

## 9.4 FREQUENCY STABILITY

### TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

- Temp. =  $-30^{\circ}\text{C}$  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  $20^{\circ}\text{C}$  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.

<b>Test Engineer ID:</b>	32061	<b>Test Date:</b>	1/19/2023
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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	824.5676	848.4234					
Extreme (50°C)		824.5676	848.4234	32.4	0.039	Yes		
Extreme (40°C)		824.5676	848.4234	31.1	0.037	Yes		
Extreme (30°C)		824.5676	848.4234	25.3	0.030	Yes		
Extreme (10°C)		824.5676	848.4234	3.2	0.004	Yes		
Extreme (0°C)		824.5676	848.4234	-12.2	-0.015	Yes		
Extreme (-10°C)		824.5676	848.4234	-16.7	-0.020	Yes		
Extreme (-20°C)		824.5676	848.4233	-24.5	-0.029	Yes		
Extreme (-30°C)		824.5676	848.4234	-23.4	-0.028	Yes		
20°C		15%	824.5676	848.4234	42.3	0.051	Yes	
	-15%	824.5676	848.4234	40.5	0.048	Yes		
	End Point Voltage	824.5676	848.4234	42.3	0.051	Yes		

### 9.4.2. LTE BAND 7

#### LIMITS

FCC: §27.54

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

<b>Test Engineer ID:</b>	32061	<b>Test Date:</b>	1/19/2023
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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	2501.1464	2568.8619			
Extreme (50°C)		2501.1465	2568.8620	81.7	0.032	Yes
Extreme (40°C)		2501.1465	2568.8620	81.0	0.032	Yes
Extreme (30°C)		2501.1465	2568.8619	59.5	0.023	Yes
Extreme (10°C)		2501.1464	2568.8619	-10.0	-0.004	Yes
Extreme (0°C)		2501.1464	2568.8619	-28.3	-0.011	Yes
Extreme (-10°C)		2501.1464	2568.8618	-39.7	-0.016	Yes
Extreme (-20°C)		2501.1463	2568.8618	-53.2	-0.021	Yes
Extreme (-30°C)		2501.1463	2568.8618	-51.3	-0.020	Yes
20°C	15%	2501.1465	2568.8620	80.8	0.032	Yes
	-15%	2501.1465	2568.8620	79.2	0.031	Yes
	End Point Voltage	2501.1465	2568.8620	82.1	0.032	Yes

### 9.4.3. LTE BAND 41

#### LIMITS

FCC: §27.54

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

<b>Test Engineer ID:</b>	28774	<b>Test Date:</b>	1/19/2023
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#### QPSK (20MHz + 20MHz BANDWIDTH)

Band	41	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		2496	2690		Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)
Temperature	Voltage	Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)			
Normal (20°C)	Normal	2496.9367	2689.3308			
Extreme (50°C)		2496.9368	2689.3309	77.86	0.030	Yes
Extreme (40°C)		2496.9368	2689.3309	83.62	0.032	Yes
Extreme (30°C)		2496.9367	2689.3309	56.65	0.022	Yes
Extreme (10°C)		2496.9367	2689.3309	19.6	0.008	Yes
Extreme (0°C)		2496.9366	2689.3308	-33.62	-0.013	Yes
Extreme (-10°C)		2496.9366	2689.3308	-41.42	-0.016	Yes
Extreme (-20°C)		2496.9366	2689.3308	-57.43	-0.022	Yes
Extreme (-30°C)		2496.9366	2689.3308	-55.12	-0.021	Yes
20°C	15%	2496.9368	2689.3309	78.46	0.030	Yes
	-15%	2496.9368	2689.3309	82.01	0.032	Yes
	End Point Voltage	2496.9368	2689.3309	81.96	0.032	Yes

**9.4.4. LTE BAND 48**

<b>Test Engineer ID:</b>	32061	<b>Test Date:</b>	1/18/2023
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**QPSK (20MHz + 20MHz BANDWIDTH)**

Band		48		Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		3550	3700	Frequency Error Reading (Hz)	Frequency Stability (ppm)		Within Authorized Frequency Block (Hz)	
Temperature	Voltage	Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)					
Normal (20°C)	Normal	3550.4910	3699.0012					
Extreme (50°C)		3550.4911	3699.0013	82.3	0.023	Yes		
Extreme (40°C)		3550.4911	3699.0013	83.7	0.023	Yes		
Extreme (30°C)		3550.4910	3699.0012	50.1	0.014	Yes		
Extreme (10°C)		3550.4910	3699.0012	-16.0	-0.004	Yes		
Extreme (0°C)		3550.4909	3699.0012	-39.1	-0.011	Yes		
Extreme (-10°C)		3550.4909	3699.0011	-53.8	-0.015	Yes		
Extreme (-20°C)		3550.4909	3699.0011	-54.7	-0.015	Yes		
Extreme (-30°C)		3550.4909	3699.0011	-52.1	-0.014	Yes		
20°C	15%	3550.4910	3699.0012	25.8	0.007	Yes		
	-15%	3550.4910	3699.0012	26.3	0.007	Yes		
	End Point Voltage	3550.4910	3699.0012	25.8	0.007	Yes		

## 9.5 PEAK-TO-AVERAGE POWER RATIO

### LIMIT

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

### RESULT

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

#### 9.5.1. LTE BAND 5

<b>Test Engineer ID:</b>	25780	<b>Test Date:</b>	12/22/2022
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Band	Bandwidth (MHz)	PCC f (MHz)	SCC1 f (MHz)	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
					Peak	Average	
Band 5	3MHz / 5MHz	834.0	837.9	QPSK	32.43	25.70	6.73
				16QAM	32.43	25.61	6.82
	5 MHz / 3MHz	835.0	838.9	QPSK	32.29	25.68	6.61
				16QAM	32.34	25.66	6.68
	5MHz / 10MHz	831.6	838.8	QPSK	32.70	24.29	8.41
				16QAM	32.78	23.28	9.50
	10MHz / 5MHz	834.3	841.5	QPSK	32.46	24.28	8.18
				16QAM	32.50	23.26	9.24
	10MHz / 10MHz	831.5	841.4	QPSK	32.62	24.29	8.33
				16QAM	32.65	23.29	9.36
Duty Cycle Correction Factor (dB) =			0.00				
Peak-to-Average Power Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor							

### 9.5.2. LTE BAND 7

<b>Test Engineer ID:</b>	25780	<b>Test Date:</b>	12/17/2022
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Band	Bandwidth (MHz)	PCC f (MHz)	SCC1 f (MHz)	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
					Peak	Average	
Band 7	10MHz / 20MHz	2525.6	2540.0	QPSK	31.05	24.41	6.64
				16QAM	31.08	23.43	7.65
	20MHz / 10MHz	2530.1	2544.5	QPSK	31.11	24.48	6.63
				16QAM	31.23	23.47	7.76
	15 MHz / 15MHz	2527.5	2542.5	QPSK	31.10	24.43	6.67
				16QAM	31.13	23.45	7.68
	15MHz / 20MHz	2525.3	2542.4	QPSK	31.03	24.44	6.59
				16QAM	31.17	23.43	7.74
	20MHz / 15MHz	2527.6	2544.7	QPSK	30.63	24.57	6.06
				16QAM	30.55	23.62	6.93
	20MHz / 20MHz	2525.1	2544.9	QPSK	30.67	24.56	6.11
				16QAM	30.67	23.61	7.06
Duty Cycle Correction Factor (dB) =			0.00				
Peak-to-Average Power Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor							

