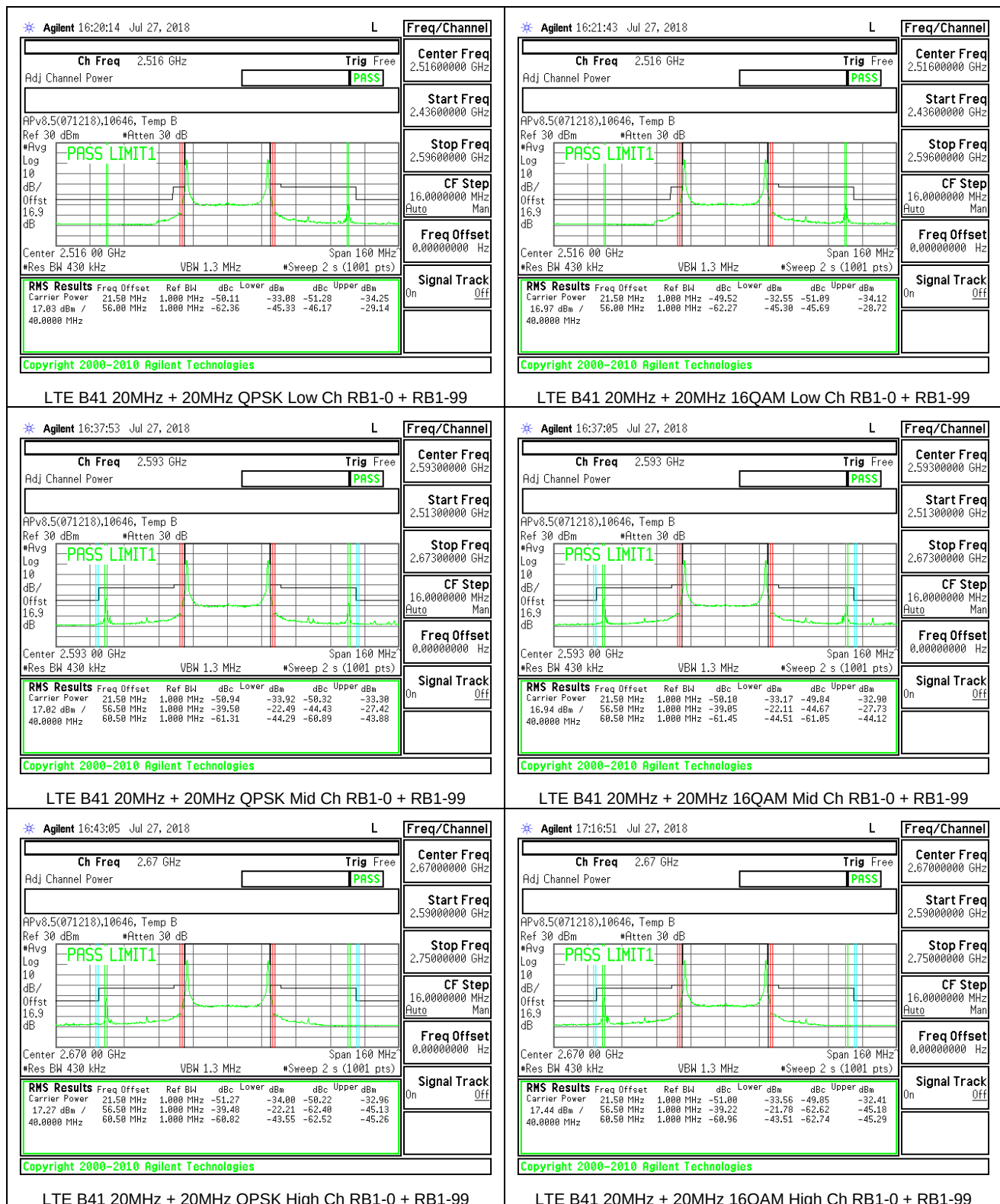
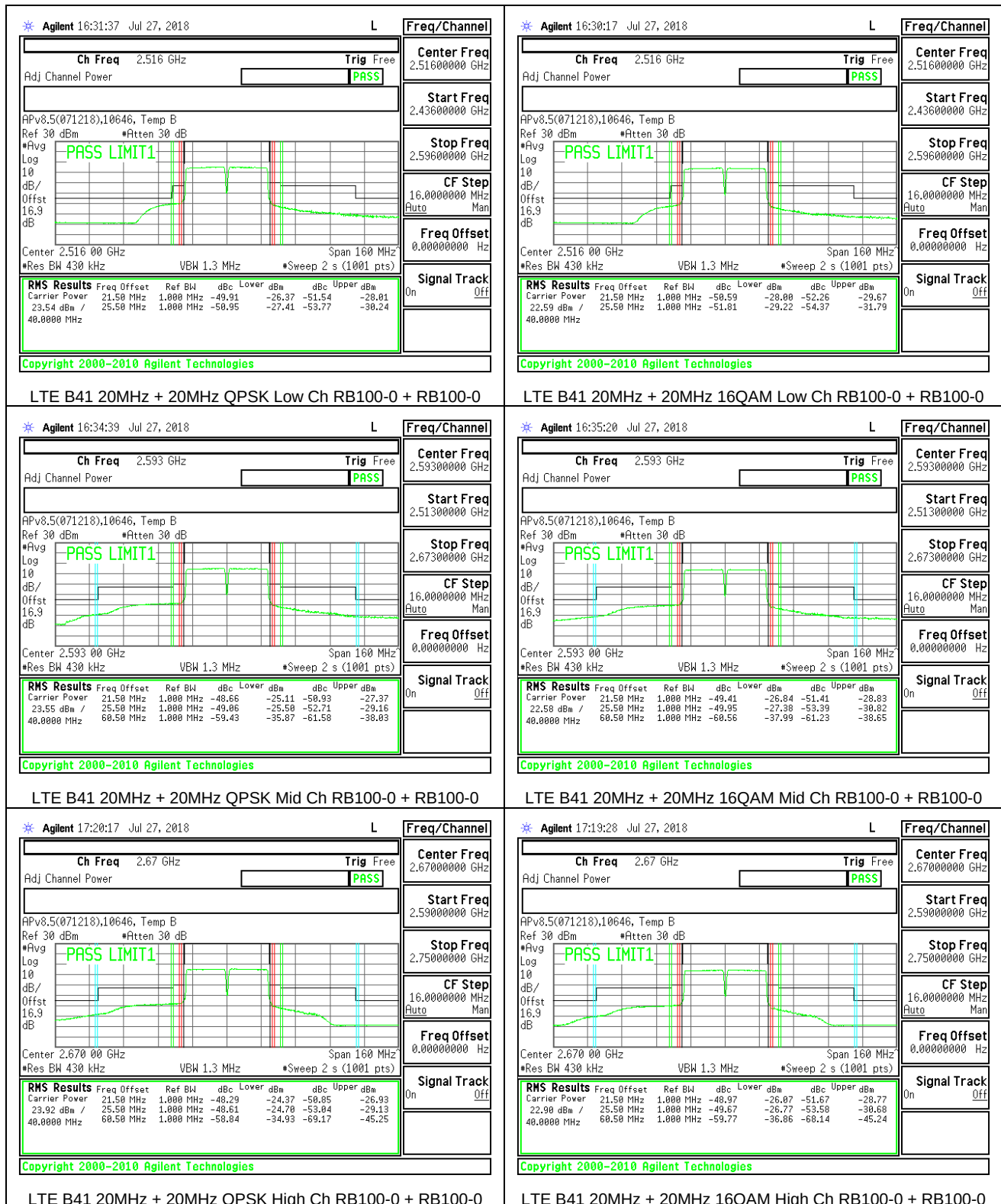






8.3. OUT OF BAND EMISSIONS

RULE PART(S)

§2.1051, §27.53

LIMITS

§27.53 (m)

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

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 -25 dBm
- 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)

MODES TESTED

- LTE Band 7
- LTE Band 41

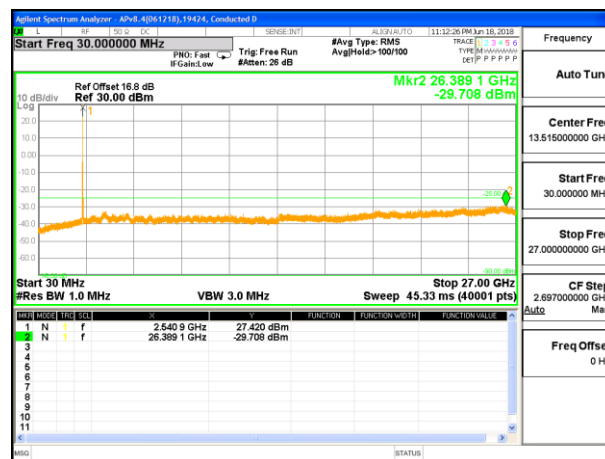
8.3.1. LTE BAND 7



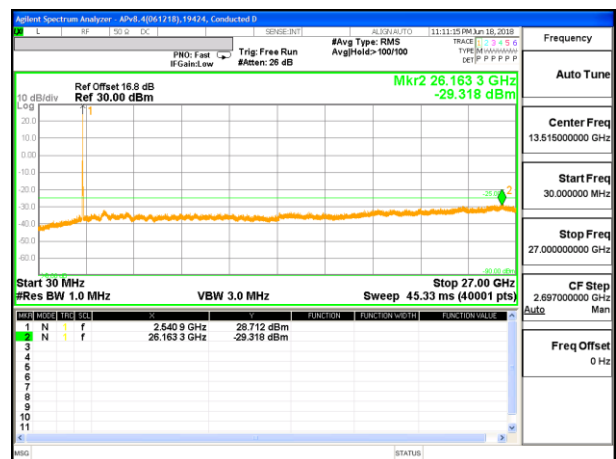
LTE B7 20MHz + 10MHz QPSK Low Ch RB1-99 + RB1-0



