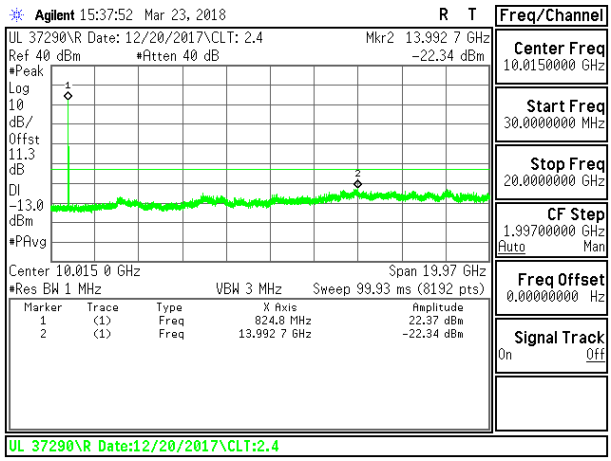
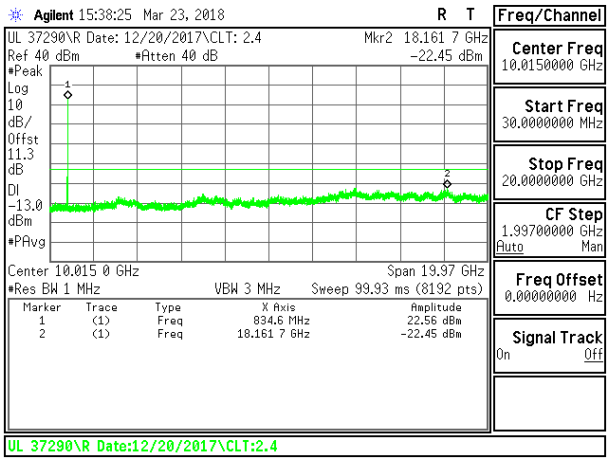
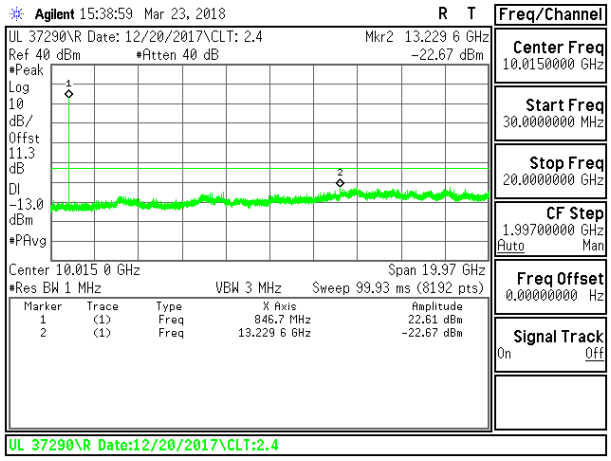
HSDPA



BAND 5 HSDPA LOW Channel



BAND 5 HSDPA MID Channel



BAND 5 HSDPA HIGH Channel

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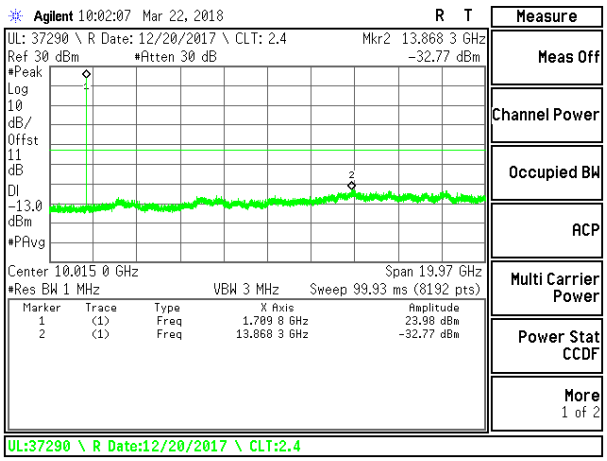
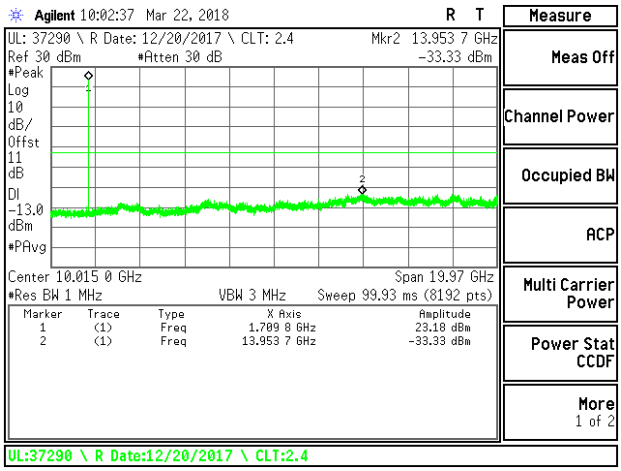
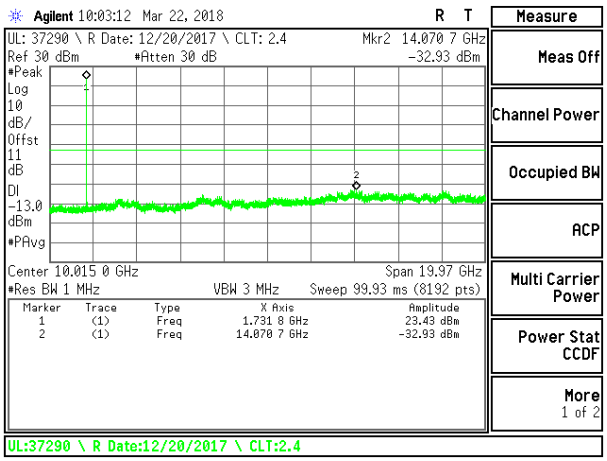
8.3.4. LTE BAND 4



