

TEST REPORT

Report Number : 14982479-E20V2

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

Model : A3084

Brand : APPLE

FCC ID : BCG-E8684A

EUT Description : SMARTPHONE

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

Date Of Issue:
2024-08-13

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Revision History

Rev.	Issue Date	Revisions	Revised By
V1	2024-08-05	Initial Review	--
V2	2024-08-13	Addressed TCB Questions at 6.2	Mengistu Mekuria

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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	A3084
Brand	APPLE
FCC ID	BCG-E8684A
EUT Description	SMARTPHONE
Serial Number	Radiated: G9KF67HQTQ & F9NDW2CHY0 Conducted: HVHH6Q0009L0000HN2
Sample Receipt Date	2024-02-02
Date Tested	2024-02-02 to 2024-07-10
Applicable Standards	FCC 47 CFR Part 2, Part 22, and Part 27.
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:	Prepared By:
	
Dan Corona Operations Leader UL Verification Services Inc.	Eric Ting Senior Test 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 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
☒	Building 1: 47173 Benicia Street, Fremont, CA 94538, USA	US0104	2324A	550739
☒	Building 2: 47266 Benicia Street, Fremont, CA 94538, USA			
☒	Building 3: 843 Auburn Court, Fremont, CA 94538 USA			
☐	Building 4: 47658 Kato Rd, Fremont, CA 94538, USA			
☒	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 _{Lab}
Conducted Antenna Port Emission Measurement	1.940 db
Power Spectral Density	2.466 db
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.

The transmitter has a maximum 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)		-5.20						
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	18.35	0.068	7500	7M50G7W
	16QAM			25.12	17.77	0.060	7501	7M50D7W
5+3	QPSK	826.5	847.5	25.67	18.32	0.068	7503	7M50G7W
	16QAM			25.37	18.02	0.063	7505	7M51D7W
5+10	QPSK	826.5	844.0	25.54	18.19	0.066	13873	13M9G7W
	16QAM			24.49	17.14	0.052	13856	13M9D7W
10+5	QPSK	829.0	846.5	25.59	18.24	0.067	13864	13M9G7W
	16QAM			24.70	17.35	0.054	13853	13M9D7W
10+10	QPSK	829.0	844.0	25.68	18.33	0.068	18761	18M8G7W
	16QAM			24.37	17.02	0.050	18763	18M8D7W

OUTPUT POWER FOR LTE BAND 7

Part 27								
EIRP Limit (W)		2.00						
Antenna Gain (dBi) Ant 2		0.50						
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	23.39	23.89	0.245	28260	28M3G7W
	16QAM			22.59	23.09	0.204	28173	28M2D7W
20+10	QPSK	2510.0	2564.5	23.68	24.18	0.262	28271	28M3G7W
	16QAM			22.61	23.11	0.205	28172	28M2D7W
15+15	QPSK	2507.5	2562.5	23.63	24.13	0.259	28851	28M9G7W
	16QAM			22.30	22.80	0.191	28724	28M7D7W
15+20	QPSK	2507.8	2560.0	23.28	23.78	0.239	33059	33M1G7W
	16QAM			22.64	23.14	0.206	33001	33M0D7W
20+15	QPSK	2510.0	2562.2	23.38	23.88	0.244	33072	33M1G7W
	16QAM			22.69	23.19	0.208	33003	33M0D7W
20+20	QPSK	2510.0	2560.0	23.53	24.03	0.253	37885	37M9G7W
	16QAM			22.61	23.11	0.205	37809	37M8D7W

OUTPUT POWER FOR LTE BAND 41

Part 27								
EIRP Limit (W)		2.00						
Antenna Gain (dBi)		-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	28.47	28.37	0.687	22929	22M9G7W
	16QAM			27.04	26.94	0.494	22943	22M9D7W
20+5	QPSK	2506.0	2686.7	28.62	28.52	0.711	22871	22M9G7W
	16QAM			26.79	26.69	0.467	22916	22M9D7W
10+20	QPSK	2501.5	2680.0	28.29	28.19	0.659	27795	27M8G7W
	16QAM			27.03	26.93	0.493	27757	27M8D7W
20+10	QPSK	2506.0	2684.5	28.23	28.13	0.650	32592	32M6G7W
	16QAM			28.12	28.02	0.634	32657	32M7D7W
15+15	QPSK	2503.5	2682.5	28.44	28.34	0.682	28341	28M3G7W
	16QAM			26.78	26.68	0.466	28348	28M3D7W
15+20	QPSK	2503.8	2680.0	28.51	28.41	0.693	32653	32M7G7W
	16QAM			27.03	26.93	0.493	32650	32M7D7W
20+15	QPSK	2506.0	2682.2	28.56	28.46	0.701	32654	32M7G7W
	16QAM			27.06	26.96	0.497	32621	32M6D7W
20+20	QPSK	2506.0	2680.0	28.33	28.23	0.665	37541	37M5G7W
	16QAM			26.89	26.79	0.478	37484	37M5D7W

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 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	-5.2	-6.3					
LTE Band 7	2500 – 2570	-3.4	0.5	-2.0	-1.3			
LTE Band 41	2496 – 2690	-3.9	-0.1	-1.3	-1.8			

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, 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	X	Z	N/A	N/A	N/A	N/A	N/A
2300 – 2700 MHz	X	X	X	X	N/A	N/A	N/A

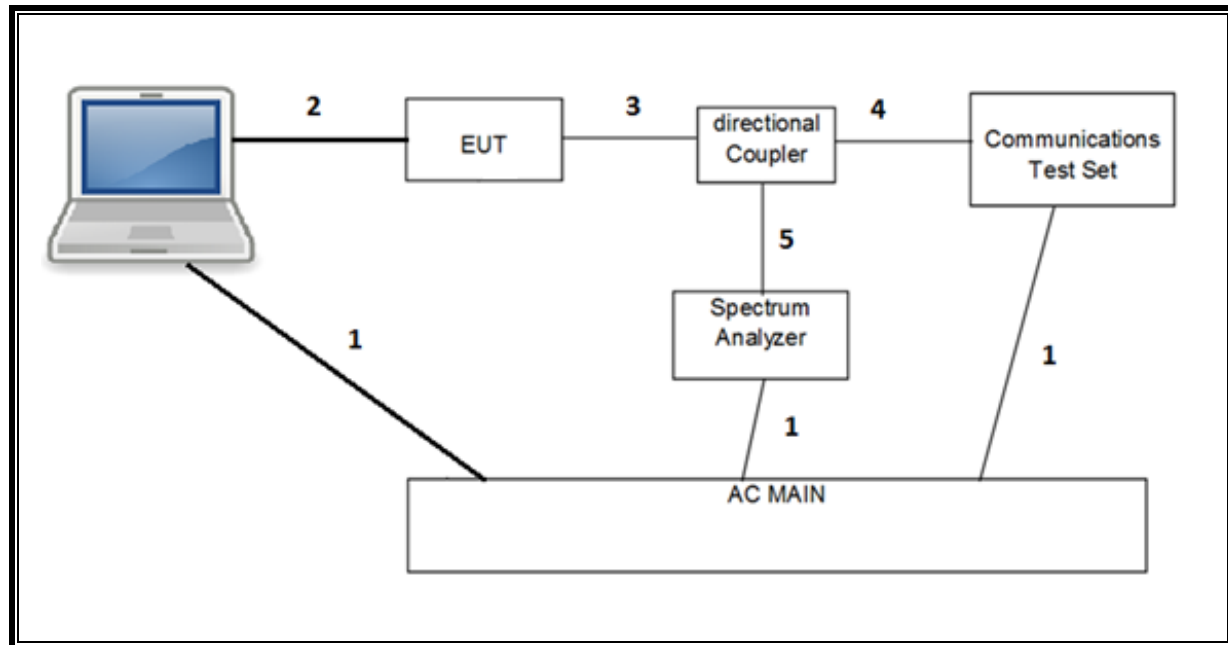
Radiated spurious emissions were investigated from 9kHz to 30MHz, 30MHz-1GHz and above 1GHz. There were no emissions found with less than 20dB of margin from 9kHz to 1GHz.

For inter-band 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.

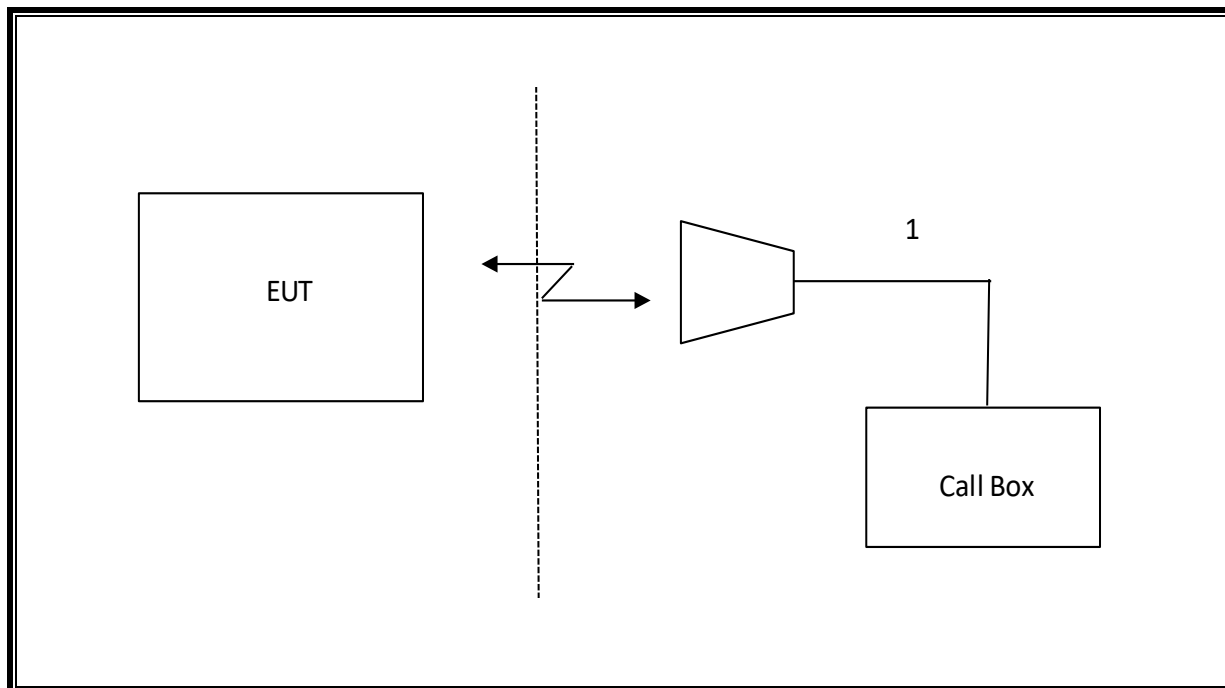
6.6. DESCRIPTION OF TEST SETUP

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 VERIFICATION

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 configuration's average conducted output powers as follows:

8.1. RF Output power

8.1.1. LTE BAND 5

Test Engineer ID:	39004	Test Date:	2024-02-28
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OUTPUT POWER FOR LTE BAND 5 (3.0MHz + 5.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)							
			Size	Offset	Size	Offset	ANT 1				ANT 2			
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
3MHz / 5MHz	825.5	829.4	1	14	1	0	25.70	25.12	24.61	23.68	25.10	24.89	23.81	23.10
			15	0	25	0	25.22	25.00	24.64	23.25	25.20	24.85	24.00	23.12
	834.0	837.9	1	14	1	0	25.27	25.01	24.26	23.11	25.15	25.00	24.11	23.01
			15	0	25	0	25.30	25.11	24.85	23.24	25.12	24.69	23.99	23.25
	842.5	846.5	1	14	1	0	25.23	25.00	24.36	23.33	25.20	24.79	24.02	23.18
			15	0	25	0	25.30	25.12	23.85	23.14	25.10	24.89	23.89	23.12

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

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)							
			Size	Offset	Size	Offset	ANT 1				ANT 2			
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
5MHz / 3MHz	826.5	830.4	1	24	1	0	25.58	25.26	24.62	23.25	25.18	25.03	23.93	22.94
			25	0	15	0	25.12	25.00	24.66	23.48	24.85	24.30	23.66	22.90
	835.0	838.9	1	24	1	0	25.67	25.28	24.46	23.00	25.10	24.80	24.20	22.91
			25	0	15	0	24.96	24.99	24.12	23.25	24.95	23.98	23.01	22.90
	843.6	847.5	1	24	1	0	25.38	25.37	24.42	23.20	24.94	24.87	24.06	22.83
			25	0	15	0	25.25	25.12	24.20	23.45	25.00	24.55	24.12	23.19

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

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)							
			Size	Offset	Size	Offset	ANT 1				ANT 2			
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
5MHz / 10MHz	826.5	833.7	1	24	1	0	25.28	24.38	23.28	20.47	25.17	23.86	23.08	19.81
			25	0	50	0	23.20	22.67	22.23	20.69	22.84	21.96	21.94	20.00
	831.6	838.8	1	24	1	0	25.34	24.48	23.56	20.49	25.14	23.76	22.74	19.75
			25	0	50	0	23.56	22.59	22.50	20.65	23.14	22.13	21.83	19.95
	836.8	844.0	1	24	1	0	25.54	24.49	23.65	20.25	25.15	24.18	23.01	19.90
			25	0	50	0	23.50	22.56	22.64	20.43	23.06	21.78	22.01	20.09

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

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)							
			Size	Offset	Size	Offset	ANT 1				ANT 2			
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
10MHz/ 5MHz	829.0	836.2	1	49	1	0	25.59	24.42	23.65	20.44	25.17	23.77	22.77	20.00
			50	0	25	0	23.36	22.69	22.55	20.37	22.88	21.90	22.10	20.09
	834.3	841.5	1	49	1	0	25.48	24.70	23.21	20.59	24.88	23.83	23.18	19.99
			50	0	25	0	23.58	22.60	22.33	20.57	23.00	22.10	22.09	19.82
	839.3	846.5	1	49	1	0	25.38	24.55	23.46	20.69	24.76	23.93	22.85	19.77
			50	0	25	0	23.59	22.22	22.34	20.34	23.10	21.84	21.85	19.75