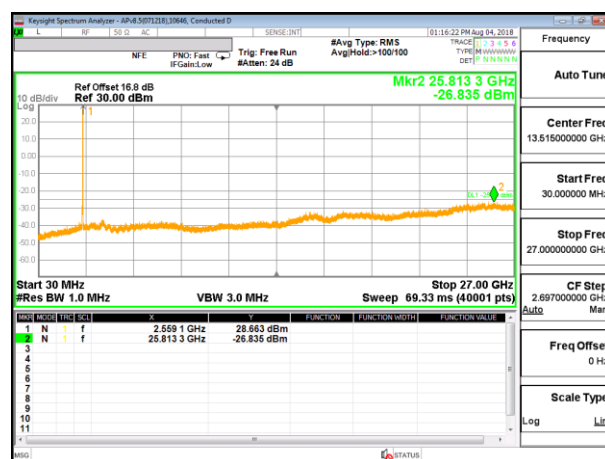
LTE B7 20MHz + 10MHz 16QAM Low Ch RB1-99 + RB1-0



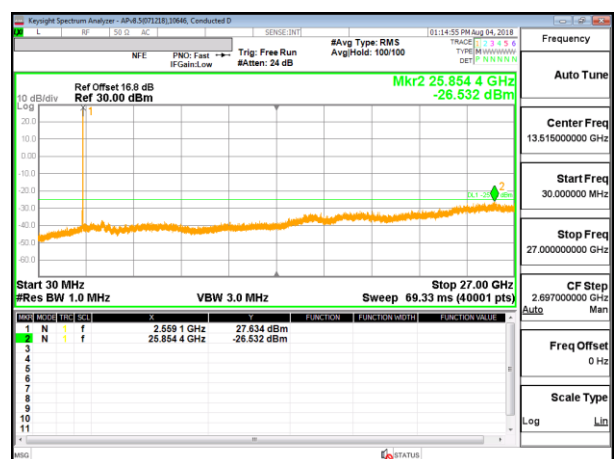
LTE B7 20MHz + 10MHz QPSK Middle Ch RB1-99 + RB1-0



LTE B7 20MHz + 10MHz 16QAM Middle Ch RB1-99 + RB1-0



LTE B7 20MHz + 10MHz QPSK High Ch RB1-99 + RB1-0



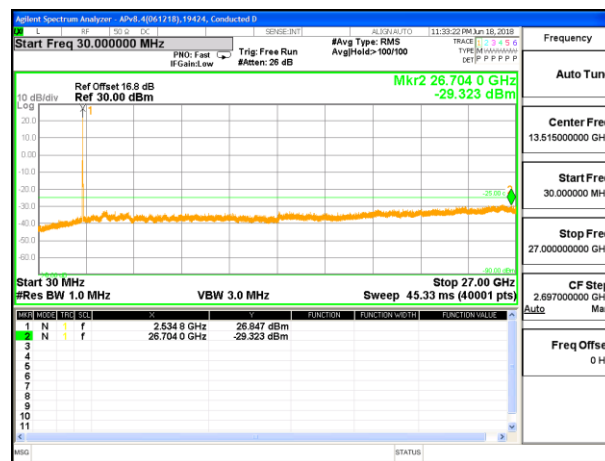
LTE B7 20MHz + 10MHz 16QAM High Ch RB1-99 + RB1-0



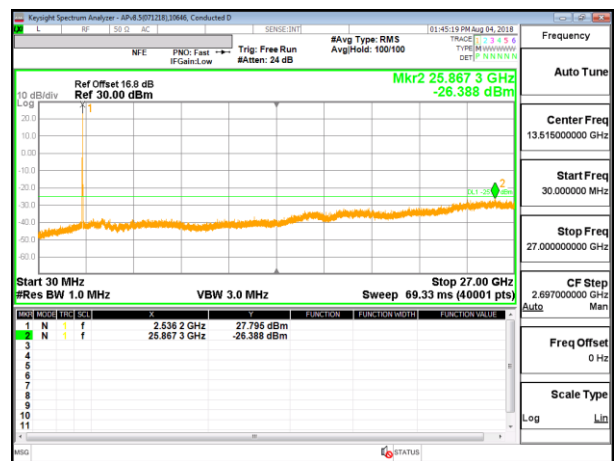
LTE B7 20MHz + 20MHz QPSK Low Ch RB1-99 + RB1-0



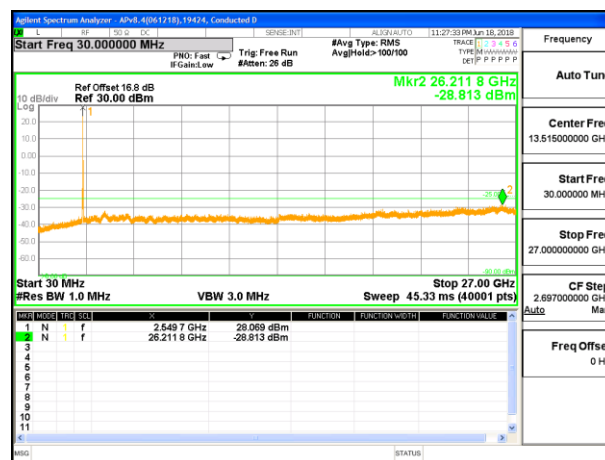
LTE B7 20MHz + 20MHz 16QAM Low Ch RB1-99 + RB1-0



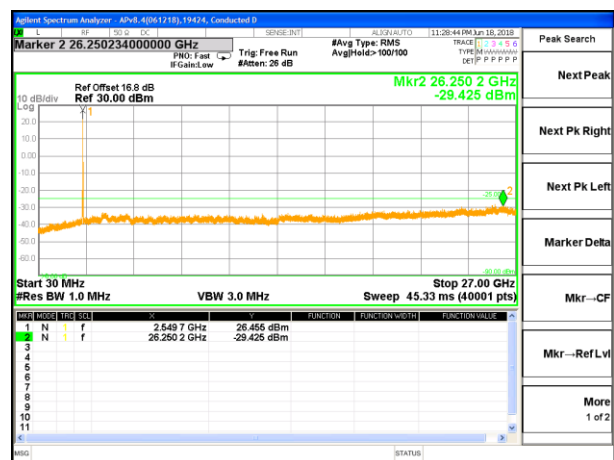
LTE B7 20MHz + 20MHz QPSK Middle Ch RB1-99 + RB1-0



