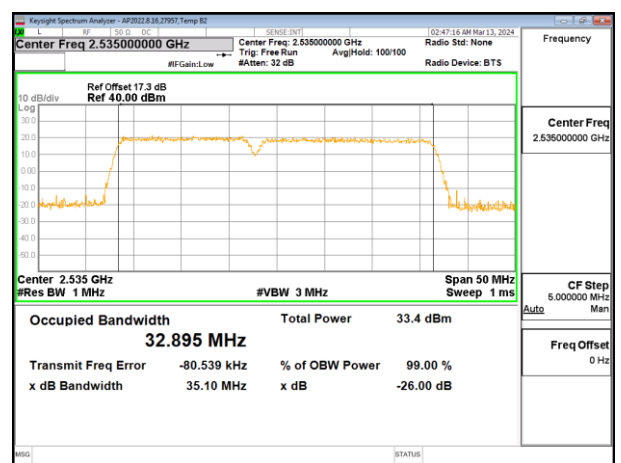
LTE B7 10MHz + 20MHz QPSK RB50-0 + RB100-0



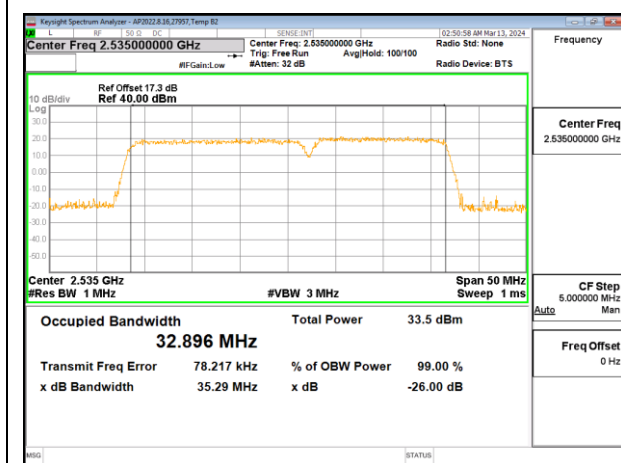
LTE B7 20MHz + 10MHz QPSK RB100-0 + RB50-0



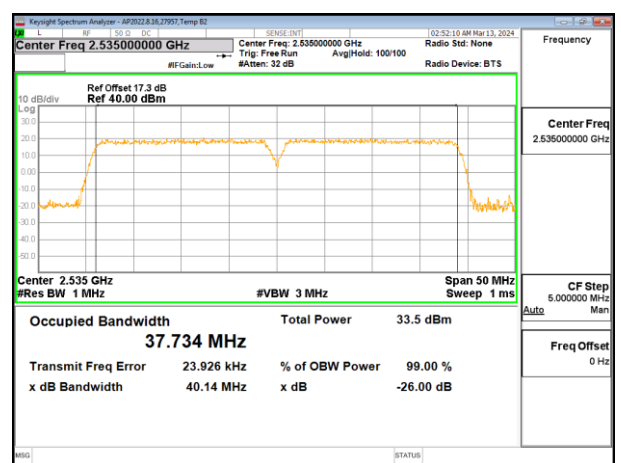
LTE B7 15MHz + 15MHz QPSK RB75-0 + RB75-0



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

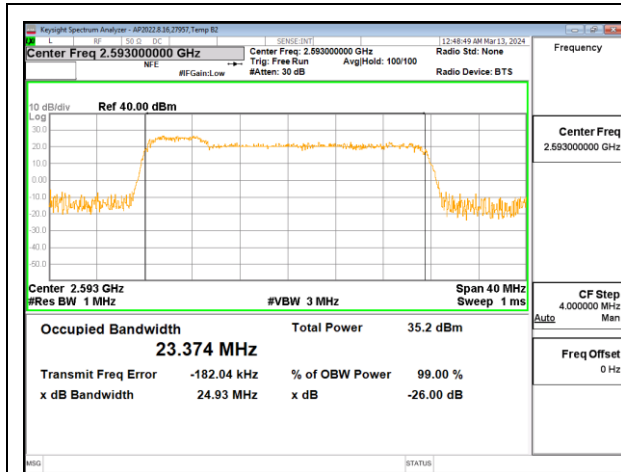


LTE B7 20MHz + 15MHz QPSK RB100-0 + RB75-0

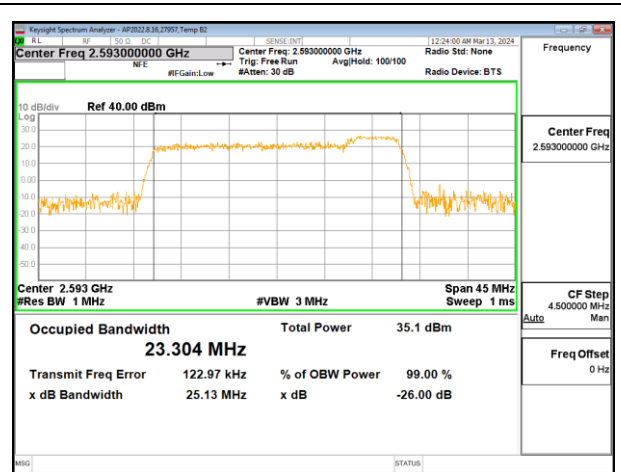


LTE B7 20MHz + 20MHz QPSK RB100-0 + RB100-0

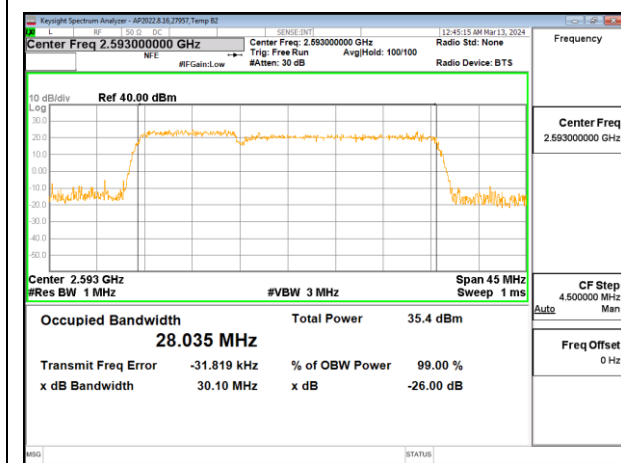
### 9.1.3. LTE BAND 41 (FCC)



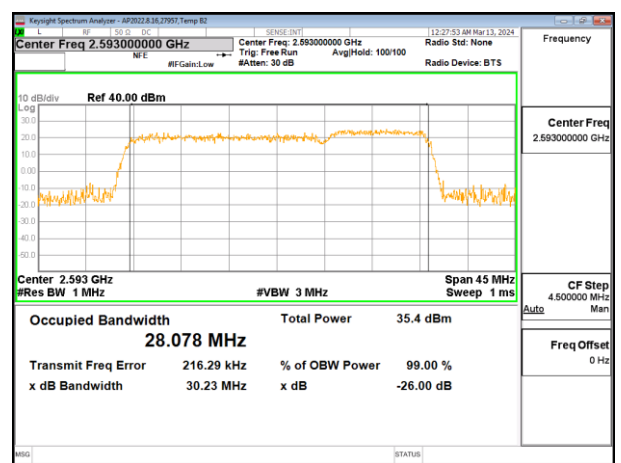
LTE B41 5MHz + 20MHz QPSK RB25-0 + RB100-0



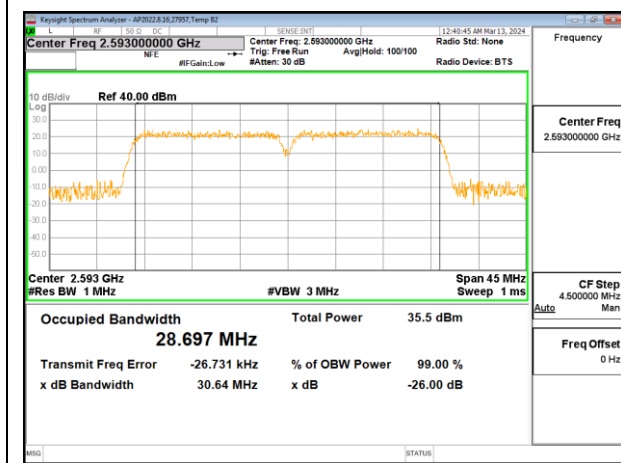
LTE B41 20MHz + 5MHz QPSK RB100-0 + RB25-0



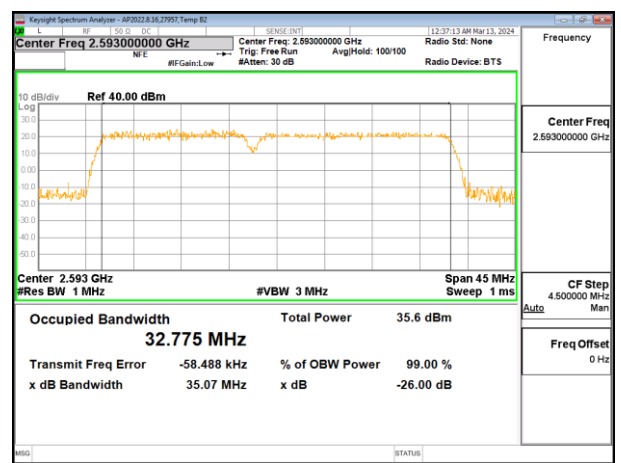
LTE B41 10MHz + 20MHz QPSK RB50-0 + RB100-0



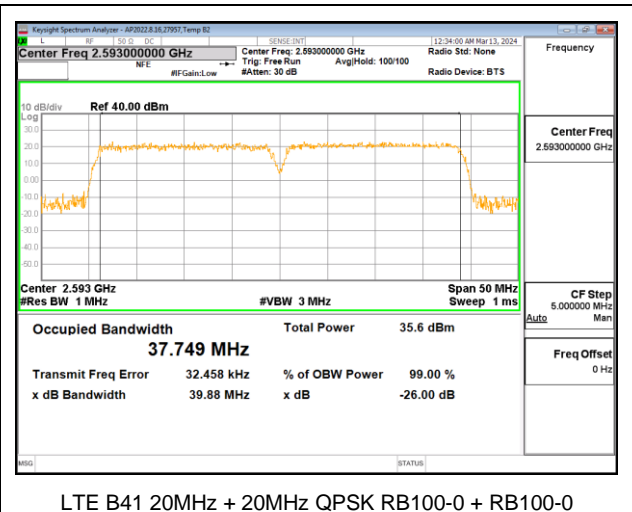
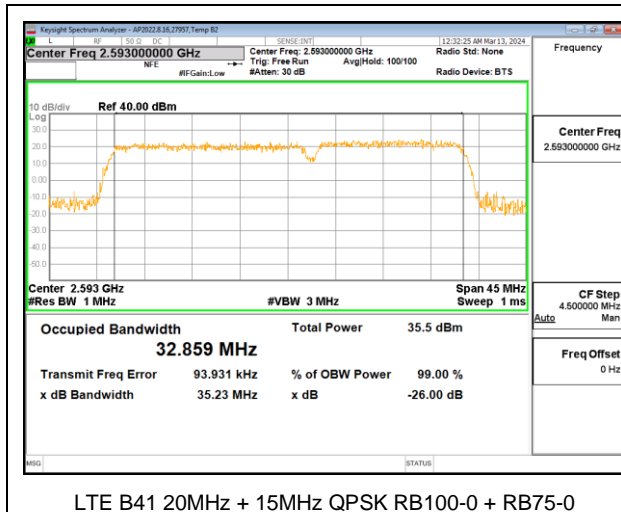
LTE B41 20MHz + 10MHz QPSK RB100-0 + RB50-0



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



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



## 9.2. BAND EDGE AND EMISSION MASK

### 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.

### RESULTS

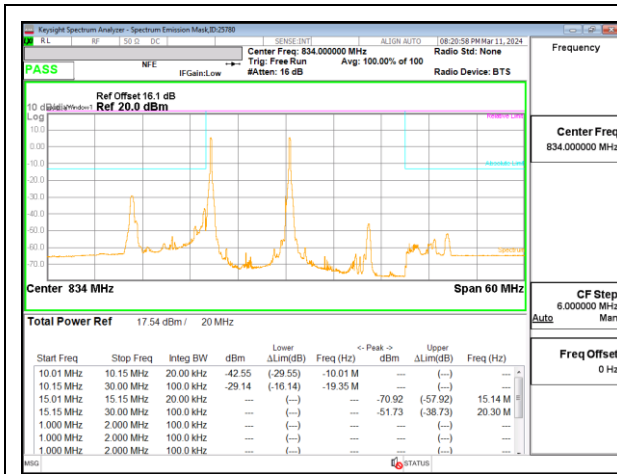
Both maximum + maximum bandwidth combinations of QPSK and 16QAM modes are tested, QPSK results are reported as worst case.