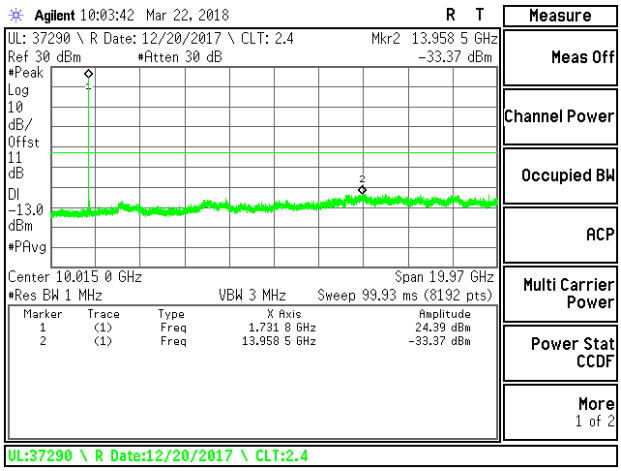
LTE B4 1.4MHz QPSK Low Channel RB1-0



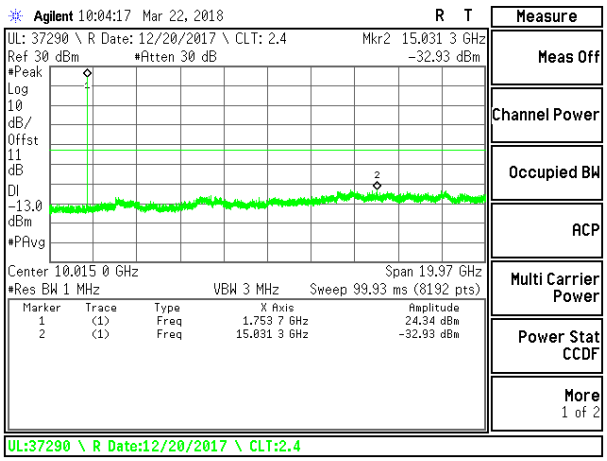
LTE B4 1.4MHz 16QAM Low Channel RB1-0



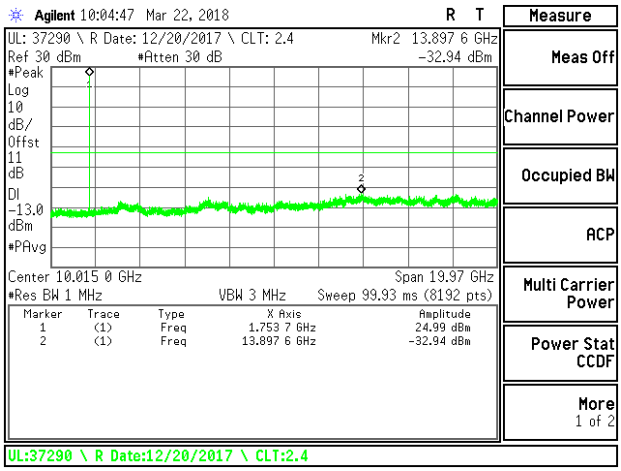
LTE B4 1.4MHz QPSK Middle Channel RB1-0



LTE B4 1.4MHz 16QAM Middle Channel RB1-0



LTE B4 1.4MHz QPSK High Channel RB1-0



LTE B4 1.4MHz 16QAM High Channel RB1-0

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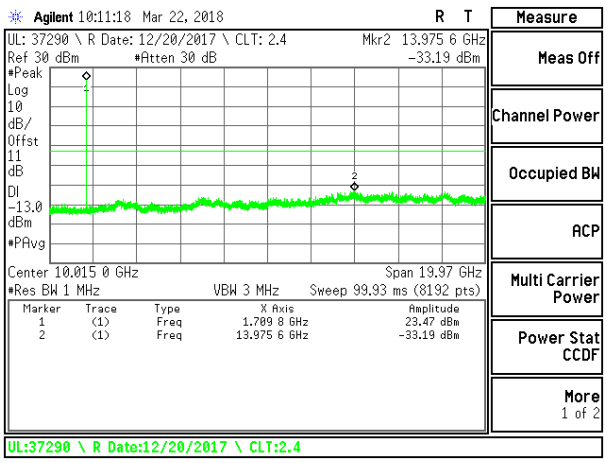
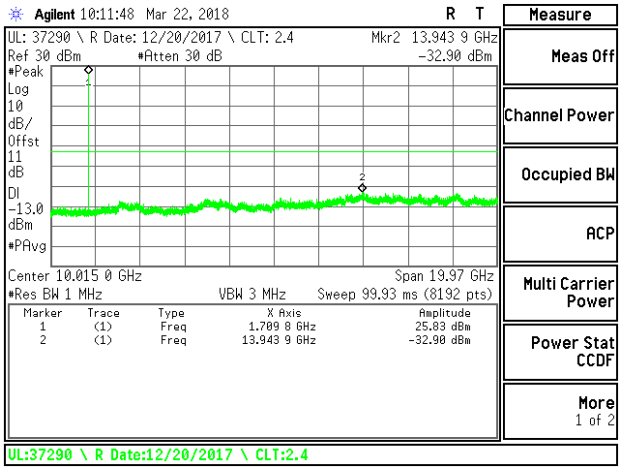
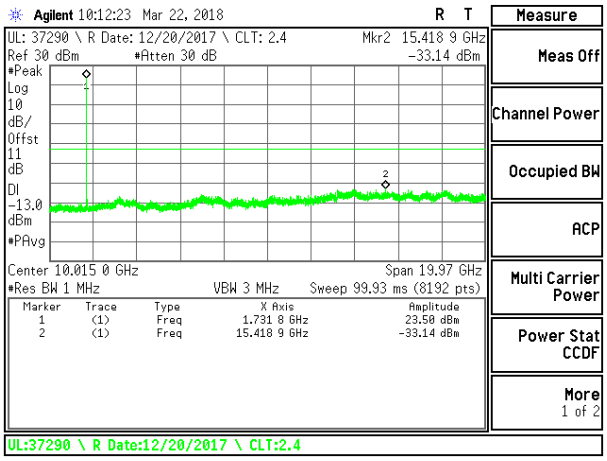


