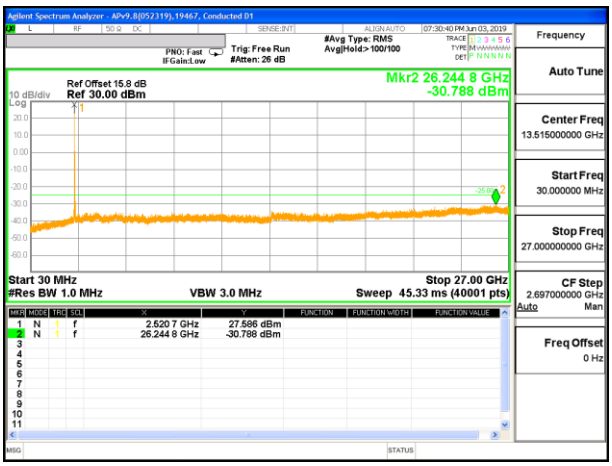
LTE B7 20MHz + 20MHz QPSK Low Ch RB1-99 + RB1-0



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

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

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

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

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

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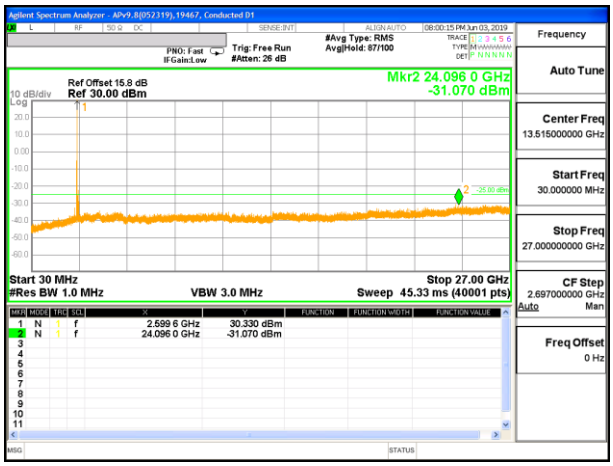
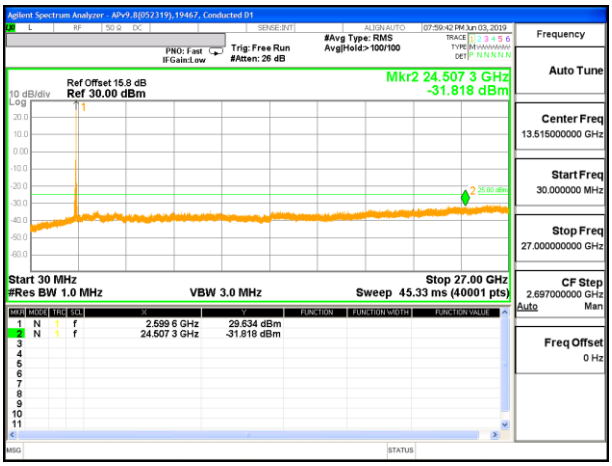
8.3.3. LTE BAND 41

LTE B41 20MHz + 5MHz QPSK Low Ch RB1-99 + RB1-0

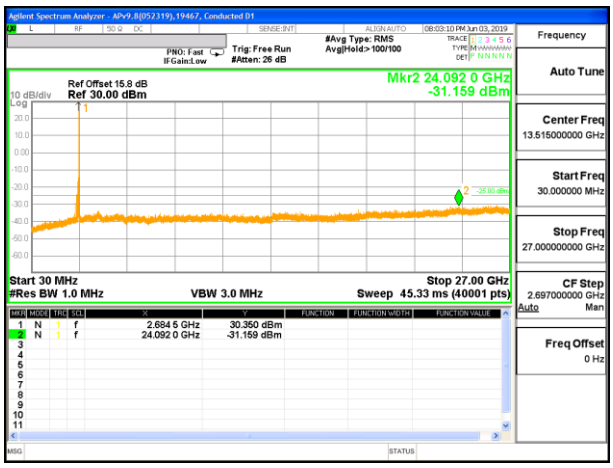
LTE B41 20MHz + 5MHz 16QAM Low Ch RB1-99 + RB1-0



LTE B41 20MHz + 5MHz QPSK Middle Ch RB1-99 + RB1-0



LTE B41 20MHz + 5MHz 16QAM Middle Ch RB1-99 + RB1-0



LTE B41 20MHz + 5MHz QPSK High Ch RB1-99 + RB1-0

LTE B41 20MHz + 5MHz 16QAM High Ch RB1-99 + RB1-0

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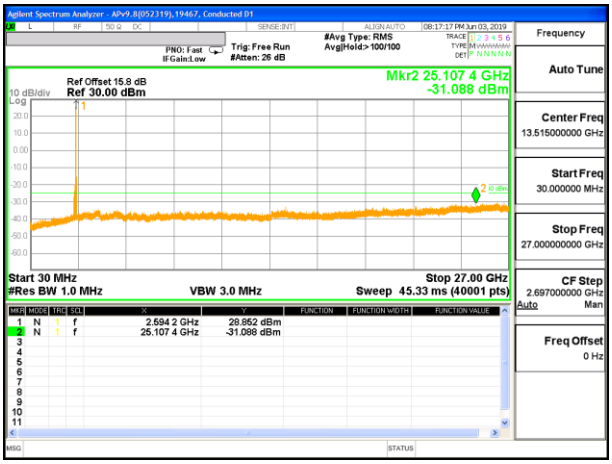
LTE B41 20MHz + 20MHz QPSK Low Ch RB1-99 + RB1-0

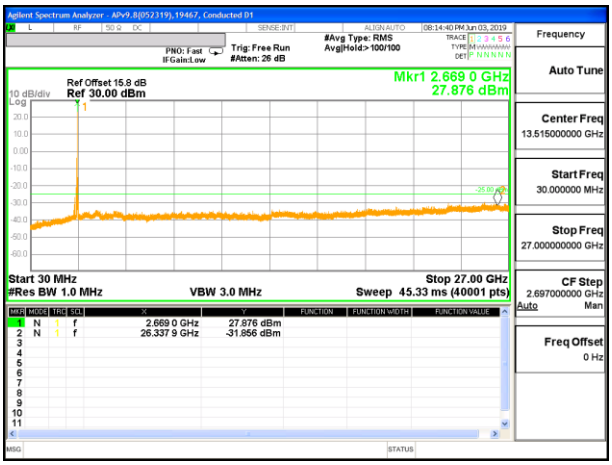
LTE B41 20MHz + 20MHz 16QAM Low Ch RB1-99 + RB1-0

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



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

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



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

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8.4. FREQUENCY STABILITY

RULE PART(S)

FCC: §2.1055, §22.355, §27.54

LIMITS

FCC: §27.54
The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

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

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

Frequency Stability vs Temperature:
The EUT is place inside a temperature chamber. The temperature is set to 20ºC 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 +50ºC is reached.

Frequency Stability vs Voltage:
The peak frequency error is recorded (worst-case).

MODES TESTED

- LTE Band 5
- LTE Band 7
- LTE Band 41

RESULTS

See the following pages.