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

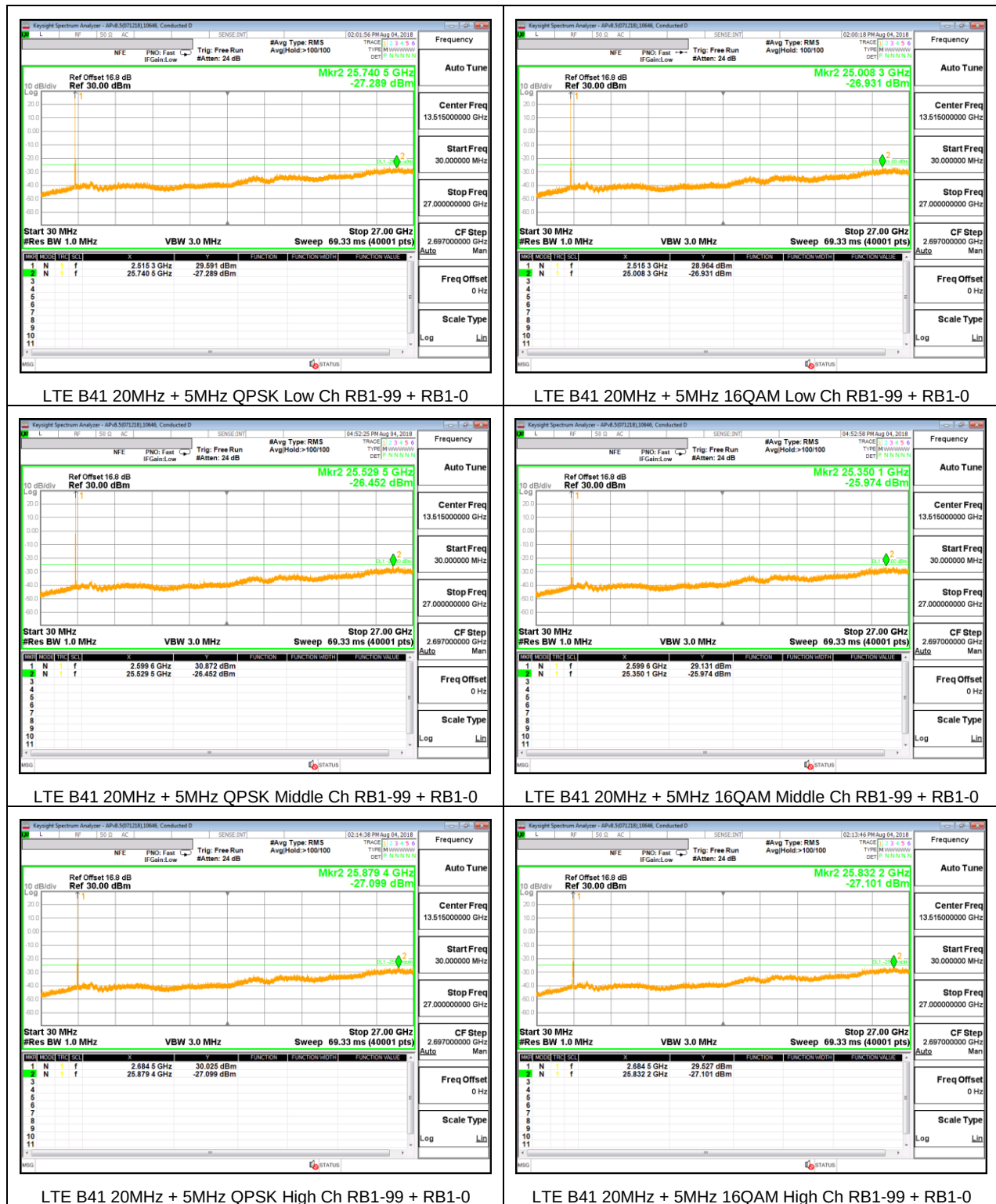


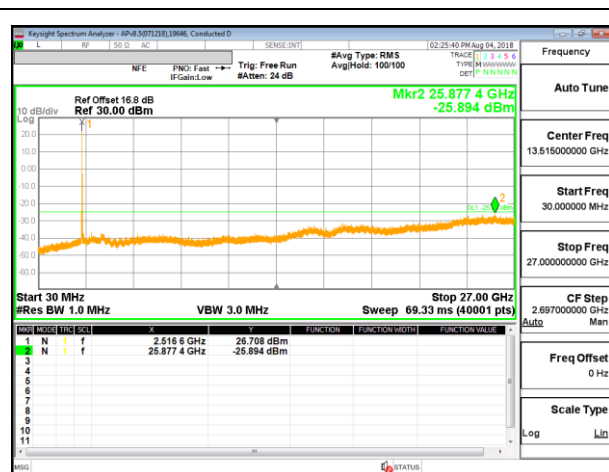
LTE B7 20MHz + 20MHz QPSK High Ch RB1-99 + RB1-0



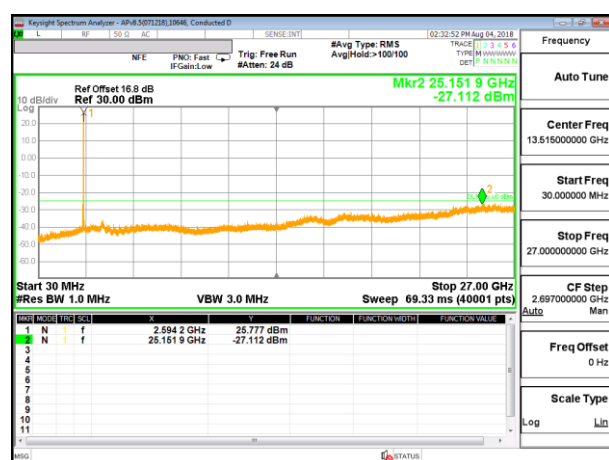
LTE B7 20MHz + 20MHz 16QAM High Ch RB1-99 + RB1-0

8.3.2. LTE BAND 41

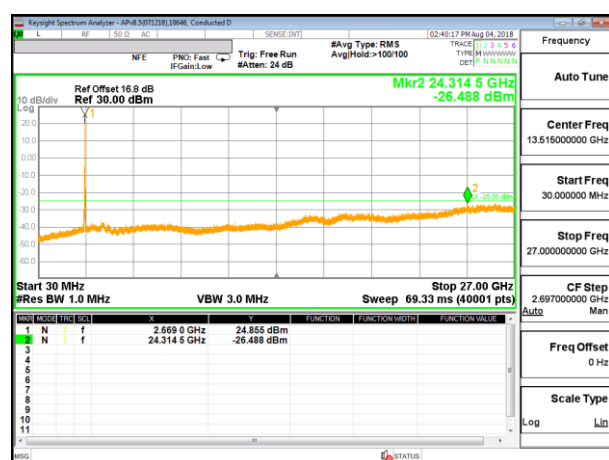




LTE B41 20MHz + 20MHz 16QAM Low Ch RB1-99 + RB1-0



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



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

8.4. FREQUENCY STABILITY

RULE PART(S)

§2.1055, §27.54

LIMITS

§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 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).

MODES TESTED

- LTE Band 7
- LTE Band 41

RESULTS

See the following pages.

8.4.1. LTE BAND 7

ID:	50893	Date:	3/30/18
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QPSK, (20MHz + 10MHz BANDWIDTH)

Limit		2500	2570	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	2500.9398	2568.9728		
Extreme (50C)		2500.9399	2568.9729	75.5	0.030
Extreme (40C)		2500.9399	2568.9729	57.4	0.023
Extreme (30C)		2500.9399	2568.9729	61.7	0.024
Extreme (10C)		2500.9397	2568.9727	-85.2	-0.034
Extreme (0C)		2500.9398	2568.9728	32.2	0.013
Extreme (-10C)		2500.9397	2568.9727	-100.5	-0.040
Extreme (-20C)		2500.9397	2568.9727	-57.2	-0.023
Extreme (-30C)		2500.9398	2568.9728	-28.4	-0.011
20C	15%	2500.9398	2568.9728	40.4	0.016
	-15%	2500.9399	2568.9729	56.5	0.022
	End Point	2500.9398	2568.9728	35.2	0.014

QPSK, (20MHz + 20MHz BANDWIDTH)

Limit		2500	2570	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	2500.3104	2569.0687		
Extreme (50C)		2500.3105	2569.0688	86.9	0.034
Extreme (40C)		2500.3105	2569.0688	85.6	0.034
Extreme (30C)		2500.3105	2569.0688	74.1	0.029
Extreme (10C)		2500.3105	2569.0688	79.3	0.031
Extreme (0C)		2500.3104	2569.0687	34.9	0.014
Extreme (-10C)		2500.3103	2569.0686	-64.1	-0.025
Extreme (-20C)		2500.3104	2569.0687	22.6	0.009
Extreme (-30C)		2500.3104	2569.0687	-33.8	-0.013
20C	15%	2500.3105	2569.0688	51.1	0.020
	-15%	2500.3104	2569.0687	-28.5	-0.011
	End Point	2500.3105	2569.0688	69.9	0.028

8.4.2. LTE BAND 41

ID:	44366	Date:	4/2/18
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QPSK, (20MHz + 5MHz BANDWIDTH)

Limit		2496	2690	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	2497.0122	2689.4086		
Extreme (50C)		2497.0123	2689.4087	60.0	0.023
Extreme (40C)		2497.0121	2689.4085	-72.8	-0.028
Extreme (30C)		2497.0123	2689.4087	65.1	0.025
Extreme (10C)		2497.0121	2689.4085	-90.4	-0.035
Extreme (0C)		2497.0123	2689.4087	65.9	0.025
Extreme (-10C)		2497.0121	2689.4085	-60.2	-0.023
Extreme (-20C)		2497.0123	2689.4087	53.7	0.021
Extreme (-30C)		2497.0122	2689.4086	41.9	0.016
20C	15%	2497.0123	2689.4087	63.1	0.024
	-15%	2497.0122	2689.4086	47.8	0.018
	End Point	2497.0123	2689.4087	52.1	0.020

QPSK, (20MHz + 20MHz BANDWIDTH)

Limit		2496	2690	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	2497.1219	2689.2705		
Extreme (50C)		2497.1220	2689.2706	79.7	0.031
Extreme (40C)		2497.1220	2689.2706	67.2	0.026
Extreme (30C)		2497.1220	2689.2706	51.0	0.020
Extreme (10C)		2497.1218	2689.2704	-57.9	-0.022
Extreme (0C)		2497.1218	2689.2704	-52.2	-0.020
Extreme (-10C)		2497.1218	2689.2704	-62.0	-0.024
Extreme (-20C)		2497.1220	2689.2706	62.0	0.024
Extreme (-30C)		2497.1220	2689.2706	92.6	0.036
20C	15%	2497.1219	2689.2705	-31.1	-0.012
	-15%	2497.1220	2689.2706	50.7	0.020
	End Point	2497.1220	2689.2706	52.7	0.020

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 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.

8.5.1. LTE BAND 7

ID:	10646	Date:	6/19/18
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Band	Bandwidth (MHz)	PCC f (MHz)	SCC1 f (MHz)	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
					Peak	Average	
Band 7	10MHz / 20MHz	2525.6	2540.0	QPSK	32.24	23.75	8.49
				16QAM	32.37	22.79	9.58
	15 MHz / 15MHz	2527.5	2542.5	QPSK	31.98	23.70	8.28
				16QAM	31.89	22.74	9.15
	15MHz / 20MHz	2525.3	2542.4	QPSK	32.02	23.77	8.25
				16QAM	32.01	22.82	9.19
	20MHz / 10MHz	2530.1	2544.5	QPSK	32.26	23.69	8.57
				16QAM	32.25	22.75	9.50
	20MHz / 15MHz	2527.6	2544.7	QPSK	31.91	23.74	8.17
				16QAM	31.92	22.79	9.13
	20MHz / 20MHz	2525.1	2544.9	QPSK	31.64	23.77	7.87
				16QAM	31.78	22.78	9.00
Duty Cycle Correction Factor (dB) =							
Peak-to-Average Power Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor							