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

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)							
			Size	Offset	Size	Offset	ANT 1				ANT 2			
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
10MHz/ 10MHz	829.0	838.9	1	49	1	0	25.65	24.26	23.42	20.32	25.17	24.02	22.72	19.74
			1	0	1	49	15.14	14.78	14.68	14.15	14.55	14.42	14.30	14.00
			50	0	50	0	23.62	22.59	22.33	20.48	23.08	22.09	21.98	20.11
	831.5	841.4	1	49	1	0	25.68	24.37	23.64	20.59	24.74	23.75	23.15	19.90
			1	0	1	49	15.19	15.06	15.00	14.88	14.49	14.33	14.58	14.15
			50	0	50	0	23.57	22.58	22.20	20.25	22.92	22.20	22.00	20.12
	834.1	844.0	1	49	1	0	25.57	24.20	23.41	20.35	24.89	23.71	22.81	20.01
			1	0	1	49	15.02	14.98	14.88	14.25	14.29	14.12	14.05	14.00
			50	0	50	0	23.52	22.33	22.10	20.42	23.04	21.91	21.90	20.17

8.1.2. LTE BAND 7

Test Engineer ID:	39004	Test Date:	2024-03-11
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OUTPUT POWER FOR LTE BAND 7 (10.0MHz + 20.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB		SCC1 RB		Conducted Average (dBm)															
			RB	Offset	RB	Offset	ANT 1				ANT 2				ANT 3				ANT 4			
			Size	Offset	Size	Offset	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	25.53	24.62	23.25	20.20	23.23	22.47	21.42	18.54	24.55	23.65	22.88	19.55	22.32	21.69	20.56	17.53
			50	0	100	0	23.26	22.22	22.67	20.44	21.24	20.61	20.21	18.52	22.55	21.88	21.60	19.52	20.36	19.69	19.49	17.56
	2525.6	2540.0	1	49	1	0	25.42	24.66	23.63	20.64	23.39	22.31	21.34	18.20	24.69	23.68	23.00	19.56	22.45	21.66	20.66	17.23
			50	0	100	0	23.49	22.39	22.40	20.49	21.39	20.53	20.32	18.49	22.85	21.76	21.71	19.97	20.34	19.40	19.33	17.64
	2545.6	2560.0	1	49	1	0	25.65	24.40	23.58	20.65	23.27	22.59	21.66	18.58	24.78	23.84	22.62	19.98	22.47	21.40	20.64	17.55
			50	0	100	0	23.67	22.49	22.43	20.47	21.39	20.60	20.15	18.69	22.89	22.00	21.85	19.54	20.48	19.55	19.34	17.31

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

Bandwidth	PCC	SCC1	PCC	PCC	SCC1	SCC1	Conducted Average (dBm)															
	Frequency (MHz)	Frequency (MHz)	RB	Offset	RB	Offset	ANT 1				ANT 2				ANT 3				ANT 4			
			Size		Size		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	25.56	24.64	23.27	20.29	23.68	22.20	21.45	18.38	24.98	23.79	22.77	19.56	22.60	21.38	20.50	17.69
			100	0	50	0	23.44	22.48	22.51	20.24	21.46	20.54	20.43	18.50	22.82	21.89	21.81	19.77	20.37	19.62	19.24	17.41
	2530.1	2544.5	1	99	1	0	25.60	24.58	23.59	20.61	23.32	22.61	21.70	18.57	24.73	23.78	22.60	19.69	22.37	21.48	20.26	17.70
			100	0	50	0	23.66	22.65	22.67	20.31	21.40	20.48	20.67	18.52	22.50	21.67	21.52	19.68	20.21	19.23	19.34	17.23
	2550.1	2564.5	1	99	1	0	25.48	24.38	23.55	20.20	23.47	22.46	21.48	18.59	24.56	23.50	22.88	19.86	22.63	21.37	20.68	17.62
			100	0	50	0	23.55	22.48	22.50	20.30	21.51	20.62	20.45	18.62	22.63	21.91	21.71	19.55	20.45	19.55	19.55	17.65

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

Bandwidth	PCC	SCC1	PCC	PCC	SCC1	SCC1	Conducted Average (dBm)															
	Frequency	Frequency	RB	RB	RB	RB	ANT 1				ANT 2				ANT 3				ANT 4			
	(MHz)	(MHz)	Size	Offset	Size	Offset	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	25.46	24.59	23.24	20.63	23.42	22.24	21.29	18.22	24.73	23.84	22.92	19.53	22.29	21.28	20.47	17.65
			75	0	75	0	23.63	22.48	22.35	20.38	21.56	20.24	20.21	18.42	22.67	21.80	21.77	19.63	20.22	19.35	19.43	17.56
	2527.5	2542.5	1	74	1	0	25.55	24.62	23.50	20.34	23.63	22.30	21.46	18.40	24.71	23.64	22.75	19.86	22.37	21.61	20.25	17.59
			75	0	75	0	23.23	22.38	22.49	20.38	21.36	20.22	20.32	18.68	22.80	21.62	22.00	19.64	20.50	19.49	19.69	17.41
	2547.5	2562.5	1	74	1	0	25.63	24.61	23.55	20.37	23.51	22.23	21.33	18.28	24.51	23.80	22.64	19.67	22.59	21.62	20.69	17.68
			75	0	75	0	23.27	22.44	22.29	20.40	21.62	20.31	20.64	18.38	22.79	21.88	21.90	19.76	20.63	19.42	19.37	17.23

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

Bandwidth	PCC	SCC1	PCC	PCC	SCC1	SCC1	Conducted Average (dBm)															
	Frequency	Frequency	RB	RB	RB	RB	ANT 1				ANT 2				ANT 3				ANT 4			
	(MHz)	(MHz)	Size	Offset	Size	Offset	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	25.67	24.38	23.62	20.33	23.28	22.54	21.36	18.39	24.88	23.96	22.97	19.59	22.61	21.59	20.24	17.70
			75	0	100	0	23.48	22.52	22.34	20.65	21.62	20.62	20.35	18.34	22.68	21.83	21.73	19.51	20.59	19.59	19.42	17.61
	2525.3	2542.4	1	74	1	0	25.32	24.46	23.25	20.61	23.21	22.55	21.34	18.50	24.74	23.68	22.94	19.53	22.65	21.42	20.25	17.58
			75	0	100	0	23.42	22.60	22.25	20.22	21.54	20.52	20.61	18.66	22.53	22.00	21.50	19.84	20.65	19.35	19.48	17.22
	2542.9	2560.0	1	74	1	0	25.24	24.53	23.47	20.67	23.20	22.64	21.64	18.22	24.82	24.00	22.92	19.55	22.70	21.21	20.57	17.69
			75	0	100	0	23.47	22.46	22.53	20.28	21.66	20.49	20.54	18.30	23.00	21.97	21.95	19.93	20.64	19.57	19.24	17.44

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

Bandwidth	PCC	SCC1	PCC	PCC	SCC1	SCC1	Conducted Average (dBm)															
	Frequency (MHz)	Frequency (MHz)	RB	Offset	RB	Offset	ANT 1				ANT 2				ANT 3				ANT 4			
			Size		Size		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	25.39	24.25	23.48	20.41	23.28	22.37	21.32	18.30	24.58	23.73	22.97	19.76	22.64	21.64	20.64	17.43
			100	0	75	0	23.39	22.37	22.27	20.55	21.58	20.28	20.64	18.20	22.84	21.82	21.85	19.61	20.57	19.37	19.64	17.32
	2527.6	2544.7	1	99	1	0	25.34	24.39	23.53	20.43	23.38	22.69	21.36	18.69	24.88	23.75	22.81	19.69	22.39	21.70	20.69	17.69
			100	0	75	0	23.65	22.66	22.32	20.22	21.27	20.21	20.66	18.63	22.86	21.55	22.00	19.51	20.55	19.55	19.32	17.57
	2545.1	2562.2	1	99	1	0	25.21	24.40	23.43	20.68	23.24	22.54	21.65	18.45	24.78	23.89	22.92	19.99	22.27	21.25	20.52	17.68
			100	0	75	0	23.58	22.38	22.54	20.30	21.68	20.51	20.24	18.22	22.98	21.99	21.95	19.50	20.28	19.69	19.64	17.70

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

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)															
			Size	Offset	Size	Offset	ANT 1				ANT 2				ANT 3				ANT 4			
			Size	Offset	Size	Offset	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	25.24	24.44	23.27	20.64	23.20	22.43	21.31	18.29	24.97	23.99	22.66	19.81	22.28	21.63	20.35	17.51
			1	0	1	99	17.11	17.16	16.98	16.91	14.89	15.00	15.08	14.99	16.39	16.08	16.07	16.39	14.10	13.83	13.82	14.14
			100	0	100	0	23.67	22.31	22.38	20.40	21.55	20.42	20.66	18.23	22.64	21.70	21.86	19.63	20.58	19.21	19.33	17.67
			1	99	1	0	25.52	24.31	23.44	20.62	23.36	22.45	21.34	18.62	24.53	23.96	22.60	19.57	22.51	21.39	20.55	17.65
	2525.1	2544.9	1	0	1	99	17.00	16.86	16.99	17.11	14.73	14.81	15.14	15.03	16.24	16.10	16.12	16.37	13.76	14.13	14.08	13.82
			100	0	100	0	23.64	22.45	22.25	20.33	21.56	20.22	20.62	18.22	22.75	21.71	21.88	19.98	20.37	19.24	19.63	17.22
			1	99	1	0	25.43	24.23	23.30	20.53	23.53	22.61	21.27	18.21	24.79	23.66	22.68	19.76	22.42	21.41	20.55	17.59
			1	0	1	99	17.04	16.73	16.74	16.90	14.81	14.86	14.83	14.90	16.20	16.44	16.43	16.37	14.05	13.90	14.05	14.02
	2540.2	2560.0	100	0	100	0	23.28	22.67	22.40	20.35	21.55	20.45	20.52	18.60	22.88	21.55	21.77	19.70	20.50	19.33	19.51	17.35

8.1.3. LTE BAND 41

Test Engineer ID:	39004	Test Date:	2024-03-04
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OUTPUT POWER FOR LTE BAND 41 (5.0MHz + 20.0MHz)

Bandwidth	PCC	SCC1	PCC		PCC		SCC1		SCC1		Conducted Average (dBm)															
	Frequency (MHz)	Frequency (MHz)	RB	RB	RB	RB	RB	RB	ANT 1				ANT 2				ANT 3				ANT 4					
			Size	Offset	Size	Offset	Size	Offset	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	22.48	22.55	22.58	22.47	22.81	22.62	22.74	22.62	20.90	20.91	21.05	21.18	20.89	20.86	21.06	21.14	20.89	20.86	21.06	21.14
			25	0	100	0	22.65	22.52	22.63	22.31	22.70	22.64	22.50	22.82	20.96	20.83	21.04	20.82	21.01	20.82	21.26	21.13	21.01	20.82	21.26	21.13
	2583.8	2595.5	1	24	1	0	28.49	26.91	26.21	23.75	28.47	27.04	26.63	23.68	27.67	26.32	25.80	22.95	27.22	26.15	25.70	22.36	26.15	25.70	22.36	
			25	0	100	0	26.55	25.57	25.50	23.41	26.31	25.47	25.45	23.21	25.54	24.84	24.82	22.84	25.37	24.39	24.27	22.20	24.39	24.27	22.20	
	2668.3	2680.0	1	24	1	0	27.35	25.87	25.42	22.56	27.91	26.48	25.91	22.92	26.96	25.20	24.56	21.87	26.09	24.50	23.95	21.03	24.50	23.95	21.03	21.03
			25	0	100	0	25.27	24.53	24.47	22.66	25.97	24.65	24.76	22.88	24.97	23.50	23.98	21.81	23.83	23.01	23.13	20.99	23.01	23.13	20.99	20.99

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

Bandwidth	PCC	SCC1	PCC RB		PCC RB		SCC1 RB		SCC1 RB		Conducted Average (dBm)															
	Frequency (MHz)	Frequency (MHz)									ANT 1				ANT 2				ANT 3				ANT 4			
			Size	Offset	Size	Offset	Size	Offset	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	26.62	26.09	25.74	22.56	26.93	26.25	26.08	22.80	25.09	24.37	24.37	21.03	25.10	24.41	24.54	21.07	24.41	24.54	21.07	
			100	0	25	0	22.41	22.37	22.58	22.61	22.73	22.73	22.80	22.69	20.81	20.81	20.79	21.08	21.04	21.00	21.12	20.89	21.00	21.12	20.89	
	2590.5	2602.2	1	99	1	0	28.38	26.71	26.21	23.64	28.62	26.79	26.26	23.57	27.56	26.50	25.85	22.55	27.26	26.06	25.62	22.67	26.06	25.62	22.67	
			100	0	25	0	26.32	25.49	25.41	23.34	26.33	25.43	25.69	23.30	25.79	24.79	24.67	22.67	25.42	24.67	24.53	22.45	24.67	24.53	22.45	
	2675.0	2686.7	1	99	1	0	27.61	25.80	25.70	22.28	27.56	26.37	25.75	22.96	26.75	25.34	24.61	21.78	25.93	24.68	24.00	21.18	24.68	24.00	21.18	
			100	0	25	0	25.66	24.60	24.28	22.22	25.87	24.99	24.79	22.66	24.81	23.55	23.62	21.91	24.02	22.99	23.01	21.15	22.99	23.01	21.15	

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

Bandwidth	PCC	SCC1	PCC	PCC	SCC1	SCC1	Conducted Average (dBm)															
	Frequency	Frequency	RB	RB	RB	RB	ANT 1				ANT 2				ANT 3				ANT 4			
	(MHz)	(MHz)	Size	Offset	Size	Offset	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	22.32	22.26	22.24	22.59	22.64	22.90	22.98	22.83	20.87	21.09	20.82	20.73	21.02	21.16	20.80	21.05
			50	0	100	0	22.49	22.28	22.24	22.50	22.85	22.95	22.76	22.65	20.95	21.02	20.90	20.92	21.07	21.12	21.15	20.99
	2583.6	2598.0	1	49	1	0	28.69	26.99	26.25	23.91	28.29	27.03	26.31	23.60	27.61	26.17	25.71	23.00	27.20	26.20	25.55	22.62
			50	0	100	0	26.29	25.68	25.33	23.47	26.36	25.54	25.34	23.69	25.79	24.52	24.65	22.54	25.62	24.48	24.63	22.48
	2665.6	2680.0	1	49	1	0	27.30	25.85	25.39	22.35	27.80	26.44	25.82	22.84	26.56	25.23	24.95	21.77	26.05	24.47	23.87	21.11
			50	0	100	0	25.42	24.56	24.23	22.55	25.61	24.52	24.77	22.62	24.72	23.56	23.51	21.59	24.24	23.30	23.04	20.99