### 9.5.3. LTE BAND 41

<b>Test Engineer ID:</b>	25780	<b>Test Date:</b>	12/27/2022
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Band	Bandwidth (MHz)	PCC f (MHz)	SCC1 f (MHz)	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)	
					Peak	Average		
Band 41 (FCC)	5MHz / 20MHz	2583.8	2595.5	QPSK	35.22	20.68	7.55	
				16QAM	35.22	19.66	8.57	
	20MHz / 5MHz	2590.5	2602.2	QPSK	35.26	20.68	7.59	
				16QAM	35.28	19.67	8.62	
	10MHz / 20MHz	2583.6	2598.0	QPSK	35.22	20.68	7.55	
				16QAM	35.22	19.66	8.57	
	20MHz / 10MHz	2588.1	2602.5	QPSK	35.19	20.69	7.51	
				16QAM	35.23	19.68	8.56	
	15MHz / 15MHz	2585.5	2600.5	QPSK	35.24	20.67	7.58	
				16QAM	35.28	19.66	8.63	
	15MHz / 20MHz	2583.3	2600.4	QPSK	35.24	20.65	7.60	
				16QAM	35.26	19.66	8.61	
	20MHz / 15MHz	2585.6	2602.7	QPSK	35.21	21.67	6.55	
				16QAM	35.23	21.55	6.69	
	20MHz / 20MHz	2583.1	2602.9	QPSK	35.25	20.61	7.65	
				16QAM	35.27	19.64	8.64	
	Duty Cycle Correction Factor (dB) =			6.99				
	Peak-to-Average Power Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor							



**9.5.4. LTE BAND 48**

<b>Test Engineer ID:</b>	25780	<b>Test Date:</b>	4/27/2022
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Band	Bandwidth (MHz)	PCC f (MHz)	SCC1 f (MHz)	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
					Peak	Average	
Band 48 (FCC)	5MHz / 20MHz	3615.8	3627.5	QPSK	30.75	15.43	8.33
				16QAM	30.77	15.42	8.36
	20MHz / 5MHz	3622.5	3634.2	QPSK	30.18	18.5	4.69
				16QAM	30.75	15.45	8.31
	10MHz / 20MHz	3615.6	3630.0	QPSK	28.33	14.93	6.41
				16QAM	30.76	14.93	8.84
	20MHz / 10MHz	3620.1	3634.5	QPSK	28.32	14.95	6.38
				16QAM	30.73	14.96	8.78
	15MHz / 20MHz	3615.3	3632.4	QPSK	28.36	14.92	6.45
				16QAM	30.78	14.94	8.85
	20MHz / 15MHz	3617.6	3634.7	QPSK	28.32	14.93	6.40
				16QAM	30.73	14.94	8.80
	20MHz / 20MHz	3615.1	3634.9	QPSK	28.45	14.97	6.49
				16QAM	30.81	14.97	8.85
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.

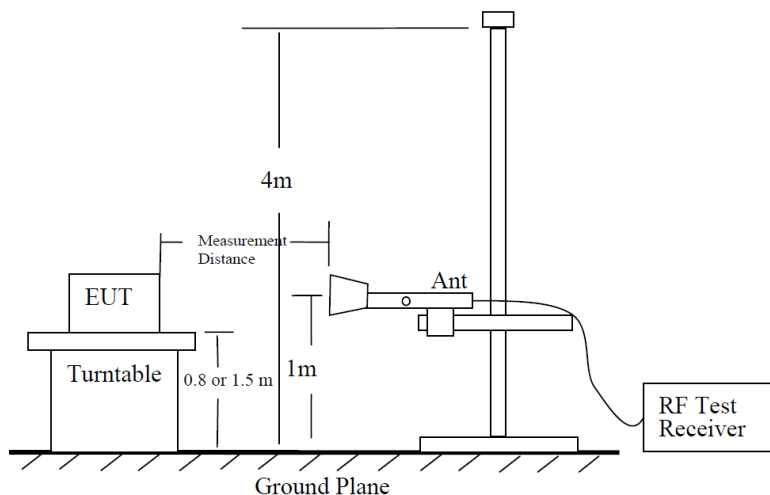


Figure 6—Test site-up for radiated ERP and/or EIRP measurements

### 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.

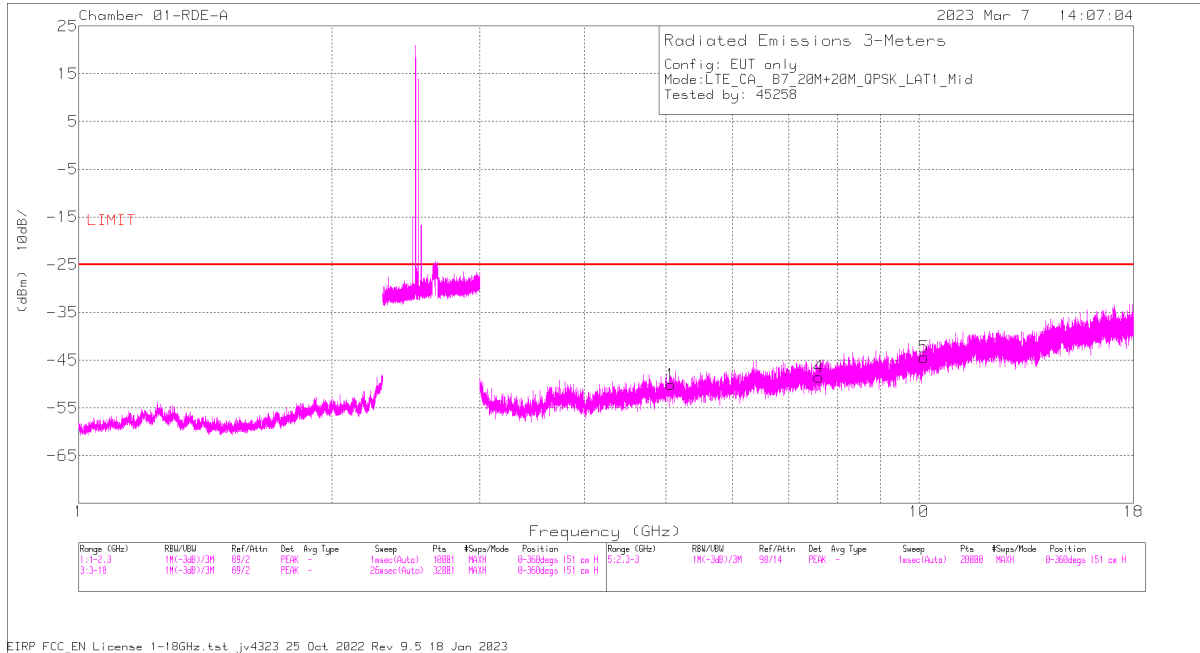
So, from d)