8.5.2. LTE BAND 41

ID:	10646	Date:	6/19/18
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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	34.57	16.75	10.83
				16QAM	34.71	15.80	11.92
	10MHz / 20MHz	2583.6	2598.0	QPSK	34.76	16.67	11.10
				16QAM	34.64	15.66	11.99
	15MHz / 15MHz	2585.5	2600.5	QPSK	34.27	16.61	10.67
				16QAM	34.36	15.62	11.75
	15MHz / 20MHz	2583.3	2600.4	QPSK	32.28	14.91	10.38
				16QAM	34.34	15.64	11.71
	20MHz / 5MHz	2590.5	2602.2	QPSK	34.57	16.76	10.82
				16QAM	34.74	15.77	11.98
	20MHz / 10MHz	2588.1	2602.5	QPSK	34.54	16.66	10.89
				16QAM	34.33	15.67	11.67
	20MHz / 15MHz	2585.6	2602.7	QPSK	34.24	16.65	10.60
				16QAM	34.56	15.67	11.90
	20MHz / 20MHz	2583.1	2602.9	QPSK	34.04	16.65	10.40
				16QAM	33.99	15.7	11.30
Duty Cycle Correction Factor (dB) =			6.99				
Peak-to-Average Power Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor							

9. RADIATED TEST RESULTS

RULE PART(S)

§2.1053, §27.53

LIMIT

§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 v03r01/ D02 v02r01

MODES TESTED

- LTE Band 7
- LTE Band 41

9.1. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 1

9.1.1. LTE BAND 7

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company: Project #: Date: 06/21/18 Test Engineer: 19431 Configuration: EUT Only Mode: LTE Band 7, QPSK; UL CA 20/10										
Test Equipment: Substitution: Horn T344 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		Filter		Limit				
3m Chamber C		3m Chamber C		Filter		LTE B7				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2510MHz)-2524.4MHz; 1.99 1.0										
5.02	68.3	H	3.0	15.4	33.4	1.0	47.8	-25.0	22.8	
7.53	69.2	H	3.0	11.6	33.0	1.0	43.6	-25.0	18.6	
10.04	67.4	H	3.0	6.6	32.6	1.0	38.2	-25.0	13.2	
5.02	68.9	V	3.0	16.0	33.4	1.0	48.5	-25.0	23.5	
7.53	68.9	V	3.0	11.3	33.0	1.0	43.3	-25.0	18.3	
10.04	67.0	V	3.0	-5.9	32.6	1.0	37.6	-25.0	12.6	
Mid Channel (2530.1MHz)-2544.5MHz; 1.99 1.0										
5.06	68.6	H	3.0	15.6	33.4	1.0	48.0	-25.0	23.0	
7.59	68.5	H	3.0	10.8	33.0	1.0	42.9	-25.0	17.9	
10.12	67.8	H	3.0	6.9	32.6	1.0	38.5	-25.0	13.5	
5.06	68.6	V	3.0	15.9	33.4	1.0	48.3	-25.0	23.3	
7.59	67.1	V	3.0	8.4	33.0	1.0	41.4	-25.0	16.4	
10.12	67.4	V	3.0	6.3	32.6	1.0	37.9	-25.0	12.9	
High Channel (2550.1MHz)-2564.5MHz; 1.99 1.0										
5.10	70.4	H	3.0	17.3	33.4	1.0	49.7	-25.0	24.7	
7.65	69.4	H	3.0	11.6	33.0	1.0	43.7	-25.0	18.7	
10.20	68.2	H	3.0	7.2	32.6	1.0	38.8	-25.0	13.8	
5.10	69.1	V	3.0	16.1	33.4	1.0	48.6	-25.0	23.6	
7.65	69.4	V	3.0	11.5	33.0	1.0	43.6	-25.0	18.6	
10.20	66.9	V	3.0	-5.7	32.6	1.0	37.3	-25.0	12.3	

Rev. 05.21.15

LTE B7 20MHz + 10MHz QPSK

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company: Project #: Date: 06/21/18 Test Engineer: 19431 Configuration: EUT Only Mode: LTE Band 7, QPSK; UL CA 20/20										
Test Equipment: Substitution: Horn T344 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		Filter		Limit				
3m Chamber C		3m Chamber C		Filter		LTE B7				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2510MHz)-2529.8MHz; 1.99 1.0										
5.02	69.4	H	3.0	16.5	33.4	1.0	49.0	-25.0	24.0	
7.53	69.0	H	3.0	11.4	33.0	1.0	43.4	-25.0	18.4	
10.04	65.7	H	3.0	-4.6	32.6	1.0	36.3	-25.0	11.3	
5.02	68.0	V	3.0	15.1	33.4	1.0	47.6	-25.0	22.6	
7.53	68.6	V	3.0	11.0	33.0	1.0	43.0	-25.0	18.0	
10.04	67.0	V	3.0	-5.9	32.6	1.0	37.6	-25.0	12.6	
Mid Channel (2525.1MHz)-2544.5MHz; 1.99 1.0										
5.06	68.5	H	3.0	15.6	33.4	1.0	48.0	-25.0	23.0	
7.59	68.9	H	3.0	11.2	33.0	1.0	43.2	-25.0	18.2	
10.12	66.2	H	3.0	-5.1	32.6	1.0	36.7	-25.0	11.7	
5.06	68.7	V	3.0	15.8	33.4	1.0	48.2	-25.0	23.2	
7.59	68.7	V	3.0	11.0	33.0	1.0	43.0	-25.0	18.0	
10.12	66.6	V	3.0	-5.5	32.6	1.0	37.1	-25.0	12.1	
High Channel (2540.2MHz)-2560.8MHz; 1.99 1.0										
5.10	69.8	H	3.0	16.8	33.4	1.0	49.2	-25.0	24.2	
7.65	68.4	H	3.0	10.6	33.0	1.0	42.6	-25.0	17.6	
10.20	67.4	H	3.0	-4.4	32.6	1.0	38.0	-25.0	13.0	
5.10	69.3	V	3.0	16.3	33.4	1.0	48.7	-25.0	23.7	
7.65	69.2	V	3.0	11.4	33.0	1.0	43.4	-25.0	18.4	
10.20	68.1	V	3.0	-6.9	32.6	1.0	38.5	-25.0	13.5	

Rev. 05.21.15

LTE B7 20MHz + 20MHz QPSK

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company: Project #: Date: 06/21/18 Test Engineer: 19431 Configuration: EUT Only Mode: LTE Band 7, 16QAM; UL CA 20/10										
Test Equipment: Substitution: Horn T344 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		Filter		Limit				
3m Chamber C		3m Chamber C		Filter		LTE B7				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2510MHz)-2524.4MHz; 1.99 1.0										
5.02	68.0	H	3.0	15.1	33.4	1.0	47.5	-25.0	22.5	
7.53	69.3	H	3.0	11.7	33.0	1.0	43.7	-25.0	18.7	
10.04	67.6	H	3.0	-6.8	32.6	1.0	38.4	-25.0	13.4	
5.02	67.4	V	3.0	14.5	33.4	1.0	47.8	-25.0	22.8	
7.53	68.5	V	3.0	10.9	33.0	1.0	42.9	-25.0	17.9	
10.04	66.7	V	3.0	-5.6	32.6	1.0	37.3	-25.0	12.3	
Mid Channel (2530.1MHz)-2544.5MHz; 1.99 1.0										
5.06	68.6	H	3.0	15.6	33.4	1.0	48.0	-25.0	23.0	
7.59	68.3	H	3.0	10.6	33.0	1.0	42.7	-25.0	17.7	
10.12	66.8	H	3.0	-5.9	32.6	1.0	37.5	-25.0	12.5	
5.06	69.6	V	3.0	16.7	33.4	1.0	49.1	-25.0	24.1	
7.59	69.4	V	3.0	11.7	33.0	1.0	43.7	-25.0	18.7	
10.12	65.6	V	3.0	-4.5	32.6	1.0	36.1	-25.0	11.1	
High Channel (2550.1MHz)-2564.5MHz; 1.99 1.0										
5.10	69.2	H	3.0	16.1	33.4	1.0	48.5	-25.0	23.5	
7.65	68.7	H	3.0	10.9	33.0	1.0	43.0	-25.0	18.0	
10.20	68.4	H	3.0	-7.4	32.6	1.0	39.0	-25.0	14.0	
5.10	68.9	V	3.0	15.9	33.4	1.0	48.3	-25.0	23.3	
7.65	67.9	V	3.0	10.1	33.0	1.0	42.1	-25.0	17.1	
10.20	67.4	V	3.0	-6.2	32.6	1.0	37.8	-25.0	12.8	

Rev. 05.21.15

LTE B7 20MHz + 10MHz 16QAM

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company: Project #: Date: 06/21/18 Test Engineer: 19431 Configuration: EUT Only Mode: LTE Band 7, QPSK; UL CA 20/20										
Test Equipment: Substitution: Horn T344 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		Filter		Limit				
3m Chamber C		3m Chamber C		Filter		LTE B7				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2510MHz)-2529.8MHz; 1.99 1.0										
5.02	69.0	H	3.0	16.1	33.4	1.0	48.5	-25.0	23.5	
7.53	67.9	H	3.0	10.3	33.0	1.0	42.3	-25.0	17.3	
10.04	67.6	H	3.0	-4.8	32.6	1.0	38.4	-25.0	13.4	
5.02	68.7	V	3.0	15.8	33.4	1.0	48.3	-25.0	23.3	
7.53	68.5	V	3.0	10.9	33.0	1.0	42.9	-25.0	17.9	
10.04	67.0	V	3.0	-5.9	32.6	1.0	37.6	-25.0	12.6	
Mid Channel (2525.1MHz)-2544.5MHz; 1.99 1.0										
5.06	69.2	H	3.0	16.2	33.4	1.0	48.6	-25.0	23.6	
7.59	68.6	H	3.0	10.9	33.0	1.0	43.0	-25.0	18.0	
10.12	67.1	H	3.0	-6.2	32.6	1.0	37.8	-25.0	12.8	
5.06	67.7	V	3.0	14.8	33.4	1.0	47.2	-25.0	22.2	
7.59	67.2	V	3.0	-9.5	33.0	1.0	41.5	-25.0	16.5	
10.12	65.4	V	3.0	-4.3	32.6	1.0	35.9	-25.0	10.9	
High Channel (2540.2MHz)-2560.8MHz; 1.99 1.0										
5.10	69.6	H	3.0	16.5	33.4	1.0	48.9	-25.0	23.9	
7.65	68.9	H	3.0	11.1	33.0	1.0	43.2	-25.0	18.2	
10.20	68.7	H	3.0	-5.7	32.6	1.0	37.3	-25.0	12.3	
5.10	70.1	V	3.0	17.1	33.4	1.0	49.5	-25.0	24.5	
7.65	69.6	V	3.0	11.8	33.0	1.0	43.6	-25.0	18.6	
10.20	67.8	V	3.0	-6.6	32.6	1.0	38.2	-25.0	13.2	