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

Bandwidth	PCC	SCC1	PCC		PCC		SCC1		SCC1		Conducted Average (dBm)															
	Frequency (MHz)	Frequency (MHz)	RB	Offset	RB	Offset	RB	Offset	ANT 1				ANT 2				ANT 3				ANT 4					
			Size	Size	Size	Size	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	26.63	25.97	25.99	22.54	26.43	26.45	26.47	22.63	25.18	23.88	24.68	21.18	25.16	24.75	24.80	21.09				
			100	0	50	0	22.68	22.43	22.66	22.64	22.55	22.53	22.96	22.89	21.15	21.18	21.18	21.12	21.28	21.27	21.22	21.18				
	2588.1	2602.5	1	99	1	0	28.70	27.15	26.67	23.50	28.68	27.12	26.65	23.62	27.98	26.50	26.00	22.89	27.68	26.18	25.66	22.65				
			100	0	50	0	26.65	25.66	25.65	23.67	26.55	25.67	25.69	23.68	26.00	25.00	24.83	23.00	25.70	24.65	24.59	22.58				
	2670.1	2684.5	1	99	1	0	27.68	26.12	25.67	22.48	27.32	26.49	25.58	22.75	26.88	25.45	24.87	21.76	26.25	24.69	24.28	21.23				
			100	0	50	0	25.63	24.59	24.59	22.54	25.67	24.98	24.95	22.88	24.58	23.91	23.78	21.95	24.28	23.19	23.17	21.13				

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

Bandwidth	PCC	SCC1	PCC	PCC	SCC1	SCC1	Conducted Average (dBm)															
	Frequency	Frequency	RB	RB	RB	RB	ANT 1				ANT 2				ANT 3				ANT 4			
	(MHz)	(MHz)	Size	Offset	Size	Offset	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	27.42	26.26	25.63	22.55	27.52	26.03	25.63	22.51	26.02	24.31	24.01	20.92	25.94	24.79	23.94	21.08
			75	0	75	0	22.38	22.34	22.68	22.60	22.60	22.75	22.59	22.67	20.87	21.09	20.88	20.74	21.10	20.81	21.23	21.12
	2585.5	2600.5	1	74	1	0	28.24	27.11	26.48	23.66	28.44	26.78	26.46	23.55	27.57	26.07	25.96	22.91	27.32	25.96	25.44	22.26
			75	0	75	0	26.58	25.29	25.62	23.62	26.57	25.48	25.29	23.55	25.82	25.00	24.62	22.93	25.28	24.42	24.68	22.34
	2667.5	2682.5	1	74	1	0	27.33	26.08	25.42	22.69	27.92	26.15	25.60	22.80	26.56	25.25	24.96	21.78	26.22	24.69	23.97	21.28
			75	0	75	0	25.22	24.57	24.62	22.49	25.54	24.82	24.70	22.62	24.97	23.68	23.91	21.72	24.06	22.92	23.03	20.81

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	27.59	26.17	25.67	22.23	27.82	26.48	25.86	22.60	26.02	24.41	23.84	21.20	25.89	24.78	24.22	21.14
			1	0	1	99	14.55	14.64	14.62	14.55	14.69	14.64	14.80	14.88	13.11	12.79	12.88	13.15	13.08	13.21	13.29	13.11
			100	0	100	0	22.55	22.51	22.34	22.43	22.73	22.69	22.64	22.84	21.04	21.15	20.88	21.06	21.26	20.80	20.85	21.16
	2583.1	2602.9	1	99	1	0	28.52	26.84	26.29	23.65	28.33	26.89	26.55	23.61	27.57	26.49	25.60	22.99	27.50	26.19	25.20	22.61
			1	0	1	99	20.08	20.11	19.74	19.72	20.07	19.97	19.88	20.20	19.49	19.25	19.16	19.10	18.70	19.11	18.91	18.98
			100	0	100	0	26.41	25.53	25.59	23.37	26.60	25.21	25.66	23.52	25.81	24.67	24.98	22.68	25.35	24.57	24.41	22.61
	2660.2	2680.0	1	99	1	0	27.29	25.74	25.55	22.29	27.71	26.05	25.77	22.59	26.98	25.49	24.78	21.75	26.00	24.66	23.81	20.82
			1	0	1	99	18.93	19.05	18.79	19.14	19.05	19.20	19.42	19.22	18.30	18.11	18.12	18.33	17.55	17.46	17.45	17.76
			100	0	100	0	25.26	24.57	24.64	22.66	25.60	24.96	24.54	22.96	24.89	23.72	24.00	21.97	24.26	23.00	22.96	20.86

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	7.500	8.09
	3MHz + 5MHz BAND 16QAM			7.501	8.05
	5MHz + 3MHz BAND QPSK	25/0 + 15/0		7.503	8.11
	5MHz + 3MHz BAND 16QAM			7.505	8.15
	5MHz + 10MHz BAND QPSK	25/0 + 50/0		13.873	14.76
	5MHz + 10MHz BAND 16QAM			13.856	14.72
	10MHz + 5MHz BAND QPSK	50/0 + 25/0		13.864	14.76
	10MHz + 5MHz BAND 16QAM			13.853	14.79
	10MHz + 10MHz BAND QPSK	50/0 + 50/0		18.761	19.91
	10MHz + 10MHz BAND 16QAM			18.763	20.00

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	28.260	30.50
	10MHz + 20MHz BAND 16QAM			28.173	30.37
	20MHz + 10MHz BAND QPSK	100/0 + 50/0		28.271	30.46
	20MHz + 10MHz BAND 16QAM			28.172	30.37
	15MHz + 15MHz BAND QPSK	75/0 + 75/0		28.851	31.24
	15MHz + 15MHz BAND 16QAM			28.724	31.16
	15MHz + 20MHz BAND QPSK	75/0 + 100/0		33.059	35.49
	15MHz + 20MHz BAND 16QAM			33.001	35.36
	20MHz + 15MHz BAND QPSK	100/0 + 75/0		33.072	35.40
	20MHz + 15MHz BAND 16QAM			33.003	35.47
	20MHz + 20MHz BAND QPSK	100/0 + 100/0		37.885	41.44
	20MHz + 20MHz BAND 16QAM			37.809	40.68

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	22.929	24.39
	5MHz + 20MHz BAND 16QAM			22.943	24.36
	20MHz + 5MHz BAND QPSK	100/0 + 25/0		22.871	24.11
	20MHz + 5MHz BAND 16QAM			22.916	24.03
	10MHz + 20MHz BAND QPSK	50/0 + 100/0		27.795	29.51
	10MHz + 20MHz BAND 16QAM			27.757	29.43
	20MHz + 10MHz BAND QPSK	100/0 + 50/0		32.592	34.35
	20MHz + 10MHz BAND 16QAM			32.657	34.16
	15MHz + 15MHz BAND QPSK	75/0 + 75/0		28.341	30.11
	15MHz + 15MHz BAND 16QAM			28.348	30.30
	15MHz + 20MHz BAND QPSK	75/0 + 100/0		32.653	34.65
	15MHz + 20MHz BAND 16QAM			32.650	34.52
	20MHz + 15MHz BAND QPSK	100/0 + 75/0		32.654	34.56
	20MHz + 15MHz BAND 16QAM			32.621	34.55
	20MHz + 20MHz BAND QPSK	100/0 + 100/0		37.541	39.63
	20MHz + 20MHz BAND 16QAM			37.484	39.57

9.1.1. **LTE BAND 5**

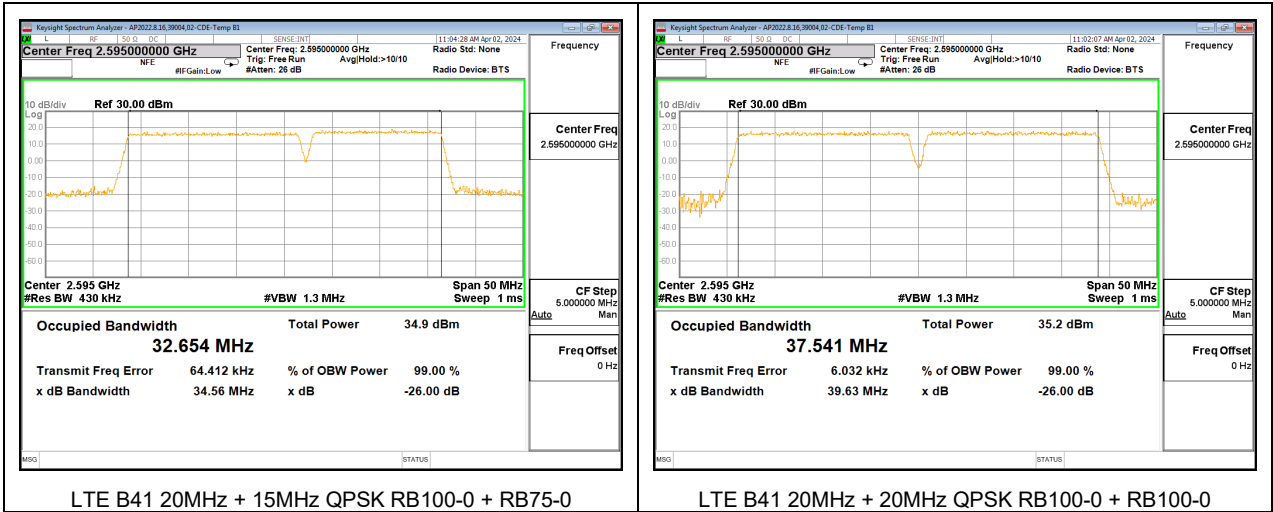


9.1.2. LTE BAND 7



9.1.3. LTE BAND 41





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

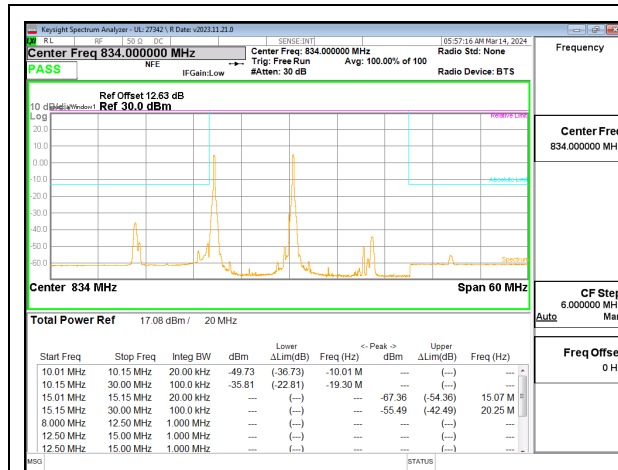
Both maximum + maximum bandwidth combinations of QPSK and 16QAM modes are tested, QPSK results are reported as worst case.

9.2.1. LTE BAND 5

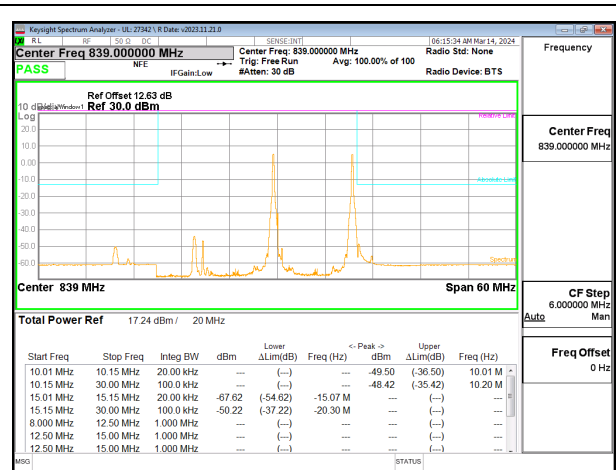
LIMITS

FCC: §22.917

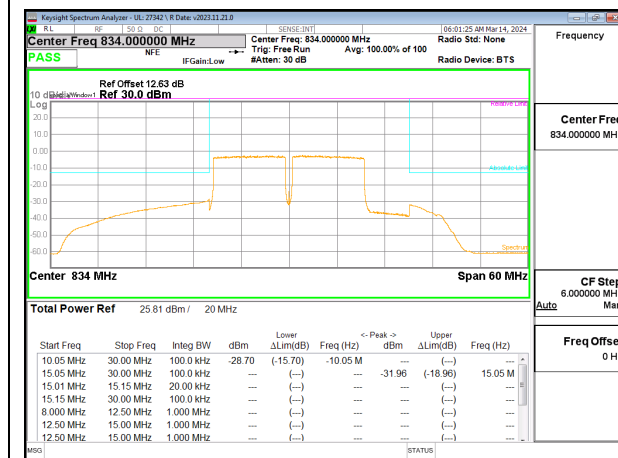
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.