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

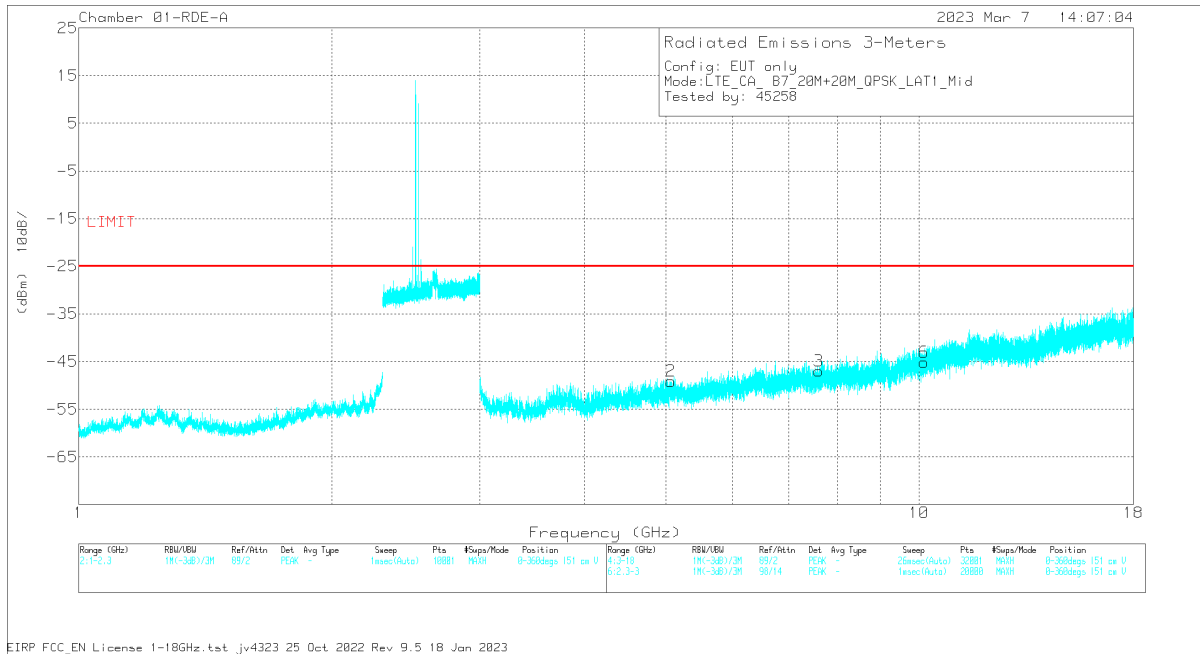
Then,  $\text{EIRP (dBm)} = E \text{ (dB}\mu\text{V/m)} + 9.5424 - 104.8 = E \text{ (dB}\mu\text{V/m)} - 95.2576$

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 Above 1GHz**



Horizontal Polarity



Vertical Polarity

**Trace Markers**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	EIRP CF	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
5.070000	33.23	Pk	34.3	.7	-95.2	-23.20	-50.17	-25	-25.17	H
5.070469	34.26	Pk	34.3	.7	-95.2	-23.20	-49.14	-25	-24.14	V
7.605469	29.97	Pk	35.5	.4	-95.2	-19.16	-48.49	-25	-23.49	H
7.605469	31.52	Pk	35.5	.4	-95.2	-19.16	-46.94	-25	-21.94	V
10.140938	30.14	Pk	37.0	.6	-95.2	-16.95	-44.41	-25	-19.41	H
10.140938	29.47	Pk	37.0	.6	-95.2	-16.95	-45.08	-25	-20.08	V

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

### TEST PROCEDURE

KDB 971168 D01/D02 v02r02

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

### RESULTS

#### 10.1.1. LTE BAND 5

##### LIMIT

FCC: §22.917(a)

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

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

Project #:	4790592262
Date:	04/14/2023
Test Engineer:	45258
Configuration:	EUT only
Mode	LTE Band 5 QPSK 10MHz + 10MHz
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	Horn Antenna ACF (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
<b>Low Channel, 829MHz + 838.9MHz</b>										
1.667867	38.47	Pk	28.5	.7	-95.2	-28.73	-56.26	-13	-43.26	H
1.667867	40.04	Pk	28.5	.7	-95.2	-28.73	-54.69	-13	-41.69	V
2.501911	36.27	Pk	32.2	.6	-95.2	-27.56	-53.69	-13	-40.69	H
2.501911	37.06	Pk	32.2	.6	-95.2	-27.56	-52.90	-13	-39.90	V
3.335956	35.21	Pk	32.5	.5	-95.2	-26.23	-53.22	-13	-40.22	H
3.335956	35.64	Pk	32.5	.5	-95.2	-26.23	-52.79	-13	-39.79	V
<b>Mid Channel, 831.6MHz + 841.5MHz</b>										
1.672756	36.58	Pk	28.6	.7	-95.2	-28.76	-58.08	-13	-45.08	V
1.673733	38.79	Pk	28.6	.7	-95.2	-28.67	-55.78	-13	-42.78	H
2.509245	35	Pk	32.2	.7	-95.2	-27.55	-54.85	-13	-41.85	V
2.509734	35.83	Pk	32.2	.7	-95.2	-27.54	-54.01	-13	-41.01	H
3.346223	34.31	Pk	32.5	.5	-95.2	-26.25	-54.14	-13	-41.14	H
3.346223	35.15	Pk	32.5	.5	-95.2	-26.25	-53.30	-13	-40.30	V
<b>High Channel, 834.1MHz + 844MHz</b>										
1.678133	38.24	Pk	28.6	.7	-95.2	-28.77	-56.43	-13	-43.43	V
1.678622	39.4	Pk	28.6	.7	-95.2	-28.75	-55.25	-13	-42.25	H
2.517556	37.11	Pk	32.2	.8	-95.2	-27.44	-52.53	-13	-39.53	H
2.517556	36.71	Pk	32.2	.8	-95.2	-27.44	-52.93	-13	-39.93	V
3.356978	37.47	Pk	32.5	.6	-95.2	-26.09	-50.72	-13	-37.72	H
3.356978	35.67	Pk	32.5	.6	-95.2	-26.09	-52.52	-13	-39.52	V

## 10.1.2. LTE BAND 7

### LIMIT

FCC: §27.53 (m)