Rev. 05.21.15

LTE B7 20MHz + 20MHz 16QAM

9.1.2. LTE BAND 41

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company: _____
Project #: _____
Date: 06/21/18
Test Engineer: 19431
Configuration: EUT Only
Mode: LTE Band 41, QPSK UL CA 20/5

Test Equipment:
Substitution: Horn T89 Substitution, and 8ft SMA Cable

Chamber
3m Chamber C

Pre-amplifier
3m Chamber C

Filter
Filter

Limit
LTE B41

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2500MHz) + 2517.7MHz 1.99, 1.0										
5.02	68.6	H	3.0	15.7	33.4	1.0	48.1	25.0	-23.1	
7.53	68.3	H	3.0	16.7	33.0	1.0	42.7	25.0	-17.7	
10.04	67.5	H	3.0	6.7	32.6	1.0	38.3	25.0	-13.3	
5.02	68.5	V	3.0	15.1	33.4	1.0	47.6	25.0	-22.6	
7.53	68.8	V	3.0	11.2	33.0	1.0	43.2	25.0	-18.2	
10.04	67.5	V	3.0	6.4	32.6	1.0	38.1	25.0	-13.1	
Mid Channel (2590.5MHz) + 2602.2MHz 1.99, 1.0										
5.19	67.6	H	3.0	14.4	33.4	1.0	46.7	25.0	-21.7	
7.79	68.6	H	3.0	16.7	33.0	1.0	42.7	25.0	-17.7	
10.38	68.4	H	3.0	7.3	32.4	1.0	38.7	25.0	-13.7	
5.19	66.6	V	3.0	13.4	33.4	1.0	45.8	25.0	-20.8	
7.79	67.6	V	3.0	9.6	33.0	1.0	41.6	25.0	-16.6	
10.38	67.5	V	3.0	6.6	32.4	1.0	38.0	25.0	-13.0	
High Channel (2675MHz) + 2686.7MHz 1.99, 1.0										
5.36	67.2	H	3.0	13.6	33.3	1.0	45.9	25.0	-20.9	
8.04	68.4	H	3.0	16.1	33.0	1.0	42.1	25.0	-17.1	
10.72	67.9	H	3.0	6.4	32.2	1.0	37.6	25.0	-12.6	
5.36	69.7	V	3.0	16.7	33.3	1.0	48.5	25.0	-23.5	
8.04	67.5	V	3.0	9.2	33.0	1.0	41.1	25.0	-16.1	
10.72	67.6	V	3.0	6.3	32.2	1.0	37.5	25.0	-12.5	

Rev: 05.21.15

LTE B41 20MHz + 5MHz QPSK

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company: _____
Project #: _____
Date: 06/21/18
Test Engineer: 19431
Configuration: EUT Only
Mode: LTE Band 41, 16QAM UL CA 20/5

Test Equipment:
Substitution: Horn T89 Substitution, and 8ft SMA Cable

Chamber
3m Chamber C

Pre-amplifier
3m Chamber C

Filter
Filter

Limit
LTE B41

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2500MHz) + 2517.7MHz 1.99, 1.0										
5.02	67.9	H	3.0	15.0	33.4	1.0	47.4	25.0	-22.4	
7.53	68.3	H	3.0	16.7	33.0	1.0	42.7	25.0	-17.7	
10.04	67.5	H	3.0	6.7	32.6	1.0	38.3	25.0	-13.3	
5.02	68.9	V	3.0	16.0	33.4	1.0	48.5	25.0	-23.5	
7.53	68.3	V	3.0	16.7	33.0	1.0	42.7	25.0	-17.7	
10.04	65.2	V	3.0	4.1	32.6	1.0	35.8	25.0	-10.8	
Mid Channel (2590.5MHz) + 2602.2MHz 1.99, 1.0										
5.19	66.6	H	3.0	13.4	33.4	1.0	45.7	25.0	-20.7	
7.79	68.1	H	3.0	16.2	33.0	1.0	42.2	25.0	-17.2	
10.38	67.2	H	3.0	6.1	32.4	1.0	37.5	25.0	-12.5	
5.19	66.1	V	3.0	14.9	33.4	1.0	47.3	25.0	-22.3	
7.79	68.8	V	3.0	10.8	33.0	1.0	42.8	25.0	-17.8	
10.38	67.8	V	3.0	6.5	32.4	1.0	37.9	25.0	-12.9	
High Channel (2675MHz) + 2686.7MHz 1.99, 1.0										
5.36	69.6	H	3.0	16.0	33.3	1.0	48.3	25.0	-23.3	
8.04	68.0	H	3.0	9.7	33.0	1.0	41.7	25.0	-16.7	
10.72	67.1	H	3.0	5.6	32.2	1.0	36.8	25.0	-11.8	
5.36	69.6	V	3.0	16.1	33.3	1.0	48.4	25.0	-23.4	
8.04	68.4	V	3.0	10.1	33.0	1.0	42.0	25.0	-17.0	
10.72	67.2	V	3.0	5.7	32.2	1.0	36.9	25.0	-11.9	

Rev: 05.21.15

LTE B41 20MHz + 5MHz 16QAM

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company: _____
Project #: _____
Date: 06/21/18
Test Engineer: 19431
Configuration: EUT Only
Mode: LTE Band 41, QPSK UL CA 20/20

Test Equipment:
Substitution: Horn T89 Substitution, and 8ft SMA Cable

Chamber
3m Chamber C

Pre-amplifier
3m Chamber C

Filter
Filter

Limit
LTE B41

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2500MHz) + 2525.8MHz 1.99 1.0										
5.02	68.1	H	3.0	15.2	33.4	1.0	47.6	25.0	-22.6	
7.53	67.8	H	3.0	16.2	33.0	1.0	42.2	25.0	-17.2	
10.04	67.9	H	3.0	7.1	32.6	1.0	38.7	25.0	-13.7	
5.02	68.3	V	3.0	15.4	33.4	1.0	47.9	25.0	-22.9	
7.53	68.3	V	3.0	16.7	33.0	1.0	42.7	25.0	-17.7	
10.04	68.0	V	3.0	6.9	32.6	1.0	38.6	25.0	-13.6	
Mid Channel (2583.1MHz) + 2602.2MHz 1.99 1.0										
5.19	68.0	H	3.0	14.8	33.4	1.0	47.1	25.0	-22.1	
7.79	67.3	H	3.0	9.4	33.0	1.0	41.4	25.0	-16.4	
10.38	68.3	H	3.0	7.2	32.4	1.0	38.6	25.0	-13.6	
5.19	67.4	V	3.0	14.2	33.4	1.0	46.6	25.0	-21.6	
7.79	67.8	V	3.0	9.8	33.0	1.0	41.8	25.0	-16.8	
10.38	68.5	V	3.0	7.2	32.4	1.0	38.6	25.0	-13.6	
High Channel (2660.2MHz) + 2680MHz 1.99 1.0										
5.36	67.9	H	3.0	14.3	33.3	1.0	46.6	25.0	-21.6	
8.04	66.4	H	3.0	8.1	33.0	1.0	40.1	25.0	-15.1	
10.72	67.9	H	3.0	6.4	32.2	1.0	37.6	25.0	-12.6	
5.36	68.4	V	3.0	14.9	33.3	1.0	47.2	25.0	-22.2	
8.04	67.3	V	3.0	9.0	33.0	1.0	40.9	25.0	-15.9	
10.72	68.8	V	3.0	7.3	32.2	1.0	38.5	25.0	-13.5	

Rev: 05.21.15

LTE B41 20MHz + 20MHz QPSK

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company: _____
Project #: _____
Date: 06/21/18
Test Engineer: 19431
Configuration: EUT Only
Mode: LTE Band 41, 16QAM UL CA 20/20

Test Equipment:
Substitution: Horn T89 Substitution, and 8ft SMA Cable

Chamber
3m Chamber C

Pre-amplifier
3m Chamber C

Filter
Filter

Limit
LTE B41

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2500MHz) + 2525.8MHz 1.99 1.0										
5.02	67.8	H	3.0	14.9	33.4	1.0	47.3	25.0	-22.3	
7.53	68.5	H	3.0	16.0	33.0	1.0	42.9	25.0	-17.9	
10.04	67.0	H	3.0	6.2	32.6	1.0	37.8	25.0	-12.8	
5.02	68.5	V	3.0	15.6	33.4	1.0	48.1	25.0	-23.1	
7.53	68.2	V	3.0	16.6	33.0	1.0	42.6	25.0	-17.6	
10.04	67.3	V	3.0	6.2	32.6	1.0	37.9	25.0	-12.9	
Mid Channel (2583.1MHz) + 2602.2MHz 1.99 1.0										
5.19	68.0	H	3.0	14.8	33.4	1.0	47.1	25.0	-22.1	
7.79	68.1	H	3.0	16.2	33.0	1.0	42.2	25.0	-17.2	
10.38	68.2	H	3.0	7.1	32.4	1.0	38.5	25.0	-13.5	
5.19	68.4	V	3.0	15.2	33.4	1.0	47.6	25.0	-22.6	
7.79	67.8	V	3.0	9.8	33.0	1.0	41.8	25.0	-16.8	
10.38	67.7	V	3.0	6.4	32.4	1.0	37.8	25.0	-12.8	
High Channel (2660.2MHz) + 2680MHz 1.99 1.0										
5.36	68.8	H	3.0	15.2	33.3	1.0	47.5	25.0	-22.5	
8.04	66.3	H	3.0	8.0	33.0	1.0	40.0	25.0	-15.0	
10.72	67.8	H	3.0	6.3	32.2	1.0	37.5	25.0	-12.5	
5.36	67.8	V	3.0	15.5	33.3	1.0	46.9	25.0	-20.9	
8.04	68.1	V	3.0	9.8	33.0	1.0	41.7	25.0	-16.7	
10.72	68.9	V	3.0	7.4	32.2	1.0	38.6	25.0	-13.6	