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8.4.1. LTE BAND 5

ID:	38602	Date:	5/17/19

QPSK, (10MHz + 5MHz BANDWIDTH)

Limit		824	849	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	824.1093	848.9854		
Extreme (50C)		824.1093	848.9854	15.0	0.018
Extreme (40C)		824.1093	848.9854	14.1	0.017
Extreme (30C)		824.1093	848.9854	12.8	0.015
Extreme (10C)		824.1093	848.9854	11.4	0.014
Extreme (0C)		824.1093	848.9854	2.3	0.003
Extreme (-10C)		824.1093	848.9854	-4.2	-0.005
Extreme (-20C)		824.1093	848.9854	-11.3	-0.014
Extreme (-30C)		824.1093	848.9854	-13.6	-0.016
20C	15%	824.1093	848.9854	9.3	0.011
	-15%	824.1093	848.9854	-13.1	-0.016
	End Point	824.1093	848.9854	-12.6	-0.015

QPSK, (10MHz + 10MHz BANDWIDTH)

Limit		824	849	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	824.3583	848.5910		
Extreme (50C)		824.3583	848.5910	33.6	0.040
Extreme (40C)		824.3583	848.5910	29.8	0.036
Extreme (30C)		824.3583	848.5910	24.4	0.029
Extreme (10C)		824.3583	848.5910	20.3	0.024
Extreme (0C)		824.3583	848.5910	8.5	0.010
Extreme (-10C)		824.3583	848.5910	1.7	0.002
Extreme (-20C)		824.3583	848.5910	-16.6	-0.020
Extreme (-30C)		824.3583	848.5910	-19.7	-0.024
20C	15%	824.3583	848.5910	8.8	0.011
	-15%	824.3583	848.5910	-10.2	-0.012
	End Point	824.3583	848.5910	-12.6	-0.015

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8.4.2. LTE BAND 7

ID:	38602	Date:	5/17/19

QPSK, (20MHz + 10MHz BANDWIDTH)

Limit		2500	2570	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	2501.0710	2568.9440		
Extreme (50C)		2501.0710	2568.9440	27.2	0.011
Extreme (40C)		2501.0710	2568.9440	29.8	0.012
Extreme (30C)		2501.0710	2568.9440	27.7	0.011
Extreme (10C)		2501.0710	2568.9440	22.5	0.009
Extreme (0C)		2501.0710	2568.9440	9.8	0.004
Extreme (-10C)		2501.0710	2568.9440	-5.4	-0.002
Extreme (-20C)		2501.0710	2568.9440	-20.7	-0.008
Extreme (-30C)		2501.0710	2568.9440	-28.8	-0.011
20C	15%	2501.0710	2568.9440	7.8	0.003
	-15%	2501.0710	2568.9440	-25.1	-0.010
	End Point	2501.0710	2568.9440	-28.2	-0.011

QPSK, (20MHz + 20MHz BANDWIDTH)

Limit		2500	2570	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	2501.0780	2568.9450		
Extreme (50C)		2501.0780	2568.9450	57.2	0.023
Extreme (40C)		2501.0780	2568.9450	50.5	0.020
Extreme (30C)		2501.0780	2568.9450	39.9	0.016
Extreme (10C)		2501.0780	2568.9450	40.1	0.016
Extreme (0C)		2501.0780	2568.9450	28.2	0.011
Extreme (-10C)		2501.0780	2568.9450	10.3	0.004
Extreme (-20C)		2501.0780	2568.9450	-39.3	-0.016
Extreme (-30C)		2501.0780	2568.9450	-43.1	-0.017
20C	15%	2501.0780	2568.9450	-17.5	-0.007
	-15%	2501.0780	2568.9450	-33.4	-0.013
	End Point	2501.0780	2568.9450	-52.2	-0.021

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8.4.3. LTE BAND 41

ID:	30606	Date:	5/16/10

QPSK, (20MHz + 5MHz BANDWIDTH)

Limit		2496	2690	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	2496.6210	2689.4350		
Extreme (50C)		2496.6210	2689.4350	70.2	0.027
Extreme (40C)		2496.6210	2689.4350	78.3	0.030
Extreme (30C)		2496.6210	2689.4350	63.9	0.025
Extreme (10C)		2496.6210	2689.4350	45.3	0.017
Extreme (0C)		2496.6210	2689.4350	-11.3	-0.004
Extreme (-10C)		2496.6210	2689.4350	-41.9	-0.016
Extreme (-20C)		2496.6210	2689.4350	-44.8	-0.017
Extreme (-30C)		2496.6210	2689.4350	-38.1	-0.015
20C	15%	2496.6210	2689.4350	12.7	0.005
	-15%	2496.6210	2689.4350	-5.5	-0.002
	End Point	2496.6210	2689.4350	-26.6	-0.010

QPSK, (20MHz + 20MHz BANDWIDTH)

Limit		2496	2690	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	2496.6380	2689.3360		
Extreme (50C)		2496.6380	2689.3360	80.1	0.031
Extreme (40C)		2496.6380	2689.3360	63.7	0.025
Extreme (30C)		2496.6380	2689.3360	59.8	0.023
Extreme (10C)		2496.6380	2689.3360	72.3	0.028
Extreme (0C)		2496.6380	2689.3360	66.9	0.026
Extreme (-10C)		2496.6380	2689.3360	55.2	0.021
Extreme (-20C)		2496.6380	2689.3360	62.7	0.024
Extreme (-30C)		2496.6380	2689.3360	54.2	0.021
20C	15%	2496.6380	2689.3360	-40.3	-0.016
	-15%	2496.6380	2689.3360	-57.5	-0.022
	End Point	2496.6380	2689.3360	-51.1	-0.020

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8.5. 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 LAT antenna; 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.

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8.5.1. LTE BAND 5

ID:	10646	Date:	6/6/19

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	834.1	838.0	QPSK	30.86	23.98	6.88
				16QAM	31.02	23.95	7.07
	5 MHz / 3MHz	835.1	839.0	QPSK	32.45	23.42	9.03
				16QAM	32.31	22.85	9.46
	5MHz / 10MHz	831.8	839.0	QPSK	30.53	21.89	8.64
				16QAM	30.44	20.91	9.53
	10MHz / 5MHz	834.3	841.5	QPSK	30.51	21.86	8.65
				16QAM	30.51	20.88	9.63
	10MHz / 10MHz	831.6	841.5	QPSK	30.29	21.81	8.48
				16QAM	30.33	20.82	9.51
Duty Cycle Correction Factor (dB) =			0.00				

8.5.2. LTE BAND 7

ID:	10646	Date:	6/6/19

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	30.28	21.78	8.50
				16QAM	30.22	20.78	9.44
	15 MHz / 15MHz	2527.5	2542.5	QPSK	30.03	21.81	8.22
				16QAM	29.84	20.81	9.03
	15MHz / 20MHz	2525.3	2542.4	QPSK	30.32	21.88	8.44
				16QAM	30.21	20.88	9.33
	20MHz / 10MHz	2530.1	2544.5	QPSK	30.18	21.79	8.39
				16QAM	30.09	20.79	9.30
	20MHz / 15MHz	2527.6	2544.7	QPSK	30.28	21.86	8.42
				16QAM	30.27	20.88	9.39
	20MHz / 20MHz	2525.1	2544.9	QPSK	30.22	21.90	8.32
				16QAM	30.06	20.88	9.18
Duty Cycle Correction Factor (dB) =			0.00				
Peak-to-Average Power Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor							

8.5.3. LTE BAND 41

ID:	10646	Date:	6/6/19

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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	32.06	16.72	8.34
				16QAM	31.93	15.78	9.15
	10MHz / 20MHz	2583.6	2598.0	QPSK	31.96	16.69	8.27
				16QAM	31.91	15.72	9.19
	15MHz / 15MHz	2585.5	2600.5	QPSK	32.09	16.66	8.43
				16QAM	32.00	15.68	9.32
	15MHz / 20MHz	2583.3	2600.4	QPSK	32.33	16.82	8.51
				16QAM	32.17	15.86	9.31
	20MHz / 5MHz	2590.5	2602.2	QPSK	31.96	16.70	8.26
				16QAM	31.73	15.74	8.99
	20MHz / 10MHz	2588.1	2602.5	QPSK	32.23	16.68	8.55
				16QAM	32.11	15.70	9.41
	20MHz / 15MHz	2585.6	2602.7	QPSK	32.12	16.77	8.35
				16QAM	32.06	15.82	9.24
	20MHz / 20MHz	2583.1	2602.9	QPSK	32.06	16.72	8.34
				16QAM	31.81	15.76	9.05
Duty Cycle Correction Factor (dB) =			7.00				
Peak-to-Average Power Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor							

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9. RADIATED TEST RESULTS

RULE PART(S)

FCC: §2.1053, §22.917, §27.53

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.