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

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

Project #:	4790592262
Date:	04/7/2023
Test Engineer:	45258
Configuration:	EUT only
Mode	LTE Band 7 QPSK 20MHz + 20MHz
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	Horn Antenna ACF(dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2510MHz + 2529.8MHz										
5.038594	33.76	Pk	34.2	.6	-95.2	-23.35	-49.99	-25	-24.99	V
5.039063	33.25	Pk	34.3	.6	-95.2	-23.34	-50.39	-25	-25.39	H
7.560938	31.39	Pk	35.6	.4	-95.2	-19.48	-47.29	-25	-22.29	H
7.560938	30.7	Pk	35.6	.4	-95.2	-19.48	-47.98	-25	-22.98	V
10.080469	28.99	Pk	37	.6	-95.2	-17.18	-45.79	-25	-20.79	H
10.080469	30.07	Pk	37	.6	-95.2	-17.18	-44.71	-25	-19.71	V
Mid Channel, 2525.1MHz + 2544.9MHz										
5.070000	33.23	Pk	34.3	.7	-95.2	-23.2	-50.17	-25	-25.17	H
5.070469	34.26	Pk	34.3	.7	-95.2	-23.2	-49.14	-25	-24.14	V
7.605469	29.97	Pk	35.5	.4	-95.2	-19.16	-48.49	-25	-23.49	H
7.605469	31.52	Pk	35.5	.4	-95.2	-19.16	-46.94	-25	-21.94	V
10.140938	30.14	Pk	37	.6	-95.2	-16.95	-44.41	-25	-19.41	H
10.140938	29.47	Pk	37	.6	-95.2	-16.95	-45.08	-25	-20.08	V
High Channel, 2540.2MHz + 2560MHz										
5.100469	32.53	Pk	34.4	.8	-95.2	-23.27	-50.74	-25	-25.74	V
5.102344	34	Pk	34.4	.8	-95.2	-23.31	-49.31	-25	-24.31	H
7.650000	30.14	Pk	35.6	.3	-95.2	-18.86	-48.02	-25	-23.02	H
7.650000	29.58	Pk	35.6	.3	-95.2	-18.86	-48.58	-25	-23.58	V
10.200469	29.82	Pk	37.1	.8	-95.2	-16.9	-44.38	-25	-19.38	H
10.200469	29.15	Pk	37.1	.8	-95.2	-16.9	-45.05	-25	-20.05	V



### 10.1.3. LTE BAND 41

#### LIMIT

FCC: §27.53 (m)

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

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

Project #:	
Date:	04/17/2023
Test Engineer:	45258
Configuration:	EUT only
Mode	Band 41 QPSK 20MHz + 20MHz
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBm)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	EIRP CF	BRF 2495-2690MHz T1790 1-18GHz	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2506MHz + 2525.8MHz										
5.031094	32.79	Pk	34.2	.7	-95.2	-23.49	-51.00	-25	-26.00	V
5.031563	33.03	Pk	34.2	.7	-95.2	-23.48	-50.75	-25	-25.75	H
7.546406	32.13	Pk	35.5	.3	-95.2	-19.50	-46.77	-25	-21.77	V
7.546875	30.82	Pk	35.5	.3	-95.2	-19.51	-48.09	-25	-23.09	H
10.063125	31.1	Pk	36.9	.7	-95.2	-17.11	-43.61	-25	-18.61	H
10.063125	29.96	Pk	36.9	.7	-95.2	-17.11	-44.75	-25	-19.75	V
Mid Channel, 2583.1MHz + 2602.9MHz										
5.1853130	32.31	Pk	34.5	.8	-95.2	-23.04	-50.63	-25	-25.63	H
5.186250	31.79	Pk	34.5	.8	-95.2	-23.03	-51.14	-25	-26.14	V
7.779375	30.8	Pk	35.6	.3	-95.2	-18.99	-47.49	-25	-22.49	V
7.779844	30.68	Pk	35.6	.3	-95.2	-19.00	-47.62	-25	-22.62	H
10.372031	29.84	Pk	37.2	.8	-95.2	-16.38	-43.74	-25	-18.74	H
10.372031	28.3	Pk	37.2	.8	-95.2	-16.38	-45.28	-25	-20.28	V
High Channel, 2660.2MHz + 2680MHz										
5.339063	32.25	Pk	34.6	.6	-95.2	-23.27	-51.02	-25	-26.02	V
5.340469	33.8	Pk	34.6	.6	-95.2	-23.28	-49.48	-25	-24.48	H
8.011406	33.16	Pk	35.6	.3	-95.2	-18.70	-44.84	-25	-19.84	H
8.011406	28.45	Pk	35.6	.3	-95.2	-18.70	-49.55	-25	-24.55	V
10.680469	29.32	Pk	37.4	.5	-95.2	-16.37	-44.35	-25	-19.35	H
10.681406	29.55	Pk	37.4	.5	-95.2	-16.36	-44.11	-25	-19.11	V

## 10.2. FIELD STRENGTH OF SPURIOUS RADIATION, ANT2

### TEST PROCEDURE

KDB 971168 D01/D02 v02r02

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

### RESULTS

#### 10.2.1. LTE BAND 5

##### LIMIT

FCC: §22.917(a)

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

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

Project #:	4790592262
Date:	04/14/2023
Test Engineer:	45258
Configuration:	EUT only
Mode	LTE Band 5 QPSK 10MHz + 10MHz
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	Horn Antenna ACF(dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
<b>Low Channel, 829MHz + 838.9MHz</b>										
1.667867	38.24	Pk	28.5	.7	-95.2	-28.73	-56.49	-13	-43.49	H
1.667867	37.81	Pk	28.5	.7	-95.2	-28.73	-56.92	-13	-43.92	V
2.501423	35.36	Pk	32.2	.6	-95.2	-27.56	-54.60	-13	-41.60	H
2.501423	36.47	Pk	32.2	.6	-95.2	-27.56	-53.49	-13	-40.49	V
3.335956	35.51	Pk	32.5	.5	-95.2	-26.23	-52.92	-13	-39.92	H
3.335956	34.18	Pk	32.5	.5	-95.2	-26.23	-54.25	-13	-41.25	V
<b>Mid Channel, 831.6MHz + 841.5MHz</b>										
1.678622	38.29	Pk	28.6	.7	-95.2	-28.75	-56.36	-13	-43.36	H
1.678622	37.42	Pk	28.6	.7	-95.2	-28.75	-57.23	-13	-44.23	V
2.517556	37.02	Pk	32.2	.8	-95.2	-27.44	-52.62	-13	-39.62	H
2.517556	35.47	Pk	32.2	.8	-95.2	-27.44	-54.17	-13	-41.17	V
3.356	37.34	Pk	32.5	.6	-95.2	-26.08	-50.84	-13	-37.84	V
3.356489	36.29	Pk	32.5	.6	-95.2	-26.08	-51.89	-13	-38.89	H
<b>High Channel, 834.1MHz + 844MHz</b>										
1.677645	38.12	Pk	28.6	.7	-95.2	-28.76	-56.54	-13	-43.54	V
1.678133	39.6	Pk	28.6	.7	-95.2	-28.77	-55.07	-13	-42.07	H
2.517067	36.84	Pk	32.2	.7	-95.2	-27.46	-52.92	-13	-39.92	H
2.517067	37.62	Pk	32.2	.7	-95.2	-27.46	-52.14	-13	-39.14	V
3.356	35.07	Pk	32.5	.6	-95.2	-26.08	-53.11	-13	-40.11	H
3.356	34.76	Pk	32.5	.6	-95.2	-26.08	-53.42	-13	-40.42	V