Rev: 05.21.15

LTE B41 20MHz + 20MHz 16QAM

9.2. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 2

9.2.1. LTE BAND 7

High Frequency Substitution Measurement UL Fremont Radiated Chamber Company: Project #: Date: 06/21/18 Test Engineer: 19431 Configuration: EUT Only Mode: LTE Band 7, QPSK UL CA 2010 Test Equipment: Substitution: Horn T59 Substitution, and 8ft SMA Cable Chamber: 3m Chamber C Pre-amplifier: 3m Chamber C Filter: Filter Limit: LTE B7 <table> <tr> <th>Frequency (GHz)</th><th>SA reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Distance</th><th>EIRP @ TX Ant End (dBm)</th><th>Preamp</th><th>Attenuator</th><th>EIRP</th><th>Limit</th><th>Delta</th><th>Notes</th></tr> <tr> <td colspan="11">Low Channel (2510MHz)-2524.4MHz 1.99 1.0</td></tr> <tr> <td>5.03</td><td>65.6</td><td>H</td><td>3.0</td><td>12.7</td><td>33.4</td><td>1.0</td><td>45.1</td><td>25.0</td><td>-20.1</td><td></td></tr> <tr> <td>7.55</td><td>65.8</td><td>H</td><td>3.0</td><td>8.2</td><td>33.0</td><td>1.0</td><td>40.2</td><td>25.0</td><td>-15.2</td><td></td></tr> <tr> <td>10.07</td><td>64.4</td><td>H</td><td>3.0</td><td>3.6</td><td>32.6</td><td>1.0</td><td>35.2</td><td>25.0</td><td>-10.2</td><td></td></tr> <tr> <td>5.03</td><td>65.4</td><td>V</td><td>3.0</td><td>12.5</td><td>33.4</td><td>1.0</td><td>44.9</td><td>25.0</td><td>-19.9</td><td></td></tr> <tr> <td>7.55</td><td>64.3</td><td>V</td><td>3.0</td><td>4.6</td><td>33.0</td><td>1.0</td><td>38.7</td><td>25.0</td><td>-13.7</td><td></td></tr> <tr> <td>10.07</td><td>65.1</td><td>V</td><td>3.0</td><td>4.0</td><td>32.6</td><td>1.0</td><td>35.6</td><td>25.0</td><td>-10.6</td><td></td></tr> <tr> <td colspan="11">Mid Channel (2536.1MHz)-2544.5MHz 1.99 1.0</td></tr> <tr> <td>5.07</td><td>65.8</td><td>H</td><td>3.0</td><td>12.8</td><td>33.4</td><td>1.0</td><td>45.2</td><td>25.0</td><td>-20.2</td><td></td></tr> <tr> <td>7.61</td><td>66.6</td><td>H</td><td>3.0</td><td>8.3</td><td>33.0</td><td>1.0</td><td>40.3</td><td>25.0</td><td>-15.3</td><td></td></tr> <tr> <td>10.15</td><td>64.4</td><td>H</td><td>3.0</td><td>3.5</td><td>32.6</td><td>1.0</td><td>35.1</td><td>25.0</td><td>-10.1</td><td></td></tr> <tr> <td>5.07</td><td>65.9</td><td>V</td><td>3.0</td><td>12.9</td><td>33.4</td><td>1.0</td><td>45.3</td><td>25.0</td><td>-20.3</td><td></td></tr> <tr> <td>7.61</td><td>66.3</td><td>V</td><td>3.0</td><td>8.4</td><td>33.0</td><td>1.0</td><td>40.4</td><td>25.0</td><td>-15.4</td><td></td></tr> <tr> <td>10.15</td><td>64.6</td><td>V</td><td>3.0</td><td>3.4</td><td>32.6</td><td>1.0</td><td>35.0</td><td>25.0</td><td>-10.0</td><td></td></tr> <tr> <td colspan="11">High Channel (2550.1MHz)-2564.5MHz 1.99 1.0</td></tr> <tr> <td>5.11</td><td>67.1</td><td>H</td><td>3.0</td><td>14.0</td><td>33.4</td><td>1.0</td><td>46.4</td><td>25.0</td><td>-21.4</td><td></td></tr> <tr> <td>7.67</td><td>66.4</td><td>H</td><td>3.0</td><td>8.6</td><td>33.0</td><td>1.0</td><td>40.6</td><td>25.0</td><td>-15.6</td><td></td></tr> <tr> <td>10.23</td><td>65.8</td><td>H</td><td>3.0</td><td>4.8</td><td>32.5</td><td>1.0</td><td>36.3</td><td>25.0</td><td>-11.3</td><td></td></tr> <tr> <td>5.11</td><td>66.7</td><td>V</td><td>3.0</td><td>13.7</td><td>33.4</td><td>1.0</td><td>46.1</td><td>25.0</td><td>-21.1</td><td></td></tr> <tr> <td>7.67</td><td>66.7</td><td>V</td><td>3.0</td><td>8.9</td><td>33.0</td><td>1.0</td><td>40.9</td><td>25.0</td><td>-15.9</td><td></td></tr> <tr> <td>10.23</td><td>64.4</td><td>V</td><td>3.0</td><td>3.2</td><td>32.5</td><td>1.0</td><td>34.7</td><td>25.0</td><td>-9.7</td><td></td></tr> </table> Rev: 05.21.15											Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes	Low Channel (2510MHz)-2524.4MHz 1.99 1.0											5.03	65.6	H	3.0	12.7	33.4	1.0	45.1	25.0	-20.1		7.55	65.8	H	3.0	8.2	33.0	1.0	40.2	25.0	-15.2		10.07	64.4	H	3.0	3.6	32.6	1.0	35.2	25.0	-10.2		5.03	65.4	V	3.0	12.5	33.4	1.0	44.9	25.0	-19.9		7.55	64.3	V	3.0	4.6	33.0	1.0	38.7	25.0	-13.7		10.07	65.1	V	3.0	4.0	32.6	1.0	35.6	25.0	-10.6		Mid Channel (2536.1MHz)-2544.5MHz 1.99 1.0											5.07	65.8	H	3.0	12.8	33.4	1.0	45.2	25.0	-20.2		7.61	66.6	H	3.0	8.3	33.0	1.0	40.3	25.0	-15.3		10.15	64.4	H	3.0	3.5	32.6	1.0	35.1	25.0	-10.1		5.07	65.9	V	3.0	12.9	33.4	1.0	45.3	25.0	-20.3		7.61	66.3	V	3.0	8.4	33.0	1.0	40.4	25.0	-15.4		10.15	64.6	V	3.0	3.4	32.6	1.0	35.0	25.0	-10.0		High Channel (2550.1MHz)-2564.5MHz 1.99 1.0											5.11	67.1	H	3.0	14.0	33.4	1.0	46.4	25.0	-21.4		7.67	66.4	H	3.0	8.6	33.0	1.0	40.6	25.0	-15.6		10.23	65.8	H	3.0	4.8	32.5	1.0	36.3	25.0	-11.3		5.11	66.7	V	3.0	13.7	33.4	1.0	46.1	25.0	-21.1		7.67	66.7	V	3.0	8.9	33.0	1.0	40.9	25.0	-15.9		10.23	64.4	V	3.0	3.2	32.5	1.0	34.7	25.0	-9.7	
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes																																																																																																																																																																																																																																																		
Low Channel (2510MHz)-2524.4MHz 1.99 1.0																																																																																																																																																																																																																																																												
5.03	65.6	H	3.0	12.7	33.4	1.0	45.1	25.0	-20.1																																																																																																																																																																																																																																																			
7.55	65.8	H	3.0	8.2	33.0	1.0	40.2	25.0	-15.2																																																																																																																																																																																																																																																			
10.07	64.4	H	3.0	3.6	32.6	1.0	35.2	25.0	-10.2																																																																																																																																																																																																																																																			
5.03	65.4	V	3.0	12.5	33.4	1.0	44.9	25.0	-19.9																																																																																																																																																																																																																																																			
7.55	64.3	V	3.0	4.6	33.0	1.0	38.7	25.0	-13.7																																																																																																																																																																																																																																																			
10.07	65.1	V	3.0	4.0	32.6	1.0	35.6	25.0	-10.6																																																																																																																																																																																																																																																			
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7.61	66.6	H	3.0	8.3	33.0	1.0	40.3	25.0	-15.3																																																																																																																																																																																																																																																			
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5.11	67.1	H	3.0	14.0	33.4	1.0	46.4	25.0	-21.4																																																																																																																																																																																																																																																			
7.67	66.4	H	3.0	8.6	33.0	1.0	40.6	25.0	-15.6																																																																																																																																																																																																																																																			
10.23	65.8	H	3.0	4.8	32.5	1.0	36.3	25.0	-11.3																																																																																																																																																																																																																																																			