## 9.2.1. LTE BAND 5

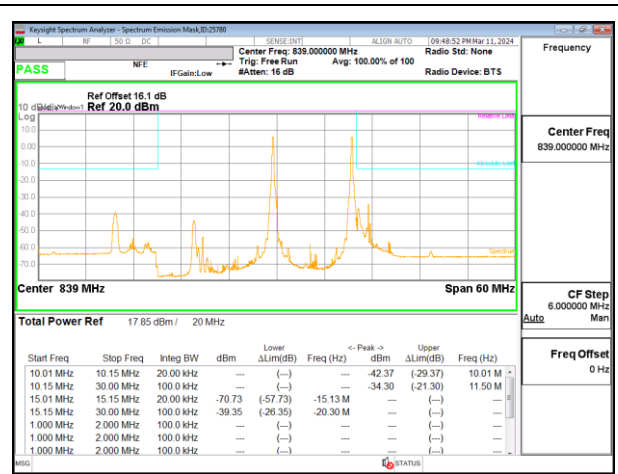
### LIMITS

FCC: §22.917

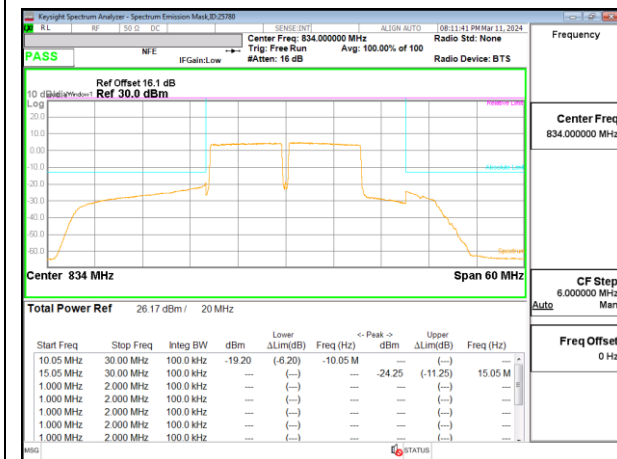
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log (P)$  dB.



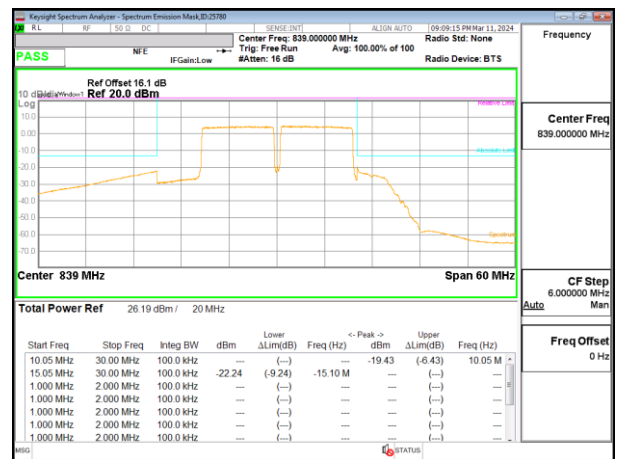
LTE B5 10MHz + 10MHz QPSK Low Ch RB1-0 + RB1-0



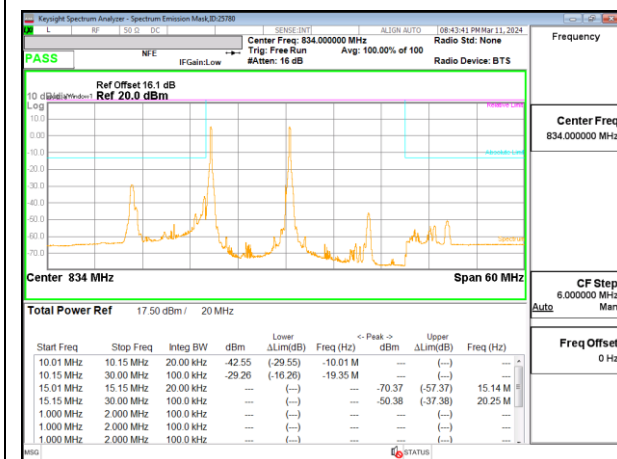
LTE B5 10MHz + 10MHz QPSK High Ch RB1-49 + RB1-49



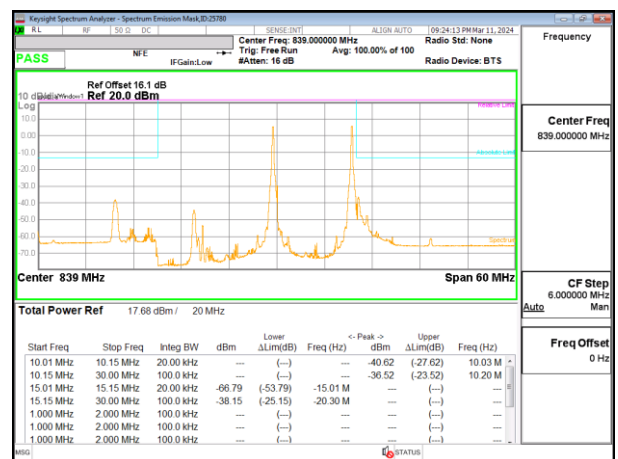
LTE B5 10MHz + 10MHz QPSK Low Ch RB50-0 + RB50-0



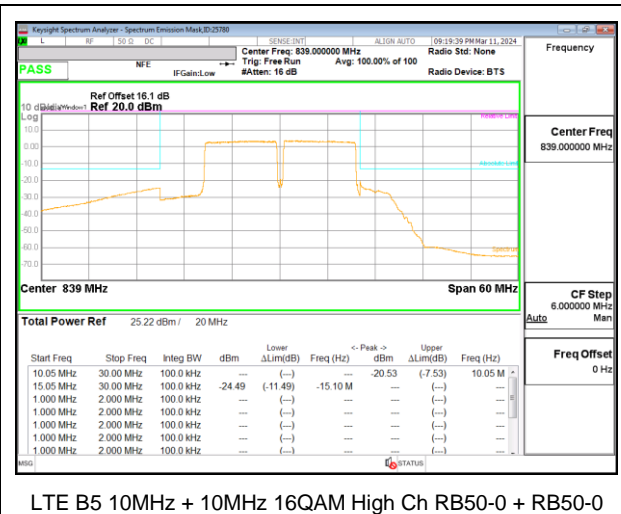
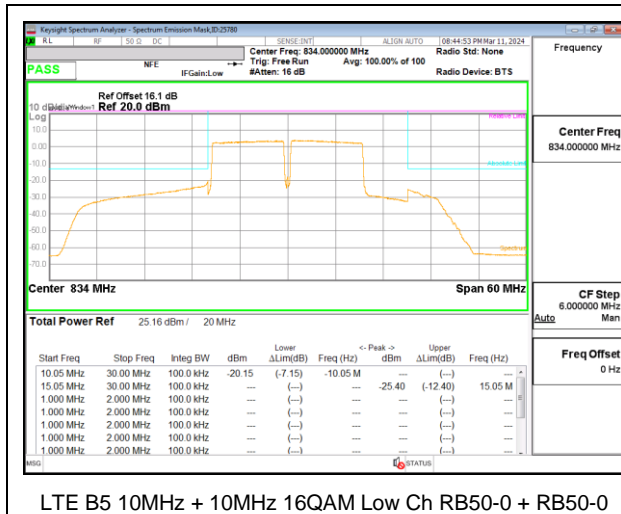
LTE B5 10MHz + 10MHz QPSK High Ch RB50-0 + RB50-0



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

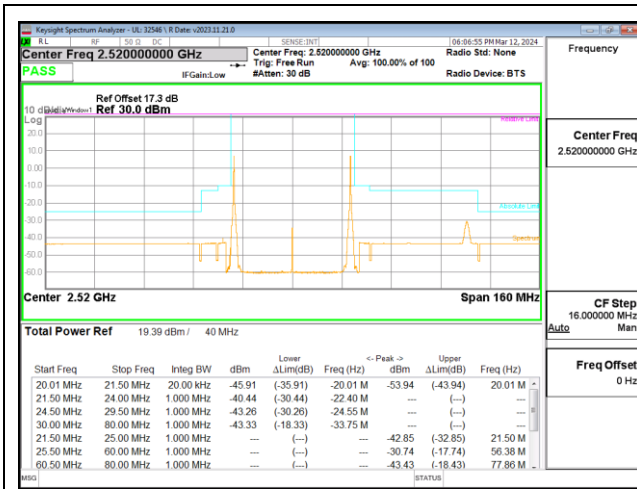
LTE B5 10MHz + 10MHz 16QAM High Ch RB50-0 + RB50-0



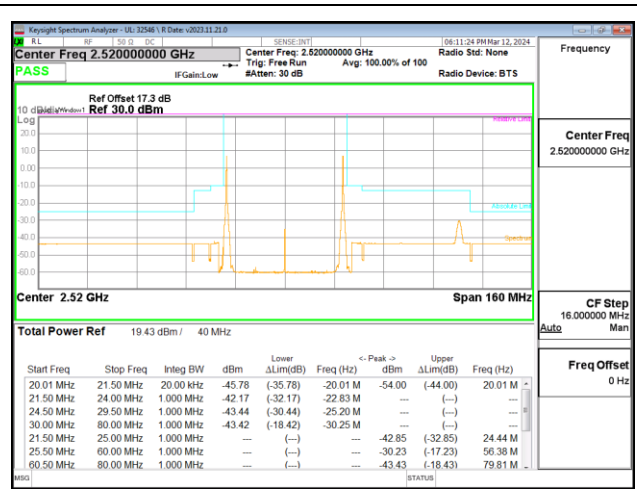
## 9.2.2. LTE BAND 7

### LIMITS

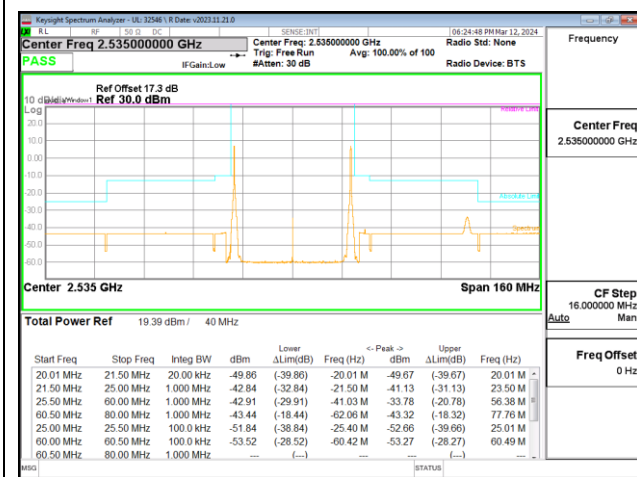
FCC: §27.53(m)(4) For mobile digital stations, the attenuation factor shall be not less than  $40 + 10 \log (P)$  dB on all frequencies between the channel edge and 5 megahertz from the channel edge,  $43 + 10 \log (P)$  dB on all frequencies between 5 megahertz and X megahertz from the channel edge, 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 than  $43 + 10 \log (P)$  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.