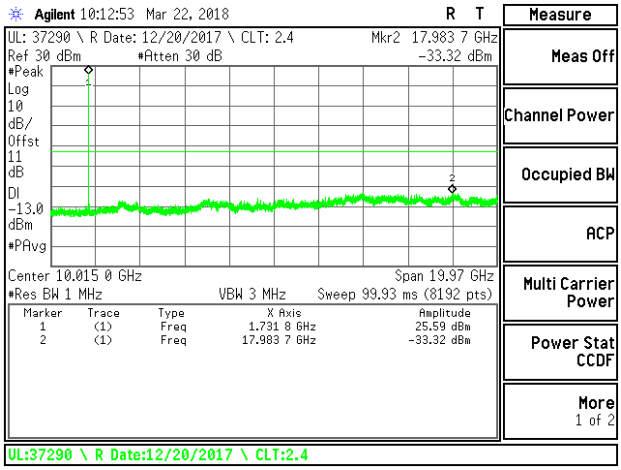
LTE B4 3MHz QPSK Low Channel RB1-0



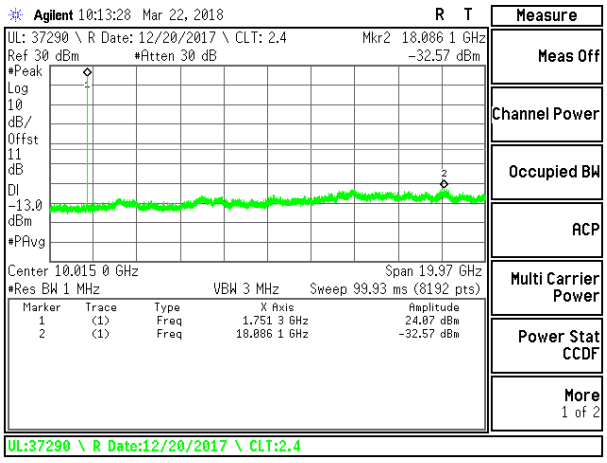
LTE B4 3MHz 16QAM Low Channel RB1-0



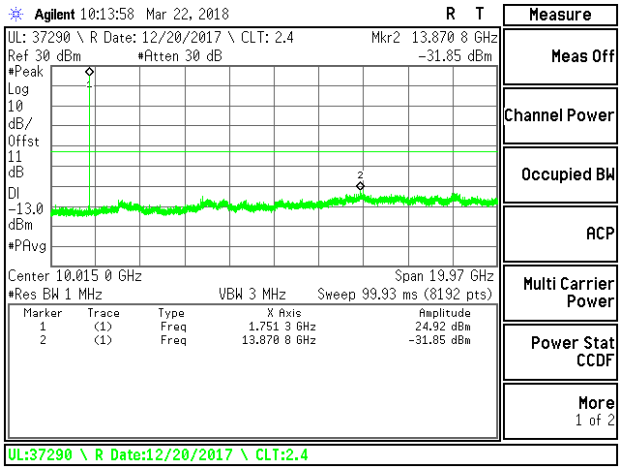
LTE B4 3MHz QPSK Middle Channel RB1-0



LTE B4 3MHz 16QAM Middle Channel RB1-0



LTE B4 3MHz QPSK High Channel RB1-0



LTE B4 3MHz 16QAM High Channel RB1-0

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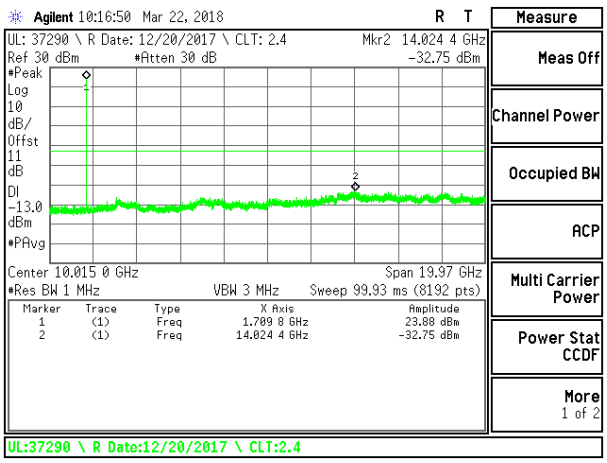
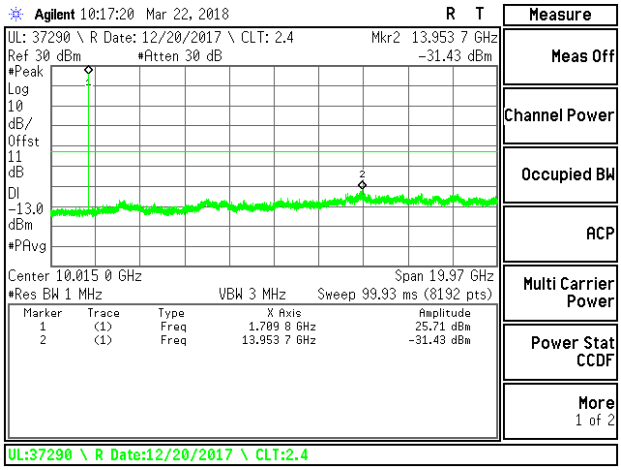
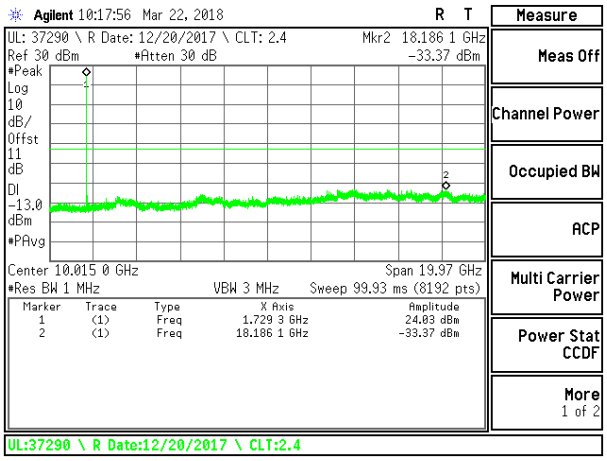