TEST PROCEDURE

KDB 971168 D01/D02 v02r01

MODES TESTED

- LTE Band 5
- LTE Band 7
- LTE Band 41

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9.1. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 1

9.1.1. LTE BAND 5

Company:	
Project #:	12607346
Date:	6/4/2019
Test Engineer:	23567
Configuration:	EUT Only
Mode:	LTE 5 QPSK 10MHz + 10MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 829MHz + 838.9MHz									
1.656	-65.95	Pk	28.7	-32.5	11.7	-58.05	-13	-45.05	V
1.667	-66.76	Pk	28.8	-32.4	12.5	-57.86	-13	-44.86	H
2.489	-66.48	Pk	32.6	-31.5	11.4	-53.98	-13	-40.98	V
2.492	-67.17	Pk	32.6	-31.5	11.1	-54.97	-13	-41.97	H
3.308	-67.93	Pk	32.8	-30.3	11.3	-54.13	-13	-41.13	H
3.311	-67.15	Pk	32.8	-30.3	11	-53.65	-13	-40.65	V
Mid Channel, 831.5MHz + 841.4MHz									
1.643	-66.26	Pk	28.7	-32.4	11.5	-58.46	-13	-45.46	V
1.658	-66.56	Pk	28.7	-32.5	12.3	-58.06	-13	-45.06	H
2.501	-67.56	Pk	32.6	-31.5	11.5	-54.96	-13	-41.96	V
2.503	-67.25	Pk	32.7	-31.5	11.2	-54.85	-13	-41.85	H
3.311	-67.5	Pk	32.8	-30.3	11.4	-53.6	-13	-40.6	H
3.329	-67.27	Pk	32.8	-30.2	11	-53.67	-13	-40.67	V
High Channel, 834.1MHz + 844MHz									
1.662	-66.25	Pk	28.8	-32.4	11.6	-58.25	-13	-45.25	V
1.667	-65.84	Pk	28.8	-32.4	12.5	-56.94	-13	-43.94	H
2.47	-66.65	Pk	32.6	-31.5	11.2	-54.35	-13	-41.35	V
2.483	-67.21	Pk	32.6	-31.5	11.1	-55.01	-13	-42.01	H
3.308	-67.07	Pk	32.8	-30.3	10.9	-53.67	-13	-40.67	V
3.31	-68.18	Pk	32.8	-30.3	11.4	-54.28	-13	-41.28	H

Pk - Peak detector

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Company:	
Project #:	12607346
Date:	6/4/2019
Test Engineer:	23567
Configuration:	EUT Only
Mode:	LTE 5 16QAM 10MHz + 10MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 829MHz + 838.9MHz									
1.663	-65.73	Pk	28.8	-32.4	11.6	-57.73	-13	-44.73	V
1.673	-66.15	Pk	28.9	-32.3	12.6	-56.95	-13	-43.95	H
2.476	-66.99	Pk	32.5	-31.5	11.6	-54.39	-13	-41.39	V
2.48	-67.73	Pk	32.6	-31.4	11.4	-55.13	-13	-42.13	H
3.284	-66.58	Pk	32.9	-30.3	10.9	-53.08	-13	-40.08	H
3.303	-67.67	Pk	32.9	-30.3	11.1	-53.97	-13	-40.97	V
Mid Channel, 831.5MHz + 841.4MHz									
1.648	-66.56	Pk	28.7	-32.4	11.2	-59.06	-13	-46.06	V
1.659	-66.25	Pk	28.8	-32.4	12.3	-57.55	-13	-44.55	H
2.463	-67.27	Pk	32.6	-31.6	11.4	-54.87	-13	-41.87	V
2.483	-66.16	Pk	32.6	-31.5	11.1	-53.96	-13	-40.96	H
3.298	-67.11	Pk	32.9	-30.4	11.5	-53.11	-13	-40.11	H
3.317	-68	Pk	32.8	-30.2	10.9	-54.5	-13	-41.5	V
High Channel, 834.1MHz + 844MHz									
1.652	-66.08	Pk	28.7	-32.4	12.1	-57.68	-13	-44.68	H
1.659	-66.35	Pk	28.8	-32.4	11.7	-58.25	-13	-45.25	V
2.477	-66.48	Pk	32.5	-31.4	11.5	-53.88	-13	-40.88	V
2.482	-66.82	Pk	32.6	-31.5	11.2	-54.52	-13	-41.52	H
3.284	-66.98	Pk	32.9	-30.3	10.9	-53.48	-13	-40.48	V
3.295	-67.76	Pk	32.9	-30.3	11.3	-53.86	-13	-40.86	H

Pk - Peak detector

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9.1.2. LTE BAND 7

Company:	
Project #:	12607346
Date:	5/3/2019
Test Engineer:	12501
Configuration:	EUT Only
Mode:	LTE 7 QPSK 20MHz + 20MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2510MHz + 2529.8MHz									
5.013	-67.45	Pk	34.1	-28.9	10.4	-51.85	-25	-26.85	H
7.535	-70.87	Pk	35.6	-24.5	10.6	-49.17	-25	-24.17	H
4.998	-67.52	Pk	34.1	-28.5	10.8	-51.12	-25	-26.12	V
7.505	-70.79	Pk	35.5	-24.5	11	-48.79	-25	-23.79	V
10.025	-72.57	Pk	36.9	-22.3	10.5	-47.47	-25	-22.47	V
10.053	-72.51	Pk	36.9	-22.2	10.3	-47.51	-25	-22.51	H
Mid Channel, 2525.1MHz + 2544.9MHz									
5.048	-66.79	Pk	34.2	-28.5	11.2	-49.89	-25	-24.89	H
7.59	-71.06	Pk	35.6	-24.4	10.5	-49.36	-25	-24.36	H
5.018	-67.94	Pk	34.1	-28.9	10.5	-52.24	-25	-27.24	V
7.53	-70.6	Pk	35.6	-24.5	10.6	-48.9	-25	-23.9	V
10.108	-72.33	Pk	37	-21.8	10.7	-46.43	-25	-21.43	V
10.16	-72.33	Pk	37.2	-21.6	10.1	-46.63	-25	-21.63	H
High Channel, 2540.2MHz + 2560MHz									
5.102	-67.65	Pk	34.2	-28.4	11.3	-50.55	-25	-25.55	H
7.662	-70.58	Pk	35.7	-24.6	10.9	-48.58	-25	-23.58	H
5.095	-66.9	Pk	34.2	-28.5	11.2	-50.00	-25	-25.00	V
7.68	-70.33	Pk	35.8	-24.5	11.4	-47.63	-25	-22.63	V
10.112	-72.45	Pk	37.3	-21.8	10.7	-46.25	-25	-21.25	V
10.248	-72.37	Pk	37.4	-21.4	10	-46.37	-25	-21.37	H