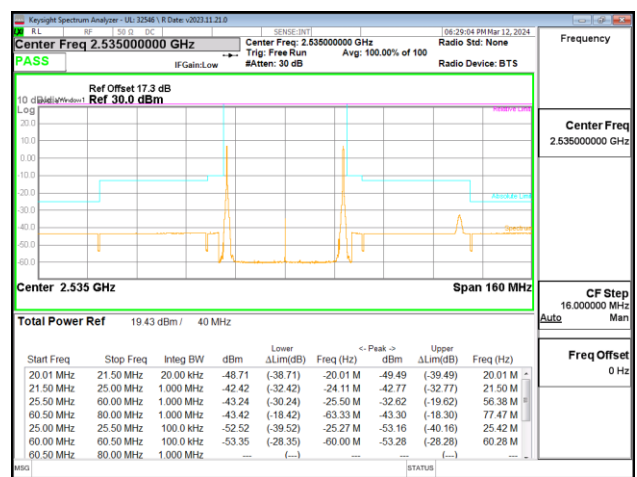
LTE B7 20MHz + 20MHz QPSK Low Ch RB1-0 + RB1-99



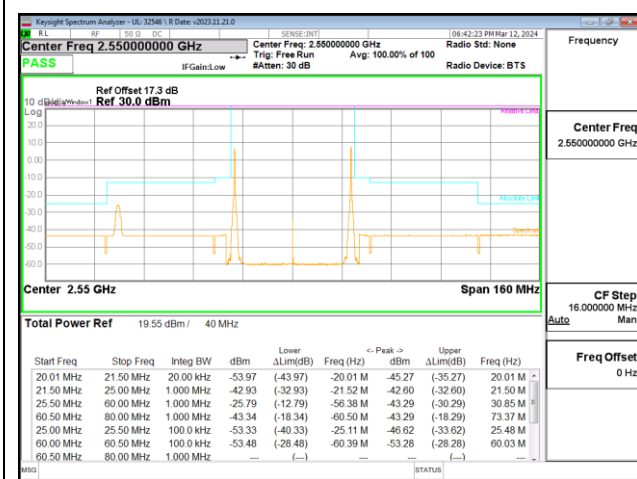
LTE B7 20MHz + 20MHz 16QAM Low Ch RB1-0 + RB1-99



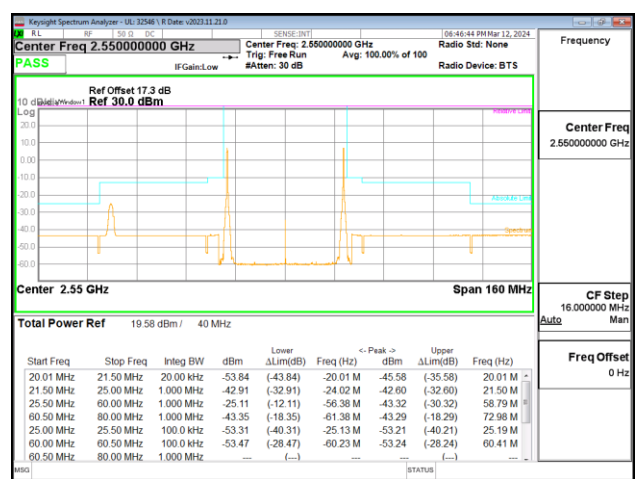
LTE B7 20MHz + 20MHz QPSK Mid Ch RB1-0 + RB1-99



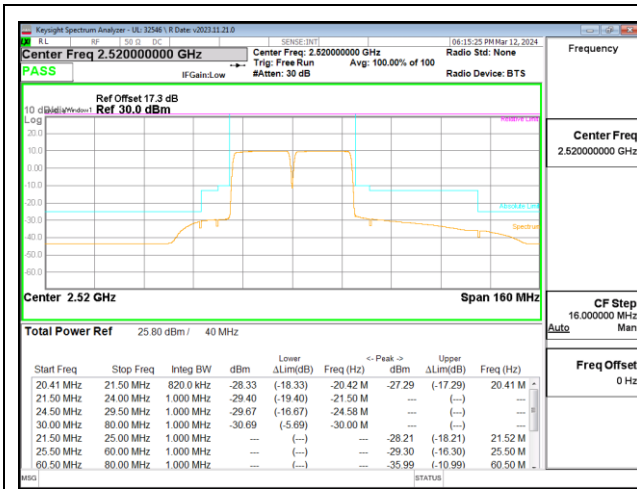
LTE B7 20MHz + 20MHz 16QAM Mid Ch RB1-0 + RB1-99



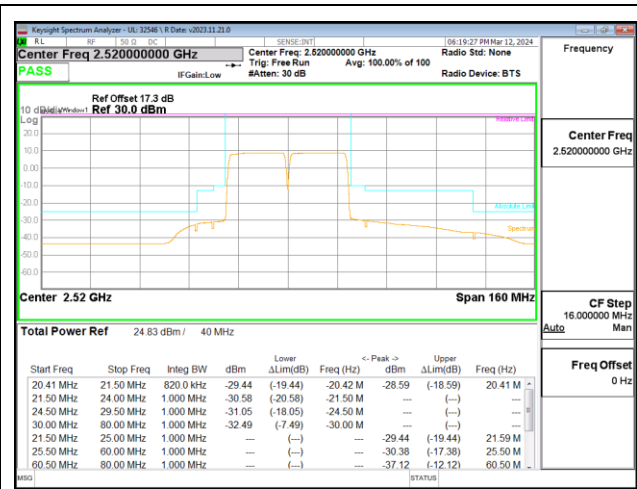
LTE B7 20MHz + 20MHz QPSK High Ch RB1-0 + RB1-99



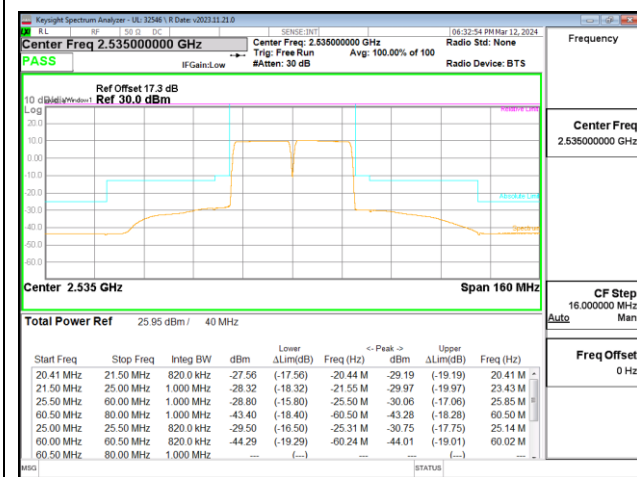
LTE B7 20MHz + 20MHz 16QAM High Ch RB1-0 + RB1-99



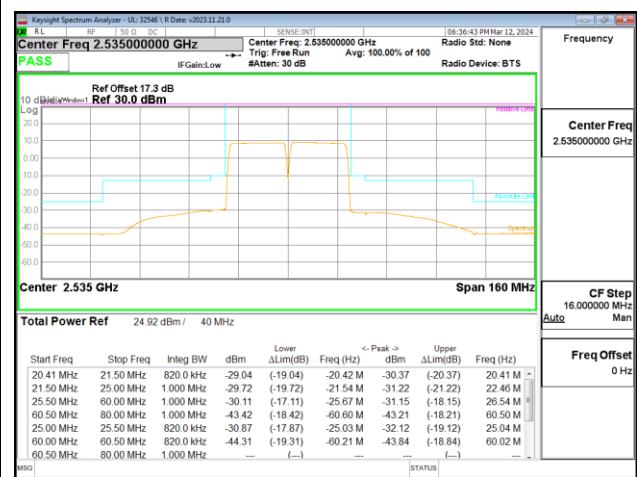
LTE B7 20MHz + 20MHz QPSK Low Ch RB100-0 + RB100-0



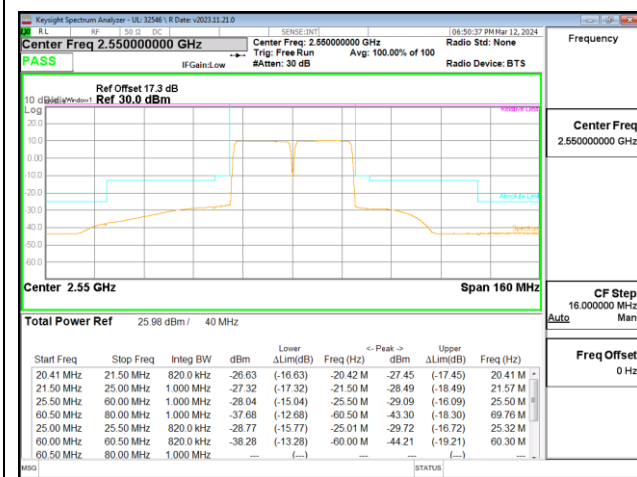
LTE B7 20MHz + 20MHz 16QAM Low Ch RB100-0 + RB100-0



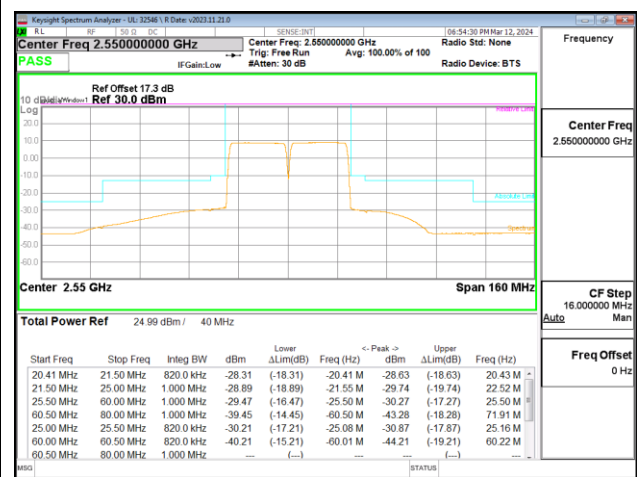
LTE B7 20MHz + 20MHz QPSK Mid Ch RB100-0 + RB100-0