## 10.2.2. LTE BAND 7

### LIMIT

FCC: §27.53 (m)

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

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

Project #:	4790592262
Date:	04/18/2022
Test Engineer:	30606
Configuration:	EUT only
Mode	LTE Band 7 QPSK 20MHz + 20MHz
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	Horn Antenna ACF(dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2510MHz + 2529.8MHz										
5.040000	33.33	Pk	34.3	.6	-95.2	-23.3	-50.27	-25	-25.27	H
5.040000	32.95	Pk	34.3	.6	-95.2	-23.3	-50.65	-25	-25.65	V
7.560469	31.85	Pk	35.6	.3	-95.2	-19.49	-46.94	-25	-21.94	H
7.560469	29.75	Pk	35.6	.3	-95.2	-19.49	-49.04	-25	-24.04	V
10.080938	29.54	Pk	37	.6	-95.2	-17.19	-45.25	-25	-20.25	H
10.080938	29.15	Pk	37	.6	-95.2	-17.19	-45.64	-25	-20.64	V
Mid Channel, 2525.1MHz + 2544.9MHz										
5.070000	32.31	Pk	34.3	.7	-95.2	-23.2	-51.09	-25	-26.09	V
5.070938	33.33	Pk	34.3	.7	-95.2	-23.2	-50.07	-25	-25.07	H
7.604063	31.04	Pk	35.5	.4	-95.2	-19.15	-47.41	-25	-22.41	H
7.604063	28.17	Pk	35.5	.4	-95.2	-19.15	-50.28	-25	-25.28	V
10.140000	27.96	Pk	37.0	.7	-95.2	-16.95	-46.49	-25	-21.49	H
10.140000	30.42	Pk	37.0	.7	-95.2	-16.95	-44.03	-25	-19.03	V
High Channel, 2540.2MHz + 2560MHz										
5.100469	33.42	Pk	34.4	.8	-95.2	-23.27	-49.85	-25	-24.85	V
5.100938	33.94	Pk	34.4	.8	-95.2	-23.28	-49.34	-25	-24.34	H
7.650000	30.84	Pk	35.6	.3	-95.2	-18.86	-47.32	-25	-22.32	V
7.650938	30.59	Pk	35.6	.3	-95.2	-18.88	-47.59	-25	-22.59	H
10.200469	28.99	Pk	37.1	.8	-95.2	-16.9	-45.21	-25	-20.21	V
10.200938	31.83	Pk	37.1	.8	-95.2	-16.9	-42.37	-25	-17.37	H

### 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 #:	4790592262
Date:	04/8/2023
Test Engineer:	45258
Configuration:	EUT only
Mode	Band 41 QPSK 20MHz + 20MHz
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	Horn Antenna ACF(dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2506MHz + 2525.8MHz										
5.031563	31.94	Pk	34.2	.7	-95.2	-23.48	-51.84	-25	-26.84	H
5.031563	33.55	Pk	34.2	.7	-95.2	-23.48	-50.23	-25	-25.23	V
7.547813	29.98	Pk	35.5	.3	-95.2	-19.52	-48.94	-25	-23.94	H
7.547813	31.05	Pk	35.5	.3	-95.2	-19.52	-47.87	-25	-22.87	V
10.062656	29.58	Pk	36.9	.7	-95.2	-17.11	-45.13	-25	-20.13	H
10.063594	27.69	Pk	36.9	.7	-95.2	-17.11	-47.02	-25	-22.02	V
Mid Channel, 2583.1MHz + 2602.9MHz										
5.185781	32.86	Pk	34.5	.8	-95.2	-23.03	-50.07	-25	-25.07	H
5.185781	32.27	Pk	34.5	.8	-95.2	-23.03	-50.66	-25	-25.66	V
7.77969	31.32	Pk	35.6	.3	-95.2	-19.01	-46.99	-25	-21.99	H
7.779375	31.68	Pk	35.6	.3	-95.2	-18.99	-46.61	-25	-21.61	V
10.372031	30.5	Pk	37.2	.8	-95.2	-16.38	-43.08	-25	-18.08	H
10.372969	29.1	Pk	37.2	.8	-95.2	-16.37	-44.47	-25	-19.47	V
High Channel, 2660.2MHz + 2680MHz										
5.340000	31.66	Pk	34.6	.6	-95.2	-23.28	-51.62	-25	-26.62	H
5.340000	32.01	Pk	34.6	.6	-95.2	-23.28	-51.27	-25	-26.27	V
8.009531	31.18	Pk	35.6	.3	-95.2	-18.7	-46.82	-25	-21.82	V
8.010469	29.5	Pk	35.6	.3	-95.2	-18.7	-48.50	-25	-23.50	H
10.680469	29.19	Pk	37.4	.5	-95.2	-16.37	-44.48	-25	-19.48	H
10.680469	28.52	Pk	37.4	.5	-95.2	-16.37	-45.15	-25	-20.15	V

## 10.3. FIELD STRENGTH OF SPURIOUS RADIATION, ANT3

### TEST PROCEDURE

KDB 971168 D01/D02 v02r02

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

### RESULTS

#### 10.3.1. LTE BAND 5

### LIMIT

FCC: §22.917(a)