Pk - Peak detector

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4031B
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Company:	
Project #:	12607346
Date:	5/3/2019
Test Engineer:	12501
Configuration:	EUT Only
Mode:	LTE 7 16QAM 20MHz + 20MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2510MHz + 2529.8MHz									
5.033	-67.56	Pk	34.2	-28.8	11.2	-50.96	-25	-25.96	H
7.563	-71.1	Pk	35.6	-24.5	10.9	-49.10	-25	-24.10	H
5.01	-67.47	Pk	34.1	-28.9	10.5	-51.77	-25	-26.77	V
7.562	-70.79	Pk	35.6	-24.4	11.3	-48.29	-25	-23.29	V
10.09	-72.35	Pk	37	-22.1	10.3	-47.15	-25	-22.15	H
10.108	-71.81	Pk	37	-21.8	10.7	-45.91	-25	-20.91	V
Mid Channel, 2525.1MHz + 2544.9MHz									
5.046	-67.94	Pk	34.2	-28.5	11.1	-51.14	-25	-26.14	H
7.584	-70.91	Pk	35.6	-24.4	10.5	-49.21	-25	-24.21	H
5.002	-67.98	Pk	34.1	-28.6	10.7	-51.78	-25	-26.78	V
7.559	-71.13	Pk	35.5	-24.4	11.2	-48.83	-25	-23.83	V
10.086	-72.89	Pk	36.9	-22	10.4	-47.59	-25	-22.59	V
10.139	-72.5	Pk	37.2	-21.6	9.6	-47.30	-25	-22.30	H
High Channel, 2540.2MHz + 2560MHz									
5.067	-66.42	Pk	34.1	-28.7	10.7	-50.32	-25	-25.32	H
7.65	-70.33	Pk	35.5	-24.5	10.7	-48.63	-25	-23.63	H
5.052	-67.45	Pk	34.2	-28.5	11.2	-50.55	-25	-25.55	V
7.611	-70.56	Pk	35.5	-24.4	11.2	-48.26	-25	-23.26	V
10.103	-72.35	Pk	37	-21.8	10.5	-46.65	-25	-21.65	H
10.141	-72.27	Pk	37.1	-21.6	10	-46.77	-25	-21.77	V

Pk - Peak detector

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9.1.3. LTE BAND 41

Company:	
Project #:	12607346
Date:	5/4/2019
Test Engineer:	50822
Configuration:	EUT Only
Mode:	LTE 41 QPSK 20MHz + 20MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2506MHz + 2525.8MHz									
5.024	-66.4	Pk	34.1	-28.9	10.4	-50.80	-25	-25.80	H
7.545	-70.04	Pk	35.6	-24.4	10.8	-48.04	-25	-23.04	H
10.605	-71.27	Pk	37.9	-21	10.6	-43.77	-25	-18.77	H
5.026	-66.91	Pk	34.1	-28.8	10.6	-51.01	-25	-26.01	V
7.552	-70.66	Pk	35.5	-24.4	11	-48.56	-25	-23.56	V
10.573	-71.1	Pk	37.8	-21.4	10.2	-44.50	-25	-19.50	V
Mid Channel, 2583.1MHz + 2602.9MHz									
5.178	-66.87	Pk	34.2	-28.6	11.3	-49.97	-25	-24.97	H
5.179	-67.37	Pk	34.2	-28.6	11.3	-50.47	-25	-25.47	V
7.767	-70.07	Pk	35.6	-24.4	11.2	-47.67	-25	-22.67	V
7.774	-70.85	Pk	35.6	-24.5	11.1	-48.65	-25	-23.65	H
10.352	-71.28	Pk	37.5	-21.2	9.9	-45.08	-25	-20.08	H
10.359	-71.53	Pk	37.6	-21.3	10.5	-44.73	-25	-19.73	V
High Channel, 2660.2MHz + 2680MHz									
10.666	-71.91	Pk	37.9	-21.1	10.5	-44.61	-25	-19.61	H
10.676	-72.03	Pk	37.9	-21.1	10.8	-44.43	-25	-19.43	V
5.303	-63.14	Pk	34.4	-27.8	11	-45.54	-25	-20.54	V
5.336	-68.11	Pk	34.5	-28.1	10.4	-51.31	-25	-26.31	H
7.808	-70.1	Pk	35.6	-24.4	11.5	-47.40	-25	-22.40	V
8.004	-70.24	Pk	35.6	-24.2	11.2	-47.64	-25	-22.64	H

Pk - Peak detector

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4031B
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 319-4000 FAX: (510) 661-0888
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Company:	
Project #:	12607346
Date:	5/4/2019
Test Engineer:	50822
Configuration:	EUT Only
Mode:	LTE 41 16QAM 20MHz + 20MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2506MHz + 2525.8MHz									
5.018	-67.03	Pk	34.1	-28.9	10.5	-51.33	-25	-26.33	H
7.545	-70.8	Pk	35.6	-24.4	10.8	-48.80	-25	-23.80	H
5.022	-66.87	Pk	34.1	-28.9	10.6	-51.07	-25	-26.07	V
7.539	-70.37	Pk	35.5	-24.6	10.8	-48.67	-25	-23.67	V
10.055	-71.58	Pk	36.9	-22.1	10.5	-46.28	-25	-21.28	V
10.059	-71.75	Pk	37	-22.1	10.3	-46.55	-25	-21.55	H
Mid Channel, 2583.1MHz + 2602.9MHz									
5.179	-66.78	Pk	34.2	-28.6	11.3	-49.88	-25	-24.88	H
5.227	-67.97	Pk	34.3	-28.2	11.2	-50.67	-25	-25.67	V
7.788	-70.62	Pk	35.6	-24.4	11.2	-48.22	-25	-23.22	H
7.796	-70.34	Pk	35.6	-24.5	11.5	-47.74	-25	-22.74	V
10.361	-71.33	Pk	37.6	-21.3	10.5	-44.53	-25	-19.53	V
10.425	-70.97	Pk	37.7	-21.5	9.9	-44.87	-25	-19.87	H
High Channel, 2660.2MHz + 2680MHz									
10.665	-75.2	Pk	37.9	-21.1	10.5	-47.90	-25	-22.90	H
10.665	-75.29	Pk	37.9	-21.1	10.8	-47.69	-25	-22.69	V
5.303	-70.17	Pk	34.4	-27.8	10.9	-52.67	-25	-27.67	H
5.303	-68.02	Pk	34.4	-27.8	11	-50.42	-25	-25.42	V
7.863	-72.48	Pk	35.7	-24.5	11.5	-49.78	-25	-24.78	V
7.998	-74.71	Pk	35.7	-24.2	11.3	-51.91	-25	-26.91	H

Pk - Peak detector

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4031B
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9.2. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 2