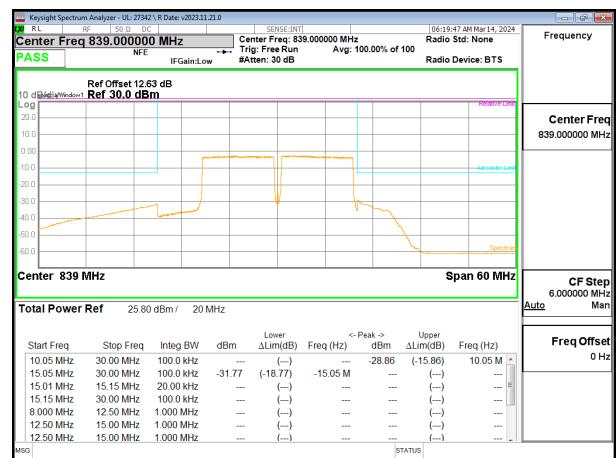
LTE B5 10MHz + 10MHz QPSK Low Ch RB1-0 + RB1-0



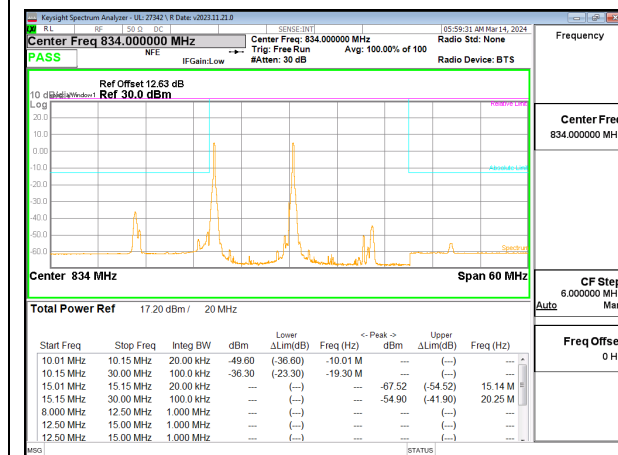
LTE B5 10MHz + 10MHz QPSK High Ch RB1-49 + RB1-49



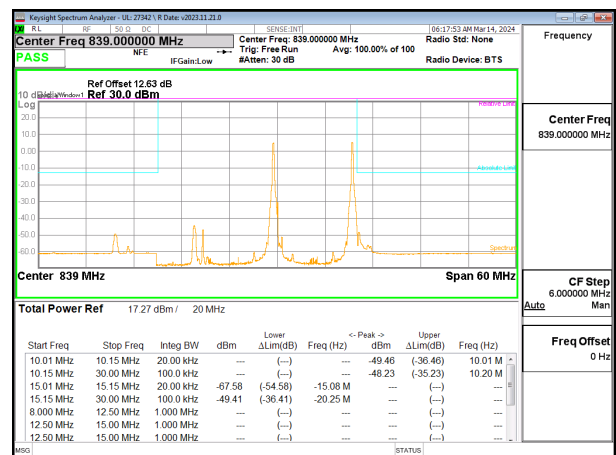
LTE B5 10MHz + 10MHz QPSK Low Ch RB50-0 + RB50-0



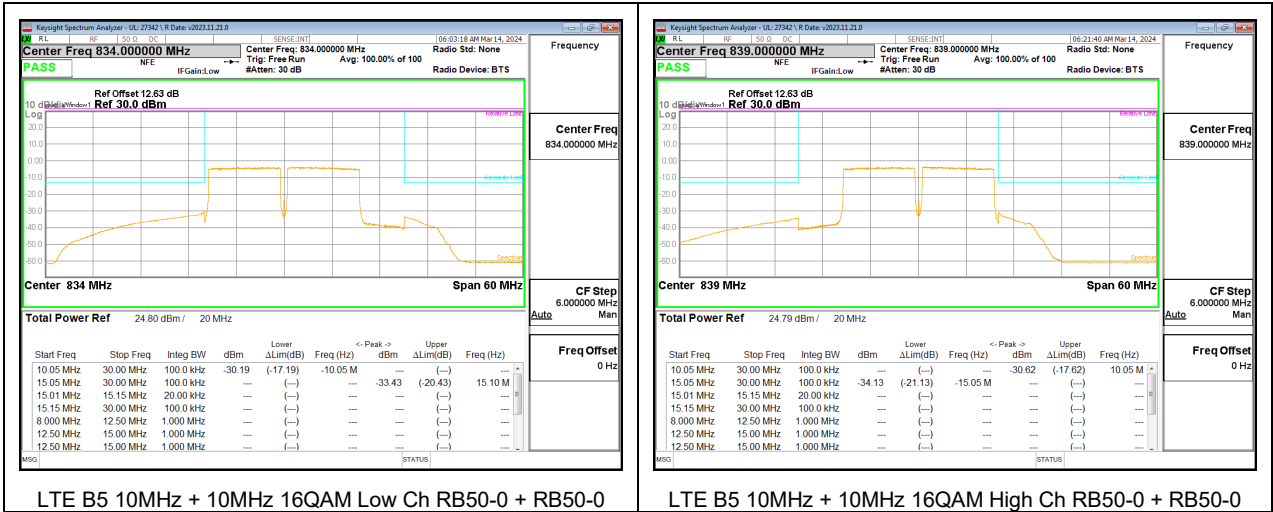
LTE B5 10MHz + 10MHz QPSK High Ch RB50-0 + RB50-0



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



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

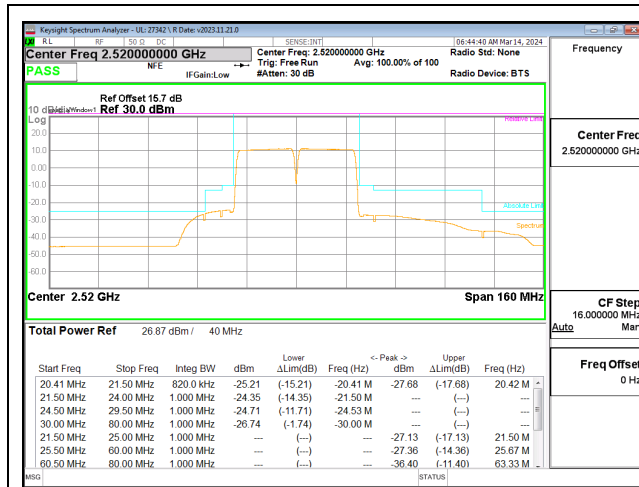


9.2.2. LTE BAND 7

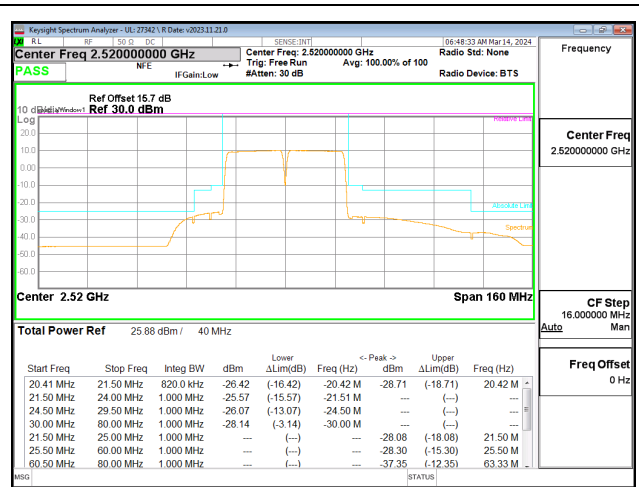
LIMITS

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.

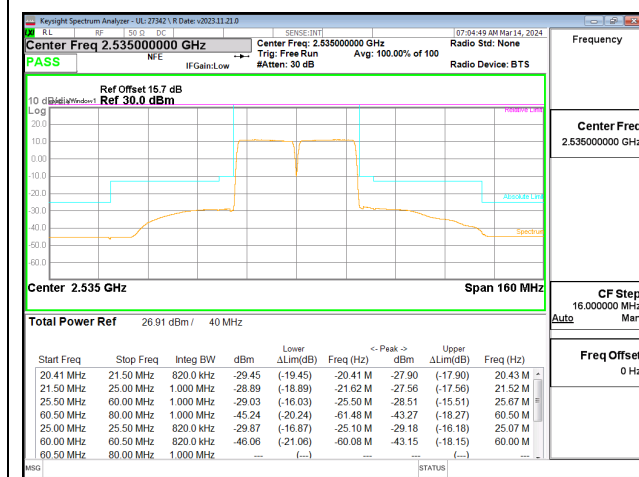




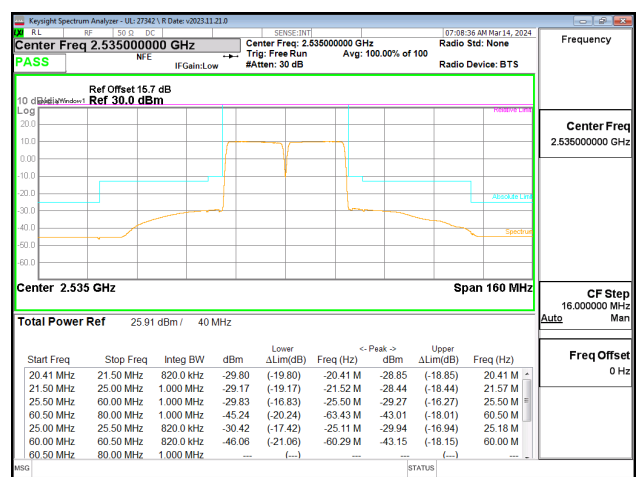
LTE B7 20MHz + 20MHz QPSK Low Ch RB100-0 + RB100-0



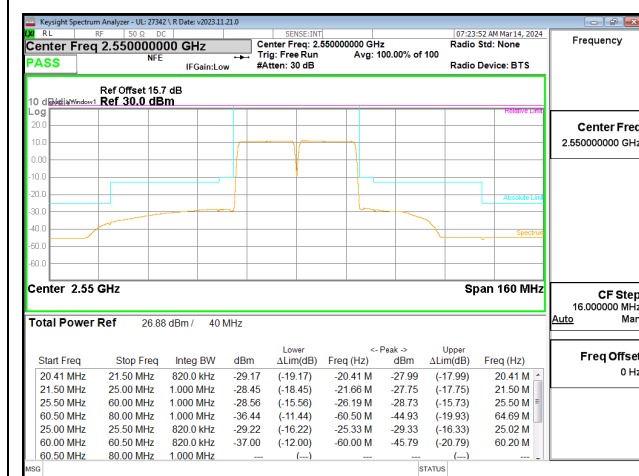
LTE B7 20MHz + 20MHz 16QAM Low Ch RB100-0 + RB100-0



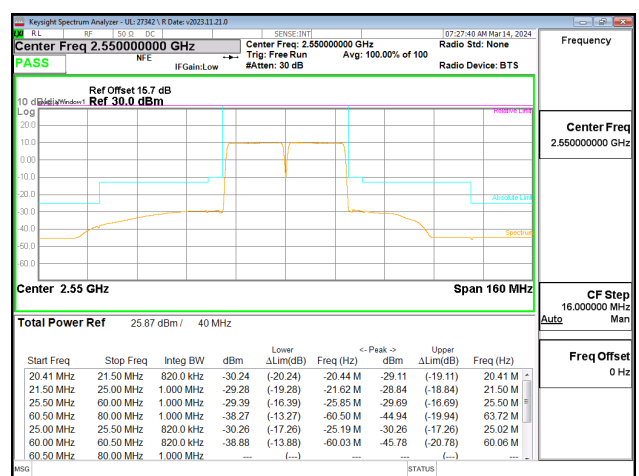
LTE B7 20MHz + 20MHz QPSK Mid Ch RB100-0 + RB100-0



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



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

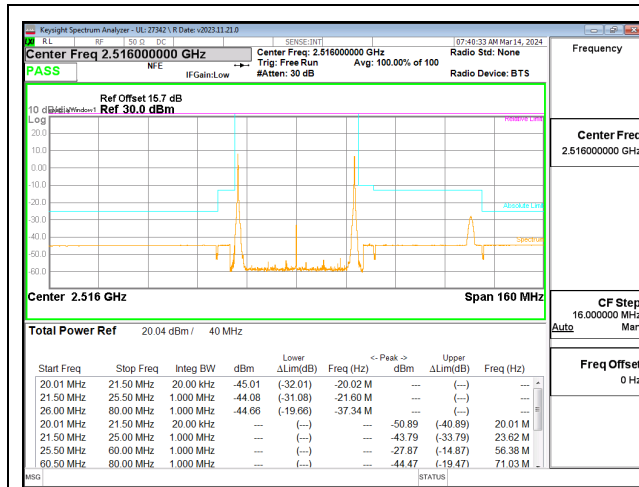


LTE B7 20MHz + 20MHz 16QAM High Ch RB100-0 + RB100-0

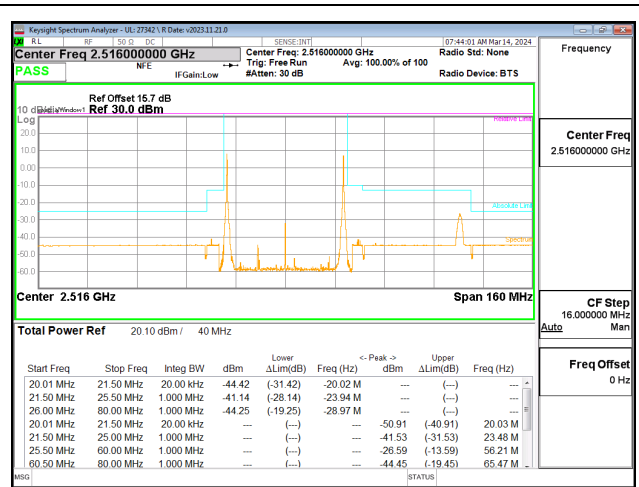
9.2.3. LTE BAND 41

LIMITS

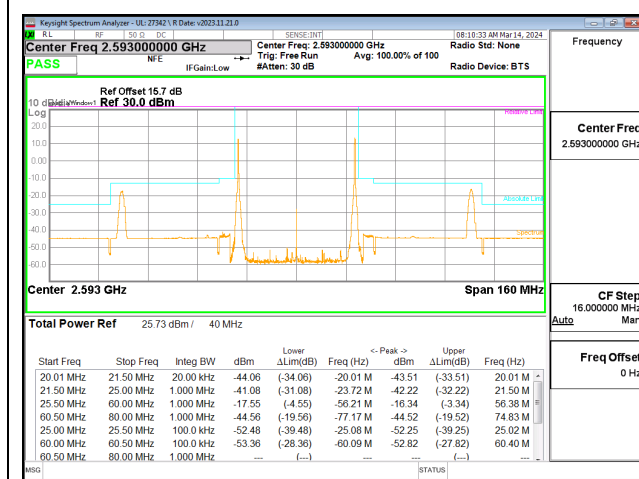
FCC: §27.53(m)(4) For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ 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 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.