5.11	66.7	V	3.0	13.7	33.4	1.0	46.1	25.0	-21.1																																																																																																																																																																																																																																																			
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10.23	64.4	V	3.0	3.2	32.5	1.0	34.7	25.0	-9.7																																																																																																																																																																																																																																																			
High Frequency Substitution Measurement UL Fremont Radiated Chamber Company: Project #: Date: 06/21/18 Test Engineer: 19431 Configuration: EUT Only Mode: LTE Band 7, 16QAM UL CA 2010 Test Equipment: Substitution: Horn T59 Substitution, and 8ft SMA Cable Chamber: 3m Chamber C Pre-amplifier: 3m Chamber C Filter: Filter Limit: LTE B7 <table> <tr> <th>Frequency (GHz)</th><th>SA reading (dBm)</th><th>Ant. Pol. (H/V)</th><th>Distance</th><th>EIRP @ TX Ant End (dBm)</th><th>Preamp</th><th>Attenuator</th><th>EIRP</th><th>Limit</th><th>Delta</th><th>Notes</th></tr> <tr> <td colspan="11">Low Channel (2510MHz)-2524.4MHz 1.99 1.0</td></tr> <tr> <td>5.03</td><td>66.2</td><td>H</td><td>3.0</td><td>13.3</td><td>33.4</td><td>1.0</td><td>45.7</td><td>25.0</td><td>-20.7</td><td></td></tr> <tr> <td>7.55</td><td>65.4</td><td>H</td><td>3.0</td><td>7.8</td><td>33.0</td><td>1.0</td><td>39.8</td><td>25.0</td><td>-14.8</td><td></td></tr> <tr> <td>10.07</td><td>64.6</td><td>H</td><td>3.0</td><td>3.8</td><td>32.6</td><td>1.0</td><td>35.4</td><td>25.0</td><td>-10.4</td><td></td></tr> <tr> <td>5.03</td><td>64.3</td><td>V</td><td>3.0</td><td>11.4</td><td>33.4</td><td>1.0</td><td>43.8</td><td>25.0</td><td>-18.8</td><td></td></tr> <tr> <td>7.55</td><td>65.6</td><td>V</td><td>3.0</td><td>7.9</td><td>33.0</td><td>1.0</td><td>40.0</td><td>25.0</td><td>-15.0</td><td></td></tr> <tr> <td>10.07</td><td>64.8</td><td>V</td><td>3.0</td><td>3.7</td><td>32.6</td><td>1.0</td><td>35.3</td><td>25.0</td><td>-10.3</td><td></td></tr> <tr> <td colspan="11">Mid Channel (2536.1MHz)-2544.5MHz 1.99 1.0</td></tr> <tr> <td>5.07</td><td>65.5</td><td>H</td><td>3.0</td><td>12.5</td><td>33.4</td><td>1.0</td><td>44.9</td><td>25.0</td><td>-19.9</td><td></td></tr> <tr> <td>7.61</td><td>65.6</td><td>H</td><td>3.0</td><td>7.9</td><td>33.0</td><td>1.0</td><td>39.9</td><td>25.0</td><td>-14.9</td><td></td></tr> <tr> <td>10.15</td><td>64.8</td><td>H</td><td>3.0</td><td>3.9</td><td>32.6</td><td>1.0</td><td>35.5</td><td>25.0</td><td>-10.5</td><td></td></tr> <tr> <td>5.07</td><td>65.5</td><td>V</td><td>3.0</td><td>12.5</td><td>33.4</td><td>1.0</td><td>44.9</td><td>25.0</td><td>-19.9</td><td></td></tr> <tr> <td>7.61</td><td>65.9</td><td>V</td><td>3.0</td><td>8.2</td><td>33.0</td><td>1.0</td><td>40.2</td><td>25.0</td><td>-15.2</td><td></td></tr> <tr> <td>10.15</td><td>65.4</td><td>V</td><td>3.0</td><td>4.2</td><td>32.6</td><td>1.0</td><td>35.8</td><td>25.0</td><td>-10.8</td><td></td></tr> <tr> <td colspan="11">High Channel (2550.1MHz)-2564.5MHz 1.99 1.0</td></tr> <tr> <td>5.11</td><td>66.8</td><td>H</td><td>3.0</td><td>13.7</td><td>33.4</td><td>1.0</td><td>46.1</td><td>25.0</td><td>-21.1</td><td></td></tr> <tr> <td>7.67</td><td>65.9</td><td>H</td><td>3.0</td><td>8.1</td><td>33.0</td><td>1.0</td><td>40.1</td><td>25.0</td><td>-15.1</td><td></td></tr> <tr> <td>10.23</td><td>64.9</td><td>H</td><td>3.0</td><td>3.9</td><td>32.5</td><td>1.0</td><td>35.4</td><td>25.0</td><td>-10.4</td><td></td></tr> <tr> <td>5.11</td><td>66.7</td><td>V</td><td>3.0</td><td>13.7</td><td>33.4</td><td>1.0</td><td>46.1</td><td>25.0</td><td>-21.1</td><td></td></tr> <tr> <td>7.67</td><td>65.9</td><td>V</td><td>3.0</td><td>8.1</td><td>33.0</td><td>1.0</td><td>40.1</td><td>25.0</td><td>-15.1</td><td></td></tr> <tr> <td>10.23</td><td>65.1</td><td>V</td><td>3.0</td><td>3.9</td><td>32.5</td><td>1.0</td><td>35.4</td><td>25.0</td><td>-10.4</td><td></td></tr> </table> Rev: 05.21.15											Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes	Low Channel (2510MHz)-2524.4MHz 1.99 1.0											5.03	66.2	H	3.0	13.3	33.4	1.0	45.7	25.0	-20.7		7.55	65.4	H	3.0	7.8	33.0	1.0	39.8	25.0	-14.8		10.07	64.6	H	3.0	3.8	32.6	1.0	35.4	25.0	-10.4		5.03	64.3	V	3.0	11.4	33.4	1.0	43.8	25.0	-18.8		7.55	65.6	V	3.0	7.9	33.0	1.0	40.0	25.0	-15.0		10.07	64.8	V	3.0	3.7	32.6	1.0	35.3	25.0	-10.3		Mid Channel (2536.1MHz)-2544.5MHz 1.99 1.0											5.07	65.5	H	3.0	12.5	33.4	1.0	44.9	25.0	-19.9		7.61	65.6	H	3.0	7.9	33.0	1.0	39.9	25.0	-14.9		10.15	64.8	H	3.0	3.9	32.6	1.0	35.5	25.0	-10.5		5.07	65.5	V	3.0	12.5	33.4	1.0	44.9	25.0	-19.9		7.61	65.9	V	3.0	8.2	33.0	1.0	40.2	25.0	-15.2		10.15	65.4	V	3.0	4.2	32.6	1.0	35.8	25.0	-10.8		High Channel (2550.1MHz)-2564.5MHz 1.99 1.0											5.11	66.8	H	3.0	13.7	33.4	1.0	46.1	25.0	-21.1		7.67	65.9	H	3.0	8.1	33.0	1.0	40.1	25.0	-15.1		10.23	64.9	H	3.0	3.9	32.5	1.0	35.4	25.0	-10.4		5.11	66.7	V	3.0	13.7	33.4	1.0	46.1	25.0	-21.1		7.67	65.9	V	3.0	8.1	33.0	1.0	40.1	25.0	-15.1		10.23	65.1	V	3.0	3.9	32.5	1.0	35.4	25.0	-10.4	
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes																																																																																																																																																																																																																																																		
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7.61	64.6	V	3.0	6.9	33.0	1.0	38.9	25.0	-13.9																																																																																																																																																																																																																																																			
10.14	64.5	V	3.0	3.3	32.6	1.0	34.9	25.0	-9.9																																																																																																																																																																																																																																																			
High Channel (2540.2MHz)-2560MHz 1.99 1.0																																																																																																																																																																																																																																																												
5.10	66.9	H	3.0	13.8	33.4	1.0	46.2	25.0	-21.2																																																																																																																																																																																																																																																			
7.65	67.1	H	3.0	9.3	33.0	1.0	41.4	25.0	-16.4																																																																																																																																																																																																																																																			
10.20	65.0	H	3.0	4.0	32.5	1.0	35.6	25.0	-10.6																																																																																																																																																																																																																																																			
5.10	66.3	V	3.0	13.3	33.4	1.0	45.7	25.0	-20.7																																																																																																																																																																																																																																																			
7.65	66.2	V	3.0	8.4	33.0	1.0	40.4	25.0	-15.4																																																																																																																																																																																																																																																			
10.20	65.4	V	3.0	4.2	32.5	1.0	35.7	25.0	-10.7																																																																																																																																																																																																																																																			
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9.2.2. LTE BAND 41

High Frequency Substitution Measurement UL Fremont Radiated Chamber

Company:
Project #:
Date: 06/21/18
Test Engineer: 19459
Configuration: EUT only
Mode: LTE Band 41, QPSK UL CA 20/5

Test Equipment:
Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber C	3m Chamber C	Filter	LTE B41