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



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

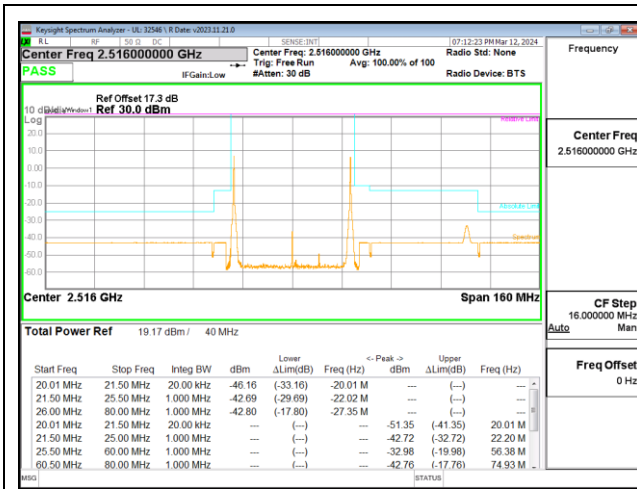


LTE B7 20MHz + 20MHz 16QAM High Ch RB100-0 + RB100-0

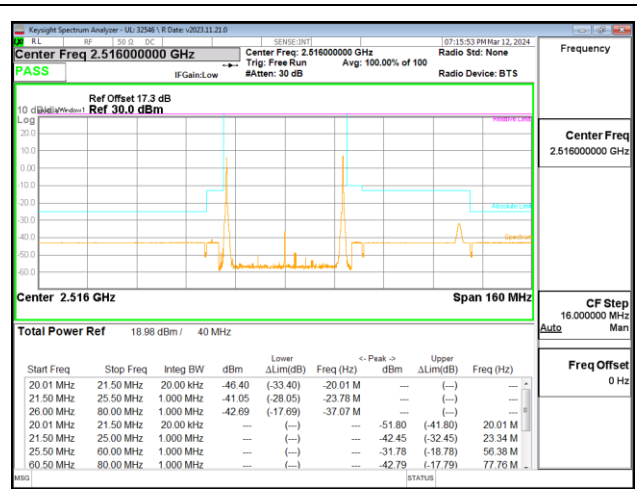
### 9.2.3. LTE BAND 41 (FCC)

#### LIMITS

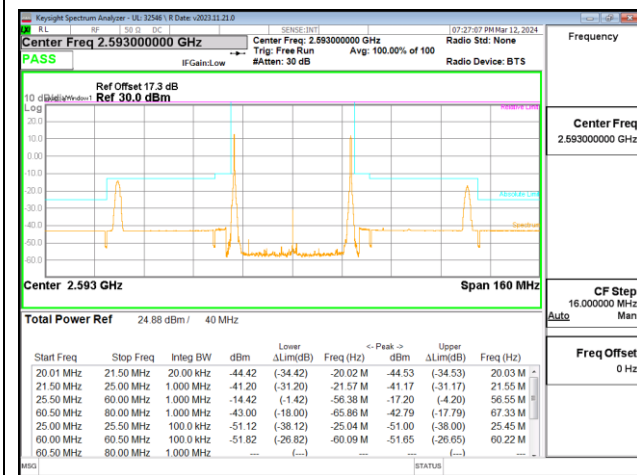
FCC: §27.53(m)(4) For mobile digital stations, the attenuation factor shall be not less than  $40 + 10 \log (P)$  dB on all frequencies between the channel edge and 5 megahertz from the channel edge,  $43 + 10 \log (P)$  dB on all frequencies between 5 megahertz and X megahertz from the channel edge, 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 than  $43 + 10 \log (P)$  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.



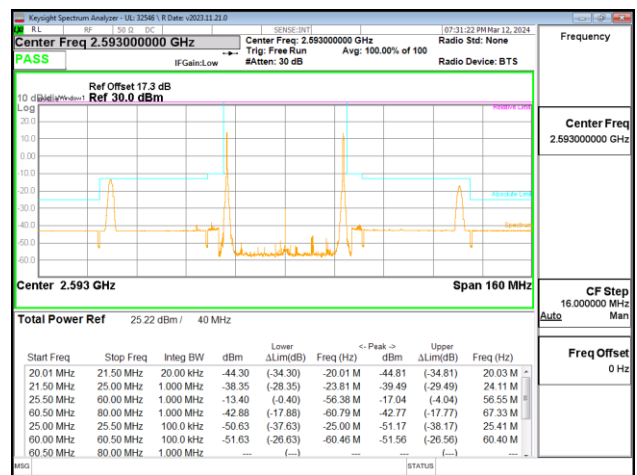
LTE B41 20MHz + 20MHz QPSK Low Ch RB1-0 + RB1-99



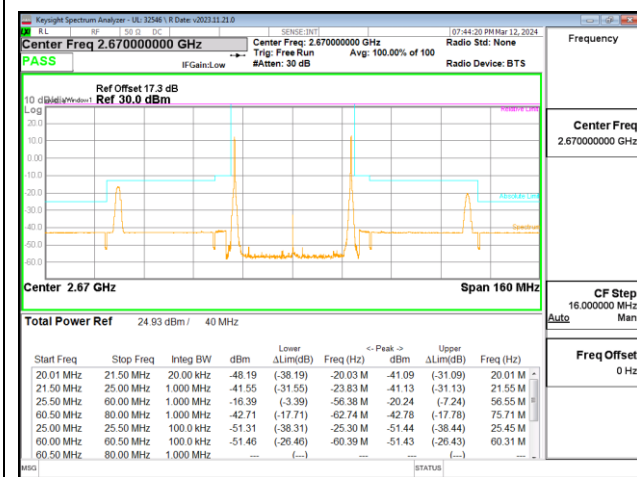
LTE B41 20MHz + 20MHz 16QAM Low Ch RB1-0 + RB1-99



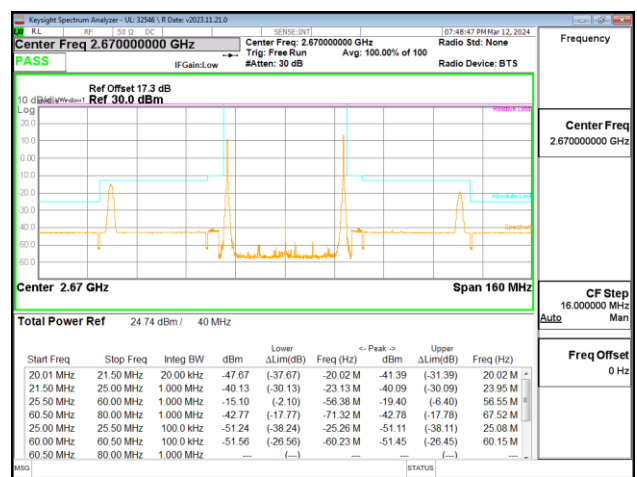
LTE B41 20MHz + 20MHz QPSK Mid Ch RB1-0 + RB1-99



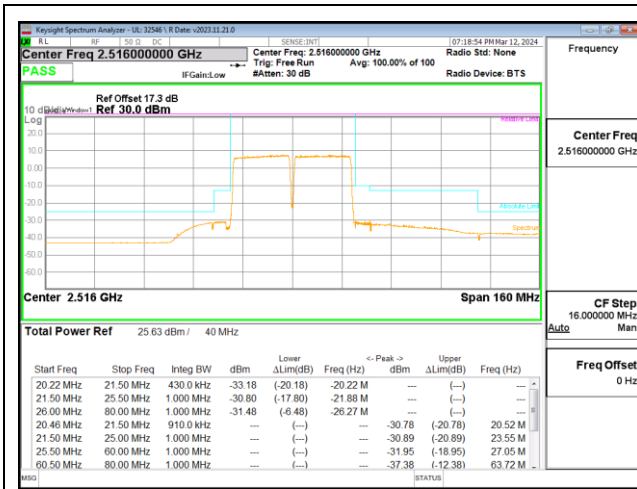
LTE B41 20MHz + 20MHz 16QAM Mid Ch RB1-0 + RB1-99



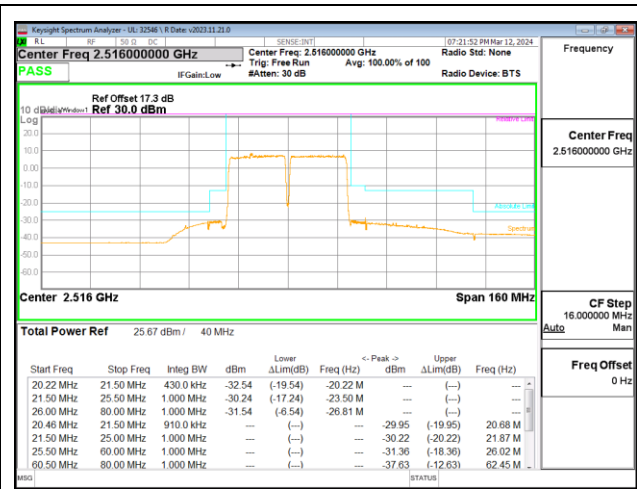
LTE B41 20MHz + 20MHz QPSK High Ch RB1-0 + RB1-99



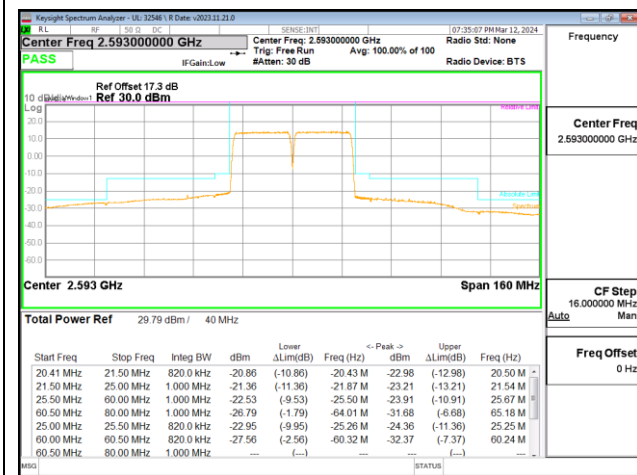
LTE B41 20MHz + 20MHz 16QAM High Ch RB1-0 + RB1-99



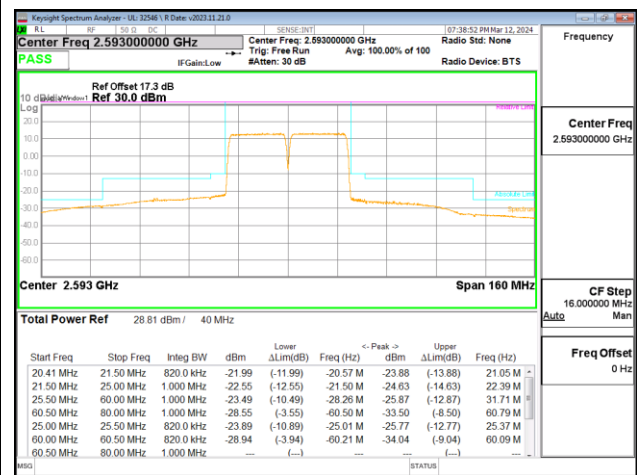
LTE B41 20MHz + 20MHz QPSK Low Ch RB100-0 + RB100-0



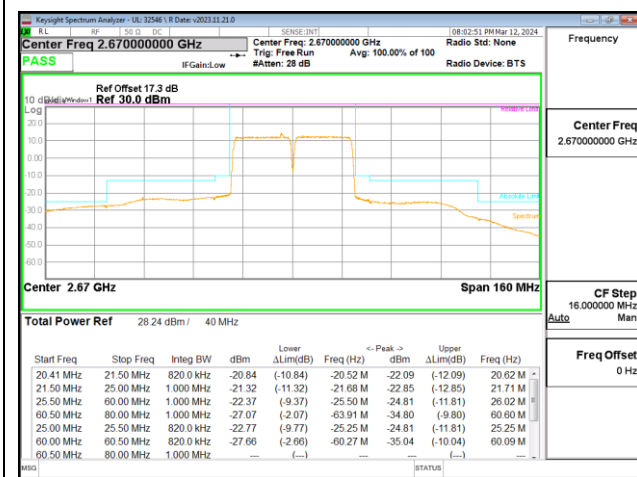
LTE B41 20MHz + 20MHz 16QAM Low Ch RB100-0 + RB100-0



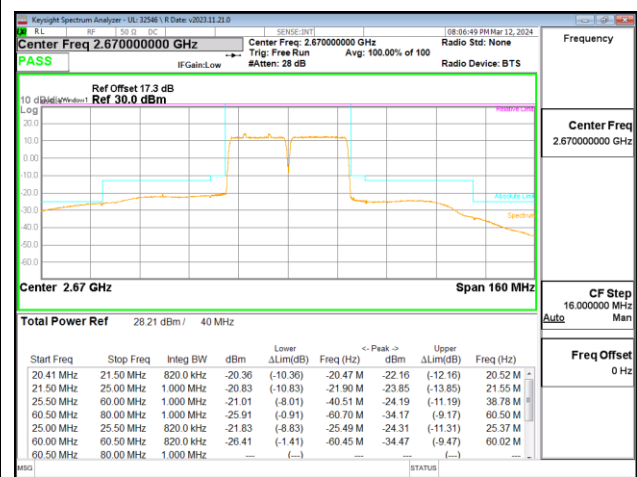
LTE B41 20MHz + 20MHz QPSK Mid Ch RB100-0 + RB100-0



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

### 9.3. 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

Both maximum + maximum bandwidth combinations of QPSK and 16QAM modes are tested, QPSK results are reported as worst case.