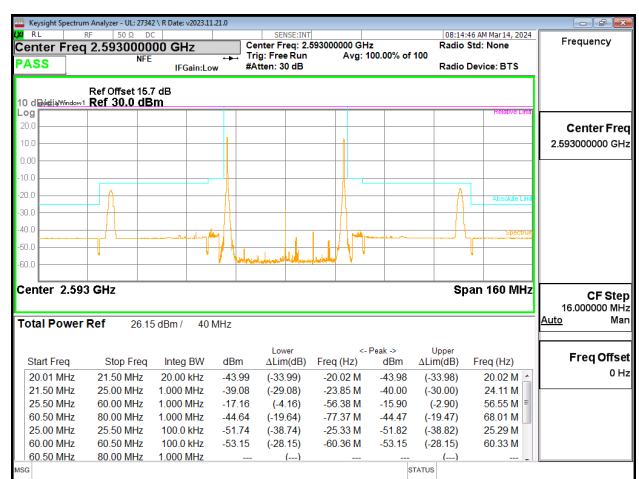
LTE B41 20MHz + 20MHz QPSK Low Ch RB1-0 + RB1-99



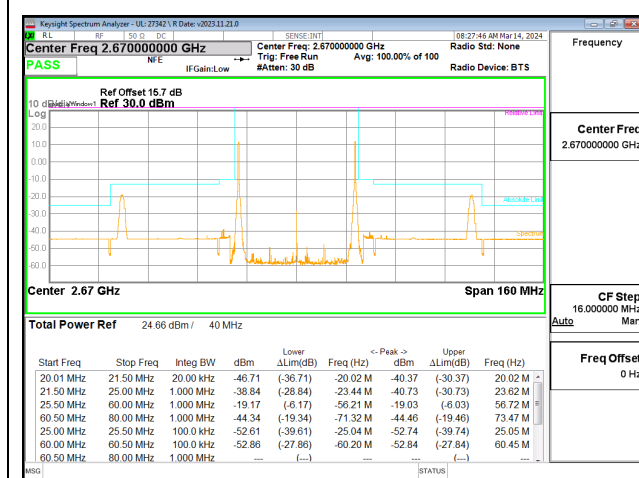
LTE B41 20MHz + 20MHz 16QAM Low Ch RB1-0 + RB1-99



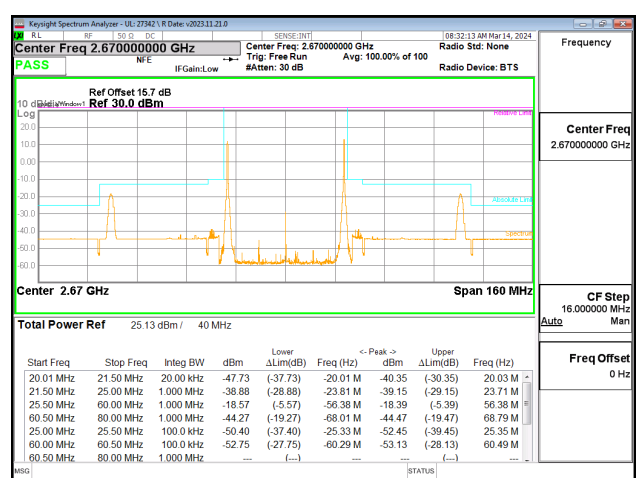
LTE B41 20MHz + 20MHz QPSK Mid Ch RB1-0 + RB1-99



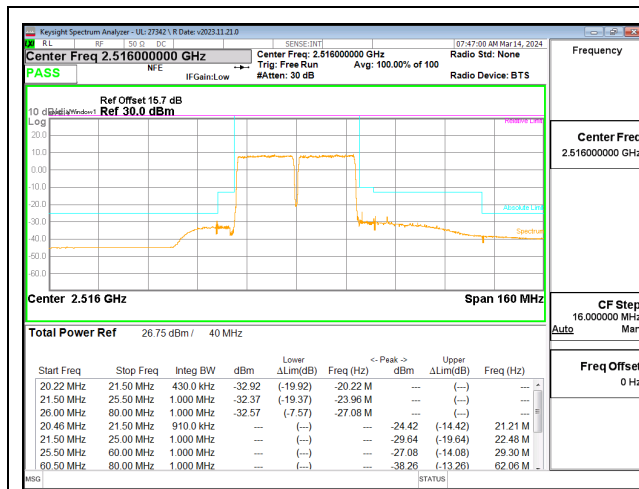
LTE B41 20MHz + 20MHz 16QAM Mid Ch RB1-0 + RB1-99



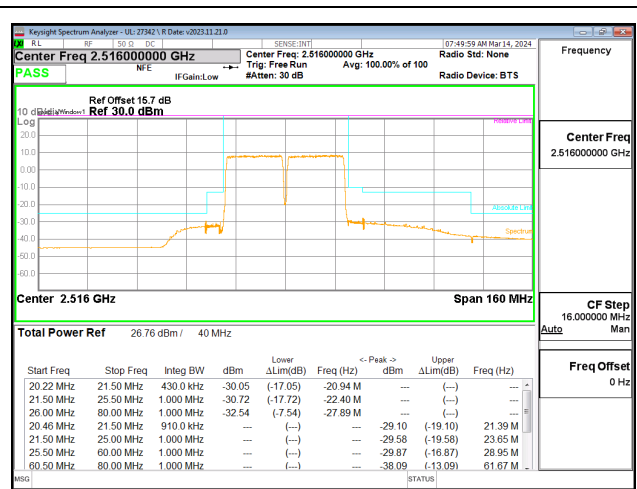
LTE B41 20MHz + 20MHz QPSK High Ch RB1-0 + RB1-99



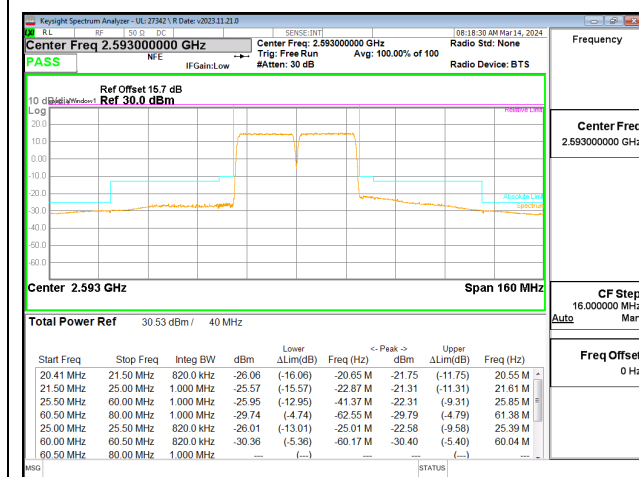
LTE B41 20MHz + 20MHz 16QAM High Ch RB1-0 + RB1-99



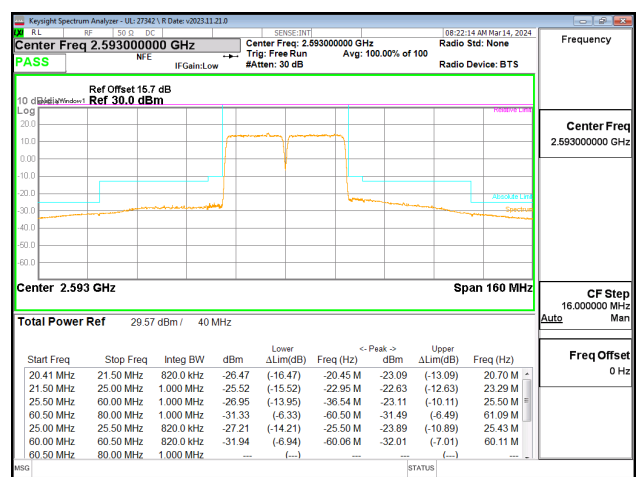
LTE B41 20MHz + 20MHz QPSK Low Ch RB100-0 + RB100-0



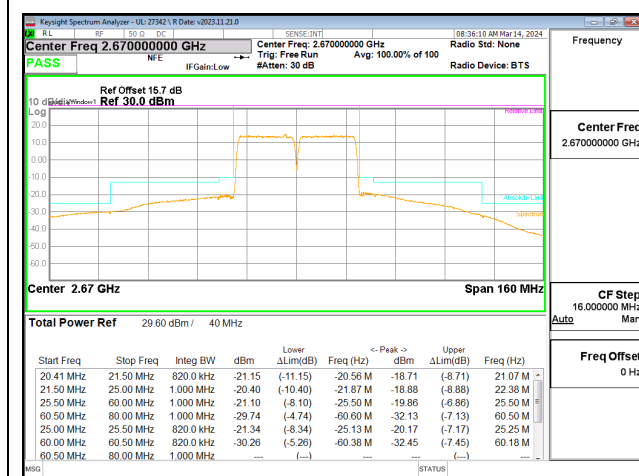
LTE B41 20MHz + 20MHz 16QAM Low Ch RB100-0 + RB100-0



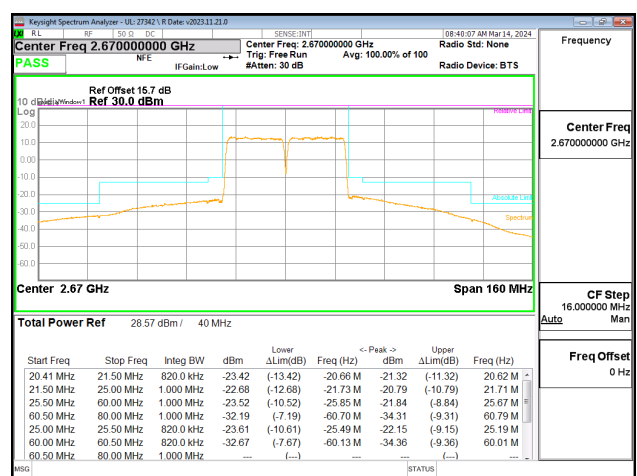
LTE B41 20MHz + 20MHz QPSK Mid Ch RB100-0 + RB100-0



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)

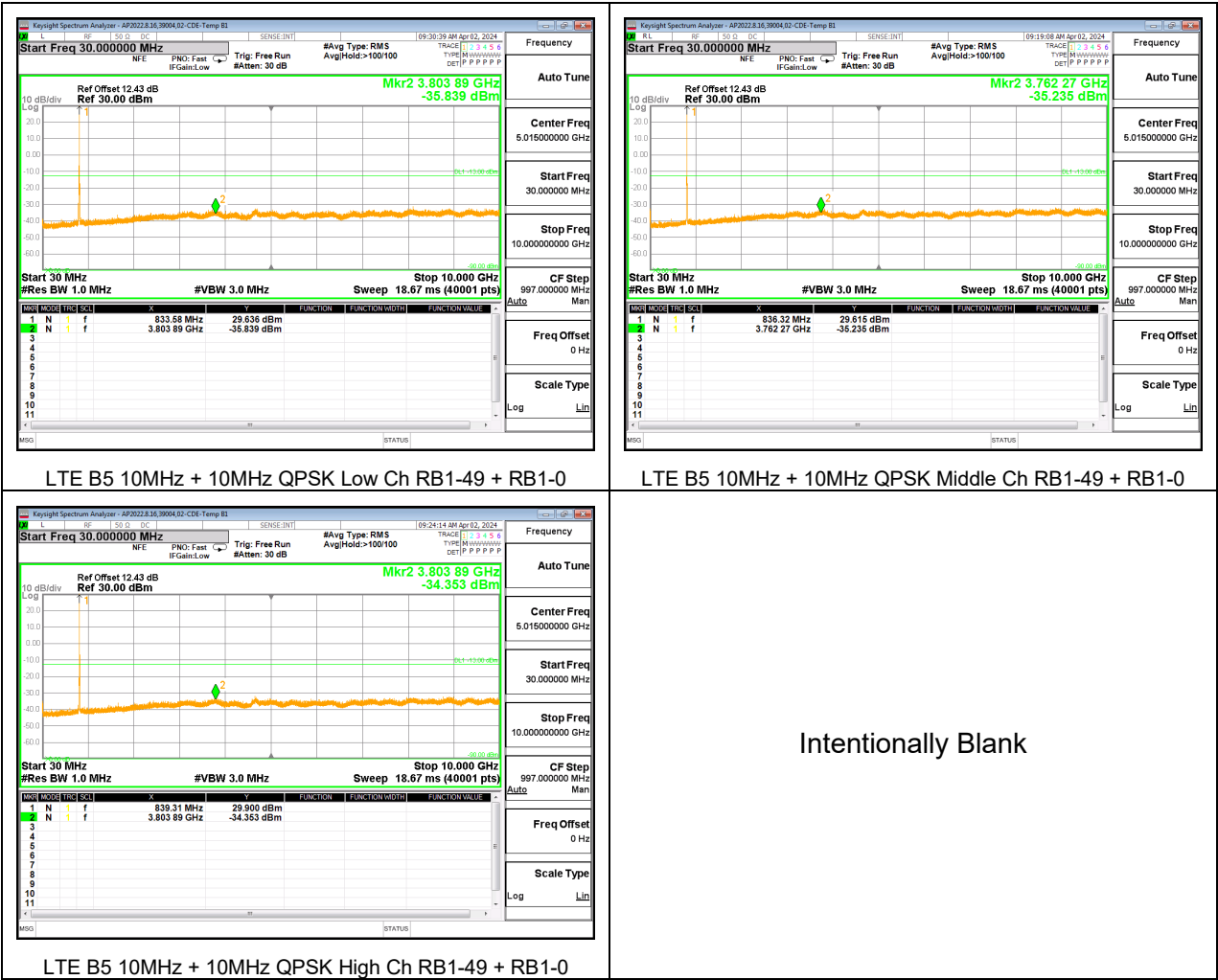
RESULTS

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

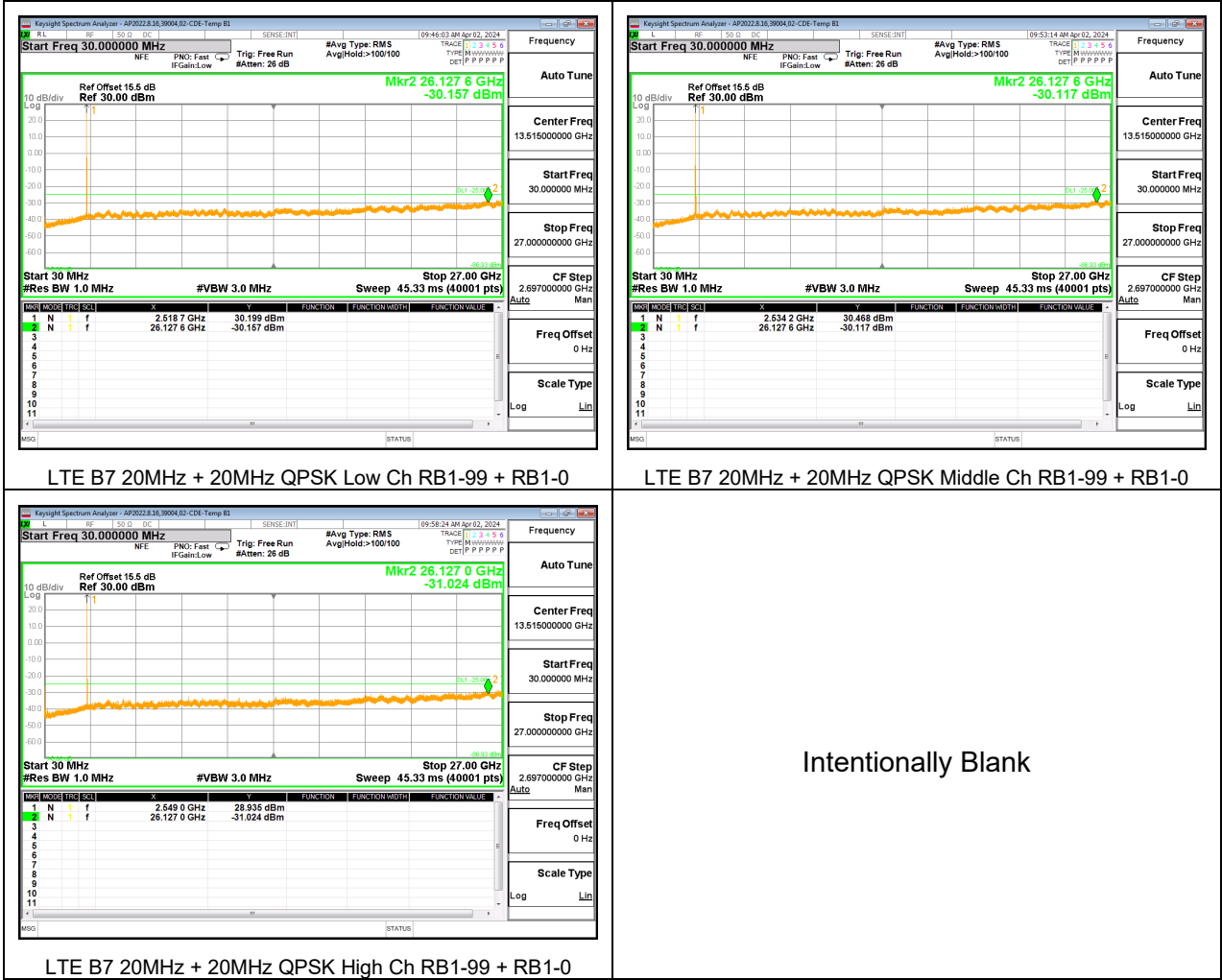
FCC: §22.917
The minimum permissible attenuation level of any spurious emissions is 43 + 10 log (P) dB where transmitting power (P) in Watts.



