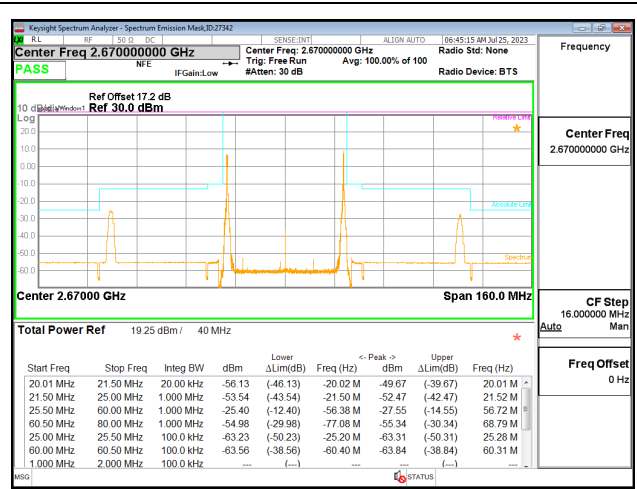
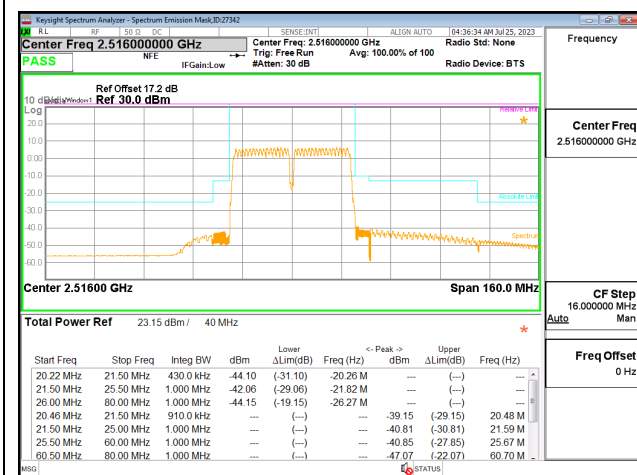


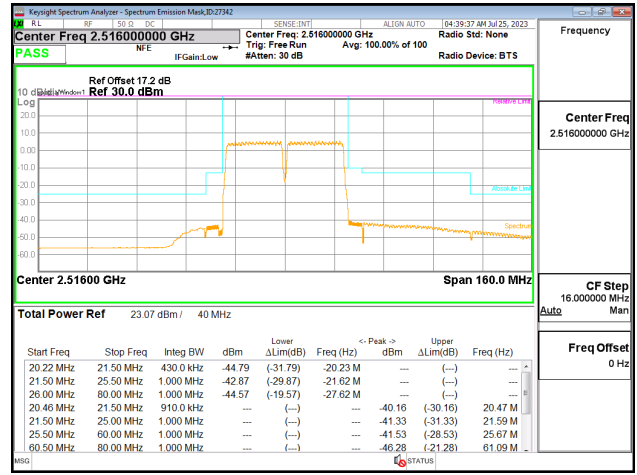
LTE B41 20MHz + 20MHz QPSK High Ch RB1-0 + RB1-99, ID:39004



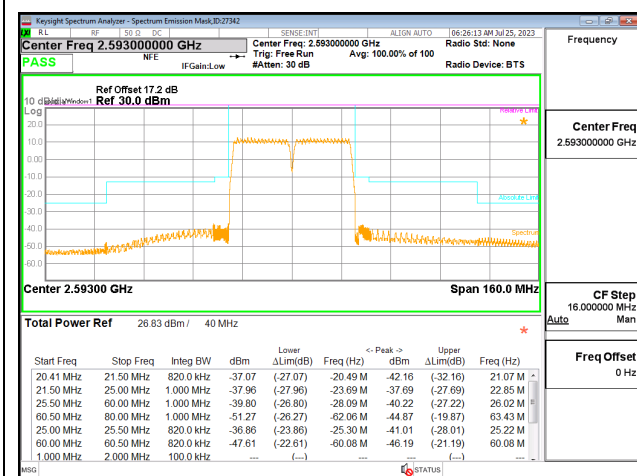
LTE B41 20MHz + 20MHz 16QAM High Ch RB1-0 + RB1-99, ID:39004



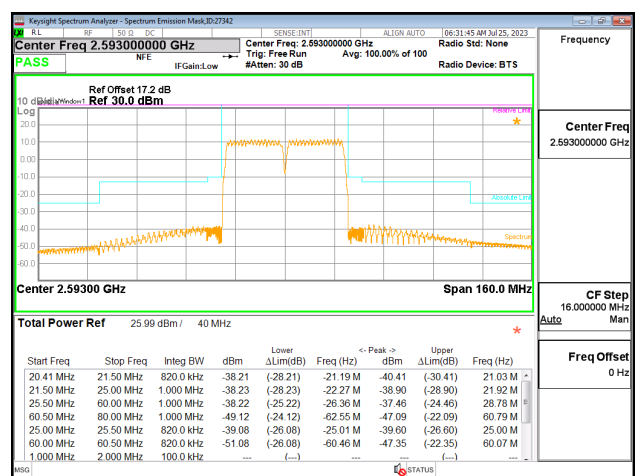
LTE B41 20MHz + 20MHz QPSK Low Ch RB100-0 + RB100-0, ID:39004



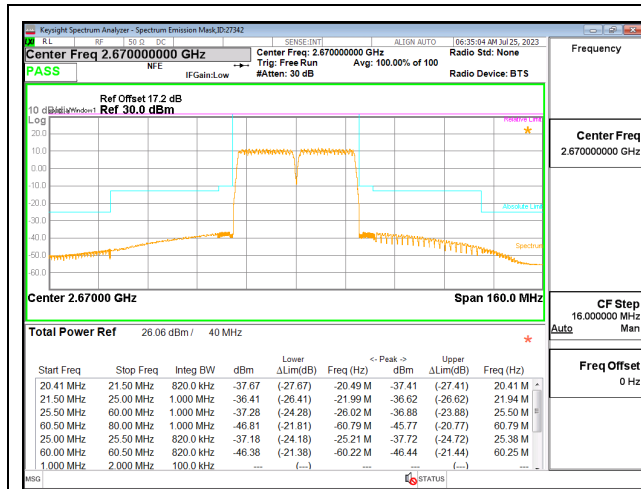
LTE B41 20MHz + 20MHz 16QAM Low Ch RB100-0 + RB100-0, ID:39004



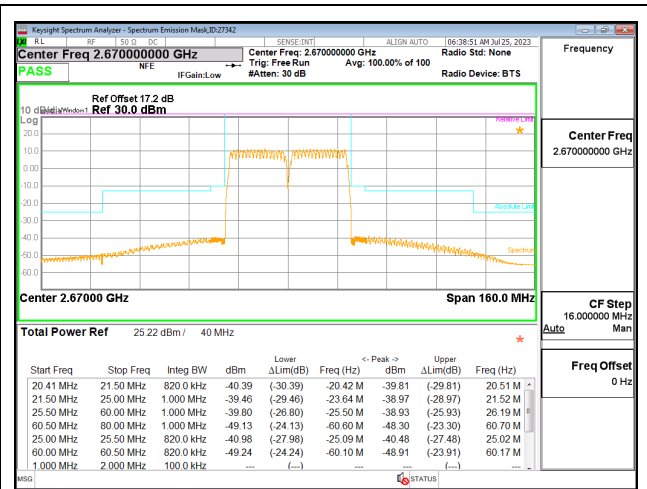
LTE B41 20MHz + 20MHz QPSK Mid Ch RB100-0 + RB100-0, ID:39004



LTE B41 20MHz + 20MHz 16QAM Mid Ch RB100-0 + RB100-0, ID:39004



LTE B41 20MHz + 20MHz QPSK High Ch RB100-0 + RB100-0,
 ID:39004



LTE B41 20MHz + 20MHz 16QAM High Ch RB100-0 + RB100-0,
 ID:39004

9.2.4. LTE BAND 48

LIMITS

FCC: §96.41

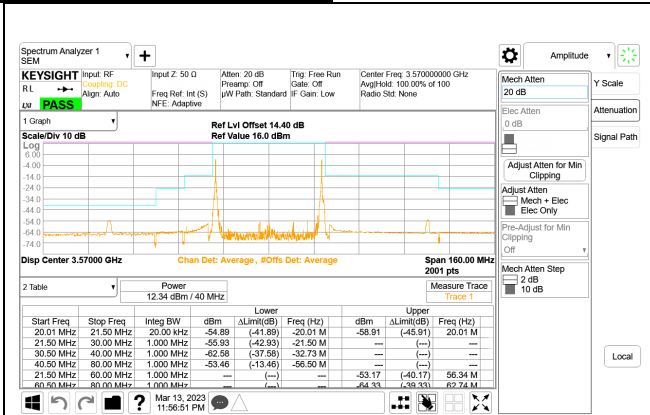
(e) 3.5 GHz Emissions and Interference Limits—

(1) General protection levels

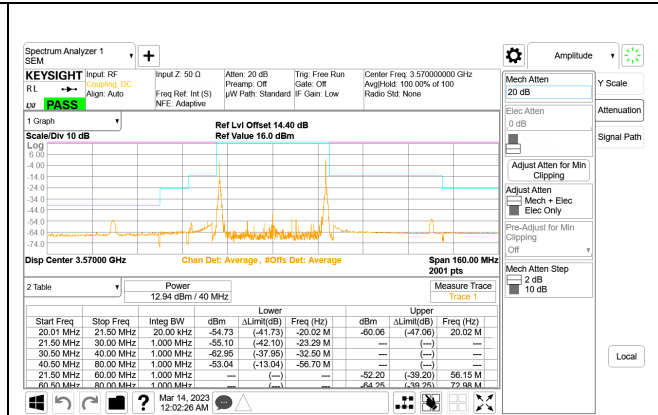
(ii) Except as otherwise specified in paragraph (e)(2) of this section, for channel and frequency assignments made by a CBSD to End User Devices, the conducted power of any End User Device emission outside the fundamental emission (whether in or outside of the authorized band) shall not exceed -13 dBm/MHz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

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

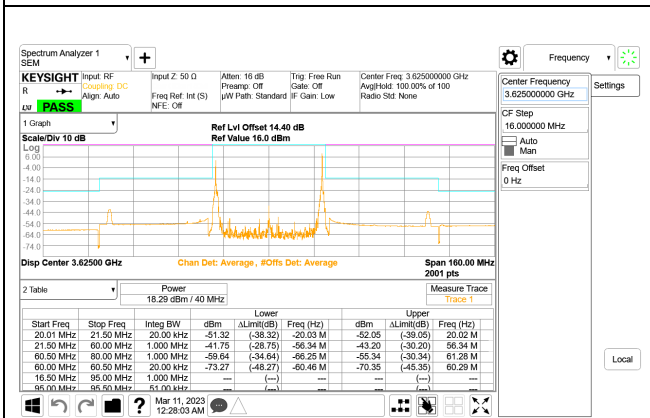
LTE BAND 48 EMISSION MASK



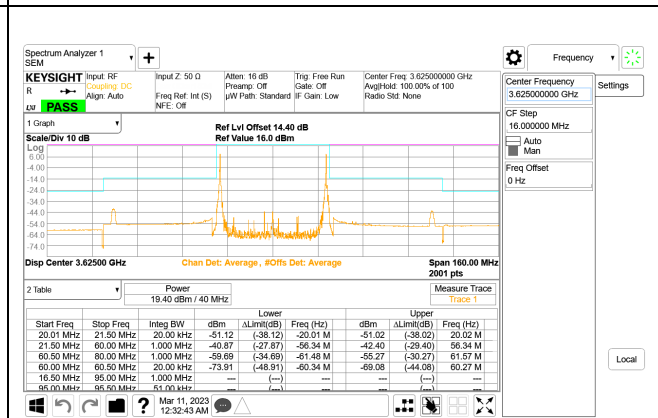
LTE B48 20MHz + 20MHz QPSK Low Ch RB1-0 + RB1-99, ID:39004



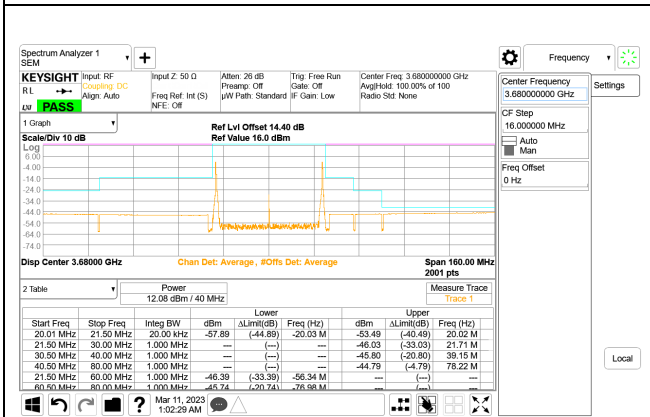
LTE B48 20MHz + 20MHz 16QAM Low Ch RB1-0 + RB1-99, ID:39004