### 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

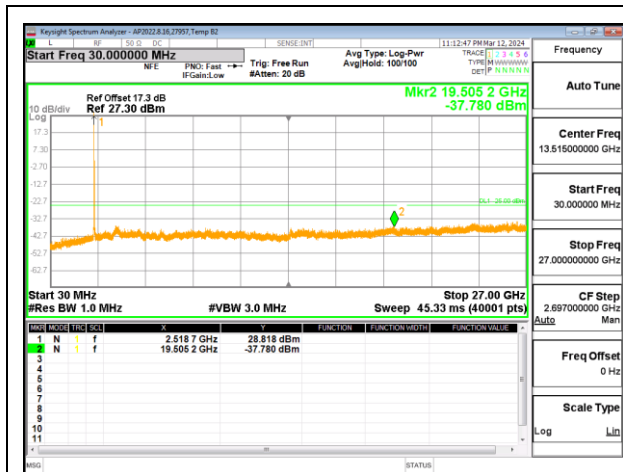


### 9.3.2. LTE BAND 7

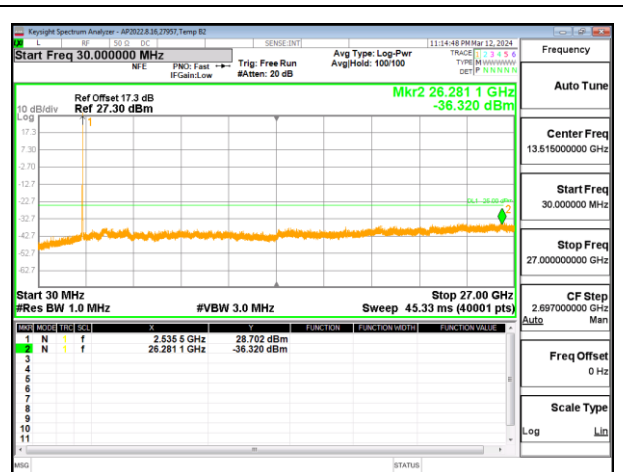
#### LIMITS

FCC: §27.53 (m)

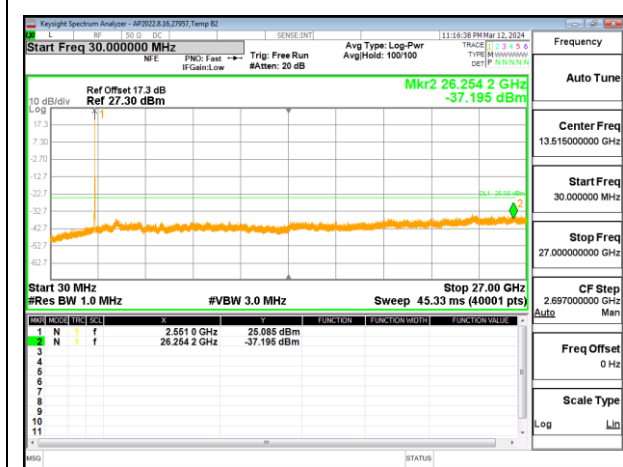
The minimum permissible attenuation level of any spurious emissions is  $55 + 10 \log (P)$  dB where transmitting power (P) in Watts.



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



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



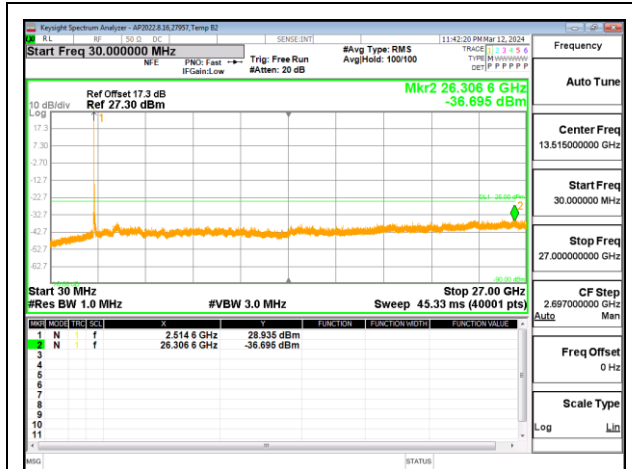
LTE B7 20MHz + 20MHz QPSK High Ch RB1-99 + RB1-0

### 9.3.3. LTE BAND 41 (FCC)

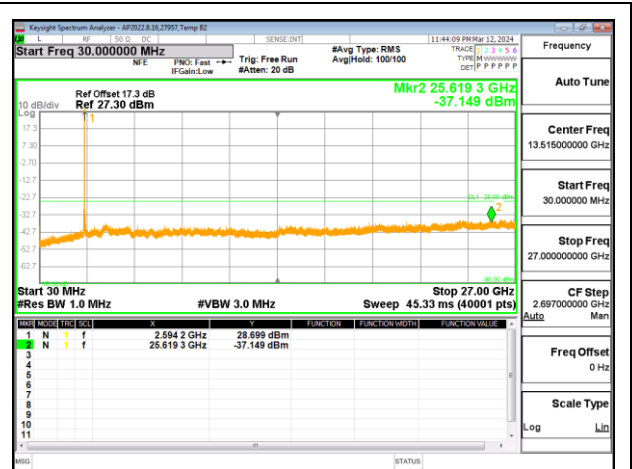
#### LIMITS

FCC: §27.53 (m)

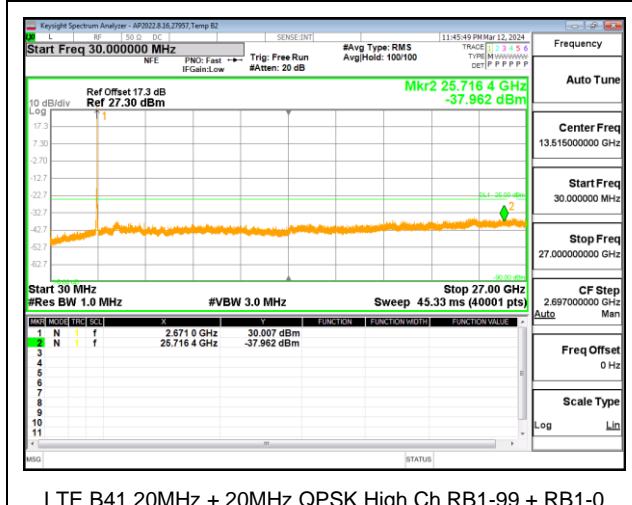
The minimum permissible attenuation level of any spurious emissions is  $55 + 10 \log (P)$  dB where transmitting power (P) in Watts.



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

## 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>	32546	<b>Test Date:</b>	3/25/2024
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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	824.5675	848.4379					
Extreme (50°C)		824.5675	848.4379	18.0	0.021	Yes		
Extreme (40°C)		824.5675	848.4379	21.3	0.025	Yes		
Extreme (30°C)		824.5675	848.4379	15.9	0.019	Yes		
Extreme (10°C)		824.5675	848.4379	-7.3	-0.009	Yes		
Extreme (0°C)		824.5675	848.4379	-16.7	-0.020	Yes		
Extreme (-10°C)		824.5675	848.4379	-17.3	-0.021	Yes		
Extreme (-20°C)		824.5675	848.4379	-32.3	-0.039	Yes		
Extreme (-30°C)		824.5675	848.4379	-39.3	-0.047	Yes		
20°C		15%	824.5675	848.4379	7.4	0.009	Yes	
	-15%	824.5675	848.4379	8.2	0.010	Yes		
	End Point Voltage	824.5675	848.4379	6.5	0.008	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>	32546	<b>Test Date:</b>	3/25/2024
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**QPSK (20MHz + 20MHz BANDWIDTH)**

Band		7		Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		2500	2570	Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)		Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)
Temperature	Voltage							
Normal (20°C)	Normal	2501.1448	2568.8633					
Extreme (50°C)		2501.1448	2568.8634	26.5		0.010	Yes	
Extreme (40°C)		2501.1448	2568.8634	40.4		0.016	Yes	
Extreme (30°C)		2501.1448	2568.8633	-11.6		-0.005	Yes	
Extreme (10°C)		2501.1448	2568.8633	-17.3		-0.007	Yes	
Extreme (0°C)		2501.1448	2568.8633	-39.2		-0.015	Yes	
Extreme (-10°C)		2501.1448	2568.8633	-43.8		-0.017	Yes	
Extreme (-20°C)		2501.1447	2568.8633	-65.1		-0.026	Yes	
Extreme (-30°C)		2501.1447	2568.8633	-82.5		-0.033	Yes	
20°C	15%	2501.1448	2568.8633	-9.8		-0.004	Yes	
	-15%	2501.1448	2568.8633	-12.0		-0.005	Yes	
	End Point Voltage	2501.1448	2568.8633	-9.0		-0.004	Yes	

### 9.4.3. LTE BAND 41 (FCC)

**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>	32546	<b>Test Date:</b>	3/25/2024
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**QPSK (20MHz + 20MHz BANDWIDTH)**

Band	41	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		2496	2690		Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)
Temperature	Voltage	Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)			
Normal (20°C)	Normal	2496.7131	2689.7985			
Extreme (50°C)		2496.7132	2689.7985	37.0	0.014	Yes
Extreme (40°C)		2496.7132	2689.7985	34.4	0.013	Yes
Extreme (30°C)		2496.7131	2689.7985	18.1	0.007	Yes
Extreme (10°C)		2496.7131	2689.7985	-9.8	-0.004	Yes
Extreme (0°C)		2496.7132	2689.7986	50.5	0.019	Yes
Extreme (-10°C)		2496.7130	2689.7984	-72.3	-0.028	Yes
Extreme (-20°C)		2496.7130	2689.7984	-88.4	-0.034	Yes
Extreme (-30°C)		2496.7130	2689.7984	-86.5	-0.033	Yes
20°C		15%	2496.7131	2689.7985	-17.0	-0.007
	-15%	2496.7131	2689.7985	-13.5	-0.005	Yes
	End Point Voltage	2496.7131	2689.7985	-11.5	-0.004	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>	25780	<b>Test Date:</b>	1/4/2024
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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	33.60	25.52	8.08
				16QAM	33.19	24.52	8.67
	5 MHz / 3MHz	835.0	838.9	QPSK	33.12	25.25	7.87
				16QAM	32.36	24.21	8.15
	5MHz / 10MHz	831.6	838.8	QPSK	29.76	23.70	6.06
				16QAM	31.71	22.73	8.98
	10MHz / 5MHz	834.3	841.5	QPSK	31.35	24.24	7.11
				16QAM	31.25	23.23	8.02
10MHz / 10MHz	831.5	841.4	QPSK	30.96	21.22	9.74	
			16QAM	30.87	20.25	10.62	
Duty Cycle Correction Factor (dB) =			0.00				
Peak-to-Average Power Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor							