9.3.2. LTE BAND 7

LIMITS

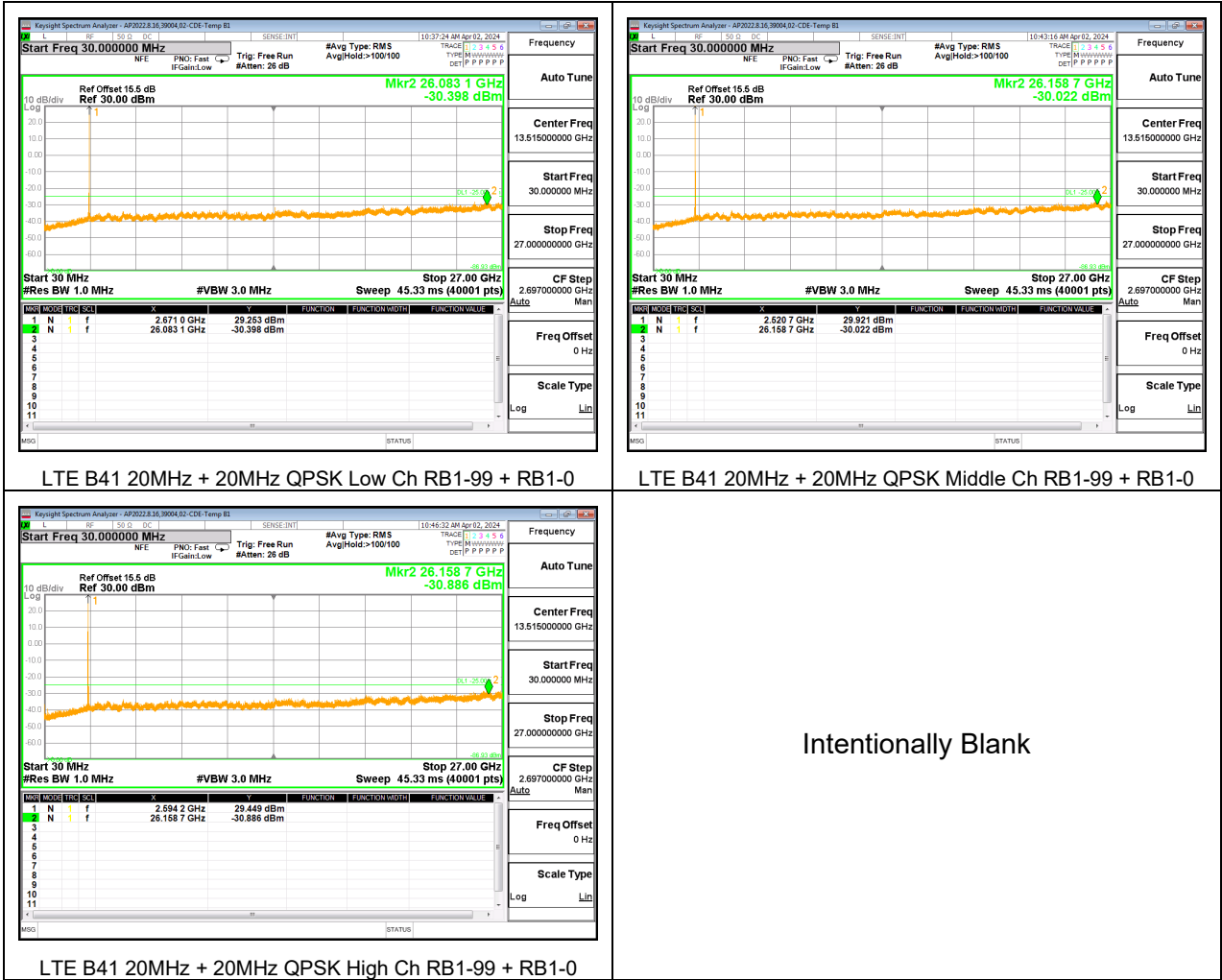
FCC: §27.53 (m)
The minimum permissible attenuation level of any spurious emissions is 55 + 10 log (P) dB where transmitting power (P) in Watts.



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.



9.4. FREQUENCY STABILITY

TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

- Temp. = -30°C to $+50^{\circ}\text{C}$
- 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 $+50^{\circ}\text{C}$ 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.

Test Engineer ID:	39004	Test Date:	2024-04-10
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QPSK (10MHz + 10MHz BANDWIDTH)

Band	5	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		824	849		2.5	
		Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)		Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)
Temperature	Voltage					
Normal (20°C)	Normal	824.5608	848.4328			
Extreme (50°C)		824.5608	848.4328	20.1	0.024	Yes
Extreme (40°C)		824.5608	848.4328	14.7	0.018	Yes
Extreme (30°C)		824.5608	848.4328	20.3	0.024	Yes
Extreme (10°C)		824.5608	848.4328	16.6	0.020	Yes
Extreme (0°C)		824.5608	848.4328	4.5	0.005	Yes
Extreme (-10°C)		824.5608	848.4328	4.8	0.006	Yes
Extreme (-20°C)		824.5608	848.4328	-8.9	-0.011	Yes
Extreme (-30°C)		824.5608	848.4328	-12.0	-0.014	Yes
20°C	15%	824.5608	848.4328	21.0	0.025	Yes
	-15%	824.5608	848.4328	24.2	0.029	Yes
	End Point Voltage	824.5608	848.4328	22.1	0.026	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.

Test Engineer ID:	39004	Test Date:	2024-04-10
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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	2501.1368	2568.8478			
Extreme (50°C)		2501.1368	2568.8478	19.2	0.008	Yes
Extreme (40°C)		2501.1368	2568.8478	30.4	0.012	Yes
Extreme (30°C)		2501.1368	2568.8478	33.1	0.013	Yes
Extreme (10°C)		2501.1368	2568.8478	17.2	0.007	Yes
Extreme (0°C)		2501.1368	2568.8478	18.2	0.007	Yes
Extreme (-10°C)		2501.1368	2568.8478	7.9	0.003	Yes
Extreme (-20°C)		2501.1368	2568.8478	-8.2	-0.003	Yes
Extreme (-30°C)		2501.1368	2568.8478	-6.4	-0.003	Yes
20°C	15%	2501.1368	2568.8478	14.8	0.006	Yes
	-15%	2501.1368	2568.8478	16.3	0.006	Yes
	End Point Voltage	2501.1368	2568.8478	13.1	0.005	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.

Test Engineer ID:	39904	Test Date:	2024-04-10
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QPSK (20MHz + 20MHz BANDWIDTH)

Condition		2496	2690	Frequency Error Reading (Hz)		
		Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)		Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)
Temperature	Voltage					
Normal (20°C)	Normal	2496.7627	2689.2434			
Extreme (50°C)		2496.7627	2689.2434	27.8	0.011	Yes
Extreme (40°C)		2496.7627	2689.2434	33.4	0.013	Yes
Extreme (30°C)		2496.7627	2689.2434	19.2	0.007	Yes
Extreme (10°C)		2496.7627	2689.2434	14.1	0.005	Yes
Extreme (0°C)		2496.7627	2689.2434	2.9	0.001	Yes
Extreme (-10°C)		2496.7627	2689.2434	-15.5	-0.006	Yes
Extreme (-20°C)		2496.7627	2689.2434	-20.7	-0.008	Yes
Extreme (-30°C)		2496.7627	2689.2434	-31.0	-0.012	Yes
20°C	15%	2496.7627	2689.2434	8.9	0.003	Yes
	-15%	2496.7627	2689.2434	4.5	0.002	Yes
	End Point Voltage	2496.7627	2689.2434	2.1	0.001	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

Test Engineer ID:	39004	Test Date:	2024-04-04
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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	31.52	25.51	6.01
				16QAM	31.48	24.91	6.57
	5 MHz / 3MHz	835.0	838.9	QPSK	31.39	25.49	5.90
				16QAM	31.37	24.8	6.57
	5MHz / 10MHz	831.6	838.8	QPSK	32.13	24.39	7.74
				16QAM	31.97	23.33	8.64
	10MHz / 5MHz	834.3	841.5	QPSK	31.89	24.43	7.46
				16QAM	31.86	23.40	8.46
	10MHz / 10MHz	831.5	841.4	QPSK	32.28	24.45	7.83
				16QAM	32.21	23.41	8.80
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

Test Engineer ID:	39004	Test Date:	2024-04-04
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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	32.75	24.78	7.97
				16QAM	32.69	23.84	8.85
	20MHz / 10MHz	2530.1	2544.5	QPSK	33.02	24.93	8.09
				16QAM	32.83	23.97	8.86
	15 MHz / 15MHz	2527.5	2542.5	QPSK	32.91	24.91	8.00
				16QAM	32.73	23.94	8.79
	15MHz / 20MHz	2525.3	2542.4	QPSK	32.83	24.83	8.00
				16QAM	32.80	23.89	8.91
	20MHz / 15MHz	2527.6	2544.7	QPSK	32.99	24.86	8.13
				16QAM	32.81	23.84	8.97
20MHz / 20MHz	2525.1	2544.9	QPSK	32.90	24.86	8.04	
			16QAM	32.59	23.7	8.89	
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

Test Engineer ID:	39004	Test Date:	2024-04-04
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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	36.74	23.53	6.22
				16QAM	36.77	23.09	6.69
	20MHz / 5MHz	2590.5	2602.2	QPSK	36.17	22.75	6.43
				16QAM	36.33	21.17	8.17
	10MHz / 20MHz	2583.6	2598.0	QPSK	37.67	23.58	7.10
				16QAM	36.46	22.5	6.97
	20MHz / 10MHz	2588.1	2602.5	QPSK	36.51	23.04	6.48
				16QAM	36.49	22.01	7.49
	15MHz / 15MHz	2585.5	2600.5	QPSK	37.64	23.60	7.05
				16QAM	37.67	23.58	7.10
	15MHz / 20MHz	2583.3	2600.4	QPSK	37.60	23.55	7.06
				16QAM	37.69	23.59	7.11
	20MHz / 15MHz	2585.6	2602.7	QPSK	36.48	22.98	6.51
				16QAM	36.64	23.10	6.55
	20MHz / 20MHz	2583.1	2602.9	QPSK	36.51	22.96	6.56
				16QAM	36.57	22.02	7.56
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.

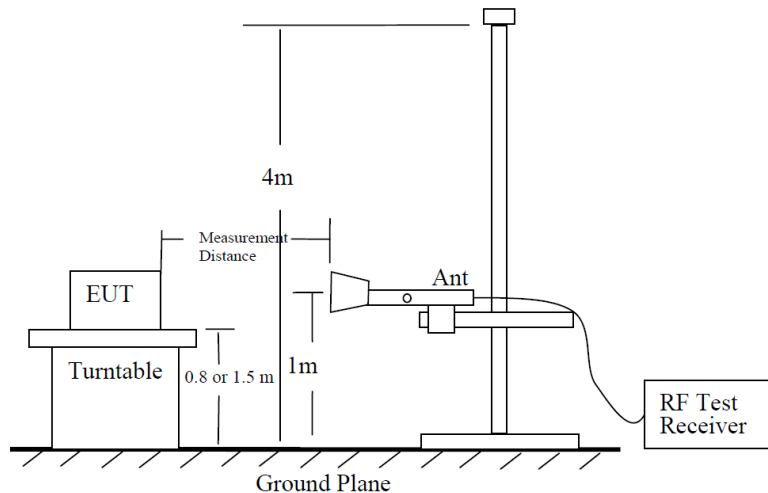


Figure 6—Test site-up for radiated ERP and/or EIRP measurements

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.