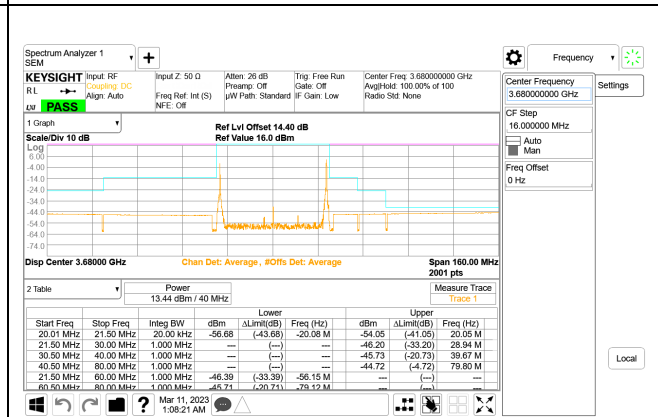
LTE B48 20MHz + 20MHz QPSK Mid Ch RB1-0 + RB1-99, ID:39004



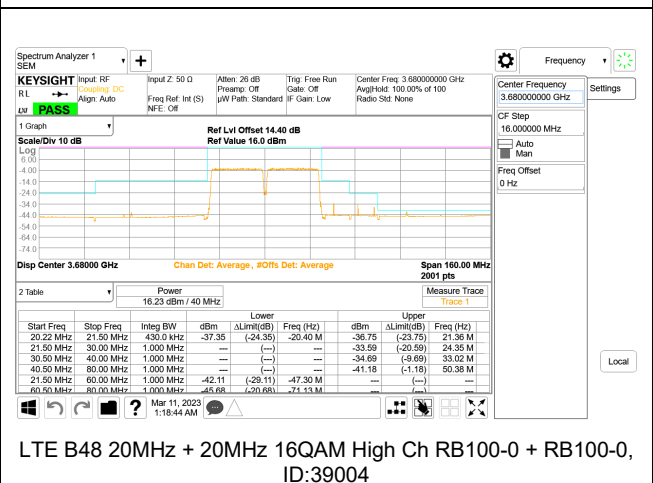
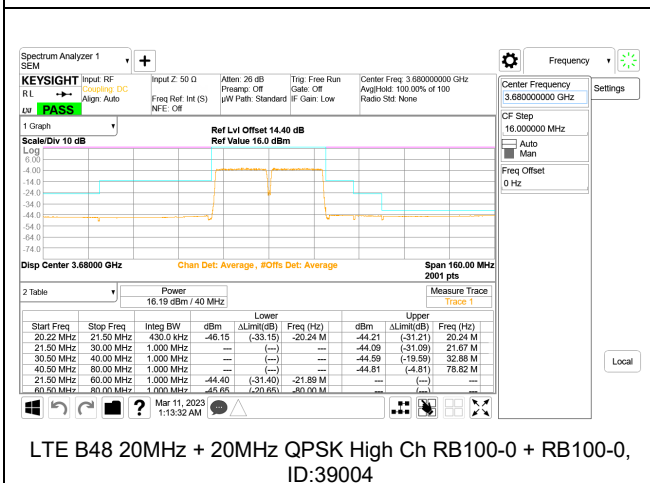
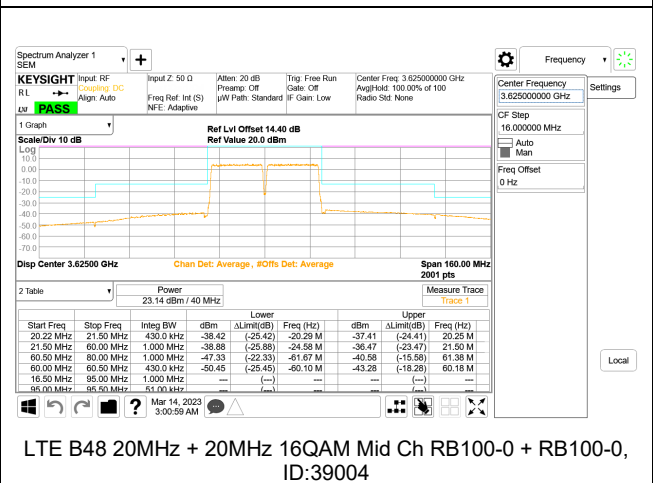
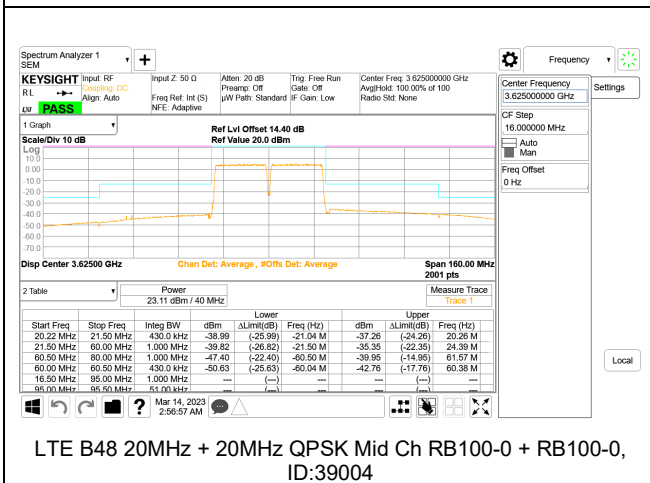
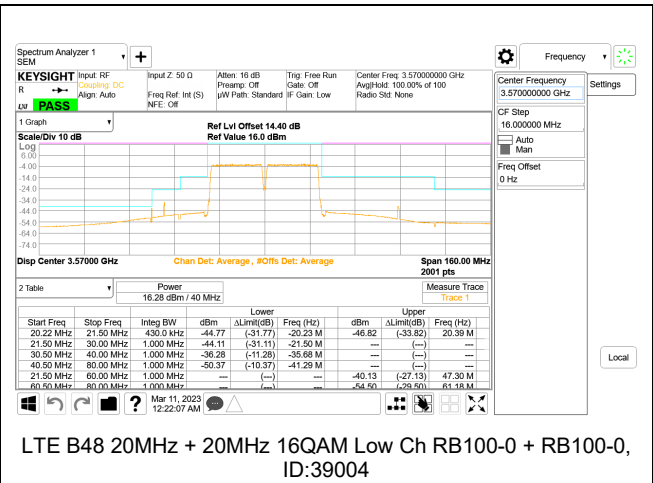
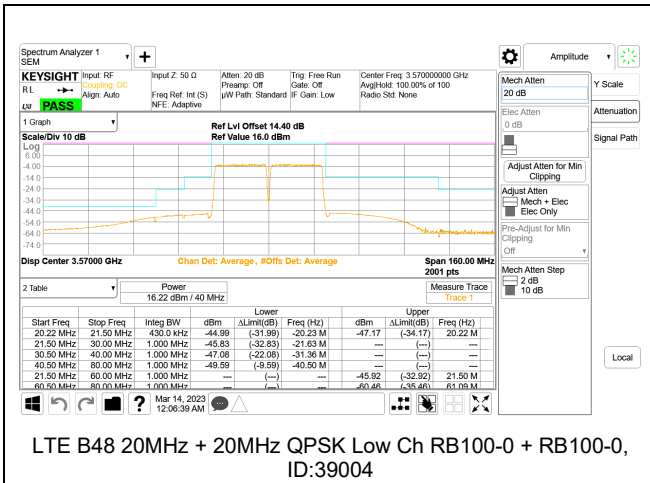
LTE B48 20MHz + 20MHz 16QAM Mid Ch RB1-0 + RB1-99, ID:39004



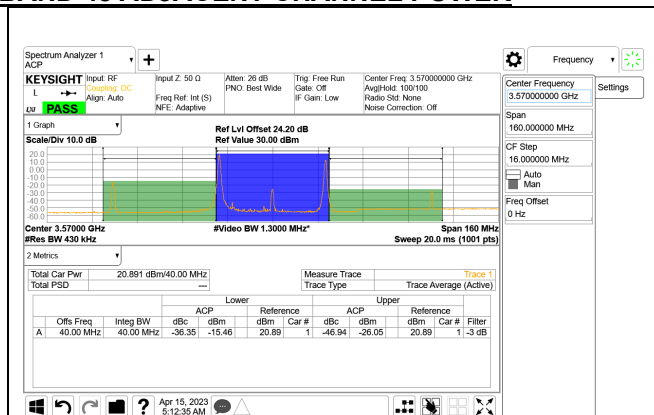
LTE B48 20MHz + 20MHz QPSK High Ch RB1-0 + RB1-99, ID:39004



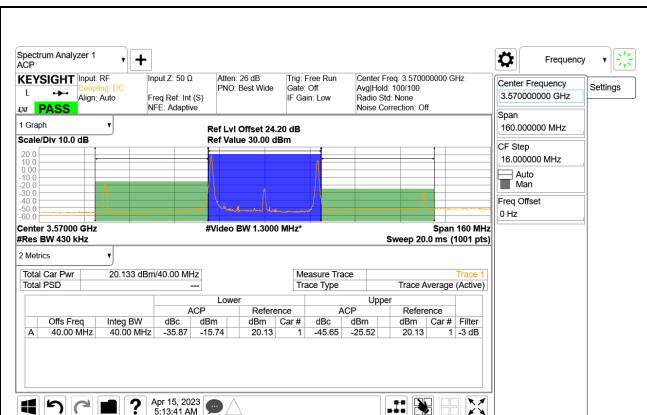
LTE B48 20MHz + 20MHz 16QAM High Ch RB1-0 + RB1-99, ID:39004



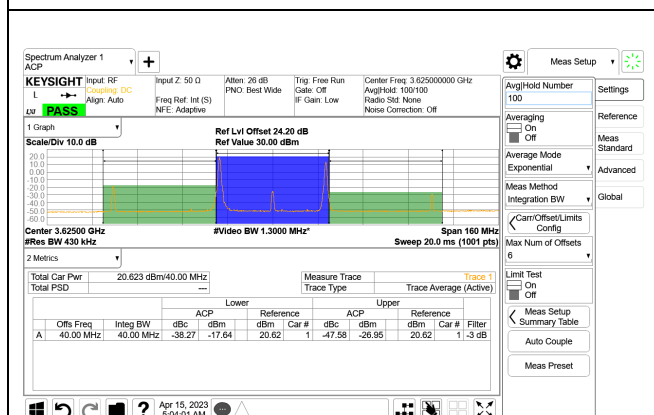
LTE BAND 48 ADJACENT CHANNEL POWER



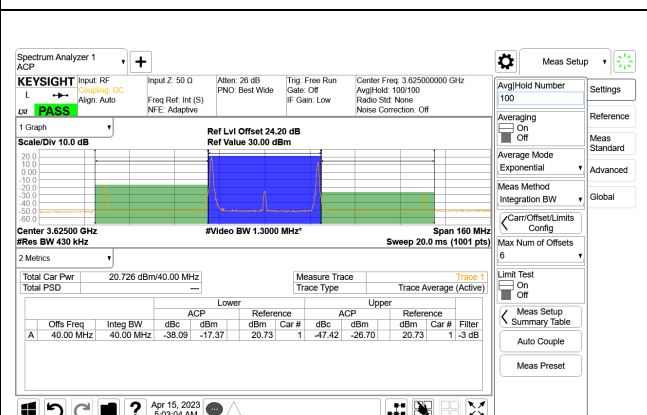
LTE B48 20MHz + 20MHz QPSK Low Ch RB1-0 + RB1-99, ID:39004



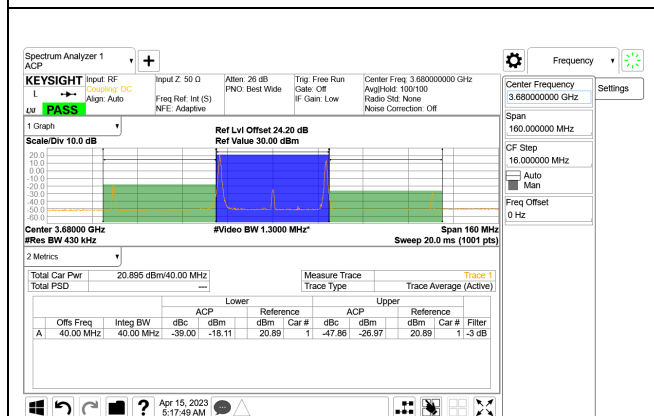
LTE B48 20MHz + 20MHz 16QAM Low Ch RB1-0 + RB1-99, ID:39004