9.2.1. LTE BAND 5

Company:	
Project #:	12607346
Date:	6/4/2019
Test Engineer:	23508
Configuration:	EUT Only
Mode:	LTE 5 QPSK 10MHz + 10MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 829MHz + 838.9MHz									
1.847	-68.3	Pk	30.7	-32.3	13.2	-56.7	-13	-43.7	H
1.848	-67.8	Pk	30.7	-32.3	12.9	-56.5	-13	-43.5	V
2.441	-67.91	Pk	32.5	-31.5	11.9	-55.01	-13	-42.01	V
2.455	-67.76	Pk	32.4	-31.5	12.4	-54.46	-13	-41.46	H
3.397	-68.36	Pk	32.7	-30.1	11.1	-54.66	-13	-41.66	V
3.414	-68.13	Pk	32.8	-30.2	11.7	-53.83	-13	-40.83	H
Mid Channel, 831.5MHz + 841.4MHz									
1.668	-73.88	Pk	28.8	-32.4	12.6	-64.88	-13	-51.88	H
1.672	-66.38	Pk	28.9	-32.3	11.5	-58.28	-13	-45.28	V
2.46	-68.31	Pk	32.5	-31.6	11.6	-55.81	-13	-42.81	V
2.469	-68.28	Pk	32.6	-31.5	11.7	-55.48	-13	-42.48	H
3.402	-68.77	Pk	32.7	-30.1	11.3	-54.87	-13	-41.87	V
3.411	-68.28	Pk	32.8	-30.2	11.4	-54.28	-13	-41.28	H
High Channel, 834.1MHz + 844MHz									
1.662	-74.57	Pk	28.8	-32.4	12.2	-65.97	-13	-52.97	H
1.661	-70.6	Pk	28.8	-32.4	11.6	-62.6	-13	-49.6	V
2.468	-67.33	Pk	32.6	-31.5	11.1	-55.13	-13	-42.13	V
2.478	-67.35	Pk	32.6	-31.4	11.5	-54.65	-13	-41.65	H
3.315	-67.34	Pk	32.8	-30.2	11	-53.74	-13	-40.74	V
3.322	-67.96	Pk	32.8	-30.2	11	-54.36	-13	-41.36	H

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Pk - Peak detector

Company:	
Project #:	12607346
Date:	6/4/2019
Test Engineer:	23508
Configuration:	EUT Only
Mode:	LTE 5 16QAM 10MHz + 10MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 829MHz + 838.9MHz									
1.68	-73.73	Pk	28.9	-32.4	12	-65.23	-13	-52.23	H
1.671	-72.67	Pk	28.8	-32.3	11.6	-64.57	-13	-51.57	V
2.463	-66.81	Pk	32.6	-31.6	11.4	-54.41	-13	-41.41	V
2.479	-68.34	Pk	32.6	-31.4	11.4	-55.74	-13	-42.74	H
3.31	-67.54	Pk	32.8	-30.3	10.9	-54.14	-13	-41.14	V
3.314	-68.08	Pk	32.8	-30.3	11.5	-54.08	-13	-41.08	H
Mid Channel, 831.5MHz + 841.4MHz									
1.671	-67.03	Pk	28.9	-32.3	12.7	-57.73	-13	-44.73	H
2.497	-73.52	Pk	32.6	-31.5	11.4	-61.02	-13	-48.02	H
1.674	-66.61	Pk	28.9	-32.4	11.3	-58.81	-13	-45.81	V
2.488	-67.48	Pk	32.6	-31.5	11.5	-54.88	-13	-41.88	V
3.292	-68.12	Pk	32.9	-30.3	11.2	-54.32	-13	-41.32	V
3.295	-67.64	Pk	32.9	-30.3	11.3	-53.74	-13	-40.74	H
High Channel, 834.1MHz + 844MHz									
1.67	-66.59	Pk	28.8	-32.3	12.7	-57.39	-13	-44.39	H
1.661	-70.67	Pk	28.8	-32.4	11.6	-62.67	-13	-49.67	V
2.507	-67.74	Pk	32.7	-31.4	11.3	-55.14	-13	-42.14	H
2.515	-68.05	Pk	32.6	-31.4	11.7	-55.15	-13	-42.15	V
3.369	-68.37	Pk	32.8	-30.1	11.3	-54.37	-13	-41.37	H
3.376	-68.15	Pk	32.8	-30.2	12	-53.55	-13	-40.55	V

Pk - Peak detector

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9.2.2. LTE BAND 7

Company:	
Project #:	12607346
Date:	5/4/2019
Test Engineer:	12501
Configuration:	EUT Only
Mode:	LTE 7 QPSK 20MHz + 20MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2510MHz + 2529.8MHz									
5.008	-67.3	Pk	34.1	-28.8	10.8	-51.2	-25	-26.2	H
7.525	-70.86	Pk	35.6	-24.6	10.4	-49.46	-25	-24.46	H
5.01	-66.12	Pk	34.1	-28.9	10.5	-50.42	-25	-25.42	V
7.494	-70.65	Pk	35.6	-24.5	11	-48.55	-25	-23.55	V
10.036	-71.8	Pk	36.9	-22.1	10.7	-46.3	-25	-21.3	V
10.043	-72.08	Pk	37	-22.1	10.4	-46.78	-25	-21.78	H
Mid Channel, 2525.1MHz + 2544.9MHz									
5.046	-67.62	Pk	34.2	-28.5	11.1	-50.82	-25	-25.82	H
7.562	-70.98	Pk	35.6	-24.4	10.9	-48.88	-25	-23.88	H
5.032	-67.56	Pk	34.2	-28.8	11.1	-51.06	-25	-26.06	V
7.552	-70.56	Pk	35.5	-24.4	11	-48.46	-25	-23.46	V
10.104	-71.32	Pk	37	-21.8	10.6	-45.52	-25	-20.52	H
10.105	-72.07	Pk	37	-21.8	10.7	-46.17	-25	-21.17	V
High Channel, 2540.2MHz + 2560MHz									
5.101	-68.04	Pk	34.2	-28.4	11.3	-50.94	-25	-25.94	H
7.653	-66.3	Pk	35.5	-24.5	10.7	-44.6	-25	-19.6	H
5.089	-67.86	Pk	34.2	-28.5	11.2	-50.96	-25	-25.96	V
7.654	-66.02	Pk	35.6	-24.5	11	-43.92	-25	-18.92	V
10.176	-71.97	Pk	37.2	-21.5	10.6	-45.67	-25	-20.67	H
10.289	-71.6	Pk	37.5	-21.4	10.4	-45.1	-25	-20.1	V

Pk - Peak detector

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4031B
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 319-4000 FAX: (510) 661-0888
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Company:	
Project #:	12607346
Date:	5/4/2019
Test Engineer:	12501
Configuration:	EUT Only
Mode:	LTE 7 16QAM 20MHz + 20MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2510MHz + 2529.8MHz									
5.015	-67.77	Pk	34.2	-28.9	10.4	-52.07	-25	-27.07	H
7.521	-71.13	Pk	35.6	-24.5	10.4	-49.63	-25	-24.63	H
5.019	-71.18	Pk	34.1	-28.9	10.6	-55.38	-25	-30.38	V
7.499	-71.5	Pk	35.5	-24.5	11	-49.5	-25	-24.5	V
10.021	-72.18	Pk	36.9	-22.2	10.5	-46.98	-25	-21.98	V
10.041	-71.64	Pk	37	-22.1	10.4	-46.34	-25	-21.34	H
Mid Channel, 2525.1MHz + 2544.9MHz									
5.044	-67.2	Pk	34.2	-28.6	11	-50.6	-25	-25.6	H
7.576	-70.68	Pk	35.4	-24.3	10.6	-48.98	-25	-23.98	H
5.033	-66.46	Pk	34.2	-28.8	11.2	-49.86	-25	-24.86	V
7.548	-71.17	Pk	35.5	-24.4	11	-49.07	-25	-24.07	V
10.077	-72.69	Pk	36.9	-22	10.4	-47.39	-25	-22.39	V
10.095	-72.49	Pk	37	-21.9	10.5	-46.89	-25	-21.89	H
High Channel, 2540.2MHz + 2560MHz									
5.061	-68.06	Pk	34.2	-28.8	10.9	-51.76	-25	-26.76	H
7.59	-70.24	Pk	35.6	-24.4	10.5	-48.54	-25	-23.54	H
5.051	-66.95	Pk	34.2	-28.5	11.2	-50.05	-25	-25.05	V
7.575	-70.71	Pk	35.4	-24.4	10.9	-48.81	-25	-23.81	V
10.109	-71.8	Pk	37	-21.8	10.7	-45.9	-25	-20.9	V
10.11	-71.2	Pk	37	-21.8	10.6	-45.4	-25	-20.4	H