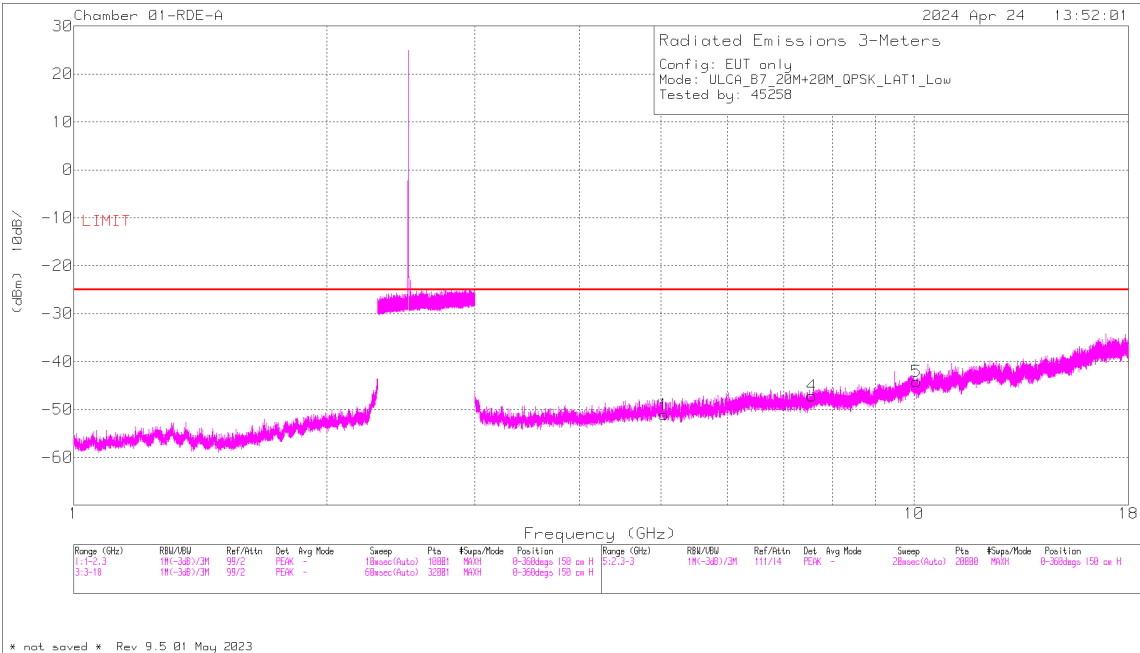
So, from d)

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

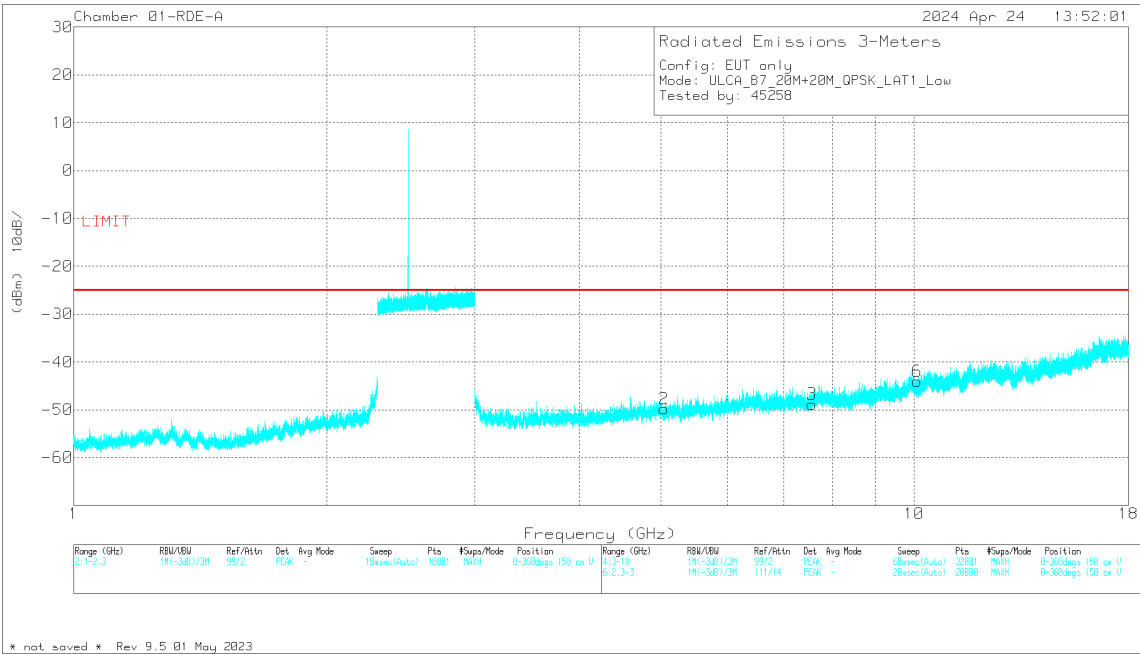
Then, $\text{EIRP (dBm)} = E \text{ (dB}\mu\text{V/m)} + 9.5424 - 104.8 = E \text{ (dB}\mu\text{V/m)} - 95.2576$

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 (dBuV)	Det	81886 ACF 3m (dB/m)	BRF 2495-2690MHz T1790 1-18GHz (dB)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
1	5.040469	31.29	Pk	34.1	.6	-95.2	-21.95	-51.16	-25	-26.16	H
2	5.040469	32.67	Pk	34.1	.6	-95.2	-21.95	-49.78	-25	-24.78	V
4	7.560469	30.25	Pk	35.7	.3	-95.2	-18.2	-47.15	-25	-22.15	H
3	7.560469	28.58	Pk	35.7	.3	-95.2	-18.2	-48.82	-25	-23.82	V
5	10.080469	28.71	Pk	37.6	.6	-95.2	-15.9	-44.19	-25	-19.19	H
6	10.081406	28.88	Pk	37.6	.6	-95.2	-15.94	-44.06	-25	-19.06	V

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, ABOVE 1GHz 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)

Date:	4/12/2024
Test Engineer:	45258
Configuration:	EUT Only
Mode	LTECA B5 10+10MHz
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	200897 ACF 3m (dB/m)	HPF 1.2GHz T1737 1- 18GHz (dB)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 829MHz + 838.9MHz										
1.668356	37.54	Pk	29.1	0.7	-95.2	-27.6	-55.46	-13	-42.46	H
1.667867	37.73	Pk	29.1	0.7	-95.2	-27.6	-55.27	-13	-42.27	V
2.501911	35.84	Pk	32.5	0.6	-95.2	-26.2	-52.46	-13	-39.46	H
2.501911	35.74	Pk	32.5	0.6	-95.2	-26.2	-52.56	-13	-39.56	V
3.335956	35.58	Pk	32.8	0.5	-95.2	-25.1	-51.42	-13	-38.42	H
3.335956	34.17	Pk	32.8	0.5	-95.2	-25.1	-52.83	-13	-39.83	V
Mid Channel, 831.6MHz + 841.5MHz										
1.673245	39.92	Pk	29.1	0.7	-95.2	-27.58	-53.06	-13	-40.06	H
1.672756	37.37	Pk	29.1	0.7	-95.2	-27.62	-55.65	-13	-42.65	V
2.509245	35.90	Pk	32.5	0.7	-95.2	-26.28	-52.38	-13	-39.38	H
2.509245	36.73	Pk	32.5	0.7	-95.2	-26.28	-51.55	-13	-38.55	V
3.344756	35.15	Pk	32.8	0.5	-95.2	-25.10	-51.85	-13	-38.85	H
3.344756	35.47	Pk	32.8	0.5	-95.2	-25.10	-51.53	-13	-38.53	V
High Channel, 834.1MHz + 844MHz										
1.677645	38.23	Pk	29.2	0.7	-95.2	-27.56	-54.63	-13	-41.63	H
1.677645	36.94	Pk	29.2	0.7	-95.2	-27.56	-55.92	-13	-42.92	V
2.516578	36.00	Pk	32.5	0.7	-95.2	-26.14	-52.14	-13	-39.14	H
2.516578	36.31	Pk	32.5	0.7	-95.2	-26.14	-51.83	-13	-38.83	V
3.356978	35.06	Pk	32.8	0.6	-95.2	-24.9	-51.64	-13	-38.64	H
3.356000	35.83	Pk	32.8	0.6	-95.2	-25.00	-50.97	-13	-37.97	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)

Date:	4/24/2024
Test Engineer:	45258
Configuration:	EUT Only
Mode	LTECA B7 20+20MHz
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	200897 ACF 3m (dB/m)	HPF 1.2GHz T1737 1- 18GHz (dB)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, , 2510MHz+2529.8MHz										
5.040469	31.29	Pk	34.1	0.6	-95.2	-21.95	-51.16	-25	-26.16	H
5.040469	32.67	Pk	34.1	0.6	-95.2	-21.95	-49.78	-25	-24.78	V
7.560469	30.25	Pk	35.7	0.3	-95.2	-18.20	-47.15	-25	-22.15	H
7.560469	28.58	Pk	35.7	0.3	-95.2	-18.20	-48.82	-25	-23.82	V
10.080469	28.71	Pk	37.6	0.6	-95.2	-15.90	-44.19	-25	-19.19	H
10.081406	28.88	Pk	37.6	0.6	-95.2	-15.94	-44.06	-25	-19.06	V
Mid Channel, 2525.1MHz+2544.9MHz										
5.070000	32.51	Pk	34.2	0.7	-95.2	-21.90	-49.69	-25	-24.69	H
5.070469	33.01	Pk	34.2	0.7	-95.2	-21.90	-49.19	-25	-24.19	V
7.548281	30.79	Pk	35.7	0.3	-95.2	-18.20	-46.61	-25	-21.61	H
7.548750	33.49	Pk	35.7	0.3	-95.2	-18.20	-43.91	-25	-18.91	V
10.199063	29.16	Pk	37.6	0.8	-95.2	-15.61	-43.25	-25	-18.25	H
10.199063	28.23	Pk	37.6	0.8	-95.2	-15.61	-44.18	-25	-19.18	V
High Channel, 2540.2MHz+2560MHz										
5.099063	32.84	Pk	34.2	0.8	-95.2	-21.90	-49.26	-25	-24.26	H
5.099531	31.38	Pk	34.2	0.8	-95.2	-21.90	-50.72	-25	-25.72	V
7.649531	30.16	Pk	35.8	0.3	-95.2	-17.75	-46.69	-25	-21.69	H
7.649531	29.97	Pk	35.8	0.3	-95.2	-17.75	-46.88	-25	-21.88	V
10.200000	28.38	Pk	37.6	0.8	-95.2	-15.70	-44.12	-25	-19.12	H
10.199531	27.41	Pk	37.6	0.8	-95.2	-15.65	-45.04	-25	-20.04	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)

Date:	5/17/2024
Test Engineer:	32934
Configuration:	EUT Only
Mode	LTECA 41 FCC 20+20MHz
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	BRF 2495-2690MHz T1790 1-18GHz (dB)	EIRP CF	Amp/Cbl (dB)	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 2506MHz + 2525.8MHz										
5.009531	33.84	Pk	34.2	0.8	-95.2	-22.35	-48.71	-25	-23.71	H
4.979063	34.76	Pk	34.2	0.6	-95.2	-22.40	-48.04	-25	-23.04	V
7.524844	31.02	Pk	35.7	0.3	-95.2	-18.30	-46.48	-25	-21.48	H
7.512188	30.09	Pk	35.7	0.3	-95.2	-18.20	-47.31	-25	-22.31	V
10.030781	29.04	Pk	37.5	0.7	-95.2	-15.88	-43.84	-25	-18.84	H
9.998906	28.48	Pk	37.5	0.5	-95.2	-15.40	-44.12	-25	-19.12	V
Mid Channel, 2583.1MHz + 2602.9MHz										
5.172188	33.92	Pk	34.1	0.7	-95.2	-21.80	-48.28	-25	-23.28	H
5.184375	34.59	Pk	34.1	0.7	-95.2	-21.96	-47.77	-25	-22.77	V
7.745625	30.26	Pk	35.8	0.3	-95.2	-17.90	-46.74	-25	-21.74	H
7.690781	31.29	Pk	35.8	0.5	-95.2	-17.62	-45.23	-25	-20.23	V
10.423594	30.69	Pk	37.8	0.8	-95.2	-14.80	-40.71	-25	-15.71	H
10.401563	29.93	Pk	37.8	0.8	-95.2	-15.10	-41.77	-25	-16.77	V
High Channel, 2660.2MHz + 2680MHz										
5.316563	33.28	Pk	34.3	0.8	-95.2	-22.16	-48.98	-25	-23.98	H
5.306250	34.07	Pk	34.3	0.6	-95.2	-22.10	-48.33	-25	-23.33	V
7.853906	32.09	Pk	35.8	0.3	-95.2	-17.70	-44.71	-25	-19.71	H
7.937813	30.08	Pk	35.9	0.2	-95.2	-17.80	-46.82	-25	-21.82	V
10.646719	28.85	Pk	37.9	0.5	-95.2	-15.00	-42.95	-25	-17.95	H
10.615313	28.60	Pk	37.9	0.7	-95.2	-14.83	-42.83	-25	-17.83	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

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

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)

Date:	4/15/2024
Test Engineer:	45258
Configuration:	EUT Only
Mode	LTECA B5 10+10MHz
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	200897 ACF 3m (dB/m)	HPF 1.2GHz T1737 1- 18GHz (dB)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 829MHz + 838.9MHz										
1.667378	38.03	Pk	29.1	0.7	-95.2	-27.60	-54.97	-13	-41.97	H
1.666889	37.58	Pk	29.1	0.7	-95.2	-27.61	-55.43	-13	-42.43	V
2.502400	36.58	Pk	32.5	0.6	-95.2	-26.20	-51.72	-13	-38.72	H
2.501911	35.75	Pk	32.5	0.6	-95.2	-26.20	-52.55	-13	-39.55	V
3.335467	34.52	Pk	32.8	0.5	-95.2	-25.05	-52.43	-13	-39.43	H
3.335467	33.76	Pk	32.8	0.5	-95.2	-25.05	-53.19	-13	-40.19	V
Mid Channel, 831.6MHz + 841.5MHz										
1.673245	37.38	Pk	29.1	0.7	-95.2	-27.58	-55.60	-13	-42.60	H
1.673245	37.98	Pk	29.1	0.7	-95.2	-27.58	-55.00	-13	-42.00	V
2.509245	35.51	Pk	32.5	0.7	-95.2	-26.28	-52.77	-13	-39.77	H
2.509245	36.05	Pk	32.5	0.7	-95.2	-26.28	-52.23	-13	-39.23	V
3.346223	34.21	Pk	32.8	0.5	-95.2	-25.10	-52.79	-13	-39.79	H
3.346223	35.39	Pk	32.8	0.5	-95.2	-25.10	-51.61	-13	-38.61	V
High Channel, 834.1MHz + 844MHz										
1.376489	36.37	Pk	28.7	1.0	-95.2	-28.45	-57.58	-13	-44.58	H
1.376489	37.68	Pk	28.7	1.0	-95.2	-28.45	-56.27	-13	-43.27	V
2.064356	35.61	Pk	31.6	0.5	-95.2	-26.90	-54.39	-13	-41.39	H
2.064356	37.06	Pk	31.6	0.5	-95.2	-26.90	-52.94	-13	-39.94	V
2.752711	35.88	Pk	32.3	0.5	-95.2	-25.63	-52.15	-13	-39.15	H
2.752711	35.90	Pk	32.3	0.5	-95.2	-25.63	-52.13	-13	-39.13	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)