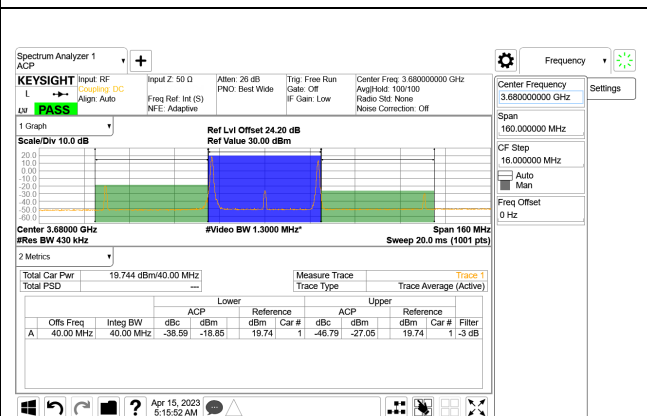
LTE B48 20MHz + 20MHz QPSK Mid Ch RB1-0 + RB1-99, ID:39004



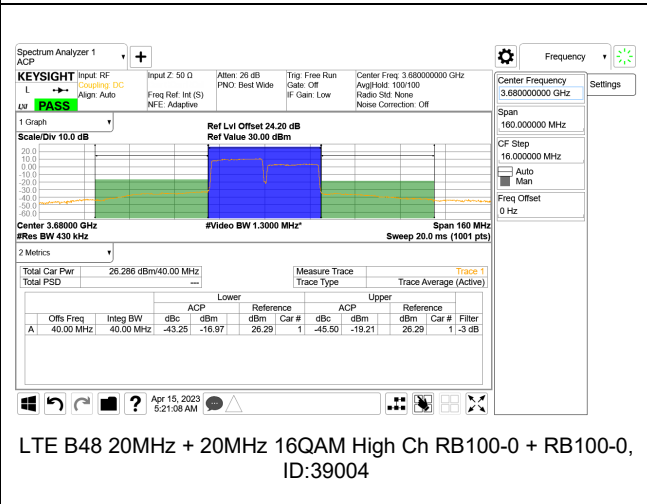
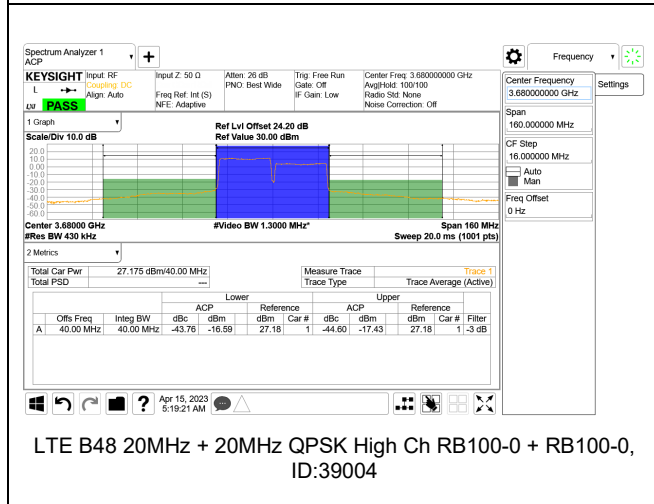
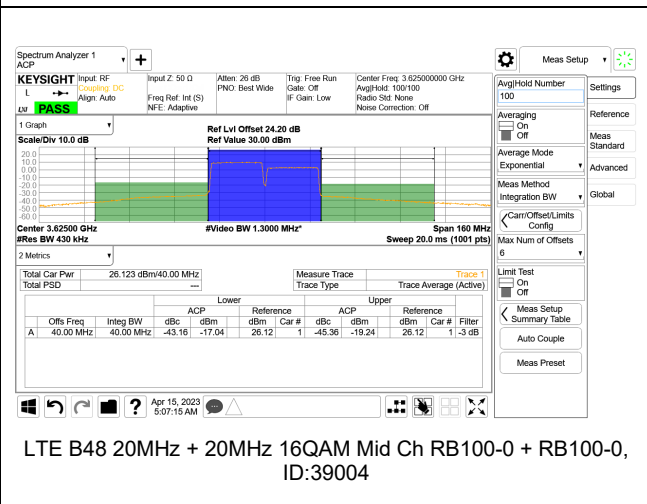
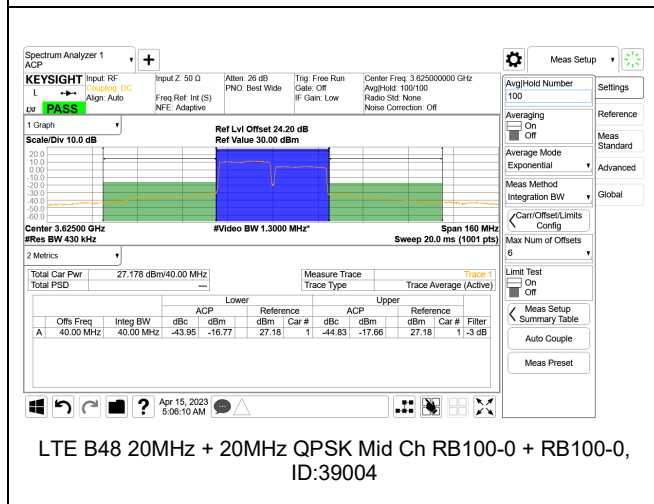
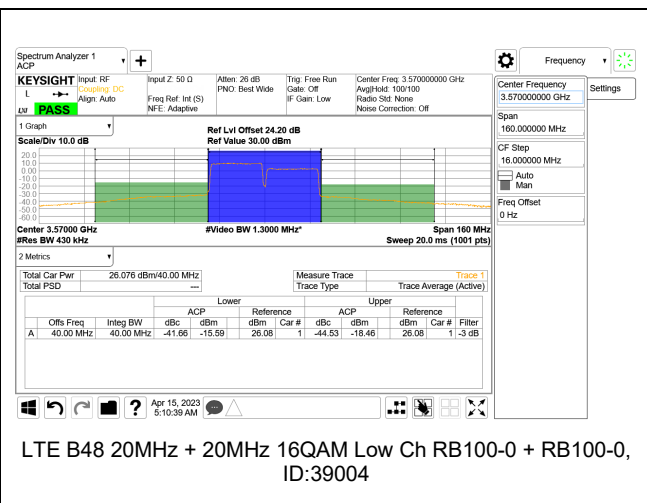
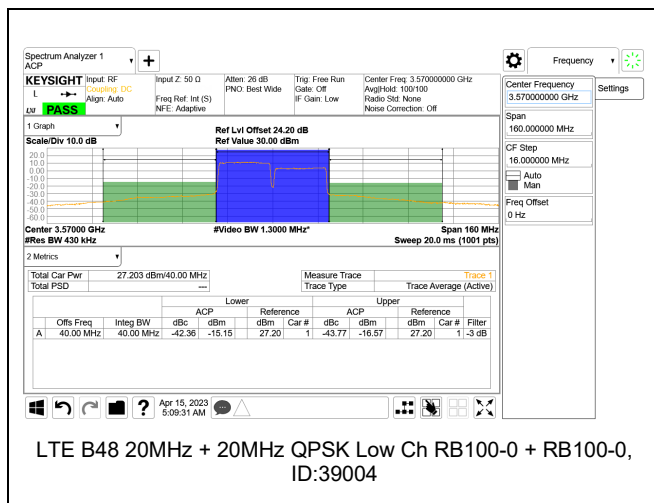
LTE B48 20MHz + 20MHz 16QAM Mid Ch RB1-0 + RB1-99, ID:39004



LTE B48 20MHz + 20MHz QPSK High Ch RB1-0 + RB1-99, ID:39004



LTE B48 20MHz + 20MHz 16QAM High Ch RB1-0 + RB1-99, ID:39004



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

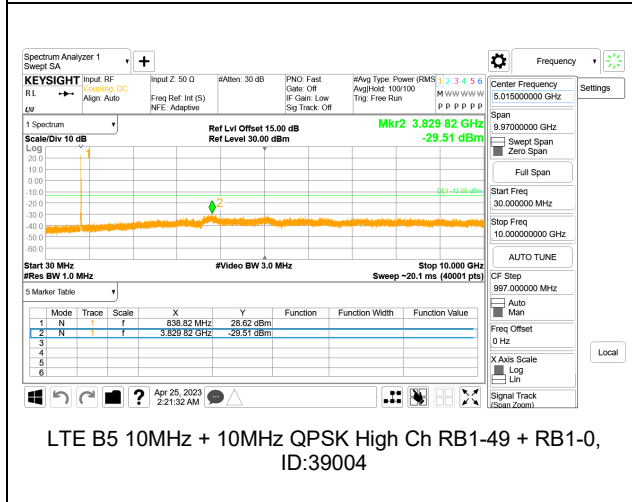
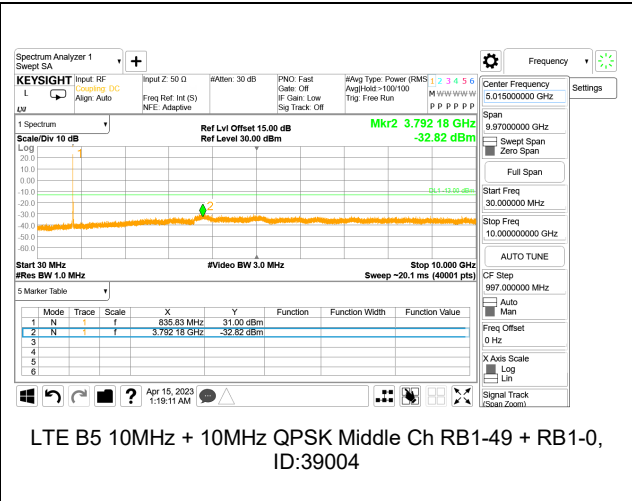
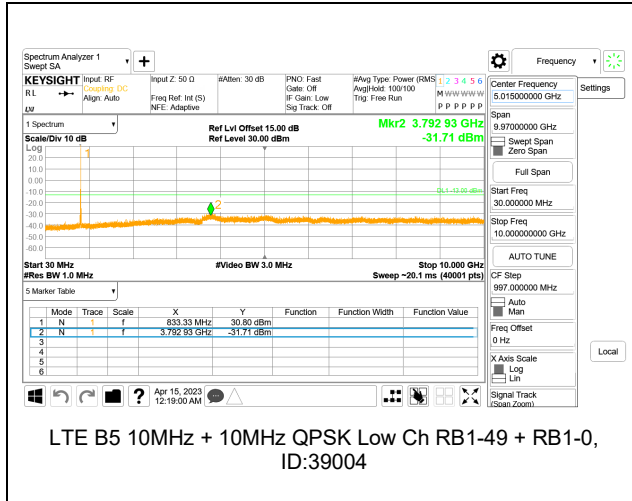
Both maximum + maximum bandwidth combinations of QPSK and 16QAM modes are tested, QPSK results are reported as worst case.

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.



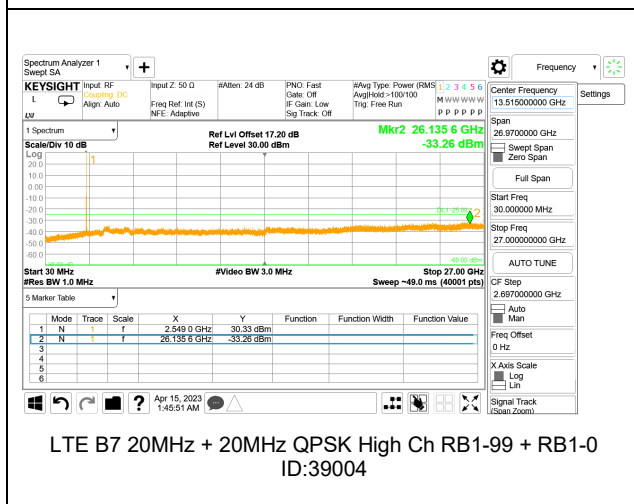
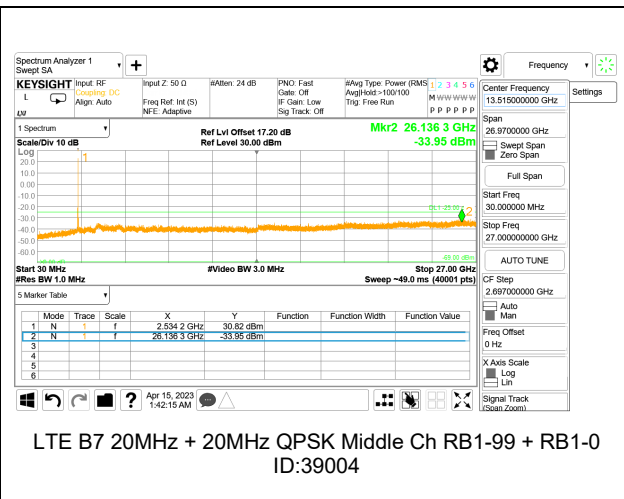
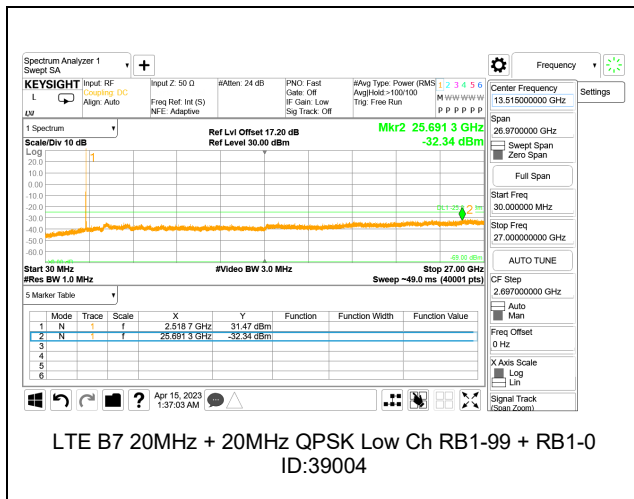
Intentionally Blank