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2500MHz) + 2517.7MHz 1.99, 1.0										
5.02	-71.1	H	3.0	-82.2	33.4	1.0	-50.6	-25.0	-25.6	
7.54	-72.1	H	3.0	-84.5	33.0	1.0	-46.5	-25.0	-21.5	
10.05	-72.0	H	3.0	-82.0	32.6	1.0	-43.6	-25.0	-18.6	
5.02	-72.1	V	3.0	-89.2	33.4	1.0	-51.6	-25.0	-26.6	
7.54	-72.1	V	3.0	-84.4	33.0	1.0	-46.5	-25.0	-21.5	
10.05	-73.4	V	3.0	-92.3	32.6	1.0	-43.9	-25.0	-18.9	
Mid Channel (2500.5MHz) + 2602.2MHz 1.99, 1.0										
5.19	-70.7	H	3.0	-77.0	33.4	1.0	-49.3	-25.0	-24.3	
7.79	-71.6	H	3.0	-83.7	33.0	1.0	-45.7	-25.0	-20.7	
10.39	-73.0	H	3.0	-91.9	32.4	1.0	-43.1	-25.0	-18.3	
5.19	-70.0	V	3.0	-86.8	33.4	1.0	-49.1	-25.0	-24.1	
7.79	-70.9	V	3.0	-92.9	33.0	1.0	-44.9	-25.0	-19.9	
10.39	-72.9	V	3.0	-91.6	32.4	1.0	-43.0	-25.0	-18.0	
High Channel (2675MHz) + 2686.7MHz 1.99, 1.0										
5.36	-68.0	H	3.0	-55.2	33.3	1.0	-47.5	-25.0	-22.5	
8.04	-72.3	H	3.0	-84.0	33.0	1.0	-46.0	-25.0	-21.0	
10.72	-73.5	H	3.0	-92.9	32.2	1.0	-43.2	-25.0	-18.2	
5.36	-68.1	V	3.0	-84.5	33.3	1.0	-46.8	-25.0	-21.8	
8.04	-71.7	V	3.0	-83.4	33.0	1.0	-45.4	-25.0	-20.4	
10.72	-73.3	V	3.0	-91.8	32.2	1.0	-43.0	-25.0	-18.0	

Rev: 05.21.15

LTE B41 20MHz + 5MHz QPSK

High Frequency Substitution Measurement UL Fremont Radiated Chamber

Company:
Project #:
Date: 06/21/18
Test Engineer: 19459
Configuration: EUT only
Mode: LTE Band 41, QPSK UL CA 20/20

Test Equipment:
Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber C	3m Chamber C	Filter	LTE B41

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2500MHz) + 2525.8MHz 1.99, 1.0										
5.03	-71.4	H	3.0	-85.3	33.4	1.0	-50.9	-25.0	-25.9	
7.55	-72.1	H	3.0	-84.5	33.0	1.0	-46.5	-25.0	-21.5	
10.06	-73.1	H	3.0	-92.3	32.6	1.0	-43.9	-25.0	-18.9	
5.03	-70.4	V	3.0	-87.6	33.4	1.0	-50.0	-25.0	-25.0	
7.55	-72.5	V	3.0	-84.8	33.0	1.0	-46.9	-25.0	-21.9	
10.06	-73.6	V	3.0	-92.5	32.6	1.0	-44.1	-25.0	-19.1	
Mid Channel (2503.1MHz) + 2602.9MHz 1.99, 1.0										
5.19	-69.5	H	3.0	-76.7	33.4	1.0	-49.0	-25.0	-24.0	
7.79	-70.7	H	3.0	-82.8	33.0	1.0	-46.8	-25.0	-21.8	
10.37	-73.0	H	3.0	-91.9	32.4	1.0	-43.3	-25.0	-18.3	
5.19	-69.4	V	3.0	-96.2	33.4	1.0	-48.6	-25.0	-23.6	
7.79	-71.0	V	3.0	-93.8	33.0	1.0	-45.8	-25.0	-20.8	
10.37	-72.2	V	3.0	-90.9	32.4	1.0	-42.3	-25.0	-17.3	
High Channel (2605.2MHz) + 2608.0MHz 1.99, 1.0										
5.34	-68.5	H	3.0	-55.3	33.3	1.0	-47.6	-25.0	-22.6	
8.01	-73.0	H	3.0	-84.8	33.0	1.0	-46.8	-25.0	-21.8	
10.68	-72.3	H	3.0	-90.9	32.3	1.0	-42.1	-25.0	-17.1	
5.34	-68.5	V	3.0	-95.0	33.3	1.0	-47.4	-25.0	-22.4	
8.01	-72.7	V	3.0	-84.4	33.0	1.0	-46.4	-25.0	-21.4	
10.68	-73.2	V	3.0	-91.7	32.3	1.0	-42.9	-25.0	-17.9	

Rev: 05.21.15

LTE B41 20MHz + 20MHz QPSK

High Frequency Substitution Measurement UL Fremont Radiated Chamber

Company:
Project #:
Date: 06/21/18
Test Engineer: 19459
Configuration: EUT only
Mode: LTE Band 41, 16QAM UL CA 20/5

Test Equipment:
Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber C	3m Chamber C	Filter	LTE B41

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2500MHz) + 2517.7MHz 1.99, 1.0										
5.02	-71.4	H	3.0	-88.4	33.4	1.0	-50.9	-25.0	-25.9	
7.54	-71.6	H	3.0	-84.0	33.0	1.0	-46.1	-25.0	-21.1	
10.05	-72.7	H	3.0	-91.8	32.6	1.0	-43.5	-25.0	-18.5	
5.02	-71.2	V	3.0	-93.3	33.4	1.0	-50.7	-25.0	-25.7	
7.54	-72.1	V	3.0	-84.5	33.0	1.0	-46.5	-25.0	-21.5	
10.05	-73.4	V	3.0	-92.3	32.6	1.0	-44.0	-25.0	-19.0	
Mid Channel (2500.5MHz) + 2602.2MHz 1.99, 1.0										
5.19	-69.3	H	3.0	-76.7	33.4	1.0	-49.0	-25.0	-24.0	
7.79	-71.3	H	3.0	-83.3	33.0	1.0	-45.3	-25.0	-20.3	
10.39	-73.0	H	3.0	-91.8	32.4	1.0	-43.3	-25.0	-18.3	
5.19	-69.0	V	3.0	-95.8	33.4	1.0	-48.2	-25.0	-23.2	
7.79	-71.5	V	3.0	-93.5	33.0	1.0	-45.5	-25.0	-20.5	
10.39	-72.9	V	3.0	-91.6	32.4	1.0	-43.0	-25.0	-18.0	
High Channel (2675MHz) + 2686.7MHz 1.99, 1.0										
5.36	-68.4	H	3.0	-54.8	33.3	1.0	-47.1	-25.0	-22.1	
8.04	-72.2	H	3.0	-83.9	33.0	1.0	-45.9	-25.0	-20.9	
10.72	-73.3	H	3.0	-91.8	32.2	1.0	-43.1	-25.0	-18.1	
5.36	-68.0	V	3.0	-84.5	33.3	1.0	-47.8	-25.0	-22.8	
8.04	-71.9	V	3.0	-83.6	33.0	1.0	-45.6	-25.0	-20.6	
10.72	-72.5	V	3.0	-91.8	32.2	1.0	-42.2	-25.0	-17.2	

Rev: 05.21.15

LTE B41 20MHz + 5MHz 16QAM

High Frequency Substitution Measurement UL Fremont Radiated Chamber

Company:
Project #:
Date: 06/21/18
Test Engineer: 19459
Configuration: EUT only
Mode: LTE Band 41, 16QAM UL CA 20/20

Test Equipment:
Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber C	3m Chamber C	Filter	LTE B41

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2500MHz) + 2525.8MHz 1.99, 1.0										
5.03	-71.8	H	3.0	-89.9	33.4	1.0	-51.3	-25.0	-26.3	
7.55	-71.5	H	3.0	-83.9	33.0	1.0	-46.9	-25.0	-21.9	
10.06	-73.2	H	3.0	-92.4	32.6	1.0	-44.1	-25.0	-19.1	
5.03	-71.4	V	3.0	-88.5	33.4	1.0	-50.9	-25.0	-25.9	
7.55	-71.3	V	3.0	-93.7	33.0	1.0	-45.7	-25.0	-20.7	
10.06	-72.4	V	3.0	-91.2	32.6	1.0	-42.9	-25.0	-17.9	
Mid Channel (2503.1MHz) + 2602.9MHz 1.99, 1.0										
5.19	-69.2	H	3.0	-75.9	33.4	1.0	-48.3	-25.0	-23.3	
7.79	-71.3	H	3.0	-83.8	33.0	1.0	-45.4	-25.0	-20.4	
10.37	-72.3	H	3.0	-91.2	32.4	1.0	-42.6	-25.0	-17.6	
5.19	-69.9	V	3.0	-96.7	33.4	1.0	-49.1	-25.0	-24.1	
7.79	-71.1	V	3.0	-93.1	33.0	1.0	-45.1	-25.0	-20.1	
10.37	-72.5	V	3.0	-91.2	32.4	1.0	-42.8	-25.0	-17.8	
High Channel (2605.2MHz) + 2608.0MHz 1.99, 1.0										
5.34	-69.2	H	3.0	-55.7	33.3	1.0	-48.0	-25.0	-23.0	
8.01	-73.0	H	3.0	-84.8	33.0	1.0	-46.8	-25.0	-21.8	
10.68	-73.0	H	3.0	-91.5	32.3	1.0	-42.8	-25.0	-17.8	
5.34	-68.4	V	3.0	-94.9	33.3	1.0	-47.3	-25.0	-22.3	
8.01	-72.9	V	3.0	-84.6	33.0	1.0	-46.6	-25.0	-21.6	
10.68	-72.4	V	3.0	-90.9	32.3	1.0	-42.1	-25.0	-17.1	

Rev: 05.21.15

LTE B41 20MHz + 20MHz 16QAM

10. SETUP PHOTOS

Please refer to 12162294-EP1V1 for setup photos