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

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

Project #:	4790592262
Date:	04/14/2023
Test Engineer:	45258
Configuration:	EUT only
Mode	LTE Band 5 QPSK 10MHz + 10MHz
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	Horn Antenna ACF(dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
<b>Low Channel, 829MHz + 838.9MHz</b>										
1.667867	37.90	Pk	28.5	.7	-95.2	-28.73	-56.83	-13	-43.83	H
1.668845	37.58	Pk	28.5	.7	-95.2	-28.78	-57.20	-13	-44.20	V
2.501911	36.07	Pk	32.2	.6	-95.2	-27.56	-53.89	-13	-40.89	H
2.501911	35.74	Pk	32.2	.6	-95.2	-27.56	-54.22	-13	-41.22	V
3.335467	35.07	Pk	32.5	.5	-95.2	-26.2	-53.33	-13	-40.33	V
3.335956	35.87	Pk	32.5	.5	-95.2	-26.23	-52.56	-13	-39.56	H
<b>Mid Channel, 831.6MHz + 841.5MHz</b>										
1.673245	38.89	Pk	28.6	.7	-95.2	-28.72	-55.73	-13	-42.73	H
1.673245	37.95	Pk	28.6	.7	-95.2	-28.72	-56.67	-13	-43.67	V
2.509245	37.11	Pk	32.2	.7	-95.2	-27.55	-52.74	-13	-39.74	V
2.510223	35.93	Pk	32.2	.7	-95.2	-27.52	-53.89	-13	-40.89	H
3.347689	35.71	Pk	32.5	.5	-95.2	-26.18	-52.67	-13	-39.67	H
3.347689	34.95	Pk	32.5	.5	-95.2	-26.18	-53.43	-13	-40.43	V
<b>High Channel, 834.1MHz + 844MHz</b>										
1.678133	37.48	Pk	28.6	.7	-95.2	-28.77	-57.19	-13	-44.19	H
1.679111	38.01	Pk	28.6	.7	-95.2	-28.74	-56.63	-13	-43.63	V
2.517067	37.22	Pk	32.2	.7	-95.2	-27.46	-52.54	-13	-39.54	V
2.517556	35.87	Pk	32.2	.8	-95.2	-27.44	-53.77	-13	-40.77	H
3.356000	35.41	Pk	32.5	.6	-95.2	-26.08	-52.77	-13	-39.77	H
3.356000	35.19	Pk	32.5	.6	-95.2	-26.08	-52.99	-13	-39.99	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 #:	4790592262
Date:	04/9/2023
Test Engineer:	45258
Configuration:	EUT only
Mode	LTE Band 7 QPSK 20MHz + 20MHz
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	Horn Antenna ACF(dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2510MHz + 2529.8MHz										
5.040469	34.36	Pk	34.3	.6	-95.2	-23.28	-49.22	-25	-24.22	V
5.040938	34.55	Pk	34.3	.6	-95.2	-23.25	-49.00	-25	-24.00	H
7.560469	33.27	Pk	35.6	.3	-95.2	-19.49	-45.52	-25	-20.52	V
7.560938	31.78	Pk	35.6	.4	-95.2	-19.48	-46.90	-25	-21.90	H
10.081406	30.83	Pk	37.0	.6	-95.2	-17.19	-43.96	-25	-18.96	V
10.081875	32.22	Pk	37.0	.6	-95.2	-17.19	-42.57	-25	-17.57	H
Mid Channel, 2525.1MHz + 2544.9MHz										
5.070469	36.10	Pk	34.3	.7	-95.2	-23.20	-47.30	-25	-22.30	H
5.070938	34.34	Pk	34.3	.7	-95.2	-23.20	-49.06	-25	-24.06	V
7.600781	31.45	Pk	35.5	.4	-95.2	-19.21	-47.06	-25	-22.06	H
7.601250	31.43	Pk	35.5	.4	-95.2	-19.20	-47.07	-25	-22.07	V
10.139531	31.39	Pk	37.0	.7	-95.2	-16.95	-43.06	-25	-18.06	H
10.139531	32.24	Pk	37.0	.7	-95.2	-16.95	-42.21	-25	-17.21	V
High Channel, 2540.2MHz + 2560MHz										
5.101406	34.73	Pk	34.4	.8	-95.2	-23.29	-48.56	-25	-23.56	V
5.102813	34.13	Pk	34.4	.8	-95.2	-23.32	-49.19	-25	-24.19	H
7.604531	31.23	Pk	35.5	.4	-95.2	-19.16	-47.23	-25	-22.23	V
7.605000	32.82	Pk	35.5	.4	-95.2	-19.16	-45.64	-25	-20.64	H
10.200000	32.22	Pk	37.0	.8	-95.2	-16.90	-42.08	-25	-17.08	H
10.200938	30.83	Pk	37.1	.8	-95.2	-16.90	-43.37	-25	-18.37	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.

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

Project #:	4790592262
Date:	04/9/2023
Test Engineer:	45258
Configuration:	EUT only
Mode	Band 41 QPSK 20MHz + 20MHz
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	Horn Antenna ACF(dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2506MHz + 2525.8MHz										
5.031094	35.38	Pk	34.2	.7	-95.2	-23.49	-48.41	-25	-23.41	H
5.032500	34.87	Pk	34.2	.7	-95.2	-23.45	-48.88	-25	-23.88	V
7.547813	33.02	Pk	35.5	.3	-95.2	-19.52	-45.90	-25	-20.90	V
7.548281	32.95	Pk	35.5	.3	-95.2	-19.52	-45.97	-25	-20.97	H
10.063125	29.55	Pk	36.9	.7	-95.2	-17.11	-45.16	-25	-20.16	H
10.063125	31.55	Pk	36.9	.7	-95.2	-17.11	-43.16	-25	-18.16	V
Mid Channel, 2583.1MHz + 2602.9MHz										
5.185313	32.52	Pk	34.5	.8	-95.2	-23.04	-50.42	-25	-25.42	H
5.185313	34.09	Pk	34.5	.8	-95.2	-23.04	-48.85	-25	-23.85	V
7.777031	33.05	Pk	35.6	.3	-95.2	-19.01	-45.26	-25	-20.26	H
7.777031	31.69	Pk	35.6	.3	-95.2	-19.01	-46.62	-25	-21.62	V
10.371563	30.26	Pk	37.2	.8	-95.2	-16.37	-43.31	-25	-18.31	H
10.371563	32.46	Pk	37.2	.8	-95.2	-16.37	-41.11	-25	-16.11	V
High Channel, 2660.2MHz + 2680MHz										
5.341406	32.62	Pk	34.6	.6	-95.2	-23.27	-50.65	-25	-25.65	H
5.341875	33.09	Pk	34.6	.6	-95.2	-23.28	-50.19	-25	-25.19	V
8.009531	31.00	Pk	35.6	.3	-95.2	-18.70	-47.00	-25	-22.00	H
8.009531	32.48	Pk	35.6	.3	-95.2	-18.70	-45.52	-25	-20.52	V
10.679531	32.65	Pk	37.4	.5	-95.2	-16.35	-41.00	-25	-16.00	V
10.680000	31.03	Pk	37.4	.5	-95.2	-16.37	-42.64	-25	-17.64	H

## 10.4. FIELD STRENGTH OF SPURIOUS RADIATION, ANT4

### TEST PROCEDURE

KDB 971168 D01/D02 v02r02

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

### RESULTS

#### 10.4.1. LTE BAND 7

##### LIMIT

FCC: §27.53 (m)