9.3.2. LTE BAND 7

LIMITS

FCC: §27.53 (m)

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



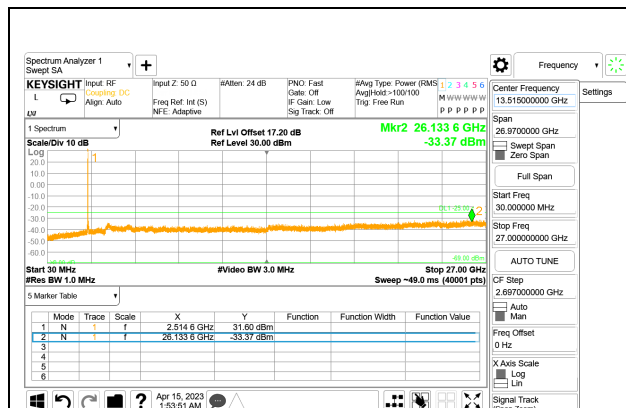
Intentionally Blank

9.3.3. LTE BAND 41

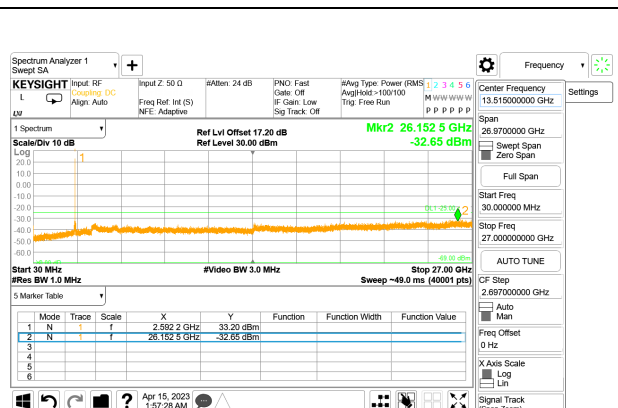
LIMITS

FCC: §27.53 (m)

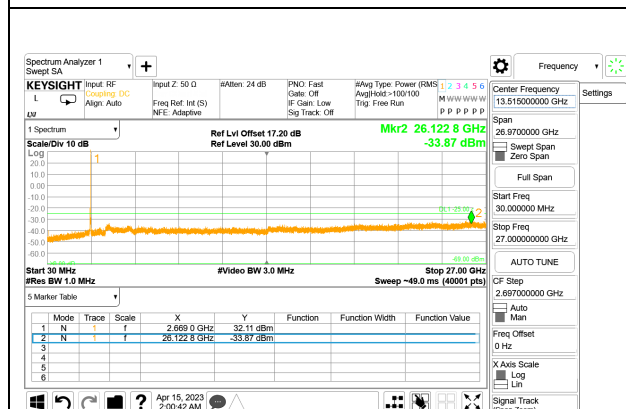
The minimum permissible attenuation level of any spurious emissions is $55 + 10 \log (P)$ dB where transmitting power (P) in Watts.



LTE B41 20MHz + 20MHz QPSK Low Ch RB1-99 + RB1-0 ID:39004



LTE B41 20MHz + 20MHz QPSK Middle Ch RB1-99 + RB1-0 ID:39004



LTE B41 20MHz + 20MHz QPSK High Ch RB1-99 + RB1-0 ID:39004

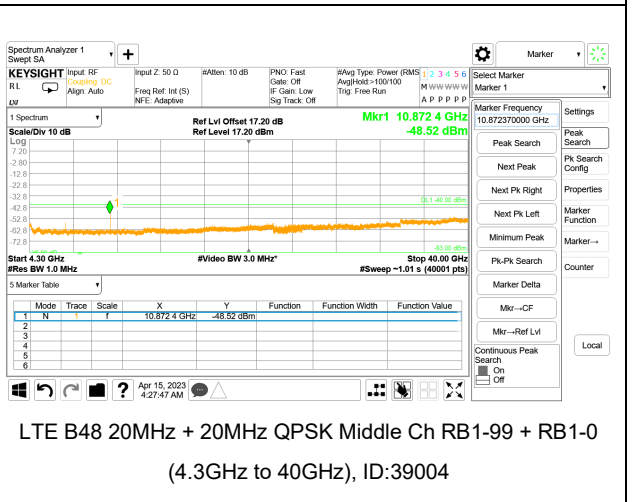
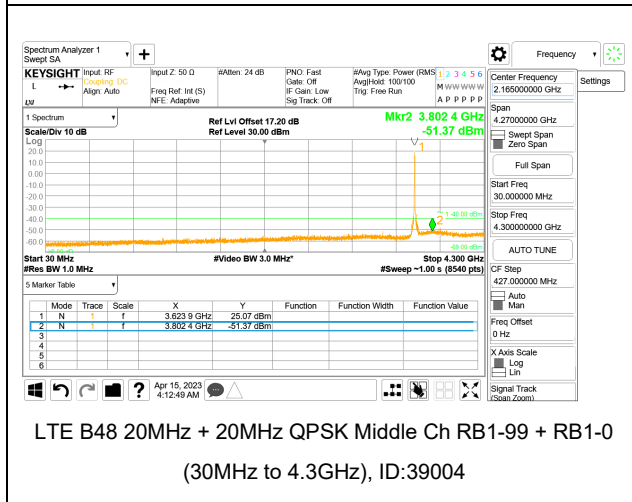
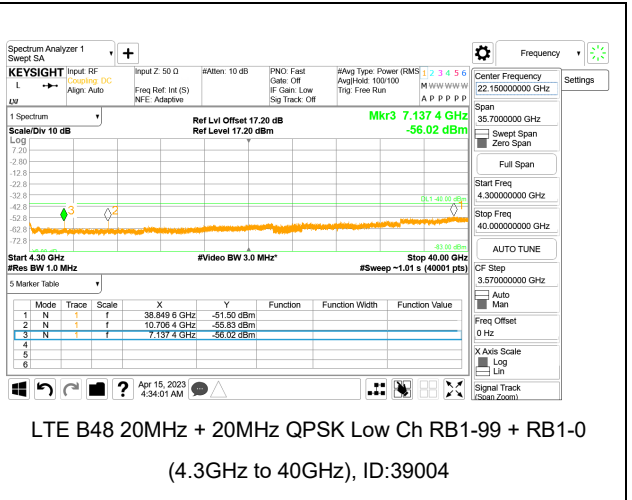
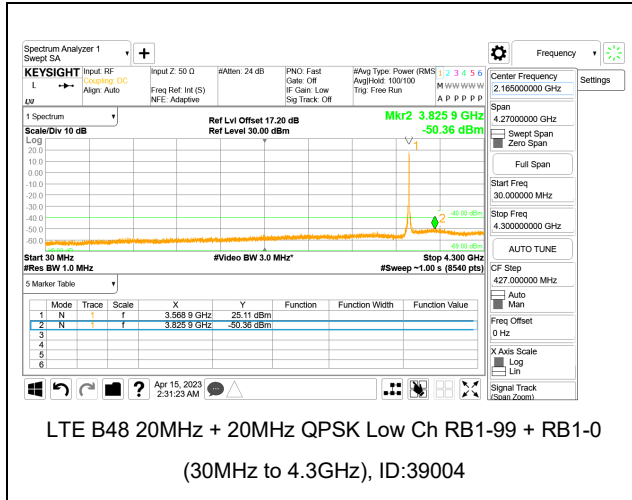
9.3.4. LTE BAND 48

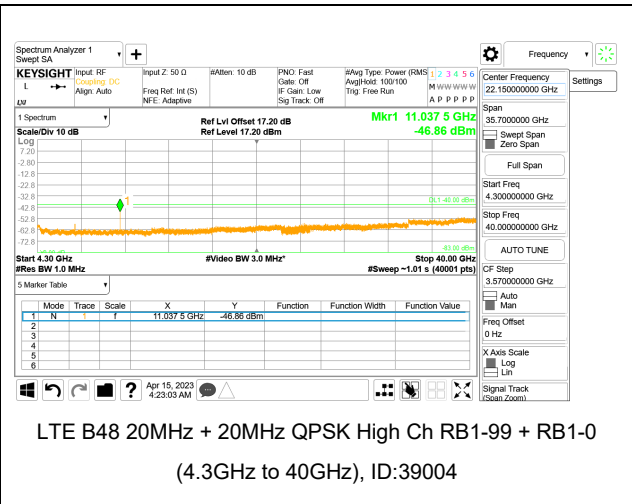
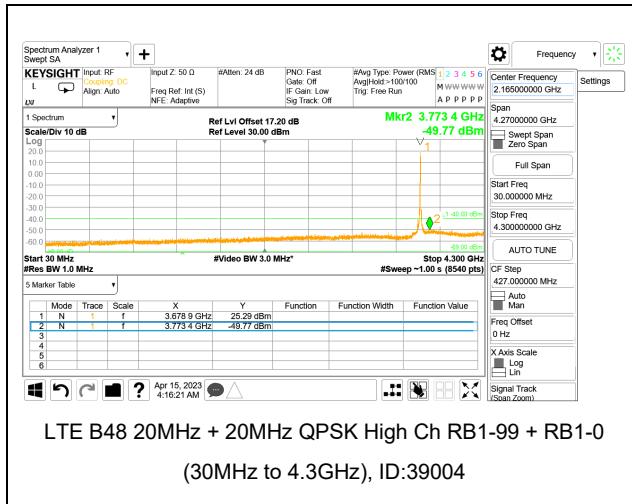
LIMITS

FCC: §96.14

(e) 3.5 GHz Emissions and Interference Limits—

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





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, 3.80VDC and High voltage, 4.37VDC.
End Voltage, 2.90VDC.

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.

Test Engineer ID:	39004	Test Date:	5/9/2023
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QPSK (10MHz + 10MHz BANDWIDTH)

Band		5		Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		824	849	2.5	Within Authorized Frequency Block (Hz)			
Temperature	Voltage	Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)					
Normal (20°C)	Normal	824.5598	848.8142					
Extreme (50°C)		824.5598	848.8142	20.5	0.025	Yes		
Extreme (40°C)		824.5598	848.8142	23.0	0.027	Yes		
Extreme (30°C)		824.5598	848.8142	7.5	0.009	Yes		
Extreme (10°C)		824.5598	848.8142	-17.0	-0.020	Yes		
Extreme (0°C)		824.5598	848.8142	-19.5	-0.023	Yes		
Extreme (-10°C)		824.5598	848.8142	-16.7	-0.020	Yes		
Extreme (-20°C)		824.5598	848.8142	-28.0	-0.033	Yes		
Extreme (-30°C)		824.5598	848.8142	-31.0	-0.037	Yes		
20°C		15%	824.5598	848.8142	13.0	0.016	Yes	
	-15%	824.5598	848.8142	20.5	0.025	Yes		
	End Point Voltage	824.5598	848.8142	-31.0	-0.037	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:	5/9/2023
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QPSK (20MHz + 20MHz BANDWIDTH)

Band	7	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		2500	2570		Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)
Temperature	Voltage	Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)			
Normal (20°C)	Normal	2501.1471	2568.8795			
Extreme (50°C)		2501.1471	2568.8795	22.0	0.009	Yes
Extreme (40°C)		2501.1471	2568.8795	43.0	0.017	Yes
Extreme (30°C)		2501.1471	2568.8795	39.0	0.015	Yes
Extreme (10°C)		2501.1471	2568.8795	-39.0	-0.015	Yes
Extreme (0°C)		2501.1471	2568.8795	-33.5	-0.013	Yes
Extreme (-10°C)		2501.1471	2568.8795	-39.0	-0.015	Yes
Extreme (-20°C)		2501.1471	2568.8795	-58.5	-0.023	Yes
Extreme (-30°C)		2501.1471	2568.8795	-65.0	-0.026	Yes
20°C		15%	2501.1471	2568.8795	17.5	0.007
	-15%	2501.1471	2568.8795	4.0	0.002	Yes
	End Point Voltage	2501.1471	2568.8795	-25.0	-0.010	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:	39004	Test Date:	5/9/2023
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QPSK (20MHz + 20MHz BANDWIDTH)