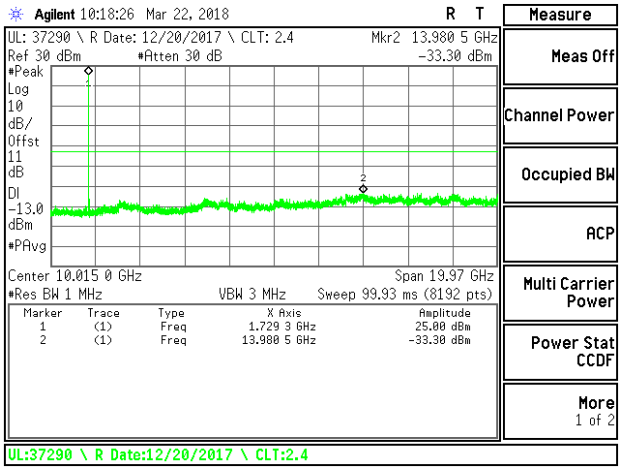
LTE B4 5MHz QPSK Low Channel RB1-0



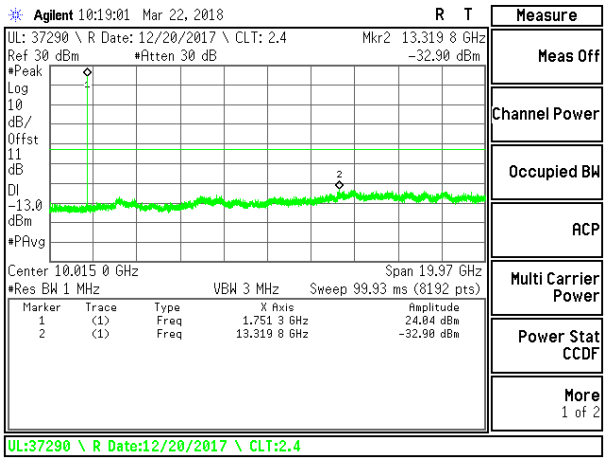
LTE B4 5MHz 16QAM Low Channel RB1-0



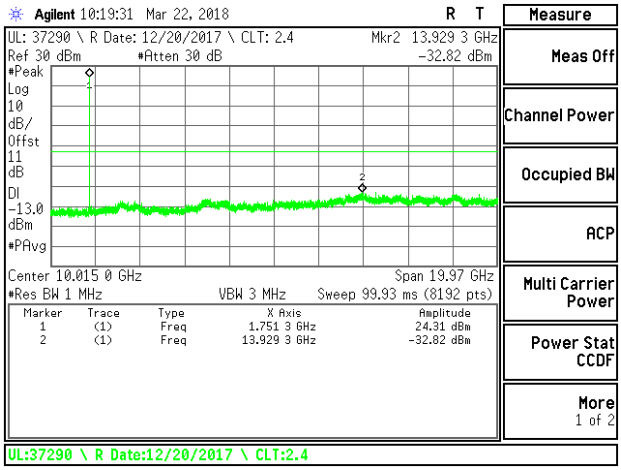
LTE B4 5MHz QPSK Middle Channel RB1-0



LTE B4 5MHz 16QAM Middle Channel RB1-0



LTE B4 5MHz QPSK High Channel RB1-0



LTE B4 5MHz 16QAM High Channel RB1-0

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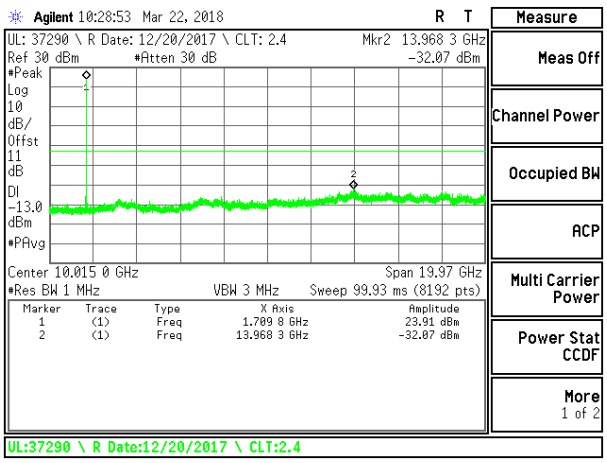
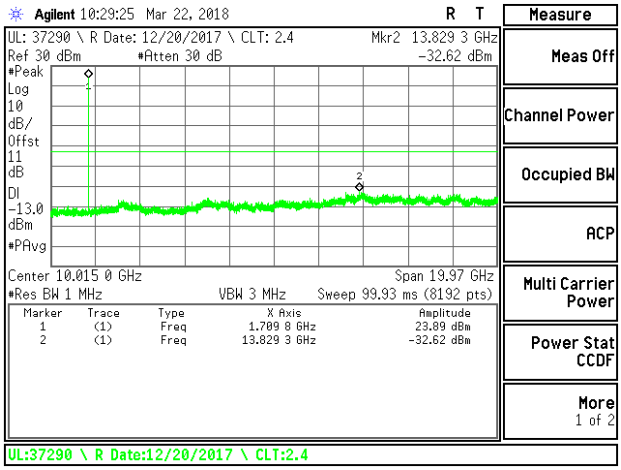
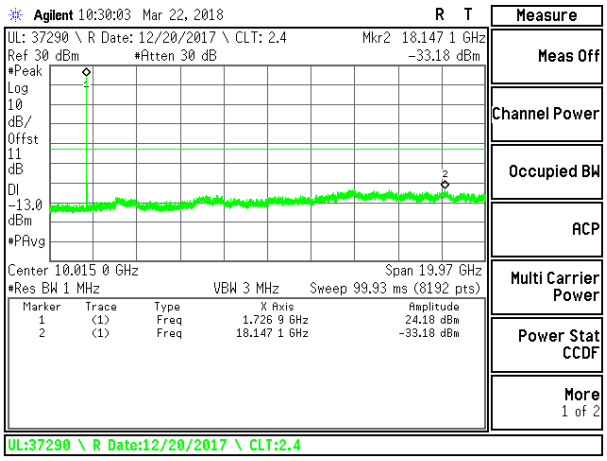


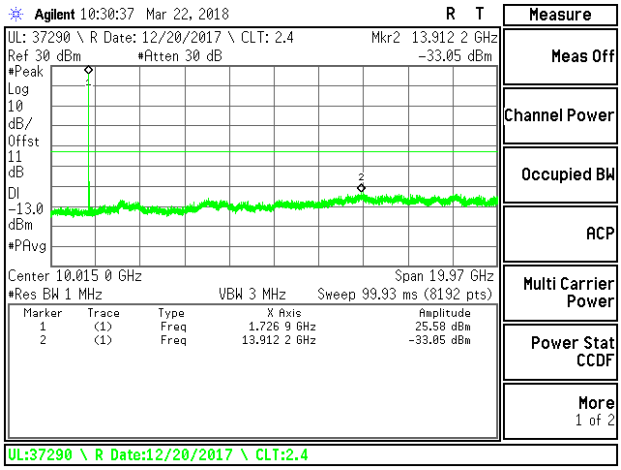
LTE B4 10MHz QPSK Low Channel RB1-0



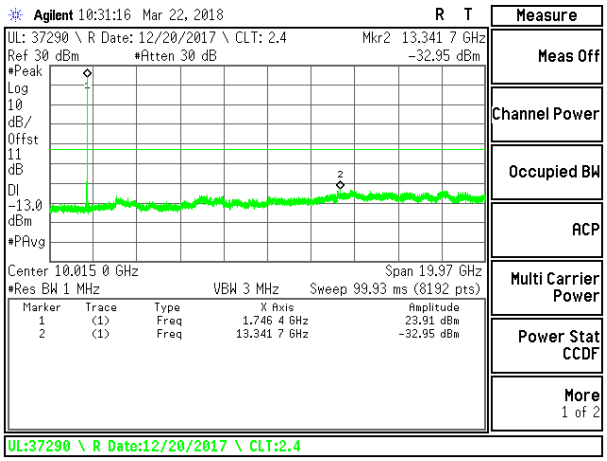
LTE B4 10MHz 16QAM Low Channel RB1-0



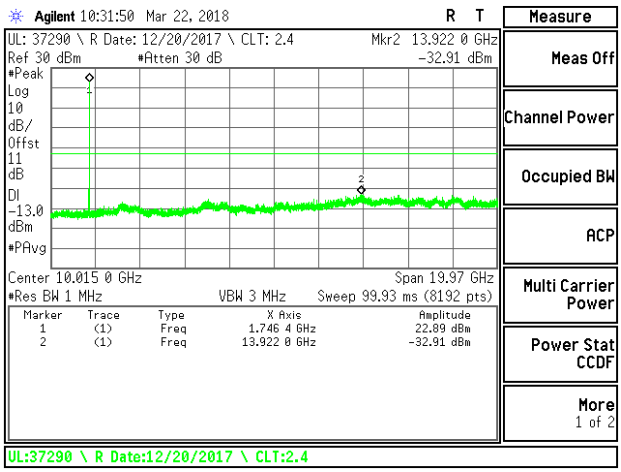
LTE B4 10MHz QPSK Middle Channel RB1-0



LTE B4 10MHz 16QAM Middle Channel RB1-0



LTE B4 10MHz QPSK High Channel RB1-0



LTE B4 10MHz 16QAM High Channel RB1-0

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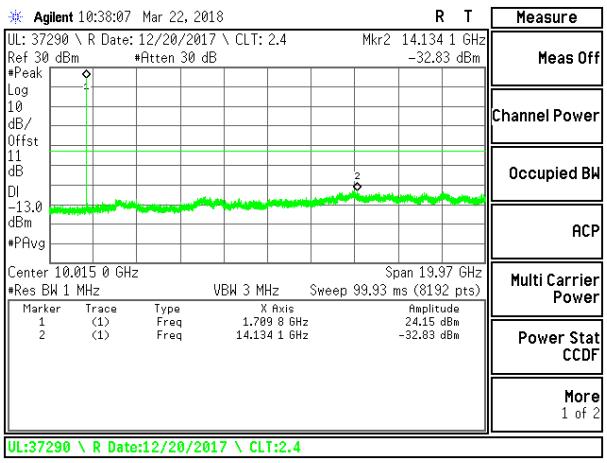
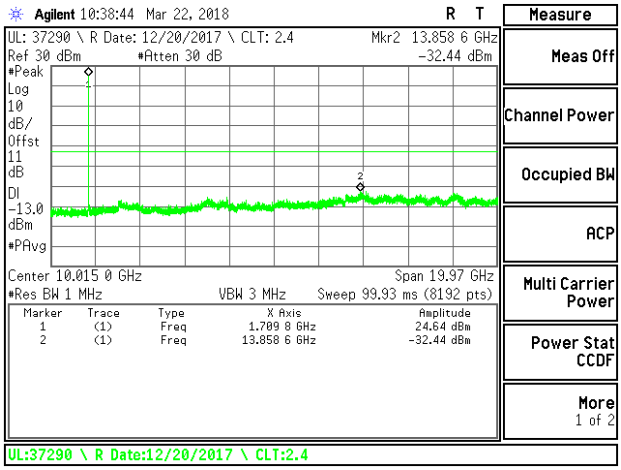
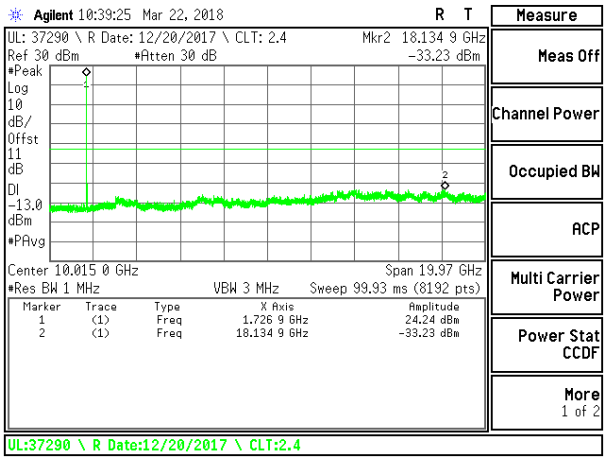