Pk - Peak detector

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9.2.3. LTE BAND 41

Company:	
Project #:	12607346
Date:	5/4/2019
Test Engineer:	50822
Configuration:	EUT Only
Mode:	LTE 41 QPSK 20MHz + 20MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2506MHz + 2525.8MHz									
5.027	-66.67	Pk	34.2	-28.8	10.5	-50.77	-25	-25.77	H
7.544	-70.12	Pk	35.6	-24.4	10.7	-48.22	-25	-23.22	H
5.026	-65.89	Pk	34.1	-28.8	10.5	-50.09	-25	-25.09	V
7.543	-70.44	Pk	35.5	-24.5	10.9	-48.54	-25	-23.54	V
10.06	-71	Pk	37	-22.1	10.5	-45.6	-25	-20.6	V
10.103	-71.68	Pk	37	-21.8	10.5	-45.98	-25	-20.98	H
Mid Channel, 2583.1MHz + 2602.9MHz									
3.927	-65.32	Pk	33.4	-29.6	11.5	-50.02	-25	-25.02	H
10.851	-72.37	Pk	37.9	-20.2	11.1	-43.57	-25	-18.57	V
5.186	-67.29	Pk	34.2	-28.5	11.1	-50.49	-25	-25.49	V
7.78	-67.86	Pk	35.6	-24.4	11	-45.66	-25	-20.66	H
7.782	-64.69	Pk	35.6	-24.4	11.1	-42.39	-25	-17.39	V
13.601	-71.16	Pk	38.7	-20.5	10.6	-42.36	-25	-17.36	H
High Channel, 2660.2MHz + 2680MHz									
3.878	-65.85	Pk	33.4	-29.4	11.8	-50.05	-25	-25.05	H
11.781	-71.59	Pk	38.5	-20.7	10.7	-43.09	-25	-18.09	H
3.879	-64.33	Pk	33.4	-29.4	11.9	-48.43	-25	-23.43	V
10.909	-71.29	Pk	37.9	-20.6	10.8	-43.19	-25	-18.19	V
8.007	-64.55	Pk	35.6	-24.1	11.2	-41.85	-25	-16.85	H
8.013	-62.9	Pk	35.6	-24.1	11.3	-40.1	-25	-15.1	V

Pk - Peak detector

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Company:	
Project #:	12607346
Date:	5/4/2019
Test Engineer:	50822
Configuration:	EUT Only
Mode:	LTE 41 16QAM 20MHz + 20MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2506MHz + 2525.8MHz									
5.028	-66.25	Pk	34.2	-28.8	10.6	-50.25	-25	-25.25	H
7.551	-70.51	Pk	35.5	-24.4	10.8	-48.61	-25	-23.61	H
5.024	-66.12	Pk	34.1	-28.9	10.6	-50.32	-25	-25.32	V
7.547	-70.12	Pk	35.5	-24.4	10.9	-48.12	-25	-23.12	V
10.058	-71.83	Pk	36.9	-22.1	10.5	-46.53	-25	-21.53	V
10.068	-71.83	Pk	37	-22	10	-46.83	-25	-21.83	H
Mid Channel, 2583.1MHz + 2602.9MHz									
3.864	-65.22	Pk	33.4	-29.5	11.5	-49.82	-25	-24.82	H
4.856	-67.13	Pk	34.1	-28.6	11.4	-50.23	-25	-25.23	H
10.992	-70.33	Pk	37.9	-21.1	10.6	-42.93	-25	-17.93	H
3.87	-66.55	Pk	33.4	-29.4	11.8	-50.75	-25	-25.75	V
11.031	-73.8	Pk	37.9	-20.9	10.8	-46.00	-25	-21.00	V
7.776	-62.64	Pk	35.6	-24.5	11.1	-40.44	-25	-15.44	V
High Channel, 2660.2MHz + 2680MHz									
4.852	-67.05	Pk	34.1	-28.6	11.3	-50.25	-25	-25.25	H
7.358	-69.85	Pk	35.6	-24.6	10.8	-48.05	-25	-23.05	H
9.39	-71.04	Pk	36.4	-22.9	11	-46.54	-25	-21.54	V
5.699	-67.75	Pk	34.9	-27.7	10.5	-50.05	-25	-25.05	V
8.007	-62.61	Pk	35.6	-24.1	11.4	-39.71	-25	-14.71	V
13.179	-71.87	Pk	39	-21	10.9	-42.97	-25	-17.97	H

Pk - Peak detector

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9.3. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 3

9.3.1. LTE BAND 7

Company:	
Project #:	12607346
Date:	5/8/2019
Test Engineer:	31300
Configuration:	EUT Only
Mode:	LTE 7 QPSK 20MHz + 20MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2510MHz + 2529.8MHz									
3.871	-66.45	Pk	33.4	-29.4	11.8	-50.65	-25	-25.65	H
4.185	-66.48	Pk	33.2	-29.3	11.6	-50.98	-25	-25.98	V
10.874	-72.29	Pk	37.9	-20.9	11	-44.29	-25	-19.29	V
3.122	-67.97	Pk	33.1	-30.4	11.4	-53.87	-25	-28.87	V
5.99	-68.64	Pk	35	-27	11.1	-49.54	-25	-24.54	H
9.681	-70.97	Pk	36.8	-22	10.9	-45.27	-25	-20.27	H
Mid Channel, 2525.1MHz + 2544.9MHz									
5.058	-67.25	Pk	34.2	-28.7	11	-50.75	-25	-25.75	H
7.558	-70.71	Pk	35.5	-24.4	10.9	-48.71	-25	-23.71	H
5.061	-66.59	Pk	34.2	-28.8	11	-50.19	-25	-25.19	V
7.531	-70.36	Pk	35.6	-24.5	10.7	-48.56	-25	-23.56	V
10.11	-72.03	Pk	37	-21.8	10.6	-46.23	-25	-21.23	H
10.121	-72.33	Pk	37.1	-21.8	10.4	-46.63	-25	-21.63	V
High Channel, 2540.2MHz + 2560MHz									
5.077	-67.28	Pk	34.2	-28.7	10.5	-51.28	-25	-26.28	H
7.618	-71.2	Pk	35.5	-24.4	11	-49.1	-25	-24.1	H
5.052	-67.37	Pk	34.2	-28.5	11.2	-50.47	-25	-25.47	V
7.558	-71.25	Pk	35.5	-24.4	11.2	-48.95	-25	-23.95	V
10.105	-72.62	Pk	37	-21.8	10.7	-46.72	-25	-21.72	V
10.123	-72.05	Pk	37.1	-21.9	10.1	-46.75	-25	-21.75	H