Band		41		Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		2496	2690	0	Within Authorized Frequency Block (Hz)			
Temperature	Voltage	Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)					
Normal (20°C)	Normal	2497.0631	2689.2133					
Extreme (50°C)		2497.0631	2689.2133	-45.0	-0.017	Yes		
Extreme (40°C)		2497.0631	2689.2133	-33.0	-0.013	Yes		
Extreme (30°C)		2497.0631	2689.2133	-25.0	-0.010	Yes		
Extreme (10°C)		2497.0631	2689.2133	-24.0	-0.009	Yes		
Extreme (0°C)		2497.0631	2689.2133	-37.0	-0.014	Yes		
Extreme (-10°C)		2497.0631	2689.2133	-48.7	-0.019	Yes		
Extreme (-20°C)		2497.0631	2689.2133	-57.0	-0.022	Yes		
Extreme (-30°C)		2497.0631	2689.2133	-68.0	-0.026	Yes		
20°C	15%	2497.0631	2689.2133	-66.0	-0.025	Yes		
	-15%	2497.0631	2689.2133	-12.0	-0.005	Yes		
	End Point Voltage	2497.0631	2689.2133	-58.0	-0.022	Yes		

9.4.4. LTE BAND 48

Test Engineer ID:	39004	Test Date:	5/9/2023
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QPSK (20MHz + 20MHz BANDWIDTH)

Band	48		Frequency Range		Frequency Error Reading (Hz)	Limit	
	Condition		3550	3700		Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)
Temperature	Voltage		Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)			
Normal (20°C)	Normal		3550.9685	3699.0745			
Extreme (50°C)			3550.9685	3699.0745	45.2	0.012	Yes
Extreme (40°C)			3550.9685	3699.0745	43.5	0.012	Yes
Extreme (30°C)			3550.9685	3699.0745	36.0	0.010	Yes
Extreme (10°C)			3550.9685	3699.0745	43.0	0.012	Yes
Extreme (0°C)			3550.9685	3699.0745	24.5	0.007	Yes
Extreme (-10°C)			3550.9685	3699.0745	5.0	0.001	Yes
Extreme (-20°C)			3550.9685	3699.0745	-34.0	-0.009	Yes
Extreme (-30°C)			3550.9685	3699.0745	-56.0	-0.015	Yes
20°C	15%		3550.9685	3699.0745	44.5	0.012	Yes
	-15%		3550.9685	3699.0745	30.0	0.008	Yes
	End Point Voltage		3550.9685	3699.0745	-55.0	-0.015	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:	4/25/2023
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Band	Bandwidth (MHz)	PCC f (MHz)	SCC1 f (MHz)	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
					Peak	Average	
Band 5	3MHz / 5MHz	834.0	837.9	QPSK	31.21	25.08	6.13
				16QAM	31.16	24.54	6.62
	5 MHz / 3MHz	835.0	838.9	QPSK	30.95	24.98	5.97
				16QAM	30.97	24.37	6.60
	5MHz / 10MHz	831.6	838.8	QPSK	33.12	24.77	8.35
				16QAM	33.16	23.85	9.31
	10MHz / 5MHz	834.3	841.5	QPSK	33.22	24.83	8.39
				16QAM	33.13	23.81	9.32
	10MHz / 10MHz	831.5	841.4	QPSK	33.28	24.81	8.47
				16QAM	33.16	23.82	9.34
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:	4/25/2023
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Band	Bandwidth (MHz)	PCC f (MHz)	SCC1 f (MHz)	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)	
					Peak	Average		
Band 7	10MHz / 20MHz	2525.6	2540.0	QPSK	33.24	24.80	8.44	
				16QAM	30.39	23.79	6.60	
	20MHz / 10MHz	2530.1	2544.5	QPSK	33.28	24.78	8.50	
				16QAM	33.27	23.79	9.48	
	15 MHz / 15MHz	2527.5	2542.5	QPSK	33.31	24.78	8.53	
				16QAM	33.18	23.79	9.39	
	15MHz / 20MHz	2525.3	2542.4	QPSK	33.32	24.79	8.53	
				16QAM	33.18	23.80	9.38	
	20MHz / 15MHz	2527.6	2544.7	QPSK	33.28	24.78	8.50	
				16QAM	33.26	23.79	9.47	
	20MHz / 20MHz	2525.1	2544.9	QPSK	33.24	24.79	8.45	
				16QAM	33.28	23.79	9.49	
	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:	4/25/2023
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Band	Bandwidth (MHz)	PCC f (MHz)	SCC1 f (MHz)	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
					Peak	Average	
Band 41 (FCC)	5MHz / 20MHz	2583.8	2595.5	QPSK	32.95	21.78	4.17
				16QAM	33.01	20.78	5.23
	20MHz / 5MHz	2590.5	2602.2	QPSK	32.70	21.98	3.72
				16QAM	32.74	20.97	4.77
	10MHz / 20MHz	2583.6	2598.0	QPSK	32.99	21.75	4.24
				16QAM	33.00	20.79	5.21
	20MHz / 10MHz	2588.1	2602.5	QPSK	32.78	21.9	3.88
				16QAM	32.78	20.94	4.84
	15MHz / 15MHz	2585.5	2600.5	QPSK	33.02	21.18	4.84
				16QAM	33.02	20.80	5.22
	15MHz / 20MHz	2583.3	2600.4	QPSK	33.00	21.81	4.19
				16QAM	33.03	20.80	5.23
	20MHz / 15MHz	2585.6	2602.7	QPSK	32.88	21.80	4.08
				16QAM	32.82	20.88	4.94
	20MHz / 20MHz	2583.1	2602.9	QPSK	32.91	20.76	5.15
				16QAM	32.98	20.78	5.20
Duty Cycle Correction Factor (dB) =			7.00				
Peak-to-Average Power Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor							

9.5.4. LTE BAND 48

Test Engineer ID:	39004	Test Date:	4/25/2023
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Band	Bandwidth (MHz)	PCC f (MHz)	SCC1 f (MHz)	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)	
					Peak	Average		
Band 41 (FCC)	5MHz / 20MHz	3615.8	3627.5	QPSK	30.13	18.06	5.07	
				16QAM	30.14	17.05	6.09	
	20MHz / 5MHz	3622.5	3634.2	QPSK	30.25	18.14	5.11	
				16QAM	30.24	17.15	6.09	
	10MHz / 20MHz	3615.6	3630.0	QPSK	30.16	18.05	5.11	
				16QAM	30.12	17.05	6.07	
	20MHz / 10MHz	3620.1	3634.5	QPSK	30.24	18.16	5.08	
				16QAM	30.25	17.15	6.10	
	15MHz / 20MHz	3615.3	3632.4	QPSK	30.16	18.04	5.12	
				16QAM	30.13	17.06	6.07	
	20MHz / 15MHz	3617.6	3634.7	QPSK	30.25	18.11	5.14	
				16QAM	30.23	17.14	6.09	
	20MHz / 20MHz	3615.1	3634.9	QPSK	30.28	18.08	5.20	
				16QAM	30.21	17.12	6.09	
	Duty Cycle Correction Factor (dB) =			7.00				
	Peak-to-Average Power Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor							

10. RADIATED TEST RESULTS

10.1. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 1

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.

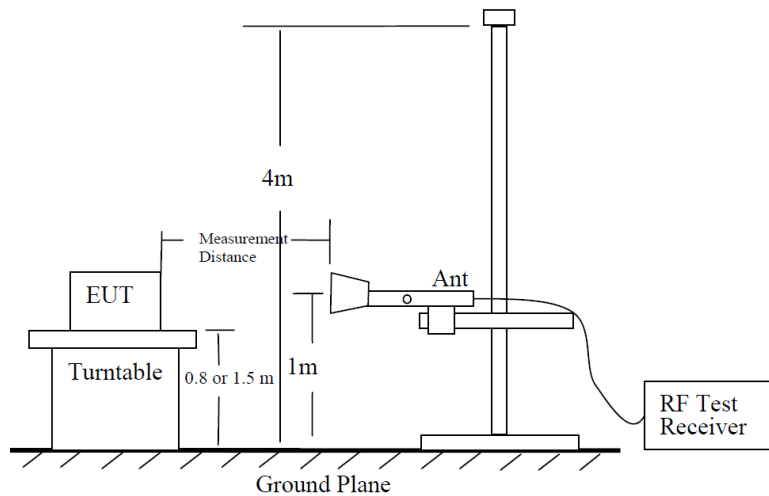


Figure 6—Test site-up for radiated ERP and/or EIRP measurements

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.

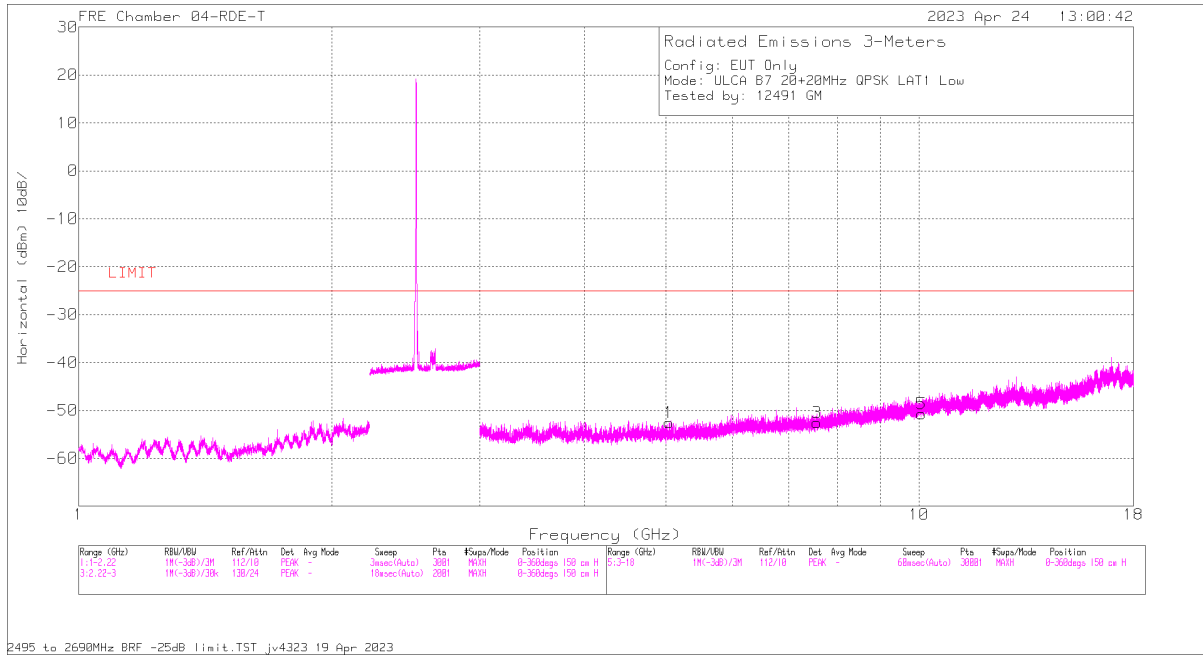
So, from d)

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

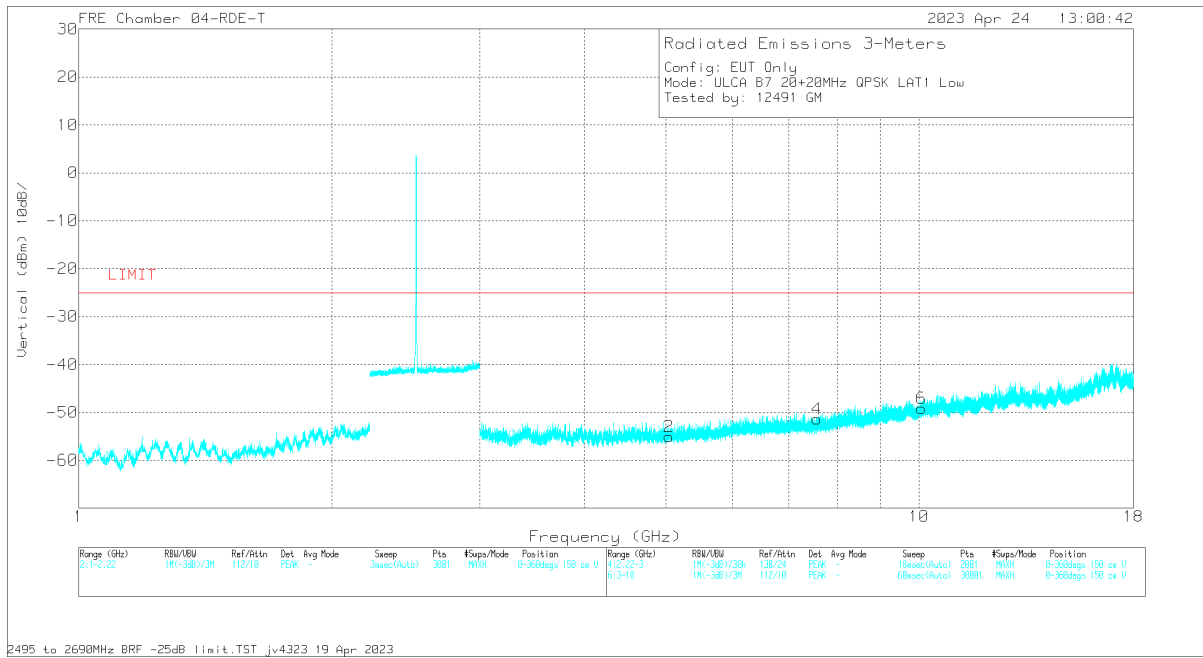
Then, $\text{EIRP (dBm)} = E \text{ (dB}\mu\text{V/m)} + 9.5424 - 104.8 = E \text{ (dB}\mu\text{V/m)} - 95.2576$