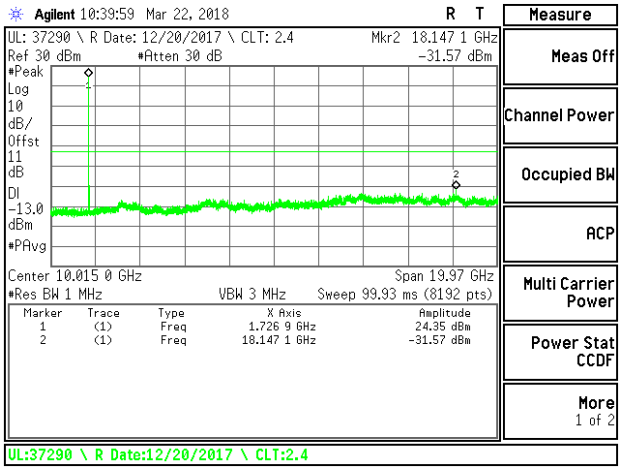
LTE B4 15MHz QPSK Low Channel RB1-0



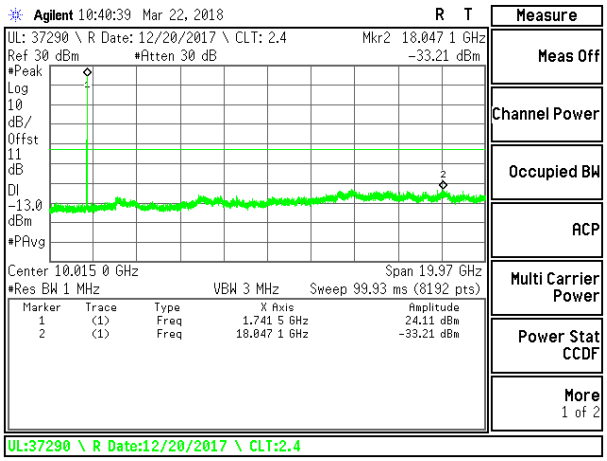
LTE B4 15MHz 16QAM Low Channel RB1-0



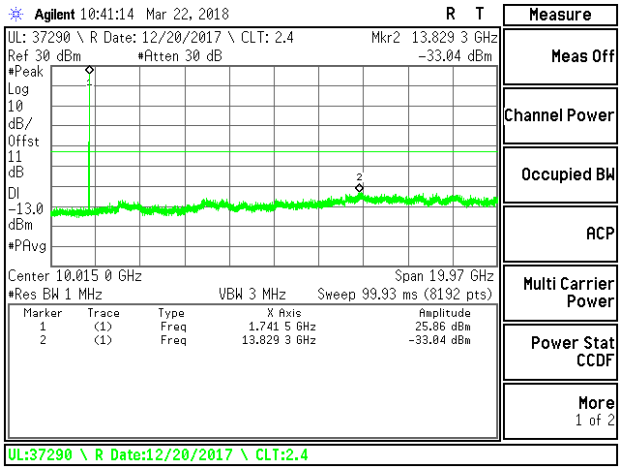
LTE B4 15MHz QPSK Middle Channel RB1-0



LTE B4 15MHz 16QAM Middle Channel RB1-0



LTE B4 15MHz QPSK High Channel RB1-0



LTE B4 15MHz 16QAM High Channel RB1-0

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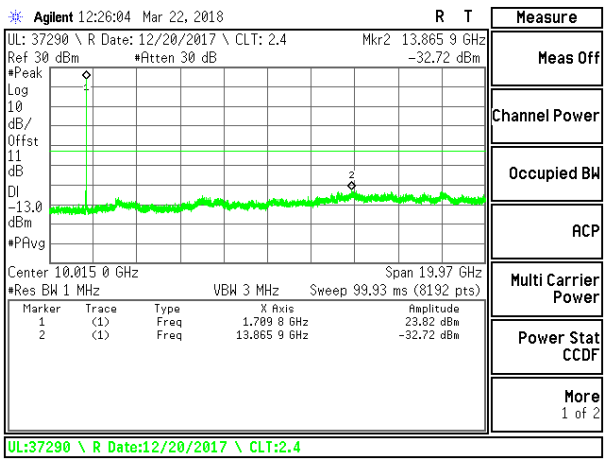
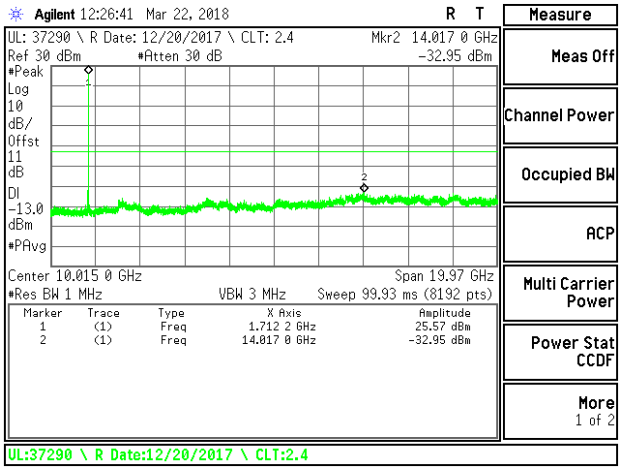
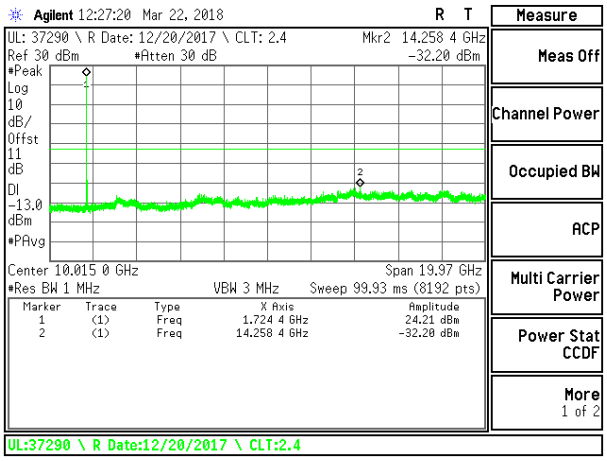