Date:	4/15/2024
Test Engineer:	45258
Configuration:	EUT Only
Mode	LTECA B7 20+20MHz
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	200897 ACF 3m (dB/m)	HPF 1.2GHz T1737 1- 18GHz (dB)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, , 2510MHz+2529.8MHz										
5.040469	32.96	Pk	34.1	0.6	-95.2	-21.95	-49.49	-25	-24.49	H
5.040000	31.74	Pk	34.1	0.6	-95.2	-22.00	-50.76	-25	-25.76	V
7.059375	29.89	Pk	35.6	0.8	-95.2	-19.00	-47.91	-25	-22.91	H
7.059375	28.99	Pk	35.6	0.8	-95.2	-19.00	-48.81	-25	-23.81	V
10.080938	28.34	Pk	37.6	0.6	-95.2	-15.90	-44.56	-25	-19.56	H
10.080938	28.05	Pk	37.6	0.6	-95.2	-15.90	-44.85	-25	-19.85	V
Mid Channel, 2525.1MHz+2544.9MHz										
5.070938	32.79	Pk	34.2	0.7	-95.2	-21.90	-49.41	-25	-24.41	H
5.070938	31.52	Pk	34.2	0.7	-95.2	-21.90	-50.68	-25	-25.68	V
7.605469	28.69	Pk	35.7	0.4	-95.2	-18.10	-48.51	-25	-23.51	H
7.605469	29.41	Pk	35.7	0.4	-95.2	-18.10	-47.79	-25	-22.79	V
10.140000	26.57	Pk	37.6	0.7	-95.2	-15.80	-46.13	-25	-21.13	H
10.140469	27.31	Pk	37.6	0.6	-95.2	-15.80	-45.49	-25	-20.49	V
High Channel, 2540.2MHz+2560MHz										
5.100000	30.89	Pk	34.2	0.8	-95.2	-21.90	-51.21	-25	-26.21	H
5.100469	31.73	Pk	34.2	0.8	-95.2	-21.90	-50.37	-25	-25.37	V
7.650469	28.91	Pk	35.8	0.3	-95.2	-17.75	-47.94	-25	-22.94	H
7.650469	29.30	Pk	35.8	0.3	-95.2	-17.75	-47.55	-25	-22.55	V
10.200938	28.27	Pk	37.6	0.8	-95.2	-15.61	-44.14	-25	-19.14	H
10.200469	27.50	Pk	37.6	0.8	-95.2	-15.65	-44.95	-25	-19.95	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)

Date:	5/17/2024
Test Engineer:	32934
Configuration:	EUT Only
Mode	LTECA 41 FCC 20+20MHz
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	BRF 2495-2690MHz T1790 1-18GHz (dB)	EIRP CF	Amp/Cbl (dB)	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 2506MHz + 2525.8MHz										
5.009063	34.04	Pk	34.2	0.8	-95.2	-22.31	-48.47	-25	-23.47	H
4.999219	35.45	Pk	34.2	0.8	-95.2	-22.42	-47.17	-25	-22.17	V
7.518281	29.70	Pk	35.7	0.3	-95.2	-18.23	-47.73	-25	-22.73	H
7.476094	29.95	Pk	35.6	0.3	-95.2	-18.19	-47.54	-25	-22.54	V
10.034063	29.21	Pk	37.5	0.7	-95.2	-15.81	-43.60	-25	-18.60	H
10.033594	28.61	Pk	37.5	0.7	-95.2	-15.80	-44.19	-25	-19.19	V
Mid Channel, 2583.1MHz + 2602.9MHz										
5.169844	33.35	Pk	34.1	0.7	-95.2	-21.88	-48.93	-25	-23.93	H
5.141719	32.70	Pk	34.1	0.8	-95.2	-21.83	-49.43	-25	-24.43	V
7.758281	30.03	Pk	35.8	0.3	-95.2	-17.80	-46.87	-25	-21.87	H
7.757344	29.70	Pk	35.8	0.3	-95.2	-17.80	-47.20	-25	-22.20	V
10.332188	30.15	Pk	37.7	0.6	-95.2	-15.28	-42.03	-25	-17.03	H
10.350000	28.50	Pk	37.7	0.7	-95.2	-15.00	-43.30	-25	-18.30	V
High Channel, 2660.2MHz + 2680MHz										
5.319844	33.21	Pk	34.3	0.8	-95.2	-22.12	-49.01	-25	-24.01	H
5.308594	33.86	Pk	34.3	0.7	-95.2	-22.10	-48.44	-25	-23.44	V
7.979531	30.38	Pk	35.9	0.3	-95.2	-17.70	-46.32	-25	-21.32	H
7.984219	29.72	Pk	35.9	0.3	-95.2	-17.60	-46.88	-25	-21.88	V
10.640156	29.24	Pk	37.9	0.5	-95.2	-14.98	-42.54	-25	-17.54	H
10.628438	29.41	Pk	37.9	0.6	-95.2	-15.00	-42.29	-25	-17.29	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

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

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)

Date:	4/24/2024
Test Engineer:	45258
Configuration:	EUT Only
Mode	LTECA B7 20+20MHz
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	200897 ACF 3m (dB/m)	HPF 1.2GHz T1737 1- 18GHz (dB)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, , 2510MHz+2529.8MHz										
5.040938	33.92	Pk	34.1	0.6	-95.2	-21.91	-48.49	-25	-23.49	H
5.041875	31.17	Pk	34.2	0.6	-95.2	-21.90	-51.13	-25	-26.13	V
7.560000	29.01	Pk	35.7	0.3	-95.2	-18.20	-48.39	-25	-23.39	H
7.559531	29.19	Pk	35.7	0.3	-95.2	-18.25	-48.26	-25	-23.26	V
10.080469	27.87	Pk	37.6	0.6	-95.2	-15.90	-45.03	-25	-20.03	H
10.080469	28.76	Pk	37.6	0.6	-95.2	-15.90	-44.14	-25	-19.14	V
Mid Channel, 2525.1MHz+2544.9MHz										
5.070000	32.32	Pk	34.2	0.7	-95.2	-21.90	-49.88	-25	-24.88	H
5.070000	31.82	Pk	34.2	0.7	-95.2	-21.90	-50.38	-25	-25.38	V
7.605000	30.32	Pk	35.7	0.4	-95.2	-18.10	-46.88	-25	-21.88	H
7.605000	29.66	Pk	35.7	0.4	-95.2	-18.10	-47.54	-25	-22.54	V
10.140469	28.14	Pk	37.6	0.6	-95.2	-15.80	-44.66	-25	-19.66	H
10.140469	27.15	Pk	37.6	0.6	-95.2	-15.80	-45.65	-25	-20.65	V
High Channel, 2540.2MHz+2560MHz										
5.082188	32.74	Pk	34.2	0.8	-95.2	-21.78	-49.24	-25	-24.24	H
5.077500	33.54	Pk	34.2	0.7	-95.2	-21.85	-48.61	-25	-23.61	V
7.627500	30.32	Pk	35.8	0.4	-95.2	-17.80	-46.48	-25	-21.48	H
7.633125	30.40	Pk	35.8	0.4	-95.2	-17.81	-46.41	-25	-21.41	V
10.158281	29.03	Pk	37.6	0.6	-95.2	-15.60	-43.57	-25	-18.57	H
10.159219	29.04	Pk	37.6	0.6	-95.2	-15.60	-43.56	-25	-18.56	V

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)

Date:	5/19/2024
Test Engineer:	32934
Configuration:	EUT Only
Mode	LTECA 41 FCC 20+20MHz
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	BRF 2495-2690MHz T1790 1-18GHz (dB)	EIRP CF	Amp/Cbl (dB)	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 2506MHz + 2525.8MHz										
5.179219	33.45	Pk	34.1	0.7	-95.2	-21.90	-48.85	-25	-23.85	H
5.140313	32.97	Pk	34.1	0.8	-95.2	-21.90	-49.23	-25	-24.23	V
7.755938	30.62	Pk	35.8	0.3	-95.2	-17.81	-46.29	-25	-21.29	H
7.761563	30.22	Pk	35.8	0.3	-95.2	-17.74	-46.62	-25	-21.62	V
10.342969	29.95	Pk	37.7	0.7	-95.2	-15.10	-41.95	-25	-16.95	H
10.333125	29.20	Pk	37.7	0.6	-95.2	-15.20	-42.90	-25	-17.90	V
Mid Channel, 2583.1MHz + 2602.9MHz										
5.159063	32.63	Pk	34.1	0.8	-95.2	-21.69	-49.36	-25	-24.36	H
5.141250	33.67	Pk	34.1	0.8	-95.2	-21.88	-48.51	-25	-23.51	V
7.755469	30.77	Pk	35.8	0.3	-95.2	-17.85	-46.18	-25	-21.18	H
7.756406	30.17	Pk	35.8	0.3	-95.2	-17.80	-46.73	-25	-21.73	V
10.341563	29.36	Pk	37.7	0.7	-95.2	-15.16	-42.60	-25	-17.60	H
10.326563	30.87	Pk	37.7	0.6	-95.2	-15.26	-41.29	-25	-16.29	V
High Channel, 2660.2MHz + 2680MHz										
5.323125	32.87	Pk	34.3	0.8	-95.2	-22.10	-49.33	-25	-24.33	H
5.300625	34.02	Pk	34.3	0.5	-95.2	-22.20	-48.58	-25	-23.58	V
7.977188	30.45	Pk	35.9	0.3	-95.2	-17.78	-46.33	-25	-21.33	H
7.998750	30.75	Pk	35.9	0.3	-95.2	-17.60	-45.85	-25	-20.85	V
10.647656	29.08	Pk	37.9	0.5	-95.2	-15.00	-42.72	-25	-17.72	H
10.632656	28.51	Pk	37.9	0.5	-95.2	-15.00	-43.29	-25	-18.29	V

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

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

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)

Date:	7/12/2024
Test Engineer:	28567
Configuration:	EUT Only
Mode	LTECA B7 20+20MHz
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	81886 ACF 3m (dB/m)	BRF 2495- 2690MHz T1790 1- 18GHz (dB)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, , 2510MHz+2529.8MHz										
5.05875	31.8	Pk	34.1	.6	-95.2	-22.00	-50.70	-25	-25.70	H
5.059688	30.99	Pk	34.2	.6	-95.2	-22.07	-51.48	-25	-26.48	V
7.589531	29.61	Pk	35.7	.5	-95.2	-18.10	-47.49	-25	-22.49	H
7.590469	28.24	Pk	35.7	.5	-95.2	-18.15	-48.91	-25	-23.91	V
10.118906	26.42	Pk	37.6	.7	-95.2	-15.71	-46.19	-25	-21.19	H
10.119844	26.91	Pk	37.6	.7	-95.2	-15.70	-45.69	-25	-20.69	V
Mid Channel, 2525.1MHz+2544.9MHz										
5.089219	31.06	Pk	34.2	.8	-95.2	-21.80	-50.94	-25	-25.94	H
5.089688	31.38	Pk	34.2	.8	-95.2	-21.80	-50.62	-25	-25.62	V
7.634531	27.23	Pk	35.8	.4	-95.2	-17.85	-49.62	-25	-24.62	H
7.636406	28.71	Pk	35.8	.4	-95.2	-17.80	-48.09	-25	-23.09	V
10.175625	26.48	Pk	37.6	.6	-95.2	-15.60	-46.12	-25	-21.12	H
10.179375	28.35	Pk	37.6	.6	-95.2	-15.60	-44.25	-25	-19.25	V
High Channel, 2540.2MHz+2560MHz										
5.120156	31.83	Pk	34.2	.8	-95.2	-21.92	-50.29	-25	-25.29	H
5.122031	31.4	Pk	34.2	.8	-95.2	-21.90	-50.70	-25	-25.70	V
7.679063	28.98	Pk	35.8	.5	-95.2	-17.71	-47.63	-25	-22.63	H
7.682813	28.61	Pk	35.8	.5	-95.2	-17.70	-47.99	-25	-22.99	V
10.239844	26.58	Pk	37.6	.8	-95.2	-15.40	-45.62	-25	-20.62	H
10.240781	27.26	Pk	37.6	.8	-95.2	-15.32	-44.86	-25	-19.86	V

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)

Date:	5/20/2024
Test Engineer:	32934
Configuration:	EUT Only
Mode	LTECA 41 FCC 20+20MHz
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	BRF 2495-2690MHz T1790 1-18GHz (dB)	EIRP CF	Amp/Cbl (dB)	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 2506MHz + 2525.8MHz										
5.009063	34.28	Pk	34.2	0.8	-95.2	-22.31	-48.23	-25	-23.23	H
4.986094	33.66	Pk	34.2	0.7	-95.2	-22.49	-49.13	-25	-24.13	V
7.514531	29.87	Pk	35.7	0.3	-95.2	-18.15	-47.48	-25	-22.48	H
7.510781	30.27	Pk	35.7	0.3	-95.2	-18.20	-47.13	-25	-22.13	V
10.021406	27.89	Pk	37.5	0.6	-95.2	-15.66	-44.87	-25	-19.87	H
10.015781	28.64	Pk	37.5	0.6	-95.2	-15.50	-43.96	-25	-18.96	V
Mid Channel, 2583.1MHz + 2602.9MHz										
5.163750	32.16	Pk	34.1	0.7	-95.2	-21.70	-49.94	-25	-24.94	H
5.132344	33.21	Pk	34.2	0.8	-95.2	-21.90	-48.89	-25	-23.89	V
7.693125	31.62	Pk	35.8	0.5	-95.2	-17.59	-44.87	-25	-19.87	H
7.740938	30.51	Pk	35.8	0.3	-95.2	-17.90	-46.49	-25	-21.49	V
10.332188	30.19	Pk	37.7	0.6	-95.2	-15.28	-41.99	-25	-16.99	H
10.331250	28.72	Pk	37.7	0.6	-95.2	-15.23	-43.41	-25	-18.41	V
High Channel, 2660.2MHz + 2680MHz										
5.319375	33.18	Pk	34.3	0.8	-95.2	-22.16	-49.08	-25	-24.08	H
5.295938	34.11	Pk	34.3	0.5	-95.2	-22.10	-48.39	-25	-23.39	V
7.972031	31.63	Pk	35.9	0.3	-95.2	-17.90	-45.27	-25	-20.27	H
7.999688	30.13	Pk	35.9	0.3	-95.2	-17.53	-46.40	-25	-21.40	V
10.635000	28.81	Pk	37.9	0.5	-95.2	-14.90	-42.89	-25	-17.89	H
10.629375	29.41	Pk	37.9	0.5	-95.2	-14.96	-42.35	-25	-17.35	V

11. SETUP PHOTOS

Please refer to 14982479-EP1V1 for Setup Photo Report for setup photos

END OF REPORT