### 9.5.2. TE BAND 7

<b>Test Engineer ID:</b>	25780	<b>Test Date:</b>	1/4/2024
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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	25.94	17.24	8.70
				16QAM	26.00	16.20	9.80
	20MHz / 10MHz	2530.1	2544.5	QPSK	26.19	17.23	8.96
				16QAM	25.60	15.43	10.17
	15 MHz / 15MHz	2527.5	2542.5	QPSK	27.44	16.95	10.49
				16QAM	26.96	15.91	11.05
	15MHz / 20MHz	2525.3	2542.4	QPSK	25.96	16.48	9.48
				16QAM	25.60	15.43	10.17
	20MHz / 15MHz	2527.6	2544.7	QPSK	25.33	16.39	8.94
				16QAM	25.26	15.37	9.89
	20MHz / 20MHz	2525.1	2544.9	QPSK	26.32	15.48	10.84
				16QAM	26.00	14.42	11.58
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 (FCC)**

<b>Test Engineer ID:</b>	25780	<b>Test Date:</b>	1/4/2024
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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	37.95	17.74	13.22
				16QAM	30.73	15.14	8.60
	20MHz / 5MHz	2590.5	2602.2	QPSK	32.83	16.2	9.64
				16QAM	30.97	15.13	8.85
	10MHz / 20MHz	2583.6	2598.0	QPSK	35.88	17.99	10.90
				16QAM	32.66	17.51	8.16
	20MHz / 10MHz	2588.1	2602.5	QPSK	33.76	14.63	12.14
				16QAM	30.73	15.14	8.60
	15MHz / 15MHz	2585.5	2600.5	QPSK	30.02	13.06	9.97
				16QAM	29.57	12.28	10.30
	15MHz / 20MHz	2583.3	2600.4	QPSK	24.76	8.82	8.95
				16QAM	36.75	6.23	23.53
	20MHz / 15MHz	2585.6	2602.7	QPSK	33.88	15.12	11.77
				16QAM	29.91	13.95	8.97
	20MHz / 20MHz	2583.1	2602.9	QPSK	32.23	11.01	14.23
				16QAM	28.62	10.1	11.53
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.

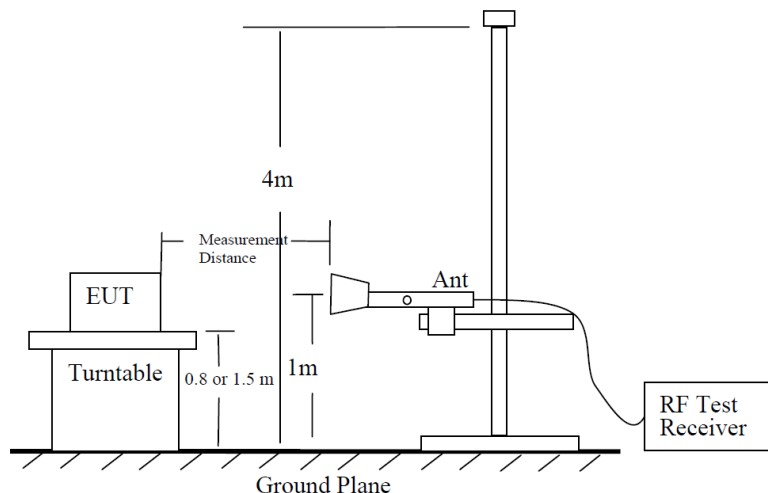


Figure 6—Test site-up for radiated ERP and/or EIRP measurements

### 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.

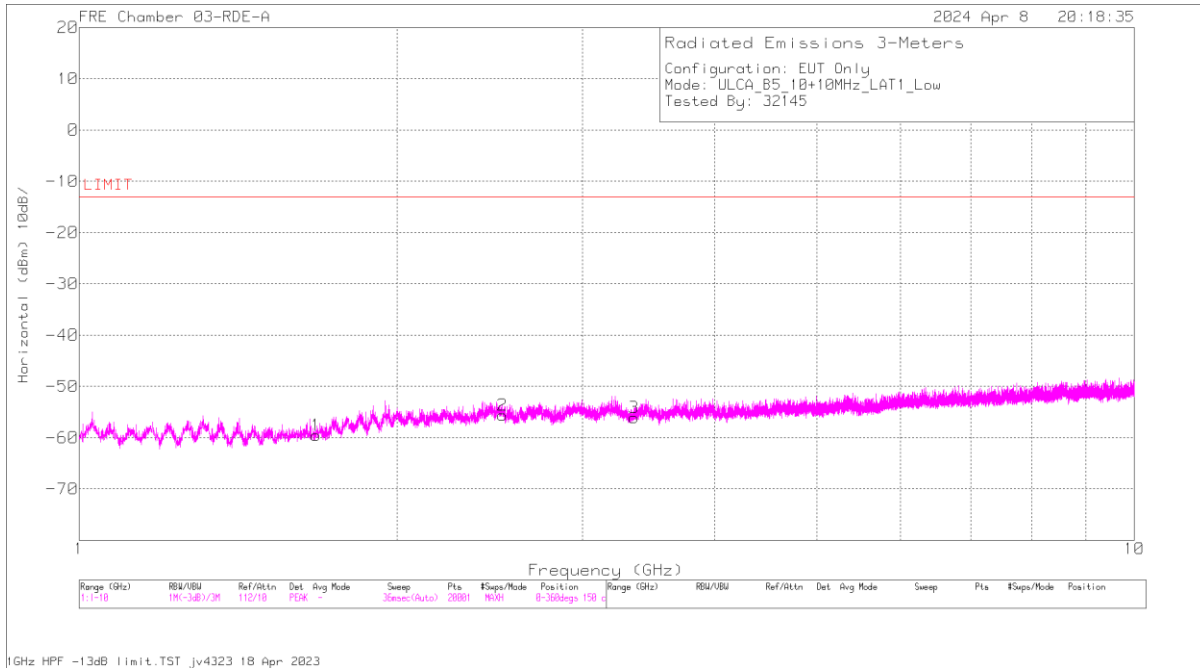
So, from d)

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

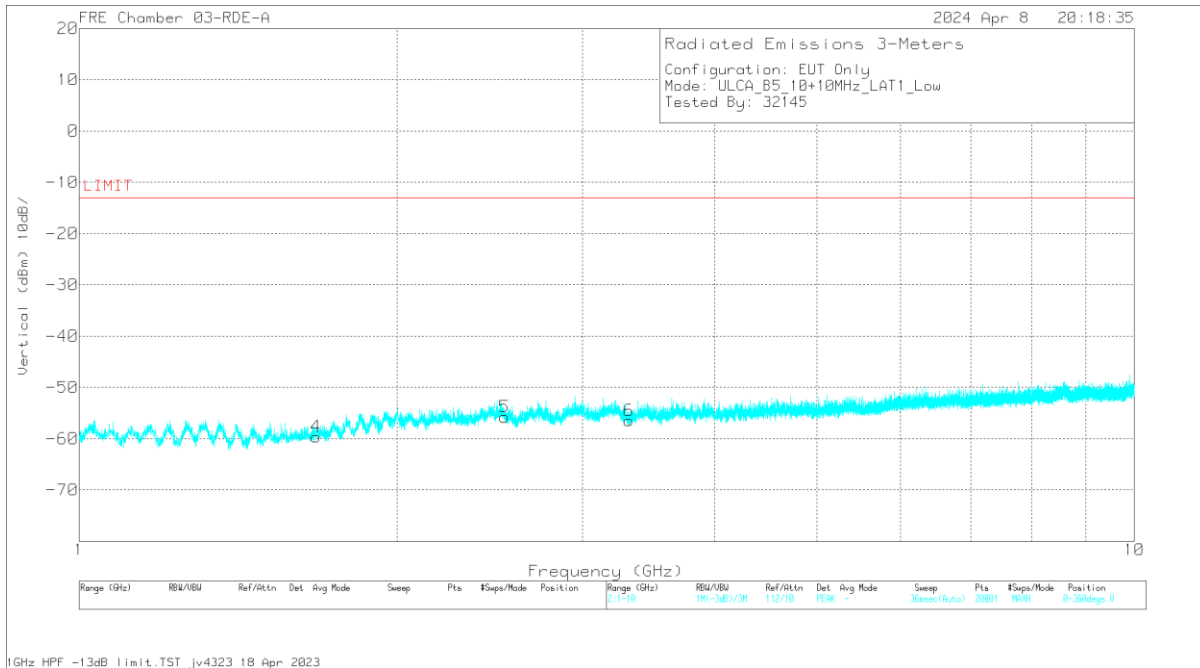
Then,  $\text{EIRP (dBm)} = E \text{ (dB}\mu\text{V/m)} + 9.5424 - 104.8 = E \text{ (dB}\mu\text{V/m)} - 95.2576$

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

**Trace Markers**

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	226673 ACF(dB) - 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
1	1.676800	56.52	Pk	28.7	-95.2	-49.57	-59.55	-13	-46.55	H
3	3.356200	53.32	Pk	32.8	-95.2	-47.03	-56.11	-13	-43.11	H
4	1.676800	56.43	Pk	28.7	-95.2	-49.57	-59.64	-13	-46.64	V
2	2.519650	55.87	Pk	32.2	-95.2	-48.5	-55.63	-13	-42.63	H
5	2.530000	55.64	Pk	32.2	-95.2	-48.41	-55.77	-13	-42.77	V
6	3.319300	52.78	Pk	32.8	-95.2	-46.86	-56.48	-13	-43.48	V

Pk - Peak detector

## **TEST PROCEDURE**

KDB 971168 D01/D02

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

## **RESULTS**

Both maximum + maximum bandwidth combinations of QPSK and 16QAM modes are tested, QPSK results are reported as worst case.