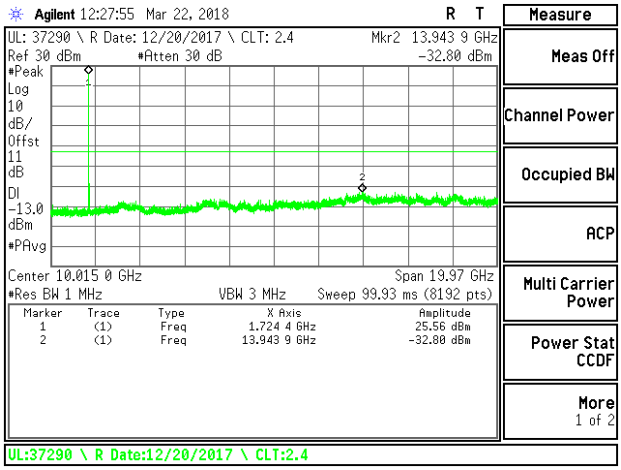
LTE B4 20MHz QPSK Low Channel RB1-0



LTE B4 20MHz 16QAM Low Channel RB1-0



LTE B4 20MHz QPSK Middle Channel RB1-0



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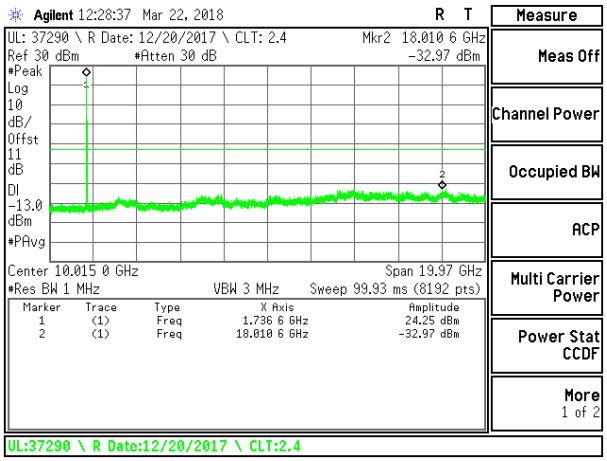
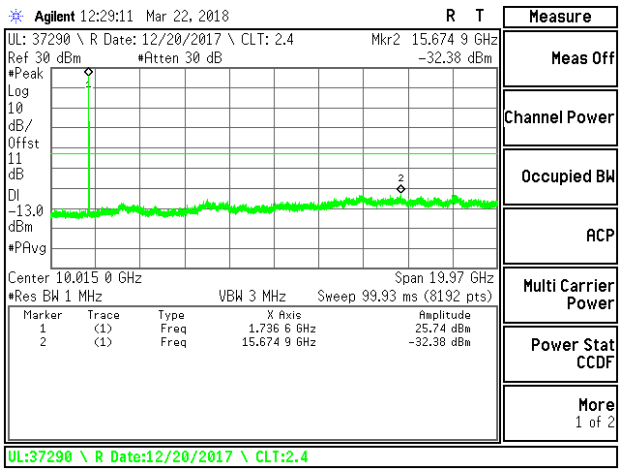


LTE B4 20MHz QPSK High Channel RB1-0



LTE B4 20MHz 16QAM High Channel RB1-0

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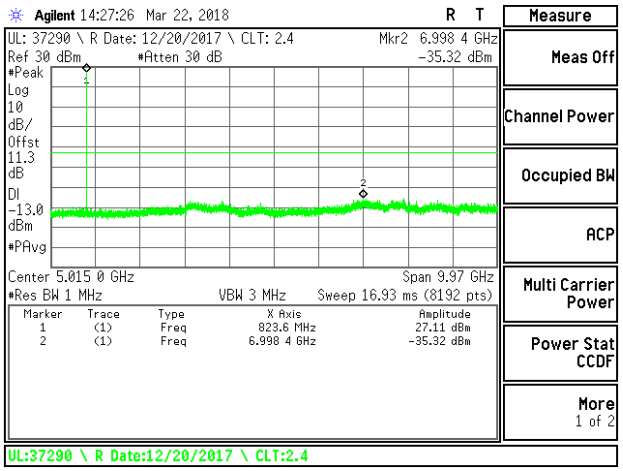
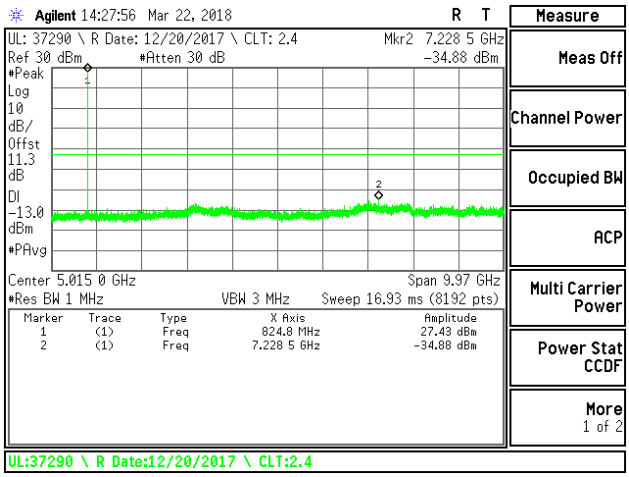
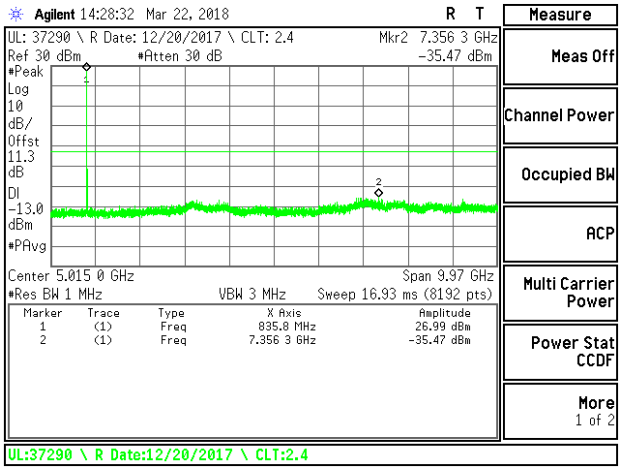
8.3.5. **LTE BAND 5**