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Pk - Peak detector

Company:	
Project #:	12607346
Date:	5/8/2019
Test Engineer:	31300
Configuration:	EUT Only
Mode:	LTE 7 16QAM 20MHz + 20MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2510MHz + 2529.8MHz									
3.867	-65.61	Pk	33.4	-29.4	11.4	-50.21	-25	-25.21	H
7.273	-69.83	Pk	35.5	-25.1	10.3	-49.13	-25	-24.13	H
11.32	-72.78	Pk	38	-20.2	10.7	-44.28	-25	-19.28	H
3.841	-66.32	Pk	33.4	-29.6	11.1	-51.42	-25	-26.42	V
7.741	-70.05	Pk	35.6	-24.4	11.3	-47.55	-25	-22.55	V
9.751	-70.8	Pk	36.9	-22.5	11.1	-45.30	-25	-20.30	V
Mid Channel, 2525.1MHz + 2544.9MHz									
5.04	-67.8	Pk	34.1	-28.8	10.9	-51.60	-25	-26.60	H
7.557	-71.26	Pk	35.5	-24.4	10.9	-49.26	-25	-24.26	H
5.023	-68.19	Pk	34.1	-28.9	10.6	-52.39	-25	-27.39	V
7.53	-71.26	Pk	35.6	-24.5	10.6	-49.56	-25	-24.56	V
10.088	-72.45	Pk	36.9	-22.1	10.3	-47.35	-25	-22.35	H
10.126	-71.18	Pk	37.1	-21.8	10.3	-45.58	-25	-20.58	V
High Channel, 2540.2MHz + 2560MHz									
5.064	-67.31	Pk	34.2	-28.7	10.8	-51.01	-25	-26.01	H
7.615	-70.2	Pk	35.5	-24.4	10.8	-48.3	-25	-23.3	H
5.059	-67.74	Pk	34.2	-28.7	11.1	-51.14	-25	-26.14	V
7.613	-70.55	Pk	35.5	-24.4	11.2	-48.25	-25	-23.25	V
10.162	-72.11	Pk	37.2	-21.6	10.2	-46.31	-25	-21.31	H
10.173	-72.07	Pk	37.2	-21.5	10.6	-45.77	-25	-20.77	V

Pk - Peak detector

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9.3.2. LTE BAND 41

Company:	
Project #:	12607346
Date:	5/10/2019
Test Engineer:	12501
Configuration:	EUT Only
Mode:	LTE 41 QPSK 20MHz + 20MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2506MHz + 2525.8MHz									
4.998	-67.56	Pk	34.1	-28.5	10.6	-51.36	-25	-26.36	H
7.497	-71.29	Pk	35.6	-24.5	10.7	-49.49	-25	-24.49	H
4.986	-68.19	Pk	34.1	-28.6	10.8	-51.89	-25	-26.89	V
7.535	-70.57	Pk	35.6	-24.5	10.7	-48.77	-25	-23.77	V
10.022	-72.59	Pk	36.9	-22.2	10.4	-47.49	-25	-22.49	H
10.044	-72.49	Pk	37	-22.1	10.6	-46.99	-25	-21.99	V
Mid Channel, 2583.1MHz + 2602.9MHz									
7.721	-69.95	Pk	35.6	-24.5	11	-47.85	-25	-22.85	H
7.692	-70.45	Pk	35.5	-24.5	11.3	-48.15	-25	-23.15	V
5.163	-67.97	Pk	34.2	-28.5	11.6	-50.67	-25	-25.67	H
5.186	-65.14	Pk	34.2	-28.5	11.1	-48.34	-25	-23.34	V
10.286	-72.12	Pk	37.5	-21.4	10.4	-45.62	-25	-20.62	V
10.304	-72.38	Pk	37.5	-21.3	10.1	-46.08	-25	-21.08	H
High Channel, 2660.2MHz + 2680MHz									
10.608	-72.19	Pk	37.9	-21	10.8	-44.49	-25	-19.49	V
5.321	-68.83	Pk	34.5	-28	10.5	-51.83	-25	-26.83	V
5.348	-69.65	Pk	34.5	-28.1	11.1	-52.15	-25	-27.15	H
7.909	-70.83	Pk	35.6	-24.3	11.3	-48.23	-25	-23.23	V
7.950	-70.88	Pk	35.7	-24.1	10.9	-48.38	-25	-23.38	H
10.588	-71.91	Pk	37.9	-21.3	10.1	-45.21	-25	-20.21	H

Pk - Peak detector

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Company:	
Project #:	12607346
Date:	5/10/2019
Test Engineer:	12501
Configuration:	EUT Only
Mode:	LTE 41 16QAM 20MHz + 20MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2506MHz + 2525.8MHz									
5.002	-66.6	Pk	34.1	-28.6	10.7	-50.40	-25	-25.40	H
7.499	-71.27	Pk	35.5	-24.5	10.7	-49.57	-25	-24.57	H
4.988	-68.25	Pk	34.1	-28.6	10.8	-51.95	-25	-26.95	V
7.501	-71.42	Pk	35.5	-24.5	11.1	-49.32	-25	-24.32	V
9.984	-72.06	Pk	36.8	-22.4	10.7	-46.96	-25	-21.96	V
10.026	-70.92	Pk	36.9	-22.3	10.4	-45.92	-25	-20.92	H
Mid Channel, 2583.1MHz + 2602.9MHz									
5.177	-67.51	Pk	34.2	-28.6	11.3	-50.61	-25	-25.61	V
5.184	-67.02	Pk	34.2	-28.5	11	-50.32	-25	-25.32	H
7.774	-69.97	Pk	35.6	-24.5	11.1	-47.77	-25	-22.77	H
7.775	-70.86	Pk	35.6	-24.5	11.1	-48.66	-25	-23.66	V
10.351	-70.58	Pk	37.5	-21.2	10.2	-44.08	-25	-19.08	V
10.356	-71.07	Pk	37.6	-21.3	10.1	-44.67	-25	-19.67	H
High Channel, 2660.2MHz + 2680MHz									
10.638	-72.09	Pk	37.9	-21.2	10	-45.39	-25	-20.39	H
10.717	-72.54	Pk	38	-21.3	10.6	-45.24	-25	-20.24	V
5.294	-68.61	Pk	34.4	-27.9	11.1	-51.01	-25	-26.01	V
5.316	-68.74	Pk	34.4	-28	10.8	-51.54	-25	-26.54	H
7.949	-70.39	Pk	35.7	-24.2	11.1	-47.79	-25	-22.79	V
7.971	-69.54	Pk	35.6	-24.3	11.2	-47.04	-25	-22.04	H

Pk - Peak detector

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9.4. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 4

9.4.1. LTE BAND 7

Company:	
Project #:	12607346
Date:	5/14/2019
Test Engineer:	31300
Configuration:	EUT Only
Mode:	LTE 7 QPSK 20MHz + 20MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2510MHz + 2529.8MHz									
5.054	-66.68	Pk	34.1	-28.5	11.1	-49.98	-25	-24.98	H
9.081	-70.43	Pk	36.1	-23.5	11.2	-46.63	-25	-21.63	H
8.044	-70.17	Pk	35.7	-24.2	11.6	-47.07	-25	-22.07	V
5.209	-68.07	Pk	34.2	-28.4	11.2	-51.07	-25	-26.07	V
7.081	-69.15	Pk	35.5	-24.9	10.7	-47.85	-25	-22.85	H
14.297	-71.01	Pk	39.3	-20.4	11.2	-40.91	-25	-15.91	V
Mid Channel, 2525.1MHz + 2544.9MHz									
4.853	-66.3	Pk	34.1	-28.6	11.3	-49.5	-25	-24.5	H
7.661	-68.97	Pk	35.6	-24.6	10.9	-47.07	-25	-22.07	H
12.689	-70.37	Pk	38.9	-20.8	10.7	-41.57	-25	-16.57	H
3.889	-64.96	Pk	33.4	-29.3	11.2	-49.66	-25	-24.66	V
6.298	-69.07	Pk	35.4	-26.3	10.8	-49.17	-25	-24.17	V
14.315	-70.67	Pk	39.3	-20.2	10.9	-40.67	-25	-15.67	V
High Channel, 2540.2MHz + 2560MHz									
4.375	-67.22	Pk	33.6	-28.6	11	-51.22	-25	-26.22	H
11.002	-70.77	Pk	37.9	-21.2	10.4	-43.67	-25	-18.67	H
4.304	-66.37	Pk	33.4	-28.8	11.7	-50.07	-25	-25.07	V
7.654	-69.22	Pk	35.6	-24.5	11	-47.12	-25	-22.12	V
6.503	-68.5	Pk	35.6	-26	11	-47.90	-25	-22.90	H
13.633	-70.6	Pk	38.7	-20.8	10.6	-42.10	-25	-17.10	V