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

### 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 #:	14982484
Date:	2024-04-01
Test Engineer:	24943
Configuration:	EUT only
Mode	LTE Band 5 QPSK 10MHz + 10MHz
Chamber #:	02-RDE-E

Frequency (GHz)	Meter Reading (dBm)	Det	206807 ACF(dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
<b>Low Channel, 829MHz + 838.9MHz</b>									
1.664200	58.24	Pk	28.5	-95.2	-49.06	-57.52	-13	-44.52	H
1.686700	58.07	Pk	28.8	-95.2	-48.98	-57.31	-13	-44.31	V
2.487250	57.78	Pk	32.3	-95.2	-48.28	-53.40	-13	-40.40	V
3.357100	56.17	Pk	32.9	-95.2	-46.67	-52.80	-13	-39.80	V
2.478250	58.65	Pk	32.3	-95.2	-48.29	-52.54	-13	-39.54	H
3.395800	54.59	Pk	32.8	-95.2	-46.44	-54.25	-13	-41.25	H
<b>Mid Channel, 831.6MHz + 841.5MHz</b>									
1.665100	57.96	Pk	28.5	-95.2	-49.08	-57.82	-13	-44.82	H
1.670500	57.65	Pk	28.6	-95.2	-49.06	-58.01	-13	-45.01	V
2.525950	57.52	Pk	32.4	-95.2	-48.76	-54.04	-13	-41.04	H
2.534500	57.58	Pk	32.5	-95.2	-48.89	-54.01	-13	-41.01	V
3.366100	54.65	Pk	32.9	-95.2	-46.58	-54.23	-13	-41.23	H
3.381850	55.62	Pk	32.9	-95.2	-46.48	-53.16	-13	-40.16	V
<b>High Channel, 834.1MHz + 844MHz</b>									
1.697500	57.63	Pk	28.9	-95.2	-49.10	-57.77	-13	-44.77	H
3.357100	55.69	Pk	32.9	-95.2	-46.67	-53.28	-13	-40.28	H
1.673200	58.63	Pk	28.6	-95.2	-49.02	-56.99	-13	-43.99	V
2.486350	57.25	Pk	32.3	-95.2	-48.28	-53.93	-13	-40.93	V
2.502550	56.56	Pk	32.3	-95.2	-48.43	-54.77	-13	-41.77	H
3.297700	54.74	Pk	32.8	-95.2	-46.18	-53.84	-13	-40.84	V

## 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 #:	14982484
Date:	2024-03-28
Test Engineer:	32545
Configuration:	EUT only
Mode	LTE Band 7 QPSK 20MHz + 20MHz
Chamber #:	02-RDE-E

Frequency (GHz)	Meter Reading (dBm)	Det	206807 ACF (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
<b>Low Channel, 2510MHz + 2529.8MHz</b>									
5.039500	54.42	Pk	34.0	-95.2	-47.46	-54.24	-25	-29.24	H
7.560500	51.39	Pk	35.7	-95.2	-45.55	-53.66	-25	-28.66	H
10.8010000	51.20	Pk	37.7	-95.2	-42.34	-48.64	-25	-23.64	H
5.039500	54.26	Pk	34.0	-95.2	-47.46	-54.40	-25	-29.40	V
7.560500	52.25	Pk	35.7	-95.2	-45.55	-52.80	-25	-27.80	V
10.801000	51.01	Pk	37.7	-95.2	-42.34	-48.83	-25	-23.83	V
<b>Mid Channel, 2525.1MHz + 2544.9MHz</b>									
5.071000	54.25	Pk	34.1	-95.2	-47.64	-54.49	-25	-29.49	H
7.605500	51.79	Pk	35.8	-95.2	-45.54	-53.15	-25	-28.15	H
5.070500	54.69	Pk	34.1	-95.2	-47.62	-54.03	-25	-29.03	V
7.605500	51.96	Pk	35.8	-95.2	-45.54	-52.98	-25	-27.98	V
10.140500	54.29	Pk	37.5	-95.2	-44.67	-48.08	-25	-23.08	V
10.141000	53.71	Pk	37.5	-95.2	-44.67	-48.66	-25	-23.66	H
<b>High Channel, 2540.2MHz + 2560MHz</b>									
5.101000	54.46	Pk	34.2	-95.2	-47.48	-54.02	-25	-29.02	H
7.650500	54.83	Pk	35.8	-95.2	-45.62	-50.19	-25	-25.19	H
5.101000	53.16	Pk	34.2	-95.2	-47.48	-55.32	-25	-30.32	V
7.650500	52.37	Pk	35.8	-95.2	-45.62	-52.65	-25	-27.65	V
10.201000	53.00	Pk	37.5	-95.2	-44.61	-49.31	-25	-24.31	H
10.201000	52.82	Pk	37.5	-95.2	-44.61	-49.49	-25	-24.49	V

### 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 #:	14982484
Date:	2024-03-28
Test Engineer:	32545
Configuration:	EUT only
Mode	Band 41 QPSK 20MHz + 20MHz
Chamber #:	02-RDE-E

Frequency (GHz)	Meter Reading (dBuV)	Det	206807 ACF (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
<b>Low Channel, 2506MHz + 2525.8MHz</b>									
5.008000	55.13	Pk	34.0	-95.2	-47.24	-53.31	-25	-28.31	H
7.502500	53.81	Pk	35.7	-95.2	-45.84	-51.53	-25	-26.53	H
5.019000	55.22	Pk	34.0	-95.2	-47.36	-53.34	-25	-28.34	V
7.484000	55.55	Pk	35.7	-95.2	-45.99	-49.94	-25	-24.94	V
9.994500	55.54	Pk	37.3	-95.2	-45.71	-48.07	-25	-23.07	H
10.008000	55.47	Pk	37.3	-95.2	-45.72	-48.15	-25	-23.15	V
<b>Mid Channel, 2583.1MHz + 2602.9MHz</b>									
5.186500	54.14	Pk	34.4	-95.2	-47.27	-53.93	-25	-28.93	H
5.186500	56.65	Pk	34.4	-95.2	-47.27	-51.42	-25	-26.42	V
7.779500	51.08	Pk	35.9	-95.2	-45.37	-53.59	-25	-28.59	H
7.779500	51.28	Pk	35.9	-95.2	-45.37	-53.39	-25	-28.39	V
10.372500	53.49	Pk	37.6	-95.2	-44.22	-48.33	-25	-23.33	H
10.372500	52.31	Pk	37.6	-95.2	-44.22	-49.51	-25	-24.51	V
<b>High Channel, 2660.2MHz + 2680MHz</b>									
8.044500	54.55	Pk	35.9	-95.2	-44.46	-49.21	-25	-24.21	H
10.734000	53.54	Pk	37.6	-95.2	-43.16	-47.22	-25	-22.22	H
5.359000	56.70	Pk	34.5	-95.2	-47.25	-51.25	-25	-26.25	V
10.663500	53.82	Pk	37.6	-95.2	-43.33	-47.11	-25	-22.11	V
5.297000	56.66	Pk	34.5	-95.2	-47.06	-51.10	-25	-26.1	H
7.982500	55.05	Pk	35.9	-95.2	-44.48	-48.73	-25	-23.73	V

## 10.2. FIELD STRENGTH OF SPURIOUS RADIATION, ABOVE 1GHz ANT 2

### TEST PROCEDURE

KDB 971168 D01/D02

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 #:	14982484
Date:	2024-04-01
Test Engineer:	24943
Configuration:	EUT only
Mode	LTE Band 5 QPSK 10MHz + 10MHz
Chamber #:	01-RDE-E

Frequency (GHz)	Meter Reading (dBm)	Det	206807 ACF (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
<b>Low Channel, 829MHz + 838.9MHz</b>									
1.674100	58.43	Pk	28.6	-95.2	-48.99	-57.16	-13	-44.16	H
1.677250	57.99	Pk	28.7	-95.2	-49.00	-57.51	-13	-44.51	V
2.455750	57.30	Pk	32.3	-95.2	-48.16	-53.76	-13	-40.76	V
2.465200	56.36	Pk	32.3	-95.2	-48.34	-54.88	-13	-41.88	H
3.301750	55.63	Pk	32.8	-95.2	-46.27	-53.04	-13	-40.04	V
3.324250	55.52	Pk	32.8	-95.2	-46.42	-53.30	-13	-40.3	H
<b>Mid Channel, 831.6MHz + 841.5MHz</b>									
1.665550	58.68	Pk	28.5	-95.2	-49.06	-57.08	-13	-44.08	H
3.335050	54.52	Pk	32.9	-95.2	-46.47	-54.25	-13	-41.25	H
1.680850	57.97	Pk	28.7	-95.2	-49.02	-57.55	-13	-44.55	V
2.550700	58.46	Pk	32.5	-95.2	-48.92	-53.16	-13	-40.16	H
2.557000	57.60	Pk	32.4	-95.2	-48.97	-54.17	-13	-41.17	V
3.308050	55.57	Pk	32.8	-95.2	-46.34	-53.17	-13	-40.17	V
<b>High Channel, 834.1MHz + 844MHz</b>									
2.485000	58.54	Pk	32.3	-95.2	-48.26	-52.62	-13	-39.62	H
2.483650	57.12	Pk	32.3	-95.2	-48.25	-54.03	-13	-41.03	V
1.657900	57.88	Pk	28.4	-95.2	-49.01	-57.93	-13	-44.93	H
1.659250	57.21	Pk	28.5	-95.2	-48.98	-58.47	-13	-45.47	V
3.382300	55.71	Pk	32.9	-95.2	-46.49	-53.08	-13	-40.08	H
3.394900	55.39	Pk	32.8	-95.2	-46.42	-53.43	-13	-40.43	V

## 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 #:	14982484
Date:	2024-03-29
Test Engineer:	32545
Configuration:	EUT only
Mode	LTE Band 7 QPSK 20MHz + 20MHz
Chamber #:	02-RDE-E

Frequency (GHz)	Meter Reading (dBm)	Det	206807 ACF (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
<b>Low Channel, 2510MHz + 2529.8MHz</b>									
5.040000	54.29	Pk	34.0	-95.2	-47.47	-54.38	-25	-29.38	H
5.040000	54.29	Pk	34.0	-95.2	-47.47	-54.38	-25	-29.38	H
7.560500	52.00	Pk	35.7	-95.2	-45.55	-53.05	-25	-28.05	H
7.560500	53.04	Pk	35.7	-95.2	-45.55	-52.01	-25	-27.01	V
10.080000	53.30	Pk	37.4	-95.2	-45.28	-49.78	-25	-24.78	V
10.080500	53.33	Pk	37.4	-95.2	-45.28	-49.75	-25	-24.75	H
<b>Mid Channel, 2525.1MHz + 2544.9MHz</b>									
5.070500	54.02	Pk	34.1	-95.2	-47.62	-54.70	-25	-29.7	H
7.606000	51.99	Pk	35.8	-95.2	-45.53	-52.94	-25	-27.94	H
5.070500	53.58	Pk	34.1	-95.2	-47.62	-55.14	-25	-30.14	V
7.607000	52.75	Pk	35.8	-95.2	-45.51	-52.16	-25	-27.16	V
10.140500	53.00	Pk	37.5	-95.2	-44.67	-49.37	-25	-24.37	H
10.140500	53.74	Pk	37.5	-95.2	-44.67	-48.63	-25	-23.63	V
<b>High Channel, 2540.2MHz + 2560MHz</b>									
5.100500	54.17	Pk	34.2	-95.2	-47.50	-54.33	-25	-29.33	H
7.560000	53.11	Pk	35.7	-95.2	-45.55	-51.94	-25	-26.94	H
5.100000	53.95	Pk	34.2	-95.2	-47.52	-54.57	-25	-29.57	V
7.559500	52.48	Pk	35.7	-95.2	-45.55	-52.57	-25	-27.57	V
10.200500	53.73	Pk	37.5	-95.2	-44.60	-48.57	-25	-23.57	H
10.201000	51.88	Pk	37.5	-95.2	-44.61	-50.43	-25	-25.43	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 #:	14982484
Date:	2024-03-29
Test Engineer:	32545
Configuration:	EUT only
Mode	Band 41 QPSK 20MHz + 20MHz
Chamber #:	02-RDE-E