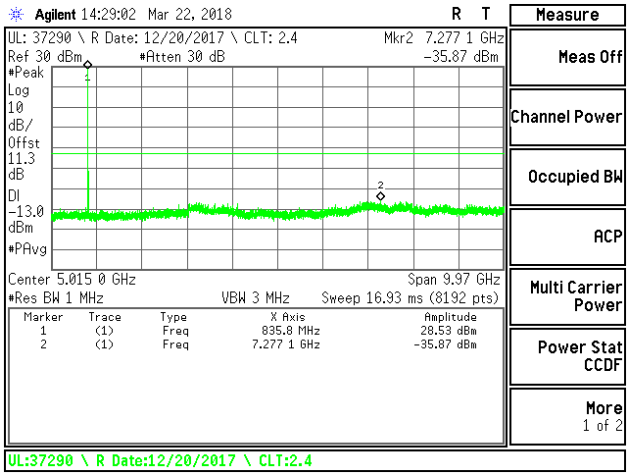
LTE B5 1.4MHz QPSK Low Channel RB1-0



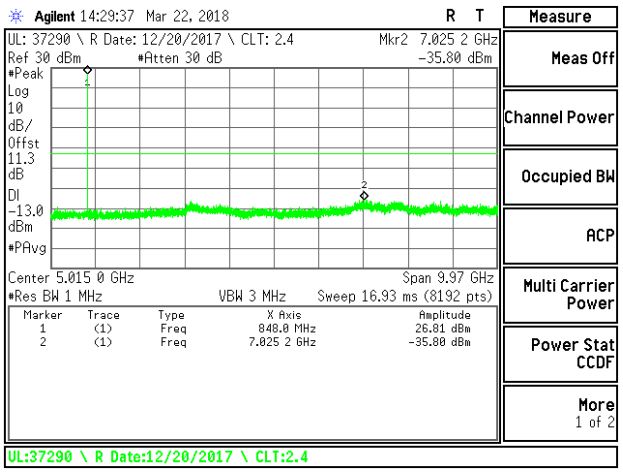
LTE B5 1.4MHz 16QAM Low Channel RB1-0



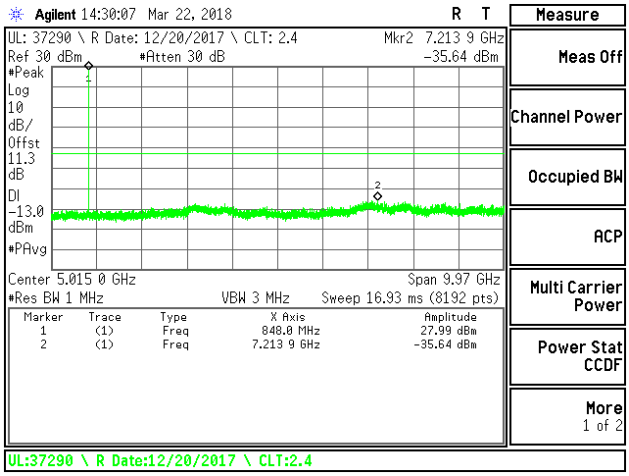
LTE B5 1.4MHz QPSK Middle Channel RB1-0



LTE B5 1.4MHz 16QAM Middle Channel B1-0



LTE B5 1.4MHz QPSK High Channel RB1-0



LTE B5 1.4MHz 16QAM High Channel RB1-0

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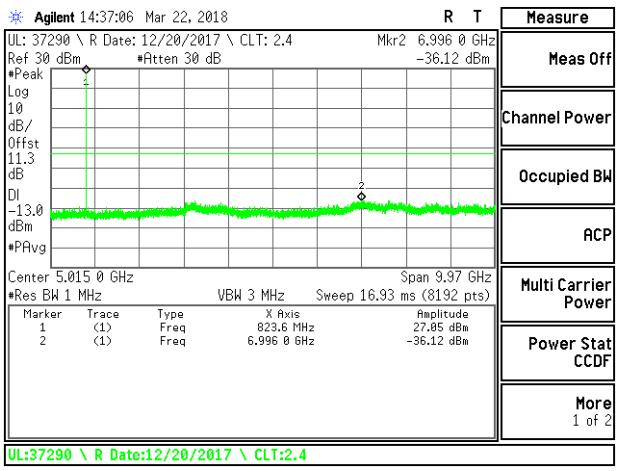
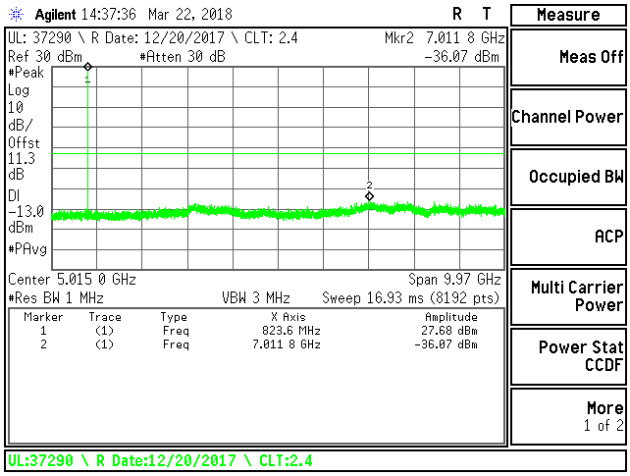
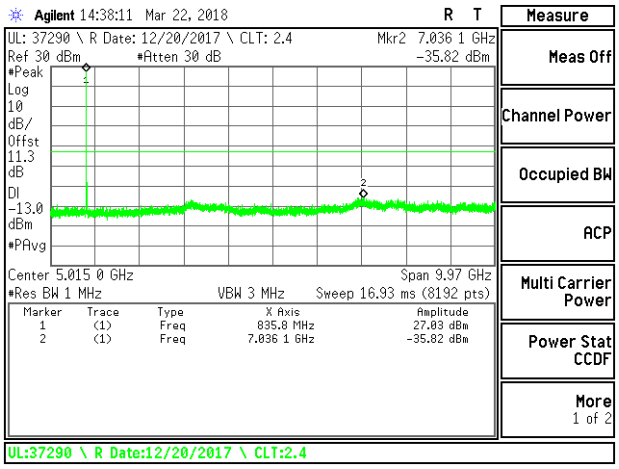


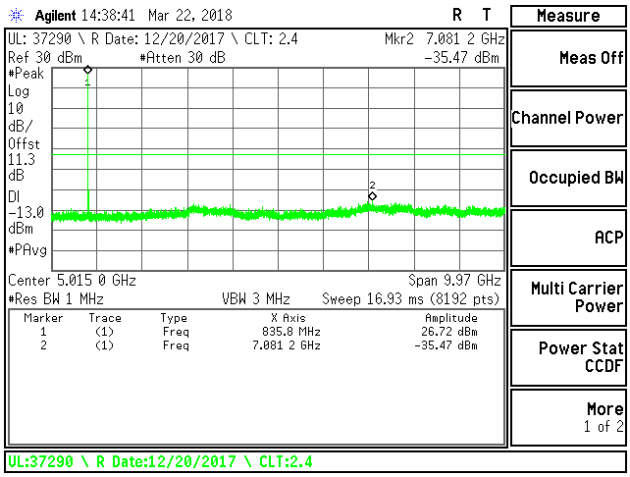
LTE B5 3MHz QPSK Low Channel RB1-0



LTE B5 3MHz 16QAM Low Channel RB1-0



LTE B5 3MHz QPSK Middle Channel RB1-0



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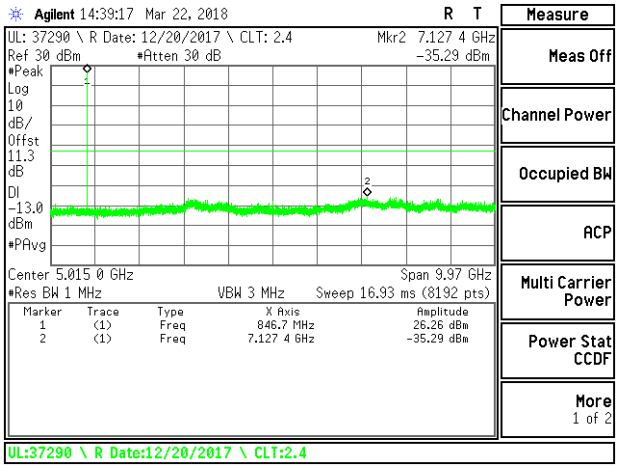