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

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

Project #:	
Date:	04/10/2023
Test Engineer:	45258
Configuration:	EUT only
Mode	LTE Band 7 QPSK 20MHz + 20MHz
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	Horn Antenna ACF(dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2510MHz + 2529.8MHz										
5.039531	36.04	Pk	34.3	.6	-95.2	-23.32	-47.58	-25	-22.58	V
5.040000	36.06	Pk	34.3	.6	-95.2	-23.30	-47.54	-25	-22.54	H
7.560000	31.16	Pk	35.6	.3	-95.2	-19.50	-47.64	-25	-22.64	H
7.560938	33.48	Pk	35.6	.4	-95.2	-19.48	-45.20	-25	-20.20	V
10.080469	30.32	Pk	37.0	.6	-95.2	-17.18	-44.46	-25	-19.46	V
10.081406	31.52	Pk	37.0	.6	-95.2	-17.19	-43.27	-25	-18.27	H
Mid Channel, 2525.1MHz + 2544.9MHz										
5.071875	34.01	Pk	34.3	.7	-95.2	-23.19	-49.38	-25	-24.38	V
5.072344	36.00	Pk	34.3	.7	-95.2	-23.2	-47.40	-25	-22.40	H
7.605938	30.71	Pk	35.5	.4	-95.2	-19.17	-47.76	-25	-22.76	H
7.605938	33.31	Pk	35.5	.4	-95.2	-19.17	-45.16	-25	-20.16	V
10.140938	30.63	Pk	37.0	.6	-95.2	-16.95	-43.92	-25	-18.92	V
10.141406	32.48	Pk	37.0	.6	-95.2	-16.95	-42.07	-25	-17.07	H
High Channel, 2540.2MHz + 2560MHz										
5.100469	33.52	Pk	34.4	.8	-95.2	-23.27	-49.75	-25	-24.75	H
5.100469	35.53	Pk	34.4	.8	-95.2	-23.27	-47.74	-25	-22.74	V
7.650938	32.00	Pk	35.6	.3	-95.2	-18.88	-46.18	-25	-21.18	V
7.651406	32.73	Pk	35.6	.3	-95.2	-18.88	-45.45	-25	-20.45	H
10.199531	31.58	Pk	37.0	.8	-95.2	-16.90	-42.72	-25	-17.72	H
10.200469	31.26	Pk	37.1	.8	-95.2	-16.90	-42.94	-25	-17.94	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)**

Project #:	4790592262
Date:	04/10/2023
Test Engineer:	45258
Configuration:	EUT only
Mode	Band 41 QPSK 20MHz + 20MHz
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	Horn Antenna ACF(dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2506MHz + 2525.8MHz										
5.031563	34.26	Pk	34.2	.7	-95.2	-23.48	-49.52	-25	-24.52	V
5.032031	34.28	Pk	34.3	.7	-95.2	-23.47	-49.39	-25	-24.39	H
7.545938	33.22	Pk	35.5	.3	-95.2	-19.49	-45.67	-25	-20.67	H
7.546875	31.71	Pk	35.5	.3	-95.2	-19.51	-47.2	-25	-22.2	V
10.063125	31.46	Pk	36.9	.7	-95.2	-17.11	-43.25	-25	-18.25	H
10.063594	31.42	Pk	36.9	.7	-95.2	-17.11	-43.29	-25	-18.29	V
Mid Channel, 2583.1MHz + 2602.9MHz										
5.180625	34.75	Pk	34.4	.7	-95.2	-23.05	-48.40	-25	-23.40	H
5.181094	34.39	Pk	34.4	.7	-95.2	-23.06	-48.77	-25	-23.77	V
7.778906	31.94	Pk	35.6	.3	-95.2	-18.99	-46.35	-25	-21.35	V
7.779844	31.53	Pk	35.6	.3	-95.2	-19.00	-46.77	-25	-21.77	H
10.372500	31.76	Pk	37.2	.8	-95.2	-16.38	-41.82	-25	-16.82	H
10.372500	30.77	Pk	37.2	.8	-95.2	-16.38	-42.81	-25	-17.81	V
High Channel, 2660.2MHz + 2680MHz										
5.340469	33.63	Pk	34.6	.6	-95.2	-23.28	-49.65	-25	-24.65	V
5.340938	33.46	Pk	34.6	.6	-95.2	-23.27	-49.81	-25	-24.81	H
8.010938	31.79	Pk	35.6	.3	-95.2	-18.7	-46.21	-25	-21.21	H
8.011406	32.38	Pk	35.6	.3	-95.2	-18.7	-45.62	-25	-20.62	V
10.680469	30.69	Pk	37.4	.5	-95.2	-16.37	-42.98	-25	-17.98	H
10.680938	32.42	Pk	37.4	.5	-95.2	-16.37	-41.25	-25	-16.25	V

**10.4.3. 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 #:	4790592262
Date:	05/31/2023
Test Engineer:	25196
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										
7.114800	25.31	RMS	35.7	.5	-95.2	-27.17	-60.86	-40	-20.86	H
7.118766	25.28	RMS	35.7	.5	-95.2	-27.14	-60.86	-40	-20.86	V
10.667119	22.95	RMS	37.8	.6	-95.2	-24.51	-58.36	-40	-18.36	V
10.679016	22.85	RMS	37.8	.6	-95.2	-24.54	-58.49	-40	-18.49	H
14.217675	20.46	RMS	39.3	.8	-95.2	-20.11	-54.75	-40	-14.75	V
14.251163	20.33	RMS	39.3	.8	-95.2	-20.13	-54.90	-40	-14.9	H
Mid Channel, 3615.1MHz + 3634.9MHz										
7.105106	25.10	RMS	35.7	.5	-95.2	-27.14	-61.04	-40	-21.04	V
7.122291	25.20	RMS	35.7	.5	-95.2	-27.16	-60.96	-40	-20.96	H
10.585163	22.99	RMS	37.8	.6	-95.2	-24.34	-58.15	-40	-18.15	V
10.687388	22.73	RMS	37.8	.6	-95.2	-24.40	-58.47	-40	-18.47	H
14.250281	20.35	RMS	39.3	.8	-95.2	-20.17	-54.92	-40	-14.92	V
14.250722	20.32	RMS	39.3	.8	-95.2	-20.13	-54.91	-40	-14.91	H
High Channel, 3670.2MHz + 3690MHz										
7.380056	25.10	RMS	35.8	.7	-95.2	-26.97	-60.57	-40	-20.57	H
7.388869	25.19	RMS	35.8	.7	-95.2	-27.06	-60.57	-40	-20.57	V
11.022703	22.01	RMS	37.8	.6	-95.2	-23.64	-58.43	-40	-18.43	V
11.073375	22.52	RMS	37.8	.7	-95.2	-23.38	-57.56	-40	-17.56	H
14.745984	19.65	RMS	40.1	.8	-95.2	-19.45	-54.10	-40	-14.10	V
14.777269	19.64	RMS	40.2	.8	-95.2	-20.07	-54.63	-40	-14.63	H