Frequency (GHz)	Meter Reading (dBuV)	Det	200786 ACF (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
<b>Low Channel, 2506MHz + 2525.8MHz</b>									
5.033000	53.65	Pk	34.0	-95.2	-47.44	-54.99	-25	-29.99	H
7.548000	50.97	Pk	35.7	-95.2	-45.61	-54.14	-25	-29.14	H
5.033000	53.47	Pk	34.0	-95.2	-47.44	-55.17	-25	-30.17	V
7.547500	51.12	Pk	35.7	-95.2	-45.61	-53.99	-25	-28.99	V
10.064000	52.86	Pk	37.4	-95.2	-45.23	-50.17	-25	-25.17	H
10.064000	53.14	Pk	37.4	-95.2	-45.23	-49.89	-25	-24.89	V
<b>Mid Channel, 2583.1MHz + 2602.9MHz</b>									
10.681000	51.26	Pk	37.6	-95.2	-43.38	-49.72	-25	-24.72	H
10.681000	51.40	Pk	37.6	-95.2	-43.38	-49.58	-25	-24.58	V
5.340000	55.47	Pk	34.6	-95.2	-47.24	-52.37	-25	-27.37	H
5.340000	53.90	Pk	34.6	-95.2	-47.24	-53.94	-25	-28.94	V
8.010500	51.48	Pk	35.9	-95.2	-44.47	-52.29	-25	-27.29	H
8.010500	53.28	Pk	35.9	-95.2	-44.47	-50.49	-25	-25.49	V
<b>High Channel, 2660.2MHz + 2680MHz</b>									
10.680500	50.15	Pk	37.6	-95.2	-43.38	-50.83	-25	-25.83	H
10.679500	50.97	Pk	37.6	-95.2	-43.39	-50.02	-25	-25.02	V
5.340000	54.19	Pk	34.6	-95.2	-47.24	-53.65	-25	-28.65	H
5.340500	54.03	Pk	34.6	-95.2	-47.23	-53.8	-25	-28.8	V
8.010000	53.21	Pk	35.9	-95.2	-44.46	-50.55	-25	-25.55	H
8.010000	51.58	Pk	35.9	-95.2	-44.46	-52.18	-25	-27.18	V

### **10.3. FIELD STRENGTH OF SPURIOUS RADIATION, ABOVE 1GHz ANT 3**

#### **TEST PROCEDURE**

KDB 971168 D01/D02

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

#### **RESULTS**

### 10.3.1. 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 #:	14982484
Date:	2024-03-29
Test Engineer:	24943
Configuration:	EUT only
Mode	LTE Band 7 QPSK 20MHz + 20MHz
Chamber #:	02-RDE-E

Frequency (GHz)	Meter Reading (dBm)	Det	206807 ACF (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
<b>Low Channel, 2510MHz + 2529.8MHz</b>									
5.052000	55.94	Pk	34.1	-95.2	-47.65	-52.81	-25	-27.81	H
7.462500	55.08	Pk	35.7	-95.2	-45.80	-50.22	-25	-25.22	H
5.034000	56.91	Pk	34.0	-95.2	-47.41	-51.70	-25	-26.70	V
7.407000	54.29	Pk	35.6	-95.2	-45.30	-50.61	-25	-25.61	V
9.978000	56.32	Pk	37.2	-95.2	-45.58	-47.26	-25	-22.26	V
10.028000	56.28	Pk	37.3	-95.2	-45.41	-47.03	-25	-22.03	H
<b>Mid Channel, 2525.1MHz + 2544.9MHz</b>									
5.094500	56.10	Pk	34.2	-95.2	-47.45	-52.35	-25	-27.35	H
7.594000	54.97	Pk	35.8	-95.2	-45.53	-49.96	-25	-24.96	H
5.058500	56.44	Pk	34.1	-95.2	-47.64	-52.30	-25	-27.30	V
7.570000	55.35	Pk	35.7	-95.2	-45.54	-49.69	-25	-24.69	V
9.932000	56.59	Pk	37.1	-95.2	-45.76	-47.27	-25	-22.27	V
10.144500	55.92	Pk	37.5	-95.2	-44.86	-46.64	-25	-21.64	H
<b>High Channel, 2540.2MHz + 2560MHz</b>									
5.147500	55.99	Pk	34.3	-95.2	-47.45	-52.36	-25	-27.36	H
7.583000	55.37	Pk	35.7	-95.2	-45.55	-49.68	-25	-24.68	H
5.122500	56.53	Pk	34.2	-95.2	-47.54	-52.01	-25	-27.01	V
7.610000	54.75	Pk	35.8	-95.2	-45.49	-50.14	-25	-25.14	V
10.154500	55.87	Pk	37.5	-95.2	-44.77	-46.60	-25	-21.6	V
10.411500	55.06	Pk	37.6	-95.2	-43.95	-46.49	-25	-21.49	H

### 10.3.2. 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 #:	14982484
Date:	2024-03-29
Test Engineer:	24943
Configuration:	EUT only
Mode	Band 41 QPSK 20MHz + 20MHz
Chamber #:	02-RDE-E

Frequency (GHz)	Meter Reading (dBuV)	Det	226673 ACF (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
<b>Low Channel, 2506MHz + 2525.8MHz</b>									
5.096000	57.31	Pk	34.2	-95.2	-47.47	-51.16	-25	-26.16	H
7.538000	54.81	Pk	35.7	-95.2	-45.59	-50.28	-25	-25.28	H
7.567000	54.72	Pk	35.7	-95.2	-45.50	-50.28	-25	-25.28	V
5.1535000	56.37	Pk	34.3	-95.2	-47.43	-51.96	-25	-26.96	V
9.948500	57.03	Pk	37.2	-95.2	-45.89	-46.86	-25	-21.86	V
10.085000	56.06	Pk	37.4	-95.2	-45.22	-46.96	-25	-21.96	H
<b>Mid Channel, 2583.1MHz + 2602.9MHz</b>									
5.107000	56.93	Pk	34.2	-95.2	-47.54	-51.61	-25	-26.61	H
7.725000	54.87	Pk	35.9	-95.2	-45.58	-50.01	-25	-25.01	H
5.136000	56.58	Pk	34.3	-95.2	-47.51	-51.83	-25	-26.83	V
7.773500	54.94	Pk	35.9	-95.2	-45.42	-49.78	-25	-24.78	V
10.376500	55.31	Pk	37.6	-95.2	-44.25	-46.54	-25	-21.54	H
10.406000	55.06	Pk	37.6	-95.2	-43.71	-46.25	-25	-21.25	V
<b>High Channel, 2660.2MHz + 2680MHz</b>									
8.1555000	53.41	Pk	35.9	-95.2	-44.22	-50.11	-25	-25.11	H
8.138500	54.89	Pk	35.9	-95.2	-44.41	-48.82	-25	-23.82	V
5.200500	55.	Pk	34.4	-95.2	-47.31	-52.41	-25	-27.41	V
5.216000	56.15	Pk	34.4	-95.2	-47.18	-51.83	-25	-26.83	H
10.114000	56.13	Pk	37.5	-95.2	-45.05	-46.62	-25	-21.62	V
10.143500	55.91	Pk	37.5	-95.2	-44.79	-46.58	-25	-21.58	H

## **10.4. FIELD STRENGTH OF SPURIOUS RADIATION, ABOVE 1GHz ANT 4**

### **TEST PROCEDURE**

KDB 971168 D01/D02

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 #:	14982484
Date:	2024-04-01
Test Engineer:	24943
Configuration:	EUT only
Mode	LTE Band 7 QPSK 20MHz + 20MHz
Chamber #:	02-RDE-E

Frequency (GHz)	Meter Reading (dBm)	Det	80402 ACF(dB/m) - 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
<b>Low Channel, 2510MHz + 2529.8MHz</b>									
5.033500	56.03	Pk	34.0	-95.2	-47.43	-52.60	-25	-27.60	H
7.531500	54.57	Pk	35.7	-95.2	-45.59	-50.52	-25	-25.52	H
5.017000	55.32	Pk	34.0	-95.2	-47.42	-53.3	-25	-28.30	V
7.517000	54.73	Pk	35.7	-95.2	-45.68	-50.45	-25	-25.45	V
10.020000	56.62	Pk	37.3	-95.2	-45.76	-47.04	-25	-22.04	V
10.044500	55.70	Pk	37.4	-95.2	-45.22	-47.32	-25	-22.32	H
<b>Mid Channel, 2525.1MHz + 2544.9MHz</b>									
5.049500	56.03	Pk	34.1	-95.2	-47.61	-52.68	-25	-27.68	H
7.724000	54.90	Pk	35.9	-95.2	-45.58	-49.98	-25	-24.98	H
4.998000	56.95	Pk	34.0	-95.2	-47.31	-51.56	-25	-26.56	V
7.756000	55.10	Pk	35.9	-95.2	-45.33	-49.53	-25	-24.53	V
10.130500	55.94	Pk	37.5	-95.2	-44.98	-46.74	-25	-21.74	V
10.239000	56.26	Pk	37.5	-95.2	-44.65	-46.09	-25	-21.09	H
<b>High Channel, 2540.2MHz + 2560MHz</b>									
7.695500	54.55	Pk	35.9	-95.2	-45.46	-50.21	-25	-25.21	H
5.143000	55.69	Pk	34.3	-95.2	-47.45	-52.66	-25	-27.66	V
7.687000	55.33	Pk	35.9	-95.2	-45.63	-49.60	-25	-24.60	V
5.171500	55.91	Pk	34.3	-95.2	-47.17	-52.16	-25	-27.16	H
10.417000	54.13	Pk	37.6	-95.2	-43.59	-47.06	-25	-22.06	V
10.432000	55.21	Pk	37.6	-95.2	-43.52	-45.91	-25	-20.91	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 #:	14982484
Date:	2024-04-01
Test Engineer:	24943
Configuration:	EUT only
Mode	Band 41 QPSK 20MHz + 20MHz
Chamber #:	02-RDE-E

Frequency (GHz)	Meter Reading (dBuV)	Det	226673 ACF (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
<b>Low Channel, 2506MHz + 2525.8MHz</b>									
5.055000	56.11	Pk	34.1	-95.2	-47.56	-52.55	-25	-27.55	H
7.395500	55.44	Pk	35.6	-95.2	-45.16	-49.32	-25	-24.32	H
5.099000	56.36	Pk	34.2	-95.2	-47.56	-52.20	-25	-27.20	V
7.476000	54.59	Pk	35.7	-95.2	-45.89	-50.80	-25	-25.80	V
10.036500	57.05	Pk	37.3	-95.2	-45.38	-46.23	-25	-21.23	H
10.149000	56.22	Pk	37.5	-95.2	-44.96	-46.44	-25	-21.44	V
<b>Mid Channel, 2583.1MHz + 2602.9MHz</b>									
7.721500	54.87	Pk	35.9	-95.2	-45.60	-50.03	-25	-25.03	H
7.730500	54.75	Pk	35.9	-95.2	-45.61	-50.16	-25	-25.16	V
5.158500	56.13	Pk	34.3	-95.2	-47.33	-52.10	-25	-27.10	H
5.201000	56.12	Pk	34.4	-95.2	-47.31	-51.99	-25	-26.99	V
10.296500	55.80	Pk	37.5	-95.2	-44.48	-46.38	-25	-21.38	H
10.363500	54.75	Pk	37.6	-95.2	-44.09	-46.94	-25	-21.94	V
<b>High Channel, 2660.2MHz + 2680MHz</b>									
8.067500	54.59	Pk	35.9	-95.2	-44.59	-49.30	-25	-24.30	H
8.142500	54.41	Pk	35.9	-95.2	-44.36	-49.25	-25	-24.25	V
10.656500	54.06	Pk	37.6	-95.2	-43.29	-46.83	-25	-21.83	V
5.212000	55.83	Pk	34.4	-95.2	-47.16	-52.13	-25	-27.13	V
5.279000	56.54	Pk	34.5	-95.2	-47.14	-51.3	-25	-26.3	H
10.578500	53.10	Pk	37.6	-95.2	-43.46	-47.96	-25	-22.96	H

## 11. SETUP PHOTOS

Please refer to 14982489-EP1V1 for setup photos.

**END OF REPORT**