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	226673 ACF (dB) 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.037975	55.13	Pk	34	-95.2	-45.81	-51.88	-25	-26.88	111	320	H
3	* 7.562256	53.97	Pk	35.8	-95.2	-42.89	-48.32	-25	-23.32	72	129	H
2	* 5.038811	54.8	Pk	34	-95.2	-45.83	-52.23	-25	-27.23	42	102	V
4	* 7.556628	52.84	Pk	35.8	-95.2	-42.81	-49.37	-25	-24.37	40	167	V
5	10.079246	52.94	Pk	37.2	-95.2	-42.18	-47.24	-25	-22.24	277	223	H
6	10.081018	52.76	Pk	37.2	-95.2	-42.19	-47.43	-25	-22.43	67	390	V

Pk - Peak detector

10.2. Radiated Emissions

TEST PROCEDURE

KDB 971168 D01 v03r01 / D02 v02r02

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

RESULTS

10.2.1. LTE BAND 5

LIMIT

FCC: §22.917(a)

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

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

Project #:	4790592295
Date:	4/21/2023
Test Engineer:	12491
Configuration:	EUT Only
Mode	LTE CA Band 5 10+10MHz QPSK
Chamber #:	04-RDE-T

Frequency (GHz)	Meter Reading (dBm)	Det	80402 ACF(dB) - 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 829MHz + 838.9MHz									
* 1.667813	57.29	Pk	28.6	-95.2	-46.8	-56.11	-13	-43.11	H
* 1.66832	60.94	Pk	28.6	-95.2	-46.81	-52.47	-13	-39.47	V
2.501303	56.84	Pk	32.3	-95.2	-46.23	-52.29	-13	-39.29	H
2.501030	56.76	Pk	32.3	-95.2	-46.25	-52.39	-13	-39.39	V
3.302382	54.78	Pk	32.7	-95.2	-44.07	-51.79	-13	-38.79	H
3.306252	54.74	Pk	32.7	-95.2	-44.25	-52.01	-13	-39.01	V
Mid Channel, 831.6MHz + 841.5MHz									
* 1.672117	58.17	Pk	28.7	-95.2	-46.59	-54.92	-13	-41.92	H
* 1.673245	61.79	Pk	28.7	-95.2	-46.63	-51.34	-13	-38.34	V
* 3.348433	54.92	Pk	32.7	-95.2	-43.93	-51.51	-13	-38.51	H
* 3.350502	55	Pk	32.7	-95.2	-44.01	-51.51	-13	-38.51	V
2.509541	59.69	Pk	32.3	-95.2	-46.26	-49.47	-13	-36.47	H
2.509245	57.72	Pk	32.3	-95.2	-46.28	-51.46	-13	-38.46	V
High Channel, 834.1MHz + 844MHz									
* 1.678226	59.1	Pk	28.8	-95.2	-46.74	-54.04	-13	-41.04	H
* 1.677723	65.26	Pk	28.7	-95.2	-46.77	-48.01	-13	-35.01	V
* 3.354157	55.51	Pk	32.7	-95.2	-43.91	-50.90	-13	-37.90	H
* 3.35784	54.68	Pk	32.7	-95.2	-43.85	-51.67	-13	-38.67	V
2.516852	62.11	Pk	32.3	-95.2	-46.36	-47.15	-13	-34.15	H
2.517123	57.19	Pk	32.3	-95.2	-46.36	-52.07	-13	-39.07	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

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 #:	4790592295
Date:	4/24/2023
Test Engineer:	12491
Configuration:	EUT only
Mode	LTE Band 7 QPSK 20MHz + 20MHz
Chamber #:	04-RDE-T

Frequency (GHz)	Meter Reading (dBuV)	Det	80402 ACF(dB) - 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2510MHz+2529.8MHz									
* 5.037975	55.13	Pk	34	-95.2	-45.81	-51.88	-25	-26.88	H
* 5.038811	54.8	Pk	34	-95.2	-45.83	-52.23	-25	-27.23	V
* 7.562256	53.97	Pk	35.8	-95.2	-42.89	-48.32	-25	-23.32	H
* 7.556628	52.84	Pk	35.8	-95.2	-42.81	-49.37	-25	-24.37	V
10.079246	52.94	Pk	37.2	-95.2	-42.18	-47.24	-25	-22.24	H
10.081018	52.76	Pk	37.2	-95.2	-42.19	-47.43	-25	-22.43	V
Mid Channel, 2525.1MHz+2544.9MHz									
* 5.073915	55.09	Pk	34.1	-95.2	-45.62	-51.63	-25	-26.63	H
* 5.068057	55.76	Pk	34.1	-95.2	-45.61	-50.95	-25	-25.95	V
* 7.606218	52.53	Pk	35.8	-95.2	-42.81	-49.68	-25	-24.68	H
* 7.606025	54.35	Pk	35.8	-95.2	-42.81	-47.86	-25	-22.86	V
10.140154	53.15	Pk	37.2	-95.2	-42.08	-46.93	-25	-21.93	H
10.138496	53.3	Pk	37.2	-95.2	-42.09	-46.79	-25	-21.79	V
High Channel, 2540.2MHz+2560MHz									
* 5.111146	55.19	Pk	34.1	-95.2	-45.48	-51.39	-25	-26.39	H
* 5.111155	54.72	Pk	34.1	-95.2	-45.47	-51.85	-25	-26.85	V
* 7.559923	52.63	Pk	35.8	-95.2	-42.87	-49.64	-25	-24.64	H
* 7.560222	52.08	Pk	35.8	-95.2	-42.88	-50.20	-25	-25.20	V
10.200292	53.58	Pk	37.3	-95.2	-41.83	-46.15	-25	-21.15	H
10.199823	52.6	Pk	37.3	-95.2	-41.84	-47.14	-25	-22.14	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

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 #:	4790592295
Date:	07/11/2023
Test Engineer:	26120
Configuration:	EUT only
Mode	LTE Band 41 QPSK 20MHz + 20MHz
Chamber #:	01-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	200786 ACF (dB/m)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2506MHz + 2525.8MHz										
5.012344	36.53	Pk	34.5	.8	-95.2	-30.84	-54.21	-25	-29.21	H
5.011875	36.18	Pk	34.5	.8	-95.2	-30.86	-54.58	-25	-29.58	V
7.517813	32.53	Pk	35.9	.3	-95.2	-26.87	-53.34	-25	-28.34	H
7.518281	32.97	Pk	35.9	.3	-95.2	-26.86	-52.89	-25	-27.89	V
10.024219	33.11	Pk	37.4	.6	-95.2	-24.98	-49.07	-25	-24.07	H
10.024219	31.6	Pk	37.4	.6	-95.2	-24.98	-50.58	-25	-25.58	V
Mid Channel, 2583.1MHz + 2602.9MHz										
5.166094	37.79	Pk	34.7	.7	-95.2	-30.49	-52.50	-25	-27.50	H
5.166094	35.29	Pk	34.7	.7	-95.2	-30.49	-55.00	-25	-30.00	V
7.749844	32.53	Pk	35.9	.3	-95.2	-26.96	-53.43	-25	-28.43	H
7.749375	33.61	Pk	35.9	.3	-95.2	-26.99	-52.38	-25	-27.38	V
10.332188	33.59	Pk	37.6	.6	-95.2	-25.06	-48.47	-25	-23.47	H
10.332188	33.15	Pk	37.6	.6	-95.2	-25.06	-48.91	-25	-23.91	V
High Channel, 2660.2MHz + 2680MHz										
5.320313	35.88	Pk	34.7	.8	-95.2	-30.37	-54.19	-25	-29.19	H
5.320313	35.71	Pk	34.7	.8	-95.2	-30.37	-54.36	-25	-29.36	V
7.980938	33.44	Pk	36	.3	-95.2	-26.68	-52.14	-25	-27.14	H
7.981406	34.21	Pk	36	.3	-95.2	-26.68	-51.37	-25	-26.37	V
10.640625	32.71	Pk	37.8	.5	-95.2	-24.63	-48.82	-25	-23.82	H
10.640625	32.98	Pk	37.8	.5	-95.2	-24.63	-48.55	-25	-23.55	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

10.3. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 2

TEST PROCEDURE

KDB 971168 D01 v03r01 / D02 v02r02

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

RESULTS

10.3.1. LTE BAND 5

LIMIT

FCC: §22.917(a)

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

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

Project #:	4790592295
Date:	5/15/2023
Test Engineer:	25019
Configuration:	EUT Only
Mode	LTE CA Band 5 10+10MHz QPSK
Chamber #:	04-RDE-P

Frequency (GHz)	Meter Reading (dBm)	Det	222740 ACF(dB) - 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 829MHz + 838.9MHz									
1.670017	59.29	Pk	28.8	-95.2	-48.94	-56.05	-13	-43.05	H
1.666636	58.56	Pk	28.8	-95.2	-48.95	-56.79	-13	-43.79	V
2.502307	59.14	Pk	32.1	-95.2	-49.53	-53.49	-13	-40.49	H
2.500418	58.8	Pk	32.1	-95.2	-49.47	-53.77	-13	-40.77	V
3.338092	56.78	Pk	32.8	-95.2	-46.86	-52.48	-13	-39.48	H
3.336258	56.48	Pk	32.8	-95.2	-46.78	-52.70	-13	-39.70	V
Mid Channel, 831.6MHz + 841.5MHz									
1.674520	58.47	Pk	28.9	-95.2	-48.89	-56.72	-13	-43.72	V
1.675158	58.58	Pk	28.9	-95.2	-48.89	-56.61	-13	-43.61	H
2.510175	59.49	Pk	32.1	-95.2	-49.50	-53.11	-13	-40.11	V
2.513157	60.15	Pk	32.1	-95.2	-49.39	-52.34	-13	-39.34	H
3.347849	56.32	Pk	32.8	-95.2	-46.85	-52.93	-13	-39.93	V
3.349973	55.85	Pk	32.8	-95.2	-46.68	-53.23	-13	-40.23	H
High Channel, 834.1MHz + 844MHz									
1.677344	58.82	Pk	28.9	-95.2	-48.92	-56.40	-13	-43.40	H
1.677496	58.79	Pk	28.9	-95.2	-48.93	-56.44	-13	-43.44	V
2.516457	59.74	Pk	32.1	-95.2	-49.48	-52.84	-13	-39.84	H
2.517771	59.56	Pk	32.1	-95.2	-49.55	-53.09	-13	-40.09	V
3.356522	57	Pk	32.8	-95.2	-46.64	-52.04	-13	-39.04	H
3.355034	57.16	Pk	32.8	-95.2	-46.72	-51.96	-13	-38.96	V

10.3.2. LTE BAND 7

LIMIT

FCC: §27.53 (m)

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

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

Project #:	4790592295
Date:	5/18/2023
Test Engineer:	32186
Configuration:	EUT only
Mode	LTE Band 7 QPSK 20MHz + 20MHz
Chamber #:	04-RDE-Q

Frequency (GHz)	Meter Reading (dBuV)	Det	84796ACF(dB) - 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2510MHz+2529.8MHz									
4.991503	54.75	Pk	34.3	-95.2	-46.64	-52.79	-25	-27.79	H
4.992909	55.52	Pk	34.3	-95.2	-46.56	-51.94	-25	-26.94	V
7.490301	53.37	Pk	35.5	-95.2	-45.01	-51.34	-25	-26.34	H
7.487175	54.6	Pk	35.5	-95.2	-45.04	-50.14	-25	-25.14	V
9.985217	55.49	Pk	37.1	-95.2	-44.12	-46.73	-25	-21.73	H
9.985427	55.07	Pk	37.1	-95.2	-44.12	-47.15	-25	-22.15	V
Mid Channel, 2525.1MHz+2544.9MHz									
5.028628	56.72	Pk	34.3	-95.2	-46.51	-50.69	-25	-25.69	H
5.029024	56.32	Pk	34.3	-95.2	-46.50	-51.08	-25	-26.08	V
7.545705	54.76	Pk	35.5	-95.2	-44.39	-49.33	-25	-24.33	H
7.543765	53.99	Pk	35.5	-95.2	-44.37	-50.08	-25	-25.08	V
10.602479	55.7	Pk	37.7	-95.2	-44.84	-46.64	-25	-21.64	H
10.600871	55.7	Pk	37.7	-95.2	-44.85	-46.65	-25	-21.65	V
High Channel, 2540.2MHz+2560MHz									
5.059797	56.13	Pk	34.3	-95.2	-46.60	-51.37	-25	-26.37	H
5.059870	55.46	Pk	34.3	-95.2	-46.60	-52.04	-25	-27.04	V
7.591188	54.93	Pk	35.5	-95.2	-44.55	-49.32	-25	-24.32	H
7.589372	54.21	Pk	35.5	-95.2	-44.52	-50.01	-25	-25.01	V
10.120204	55.05	Pk	37.2	-95.2	-44.14	-47.09	-25	-22.09	H
10.120630	56.34	Pk	37.2	-95.2	-44.13	-45.79	-25	-20.79	V