## 10.5. FIELD STRENGTH OF SPURIOUS RADIATION, ANT7

### TEST PROCEDURE

KDB 971168 D01/D02 v02r02

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

### RESULTS



### 10.5.1. LTE BAND 48

#### LIMIT

FCC: §96.41

(e) 3.5 GHz Emissions and Interference Limits—

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

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

Project #:	4790592262
Date:	5/31/2023
Test Engineer:	25196
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										
7.103784	25.10	RMS	35.7	.5	-95.2	-27.15	-61.05	-40	-21.05	V
7.158863	24.95	RMS	35.7	.6	-95.2	-27.21	-61.16	-40	-21.16	H
10.653459	23.00	RMS	37.8	.6	-95.2	-24.43	-58.23	-40	-18.23	V
10.738941	22.58	RMS	37.7	.6	-95.2	-23.94	-58.26	-40	-18.26	H
14.200491	20.24	RMS	39.2	.7	-95.2	-20.08	-55.14	-40	-15.14	V
14.328713	20.33	RMS	39.5	.8	-95.2	-20	-54.57	-40	-14.57	H
Mid Channel, 3615.1MHz + 3634.9MHz										
7.215703	24.78	RMS	35.8	.6	-95.2	-27.08	-61.1	-40	-21.10	V
7.258444	24.93	RMS	35.8	.6	-95.2	-26.85	-60.72	-40	-20.72	H
10.822659	22.48	RMS	37.7	.6	-95.2	-24.19	-58.61	-40	-18.61	V
10.890516	22.27	RMS	37.7	.6	-95.2	-23.96	-58.59	-40	-18.59	H
14.387316	19.76	RMS	39.6	.8	-95.2	-19.83	-54.87	-40	-14.87	V
14.495709	19.48	RMS	39.7	.7	-95.2	-19.84	-55.16	-40	-15.16	H
High Channel, 3670.2MHz + 3690MHz										
7.353619	24.93	RMS	35.8	.7	-95.2	-27.12	-60.89	-40	-20.89	V
7.376091	25.13	RMS	35.8	.7	-95.2	-26.98	-60.55	-40	-20.55	H
11.104659	22.39	RMS	37.8	.7	-95.2	-23.38	-57.69	-40	-17.69	H
11.113031	22.36	RMS	37.8	.7	-95.2	-23.28	-57.62	-40	-17.62	V
14.753034	19.55	RMS	40.1	.8	-95.2	-19.59	-54.34	-40	-14.34	V
14.782556	19.66	RMS	40.2	.9	-95.2	-19.96	-54.40	-40	-14.40	H

## 10.6. FIELD STRENGTH OF SPURIOUS RADIATION, ANT8

### TEST PROCEDURE

KDB 971168 D01/D02 v02r02

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

### RESULTS

## LTE BAND 48

### LIMIT

FCC: §96.41

(e) 3.5 GHz Emissions and Interference Limits—

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

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

Project #:	4790592262
Date:	05/31/2022
Test Engineer:	25196
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										
7.084397	24.82	RMS	35.7	.5	-95.2	-27.36	-61.54	-40	-21.54	V
7.116122	25.28	RMS	35.7	.5	-95.2	-27.22	-60.94	-40	-20.94	H
10.636275	22.96	RMS	37.8	.6	-95.2	-24.69	-58.53	-40	-18.53	V
10.678575	22.77	RMS	37.8	.6	-95.2	-24.52	-58.55	-40	-18.55	H
14.222081	20.40	RMS	39.3	.8	-95.2	-20.14	-54.84	-40	-14.84	V
14.249400	20.31	RMS	39.3	.8	-95.2	-20.24	-55.03	-40	-15.03	H
Mid Channel, 3615.1MHz + 3634.9MHz										
7.258444	25.22	RMS	35.8	.6	-95.2	-26.85	-60.43	-40	-20.43	V
7.270341	25.02	RMS	35.8	.5	-95.2	-26.91	-60.79	-40	-20.79	H
10.853063	22.44	RMS	37.7	.5	-95.2	-24.14	-58.7	-40	-18.70	V
10.910784	22.21	RMS	37.7	.6	-95.2	-23.80	-58.49	-40	-18.49	H
14.529638	19.15	RMS	39.8	.8	-95.2	-19.74	-55.19	-40	-15.19	V
14.544178	19.20	RMS	39.8	.8	-95.2	-19.59	-54.99	-40	-14.99	H
High Channel, 3670.2MHz + 3690MHz										
7.356703	24.88	RMS	35.8	.7	-95.2	-27.08	-60.90	-40	-20.90	V
7.388428	25.22	RMS	35.8	.7	-95.2	-27.04	-60.52	-40	-20.52	H
11.095847	22.48	RMS	37.8	.7	-95.2	-23.32	-57.54	-40	-17.54	H
11.095847	22.46	RMS	37.8	.7	-95.2	-23.32	-57.56	-40	-17.56	V
14.769338	19.61	RMS	40.1	.8	-95.2	-20.17	-54.86	-40	-14.86	H
14.770659	19.60	RMS	40.1	.8	-95.2	-20.18	-54.88	-40	-14.88	V

## 10.7. FIELD STRENGTH OF SPURIOUS RADIATION, ANT9

### TEST PROCEDURE

KDB 971168 D01/D02 v02r02

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

### RESULTS

#### 10.7.1. LTE BAND 48

### LIMIT

FCC: §96.41

(e) 3.5 GHz Emissions and Interference Limits—

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

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

Project #:	4790592262
Date:	05/31/2022
Test Engineer:	25196
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										
7.143881	24.93	RMS	35.7	.6	-95.2	-27.14	-61.11	-40	-21.11	V
7.166353	25.12	RMS	35.7	.6	-95.2	-27.06	-60.84	-40	-20.84	H
10.716909	22.53	RMS	37.7	.5	-95.2	-24.01	-58.48	-40	-18.48	V
10.729688	22.52	RMS	37.7	.6	-95.2	-23.93	-58.31	-40	-18.31	H
14.267025	20.36	RMS	39.3	.8	-95.2	-20.23	-54.97	-40	-14.97	V
14.317697	20.35	RMS	39.4	.7	-95.2	-20.05	-54.80	-40	-14.80	H
Mid Channel, 3615.1MHz + 3634.9MHz										
7.247869	25.07	RMS	35.8	.6	-95.2	-26.8	-60.53	-40	-20.53	V
7.264172	25.01	RMS	35.8	.6	-95.2	-26.95	-60.74	-40	-20.74	H
10.83015	22.40	RMS	37.7	.6	-95.2	-24.11	-58.61	-40	-18.61	V
10.905497	22.13	RMS	37.7	.6	-95.2	-23.82	-58.59	-40	-18.59	H
14.445919	19.48	RMS	39.7	.8	-95.2	-19.93	-55.15	-40	-15.15	V
14.542416	19.14	RMS	39.8	.8	-95.2	-19.61	-55.07	-40	-15.07	H
High Channel, 3670.2MHz + 3690MHz										
7.377413	25.09	RMS	35.8	.7	-95.2	-26.91	-60.52	-40	-20.52	V
7.385784	25.12	RMS	35.8	.7	-95.2	-27.05	-60.63	-40	-20.63	H
10.974675	21.92	RMS	37.7	.6	-95.2	-23.53	-58.51	-40	-18.51	V
11.073375	22.44	RMS	37.8	.7	-95.2	-23.38	-57.64	-40	-17.64	H
14.723072	19.66	RMS	40.0	.9	-95.2	-19.88	-54.52	-40	-14.52	V
14.780794	19.64	RMS	40.2	.8	-95.2	-20.01	-54.57	-40	-14.57	H

## 11. SETUP PHOTOS

Please refer to 14523744-EP1V1 Setup Photo Report for setup photos.

**END OF REPORT**