Pk - Peak detector

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Company:	
Project #:	12607346
Date:	5/14/2019
Test Engineer:	31300
Configuration:	EUT Only
Mode:	LTE 7 16QAM 20MHz + 20MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2510MHz + 2529.8MHz									
3.828	-65.53	Pk	33.4	-29.1	11.4	-49.83	-25	-24.83	H
11.85	-70.68	Pk	38.6	-20.6	10.6	-42.08	-25	-17.08	H
4.364	-65.81	Pk	33.6	-28.5	11.3	-49.41	-25	-24.41	V
4.915	-66.41	Pk	34	-28.6	11.3	-49.71	-25	-24.71	V
6.544	-69.68	Pk	35.7	-26.1	10.4	-49.68	-25	-24.68	H
14.844	-71.34	Pk	39.8	-20.7	10.5	-41.74	-25	-16.74	V
Mid Channel, 2525.1MHz + 2544.9MHz									
4.857	-65.89	Pk	34.1	-28.6	11.4	-48.99	-25	-23.99	H
3.87	-64.03	Pk	33.4	-29.4	11.8	-48.23	-25	-23.23	V
6.43	-68.53	Pk	35.5	-26.1	10.7	-48.43	-25	-23.43	V
9.522	-70.23	Pk	36.6	-22.9	11	-45.53	-25	-20.53	H
14.364	-70.53	Pk	39.4	-20.9	10.9	-41.13	-25	-16.13	H
14.797	-70.56	Pk	39.9	-20.1	10.6	-40.16	-25	-15.16	V
High Channel, 2540.2MHz + 2560MHz									
10.78	-72	Pk	38	-20.6	10.6	-44.00	-25	-19.00	H
3.883	-65.85	Pk	33.3	-29.4	11.4	-50.55	-25	-25.55	V
4.748	-66.36	Pk	33.9	-28.3	10.7	-50.06	-25	-25.06	V
4.406	-66.57	Pk	33.5	-29.1	11.1	-51.07	-25	-26.07	H
6.659	-69.05	Pk	35.7	-25.9	10.5	-48.75	-25	-23.75	H
6.947	-70.62	Pk	35.5	-25	11.1	-49.02	-25	-24.02	V

Pk - Peak detector

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9.4.2. LTE BAND 41

Company:	
Project #:	12607346
Date:	5/11/2019
Test Engineer:	50822
Configuration:	EUT Only
Mode:	LTE 41 QPSK 20MHz + 20MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2506MHz + 2525.8MHz									
5.02	-67.62	Pk	34.1	-28.9	10.5	-51.92	-25	-26.92	H
7.536	-70.07	Pk	35.6	-24.5	10.6	-48.37	-25	-23.37	H
5.02	-66.64	Pk	34.1	-28.9	10.6	-50.84	-25	-25.84	V
7.536	-69.93	Pk	35.6	-24.5	10.7	-48.13	-25	-23.13	V
10.049	-71.94	Pk	37	-22.1	10.6	-46.44	-25	-21.44	V
10.057	-71.53	Pk	36.9	-22.1	10.3	-46.43	-25	-21.43	H
Mid Channel, 2583.1MHz + 2602.9MHz									
5.174	-66.99	Pk	34.2	-28.6	11.4	-49.99	-25	-24.99	V
5.184	-67.24	Pk	34.2	-28.5	11	-50.54	-25	-25.54	H
7.771	-70.38	Pk	35.7	-24.4	11.1	-47.98	-25	-22.98	H
7.772	-69.79	Pk	35.7	-24.5	11.2	-47.39	-25	-22.39	V
10.349	-71.62	Pk	37.5	-21.2	9.7	-45.62	-25	-20.62	H
10.349	-71.18	Pk	37.5	-21.2	10.2	-44.68	-25	-19.68	V
High Channel, 2660.2MHz + 2680MHz									
10.664	-71.25	Pk	37.9	-21.1	10.5	-43.95	-25	-18.95	H
10.657	-72.06	Pk	38	-21.1	10.8	-44.36	-25	-19.36	V
5.331	-68.06	Pk	34.4	-28.1	10.9	-50.86	-25	-25.86	V
5.335	-68.71	Pk	34.5	-28.1	10.4	-51.91	-25	-26.91	H
7.995	-69.15	Pk	35.7	-24.1	11.7	-45.85	-25	-20.85	V
8	-69.91	Pk	35.7	-24.3	11.2	-47.31	-25	-22.31	H

Pk - Peak detector

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Company:	
Project #:	12607346
Date:	5/11/2019
Test Engineer:	50822
Configuration:	EUT Only
Mode:	LTE 41 16QAM 20MHz + 20MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2506MHz + 2525.8MHz									
5.029	-65.92	Pk	34.2	-28.8	10.7	-49.82	-25	-24.82	H
7.533	-69.82	Pk	35.6	-24.5	10.5	-48.22	-25	-23.22	H
5.021	-66.5	Pk	34.1	-28.9	10.7	-50.60	-25	-25.60	V
7.54	-69.37	Pk	35.5	-24.6	10.8	-47.67	-25	-22.67	V
10.055	-71.81	Pk	36.9	-22.1	10.3	-46.71	-25	-21.71	H
10.057	-71.02	Pk	36.9	-22.1	10.5	-45.72	-25	-20.72	V
Mid Channel, 2583.1MHz + 2602.9MHz									
5.177	-67.18	Pk	34.2	-28.6	11.3	-50.28	-25	-25.28	V
5.179	-68.13	Pk	34.2	-28.6	11.2	-51.33	-25	-26.33	H
7.77	-70.71	Pk	35.6	-24.4	11.2	-48.31	-25	-23.31	V
7.776	-69.19	Pk	35.6	-24.5	11.1	-46.99	-25	-21.99	H
10.349	-71.28	Pk	37.5	-21.2	9.7	-45.28	-25	-20.28	H
10.353	-71.38	Pk	37.5	-21.2	10.2	-44.88	-25	-19.88	V
High Channel, 2660.2MHz + 2680MHz									
10.666	-71.56	Pk	37.9	-21.1	10.5	-44.26	-25	-19.26	H
10.66	-71.71	Pk	38	-21	10.8	-43.91	-25	-18.91	V
5.332	-69.11	Pk	34.4	-28.1	10.8	-52.01	-25	-27.01	V
5.333	-68.46	Pk	34.4	-28.1	10.7	-51.46	-25	-26.46	H
8.005	-70.43	Pk	35.7	-24.2	11.4	-47.53	-25	-22.53	V
8.008	-70.71	Pk	35.6	-24.1	11.2	-48.01	-25	-23.01	H

Pk - Peak detector

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10. SETUP PHOTOS

Please see setup photo report 12607346-EP1V1

END OF REPORT

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