10.3.3. LTE BAND 41

LIMIT

FCC: §27.53 (m)

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

Project #:	4790592295
Date:	5/18/2023
Test Engineer:	32186
Configuration:	EUT only
Mode	LTE Band 41 QPSK 20MHz + 20MHz
Chamber #:	04-RDE-Q

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

Frequency (GHz)	Meter Reading (dBuV)	Det	84796 ACF(dB) - 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2506MHz + 2525.8MHz									
4.992500	51.53	Pk	34.3	-95.2	-46.59	-55.96	-25	-30.96	H
4.992500	52.88	Pk	34.3	-95.2	-46.59	-54.61	-25	-29.61	V
7.448500	52.3	Pk	35.4	-95.2	-44.93	-52.43	-25	-27.43	H
7.448500	50.73	Pk	35.4	-95.2	-44.93	-54.00	-25	-29.00	V
9.984500	51.81	Pk	37.1	-95.2	-44.15	-50.44	-25	-25.44	H
9.984500	51.74	Pk	37.1	-95.2	-44.15	-50.51	-25	-25.51	V
Mid Channel, 2583.1MHz + 2602.9MHz									
5.147000	51.79	Pk	34.2	-95.2	-46.40	-55.61	-25	-30.61	H
5.147000	51.55	Pk	34.2	-95.2	-46.40	-55.85	-25	-30.85	V
7.719500	51.96	Pk	35.6	-95.2	-44.80	-52.44	-25	-27.44	H
7.719000	50.67	Pk	35.6	-95.2	-44.80	-53.73	-25	-28.73	V
10.292500	53.69	Pk	37.4	-95.2	-44.25	-48.36	-25	-23.36	H
10.293000	51.63	Pk	37.4	-95.2	-44.24	-50.41	-25	-25.41	V
High Channel, 2660.2MHz + 2680MHz									
5.300500	52.31	Pk	34.2	-95.2	-46.42	-55.11	-25	-30.11	H
5.300000	51.68	Pk	34.2	-95.2	-46.45	-55.77	-25	-30.77	V
7.950500	49.79	Pk	35.7	-95.2	-44.53	-54.24	-25	-29.24	H
7.950000	50.07	Pk	35.7	-95.2	-44.53	-53.96	-25	-28.96	V
10.601000	52.13	Pk	37.7	-95.2	-44.85	-50.22	-25	-25.22	H
10.601000	51.91	Pk	37.7	-95.2	-44.85	-50.44	-25	-25.44	V

10.4. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 3

TEST PROCEDURE

KDB 971168 D01 v03r01 / D02 v02r02

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

RESULTS

10.4.1. LTE BAND 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 #:	4790592295
Date:	5/15/2023
Test Engineer:	25019
Configuration:	EUT Only
Mode	LTE CA Band 5 10+10MHz QPSK
Chamber #:	04-RDE-P

Frequency (GHz)	Meter Reading (dBm)	Det	222740 ACF(dB) - 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 829MHz + 838.9MHz									
1.666669	58.2	Pk	28.8	-95.2	-48.95	-57.15	-13	-44.15	H
1.668607	58.81	Pk	28.8	-95.2	-48.93	-56.52	-13	-43.52	V
2.500638	59.51	Pk	32.1	-95.2	-49.49	-53.08	-13	-40.08	H
2.504308	58.91	Pk	32.1	-95.2	-49.48	-53.67	-13	-40.67	V
3.337397	57.32	Pk	32.8	-95.2	-46.83	-51.91	-13	-38.91	H
3.335303	56.64	Pk	32.8	-95.2	-46.78	-52.54	-13	-39.54	V
Mid Channel, 831.6MHz + 841.5MHz									
1.647287	59.11	Pk	28.6	-95.2	-48.97	-56.46	-13	-43.46	H
1.649316	59.52	Pk	28.6	-95.2	-48.91	-55.99	-13	-42.99	V
2.512423	59.68	Pk	32.1	-95.2	-49.42	-52.84	-13	-39.84	H
2.512452	59.32	Pk	32.1	-95.2	-49.42	-53.20	-13	-40.20	V
3.349815	56.15	Pk	32.8	-95.2	-46.68	-52.93	-13	-39.93	H
3.349869	55.91	Pk	32.8	-95.2	-46.68	-53.17	-13	-40.17	V
High Channel, 834.1MHz + 844MHz									
1.680220	58.47	Pk	29	-95.2	-48.83	-56.56	-13	-43.56	H
1.677591	58.69	Pk	28.9	-95.2	-48.93	-56.54	-13	-43.54	V
2.517893	60.12	Pk	32.1	-95.2	-49.55	-52.53	-13	-39.53	H
2.517441	59.43	Pk	32.1	-95.2	-49.53	-53.20	-13	-40.20	V
3.357169	56.07	Pk	32.8	-95.2	-46.59	-52.92	-13	-39.92	H
3.355080	55.88	Pk	32.8	-95.2	-46.72	-53.24	-13	-40.24	V

10.4.2. 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 #:	4790592295
Date:	5/19/2023
Test Engineer:	32186
Configuration:	EUT only
Mode	LTE Band 7 QPSK 20MHz + 20MHz
Chamber #:	04-RDE-Q

Frequency (GHz)	Meter Reading (dBuV)	Det	84796ACF(dB) - 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2510MHz+2529.8MHz									
4.999801	55.52	Pk	34.3	-95.2	-46.53	-51.91	-25	-26.91	H
5.002406	55.55	Pk	34.3	-95.2	-46.67	-52.02	-25	-27.02	V
7.502210	53.78	Pk	35.5	-95.2	-44.87	-50.79	-25	-25.79	H
7.500575	53.87	Pk	35.5	-95.2	-44.89	-50.72	-25	-25.72	V
10.000851	55.63	Pk	37.1	-95.2	-44.02	-46.49	-25	-21.49	H
9.999004	55.14	Pk	37.1	-95.2	-44.04	-47.00	-25	-22.00	V
Mid Channel, 2525.1MHz+2544.9MHz									
5.000964	55.82	Pk	34.3	-95.2	-46.62	-51.70	-25	-26.70	H
5.000259	55.64	Pk	34.3	-95.2	-46.55	-51.81	-25	-26.81	V
7.543723	53.71	Pk	35.5	-95.2	-44.36	-50.35	-25	-25.35	H
7.547297	54	Pk	35.5	-95.2	-44.38	-50.08	-25	-25.08	V
10.062203	55.25	Pk	37.1	-95.2	-44.28	-47.13	-25	-22.13	H
10.061185	54.88	Pk	37.1	-95.2	-44.30	-47.52	-25	-22.52	V
High Channel, 2540.2MHz+2560MHz									
5.060548	56.22	Pk	34.3	-95.2	-46.6	-51.28	-25	-26.28	H
5.060827	56.59	Pk	34.3	-95.2	-46.6	-50.91	-25	-25.91	V
7.091767	53.98	Pk	35.6	-95.2	-44.91	-50.53	-25	-25.53	H
7.091914	54.46	Pk	35.6	-95.2	-44.91	-50.05	-25	-25.05	V
10.119867	54.7	Pk	37.2	-95.2	-44.15	-47.45	-25	-22.45	H
10.121817	55.11	Pk	37.2	-95.2	-44.13	-47.02	-25	-22.02	V

10.4.3. 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 #:	4790592295
Date:	5/19/2023
Test Engineer:	32186
Configuration:	EUT only
Mode	LTE Band 41 QPSK 20MHz + 20MHz
Chamber #:	04-RDE-Q

Frequency (GHz)	Meter Reading (dBuV)	Det	84796 ACF(dB) - 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2506MHz + 2525.8MHz									
4.992500	52.32	Pk	34.3	-95.2	-46.59	-55.17	-25	-30.17	H
4.992500	51.34	Pk	34.3	-95.2	-46.59	-56.15	-25	-31.15	V
7.488500	52.38	Pk	35.5	-95.2	-45.04	-52.36	-25	-27.36	H
7.489500	51.21	Pk	35.5	-95.2	-45.03	-53.52	-25	-28.52	V
9.984500	50.5	Pk	37.1	-95.2	-44.15	-51.75	-25	-26.75	H
9.984500	51.63	Pk	37.1	-95.2	-44.15	-50.62	-25	-25.62	V
Mid Channel, 2583.1MHz + 2602.9MHz									
5.186500	50.99	Pk	34.2	-95.2	-46.39	-56.40	-25	-31.40	H
5.186000	51.77	Pk	34.2	-95.2	-46.38	-55.61	-25	-30.61	V
7.779500	52	Pk	35.6	-95.2	-44.48	-52.08	-25	-27.08	H
7.779500	51.71	Pk	35.6	-95.2	-44.48	-52.37	-25	-27.37	V
10.372500	52.48	Pk	37.5	-95.2	-44.70	-49.92	-25	-24.92	H
10.371000	52.43	Pk	37.4	-95.2	-44.70	-50.07	-25	-25.07	V
High Channel, 2660.2MHz + 2680MHz									
5.340000	51.08	Pk	34.2	-95.2	-46.33	-56.25	-25	-31.25	H
5.339500	51.91	Pk	34.2	-95.2	-46.35	-55.44	-25	-30.44	V
8.010500	51.03	Pk	35.7	-95.2	-44.67	-53.14	-25	-28.14	H
8.010500	51.73	Pk	35.7	-95.2	-44.67	-52.44	-25	-27.44	V
10.680500	52.4	Pk	37.7	-95.2	-45.07	-50.17	-25	-25.17	H
10.681000	52.67	Pk	37.7	-95.2	-45.09	-49.92	-25	-24.92	V

10.5. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 4

TEST PROCEDURE

KDB 971168 D01 v03r01 / D02 v02r02

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

RESULTS

10.5.1. LTE BAND 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 #:	4790592295
Date:	5/17/2023
Test Engineer:	32186
Configuration:	EUT only
Mode	LTE Band 7 QPSK 20MHz + 20MHz
Chamber #:	04-RDE-Q

Frequency (GHz)	Meter Reading (dBuV)	Det	84796ACF(dB) - 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2510MHz+2529.8MHz									
5.000960	55.41	Pk	34.3	-95.2	-46.62	-52.11	-25	-27.11	H
5.001514	55.25	Pk	34.3	-95.2	-46.64	-52.29	-25	-27.29	V
7.502881	54.06	Pk	35.5	-95.2	-44.88	-50.52	-25	-25.52	H
7.499382	55.11	Pk	35.5	-95.2	-44.88	-49.47	-25	-24.47	V
9.999684	55.42	Pk	37.1	-95.2	-44.05	-46.73	-25	-21.73	H
10.001854	55.51	Pk	37.1	-95.2	-44.01	-46.60	-25	-21.60	V
Mid Channel, 2525.1MHz+2544.9MHz									
5.032127	51.92	Pk	34.3	-95.2	-46.61	-55.59	-25	-30.59	H
5.029079	55.89	Pk	34.3	-95.2	-46.5	-51.51	-25	-26.51	V
7.546102	53.89	Pk	35.5	-95.2	-44.39	-50.20	-25	-25.20	H
7.545108	53.64	Pk	35.5	-95.2	-44.39	-50.45	-25	-25.45	V
10.060112	55.53	Pk	37.1	-95.2	-44.27	-46.84	-25	-21.84	H
10.062466	55.89	Pk	37.1	-95.2	-44.29	-46.50	-25	-21.50	V
High Channel, 2540.2MHz+2560MHz									
5.060677	53.97	Pk	34.3	-95.2	-46.6	-53.53	-25	-28.53	H
5.058009	56.15	Pk	34.3	-95.2	-46.64	-51.39	-25	-26.39	V
7.590799	54.25	Pk	35.5	-95.2	-44.54	-49.99	-25	-24.99	H
7.593649	54.11	Pk	35.5	-95.2	-44.51	-50.10	-25	-25.10	V
10.120171	55.1	Pk	37.2	-95.2	-44.14	-47.04	-25	-22.04	H
10.122386	55.11	Pk	37.2	-95.2	-44.13	-47.02	-25	-22.02	V

10.5.2. 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 #:	4790592295
Date:	5/17/2023
Test Engineer:	32186
Configuration:	EUT only
Mode	LTE Band 41 QPSK 20MHz + 20MHz
Chamber #:	04-RDE-Q

Frequency (GHz)	Meter Reading (dBuV)	Det	84796 ACF(dB) - 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2506MHz + 2525.8MHz									
4.992500	56.85	Pk	34.3	-95.2	-46.59	-50.64	-25	-25.64	H
4.992000	52.22	Pk	34.3	-95.2	-46.62	-55.30	-25	-30.30	V
7.489000	50.59	Pk	35.5	-95.2	-45.04	-54.15	-25	-29.15	H
7.489000	52.28	Pk	35.5	-95.2	-45.04	-52.46	-25	-27.46	V
9.984000	54.35	Pk	37.1	-95.2	-44.17	-47.92	-25	-22.92	H
9.984000	51.73	Pk	37.1	-95.2	-44.17	-50.54	-25	-25.54	V
Mid Channel, 2583.1MHz + 2602.9MHz									
5.146500	52.31	Pk	34.2	-95.2	-46.39	-55.08	-25	-30.08	H
5.143500	54.46	Pk	34.2	-95.2	-46.48	-53.02	-25	-28.02	V
7.718500	52.97	Pk	35.6	-95.2	-44.8	-51.43	-25	-26.43	H
7.719000	49.86	Pk	35.6	-95.2	-44.8	-54.54	-25	-29.54	V
10.292500	52.13	Pk	37.4	-95.2	-44.25	-49.92	-25	-24.92	H
10.291000	50.94	Pk	37.4	-95.2	-44.21	-51.07	-25	-26.07	V
High Channel, 2660.2MHz + 2680MHz									
5.300500	52.07	Pk	34.2	-95.2	-46.42	-55.35	-25	-30.35	H
5.301500	53.45	Pk	34.2	-95.2	-46.36	-53.91	-25	-28.91	V
7.951000	51.65	Pk	35.7	-95.2	-44.53	-52.38	-25	-27.38	H
7.951000	49.51	Pk	35.7	-95.2	-44.53	-54.52	-25	-29.52	V
10.601000	52.65	Pk	37.7	-95.2	-44.85	-49.70	-25	-24.70	H
10.601000	52.56	Pk	37.7	-95.2	-44.85	-49.79	-25	-24.79	V

10.5.3. LTE BAND 48

LIMIT

FCC: §96.41

(e) 3.5 GHz Emissions and Interference Limits—

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

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

Project #:	4790592295
Date:	6/30/2023
Test Engineer:	26120
Configuration:	EUT only
Mode	Band 48 QPSK 20MHz + 20MHz
Chamber #:	01-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	200786 ACF (dB/m)	T1792 3400-3800MHz BRF	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 3560MHz + 3579.8MHz										
7.120088	23.95	RMS	35.7	.5	-95.2	-27.23	-62.28	-40	-22.28	H
7.119647	23.4	RMS	35.7	.5	-95.2	-27.20	-62.80	-40	-22.80	V
10.680778	22.42	RMS	37.8	.6	-95.2	-24.49	-58.87	-40	-18.87	H
10.680338	21.58	RMS	37.8	.6	-95.2	-24.48	-59.70	-40	-19.70	V
14.240588	19.7	RMS	39.3	.8	-95.2	-20.27	-55.67	-40	-15.67	H
14.238384	19.29	RMS	39.3	.8	-95.2	-20.36	-56.17	-40	-16.17	V
Mid Channel, 3615.1MHz + 3634.9MHz										
7.230244	24.26	RMS	35.8	.5	-95.2	-26.95	-61.59	-40	-21.59	H
7.230244	23.81	RMS	35.8	.5	-95.2	-26.95	-62.04	-40	-22.04	V
10.845131	21.64	RMS	37.7	.5	-95.2	-24.13	-59.49	-40	-19.49	H
10.844691	21.14	RMS	37.7	.5	-95.2	-24.13	-59.99	-40	-19.99	V
14.460019	18.51	RMS	39.7	.7	-95.2	-19.59	-55.88	-40	-15.88	H
14.460019	18.44	RMS	39.7	.7	-95.2	-19.59	-55.95	-40	-15.95	V
High Channel, 3670.2MHz + 3690MHz										
7.340400	24.16	RMS	35.8	.6	-95.2	-27.05	-61.69	-40	-21.69	H
7.340400	23.81	RMS	35.8	.6	-95.2	-27.05	-62.04	-40	-22.04	V
11.009925	21.6	RMS	37.8	.7	-95.2	-23.69	-58.79	-40	-18.79	H
11.009925	21.47	RMS	37.8	.7	-95.2	-23.69	-58.92	-40	-18.92	V
14.680772	18.34	RMS	40	.9	-95.2	-19.69	-55.65	-40	-15.65	H
14.680772	18.64	RMS	40	.9	-95.2	-19.69	-55.35	-40	-15.35	V

10.6. FIELD STRENGTH OF SPURIOUS RADIATION, ANT7

TEST PROCEDURE

KDB 971168 D01 v03r01 / D02 v02r02

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

RESULTS

10.6.1. LTE BAND 48

LIMIT

FCC: §96.41

(e) 3.5 GHz Emissions and Interference Limits—

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

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

Project #:	4790592295
Date:	06/29/2023
Test Engineer:	26120
Configuration:	EUT only
Mode	Band 48 QPSK 20MHz + 20MHz
Chamber #:	01-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	200786 ACF (dB/m)	T1792 3400-3800MHz BRF	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 3560MHz + 3579.8MHz										
7.120088	23.97	RMS	35.7	.5	-95.2	-27.23	-62.26	-40	-22.26	H
7.120088	24.53	RMS	35.7	.5	-95.2	-27.23	-61.70	-40	-21.70	V
10.680338	21.79	RMS	37.8	.6	-95.2	-24.48	-59.49	-40	-19.49	H
10.680338	22.16	RMS	37.8	.6	-95.2	-24.48	-59.12	-40	-19.12	V
14.239706	19.54	RMS	39.3	.8	-95.2	-20.32	-55.88	-40	-15.88	H
14.226047	19.75	RMS	39.3	.8	-95.2	-20.27	-55.62	-40	-15.62	V
Mid Channel, 3615.1MHz + 3634.9MHz										
7.230244	23.17	RMS	35.8	.5	-95.2	-26.95	-62.68	-40	-22.68	H
7.230244	23.88	RMS	35.8	.5	-95.2	-26.95	-61.97	-40	-21.97	V
10.845131	21.37	RMS	37.7	.5	-95.2	-24.13	-59.76	-40	-19.76	H
10.845131	21.35	RMS	37.7	.5	-95.2	-24.13	-59.78	-40	-19.78	V
14.460019	18.54	RMS	39.7	.7	-95.2	-19.59	-55.85	-40	-15.85	H
14.460019	18.3	RMS	39.7	.7	-95.2	-19.59	-56.09	-40	-16.09	V
High Channel, 3670.2MHz + 3690MHz										
7.339959	24.04	RMS	35.8	.6	-95.2	-27.05	-61.81	-40	-21.81	H
7.339959	23.65	RMS	35.8	.6	-95.2	-27.05	-62.20	-40	-22.20	V
11.010366	21.61	RMS	37.8	.6	-95.2	-23.7	-58.89	-40	-18.89	H
11.008603	20.65	RMS	37.8	.7	-95.2	-23.59	-59.64	-40	-19.64	V
14.679891	18.35	RMS	40	.9	-95.2	-19.75	-55.70	-40	-15.70	H
14.679891	18.58	RMS	40	.9	-95.2	-19.75	-55.47	-40	-15.47	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

10.7. FIELD STRENGTH OF SPURIOUS RADIATION, ANT8

TEST PROCEDURE

KDB 971168 D01 v03r01 / D02 v02r02

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

RESULTS

10.7.1. LTE BAND 48

LIMIT

FCC: §96.41

(e) 3.5 GHz Emissions and Interference Limits—

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

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

Project #:	4790592295
Date:	06/29/2023
Test Engineer:	26120
Configuration:	EUT only
Mode	Band 48 QPSK 20MHz + 20MHz
Chamber #:	01-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	200786 ACF (dB/m)	T1792 3400-3800MHz BRF	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 3560MHz + 3579.8MHz										
7.120088	24.14	RMS	35.7	.5	-95.2	-27.23	-62.09	-40	-22.09	H
7.120088	23.8	RMS	35.7	.5	-95.2	-27.23	-62.43	-40	-22.43	V
10.680338	21.5	RMS	37.8	.6	-95.2	-24.48	-59.78	-40	-19.78	H
10.679897	22.16	RMS	37.8	.6	-95.2	-24.48	-59.12	-40	-19.12	V
14.240147	19.17	RMS	39.3	.8	-95.2	-20.30	-56.23	-40	-16.23	H
14.239706	19.26	RMS	39.3	.8	-95.2	-20.32	-56.16	-40	-16.16	V
Mid Channel, 3615.1MHz + 3634.9MHz										
7.230684	23.77	RMS	35.8	.5	-95.2	-26.93	-62.06	-40	-22.06	H
7.206009	23.82	RMS	35.8	.6	-95.2	-27.14	-62.12	-40	-22.12	V
10.844691	21.61	RMS	37.7	.5	-95.2	-24.13	-59.52	-40	-19.52	H
10.825744	22.16	RMS	37.7	.6	-95.2	-24.18	-58.92	-40	-18.92	V
14.458256	18.38	RMS	39.7	.7	-95.2	-19.60	-56.02	-40	-16.02	H
14.449003	18.65	RMS	39.7	.8	-95.2	-19.95	-56.00	-40	-16.00	V
High Channel, 3670.2MHz + 3690MHz										
7.339959	23.5	RMS	35.8	.6	-95.2	-27.05	-62.35	-40	-22.35	H
7.339959	23.99	RMS	35.8	.6	-95.2	-27.05	-61.86	-40	-21.86	V
11.010366	21.22	RMS	37.8	.6	-95.2	-23.70	-59.28	-40	-19.28	H
11.010366	20.69	RMS	37.8	.6	-95.2	-23.70	-59.81	-40	-19.81	V
14.679891	18.67	RMS	40	.9	-95.2	-19.75	-55.38	-40	-15.38	H
14.679891	18.29	RMS	40	.9	-95.2	-19.75	-55.76	-40	-15.76	V

10.8. FIELD STRENGTH OF SPURIOUS RADIATION, ANT9

TEST PROCEDURE

KDB 971168 D01 v03r01 / D02 v02r02

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

RESULTS

10.8.1. LTE BAND 48

LIMIT

FCC: §96.41

(e) 3.5 GHz Emissions and Interference Limits—

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

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

Project #:	4790592295
Date:	6/29/2023
Test Engineer:	26120
Configuration:	EUT only
Mode	Band 48 QPSK 20MHz + 20MHz
Chamber #:	01-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	200786 ACF (dB/m)	T1792 3400-3800MHz BRF	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 3560MHz + 3579.8MHz										
7.120528	23.86	RMS	35.7	.5	-95.2	-27.18	-62.32	-40	-22.32	H
7.120088	24.69	RMS	35.7	.5	-95.2	-27.23	-61.54	-40	-21.54	V
10.680338	21.65	RMS	37.8	.6	-95.2	-24.48	-59.63	-40	-19.63	H
10.680338	22.25	RMS	37.8	.6	-95.2	-24.48	-59.03	-40	-19.03	V
14.239927	18.93	RMS	39.3	.8	-95.2	-20.31	-56.48	-40	-16.48	H
14.239266	19.35	RMS	39.3	.8	-95.2	-20.33	-56.08	-40	-16.08	V
Mid Channel, 3615.1MHz + 3634.9MHz										
7.120088	24.26	RMS	35.7	.5	-95.2	-27.23	-61.97	-40	-21.97	H
7.119206	24.54	RMS	35.7	.5	-95.2	-27.15	-61.61	-40	-21.61	V
10.679897	21.64	RMS	37.8	.6	-95.2	-24.48	-59.64	-40	-19.64	H
10.679897	21.68	RMS	37.8	.6	-95.2	-24.48	-59.60	-40	-19.60	V
14.240588	18.89	RMS	39.3	.8	-95.2	-20.27	-56.48	-40	-16.48	H
14.240588	18.81	RMS	39.3	.8	-95.2	-20.27	-56.56	-40	-16.56	V
High Channel, 3670.2MHz + 3690MHz										
7.340400	23.28	RMS	35.8	.6	-95.2	-27.05	-62.57	-40	-22.57	H
7.340400	24.3	RMS	35.8	.6	-95.2	-27.05	-61.55	-40	-21.55	V
11.010366	20.8	RMS	37.8	.6	-95.2	-23.70	-59.70	-40	-19.70	H
11.009925	21.83	RMS	37.8	.7	-95.2	-23.69	-58.56	-40	-18.56	V
14.679891	18.77	RMS	40	.9	-95.2	-19.75	-55.28	-40	-15.28	H
14.679891	19.01	RMS	40	.9	-95.2	-19.75	-55.04	-40	-15.04	V

11. SETUP PHOTOS

Please refer to 14523772-EP1V1 for setup photos.

END OF REPORT