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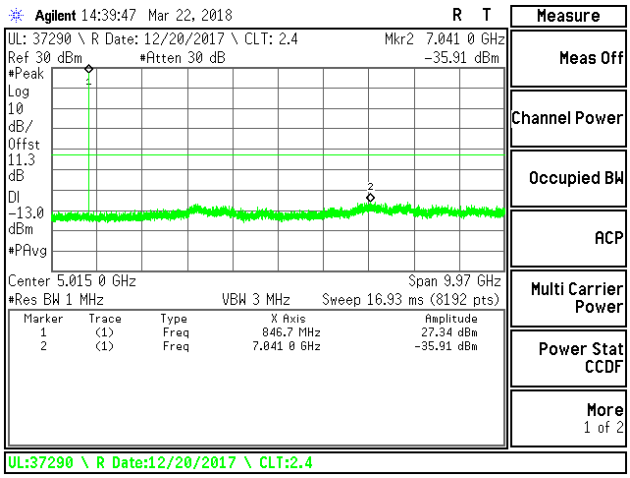

LTE B5 3MHz 16QAM High Channel RB1-0

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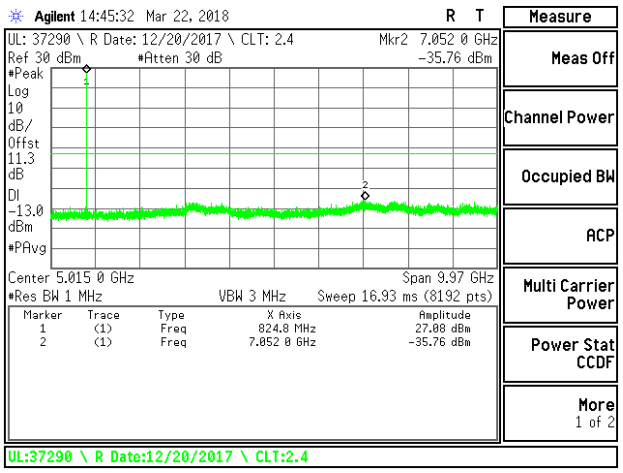
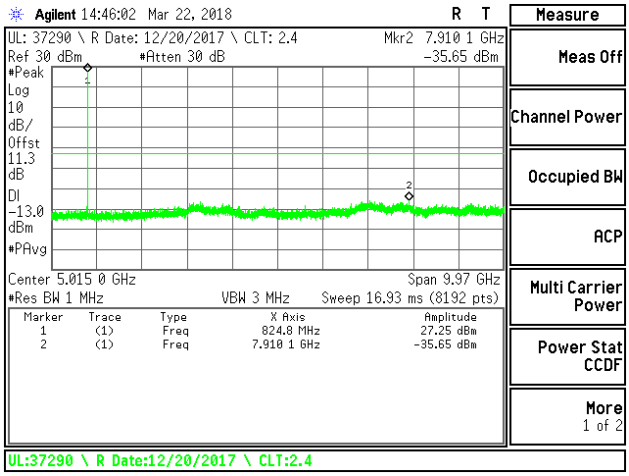


LTE B5 5MHz QPSK Low Channel RB1-0



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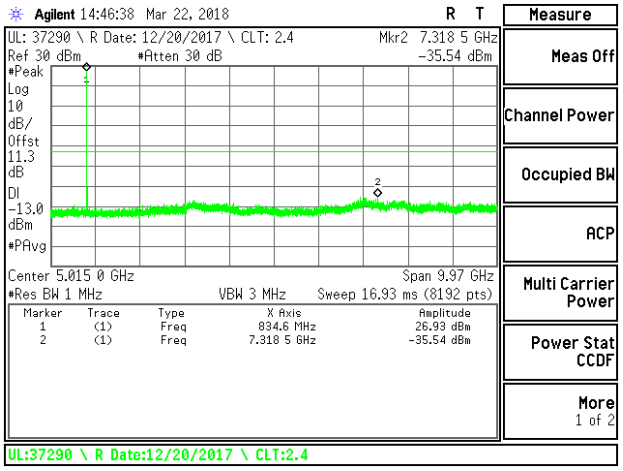
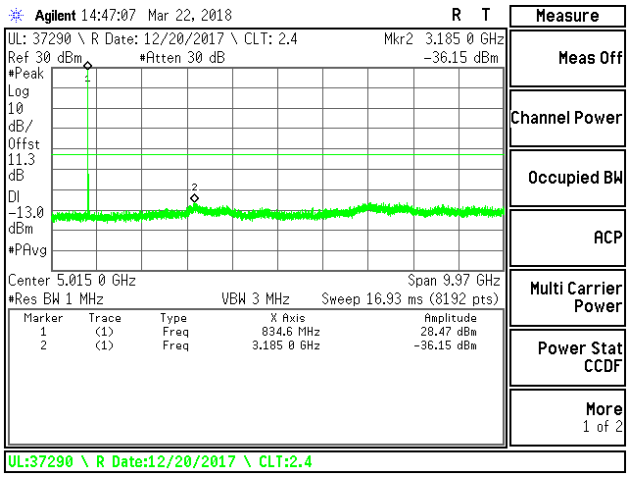
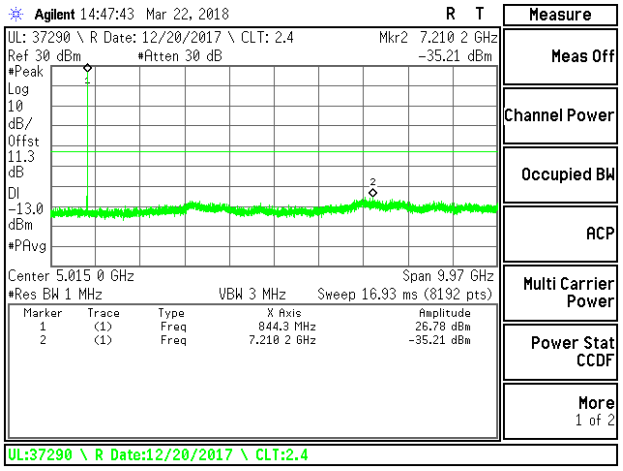


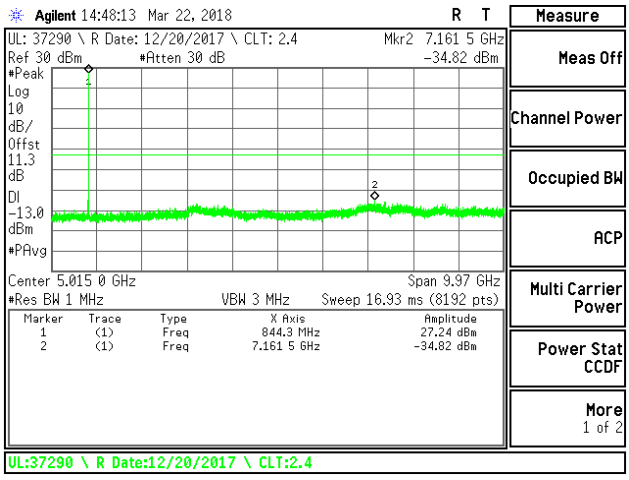
LTE B5 5MHz QPSK Middle Channel RB1-0



LTE B5 5MHz 16QAM Middle Channel RB1-0



LTE B5 5MHz QPSK High Channel RB1-0



LTE B5 5MHz 16QAM High Channel RB1-0

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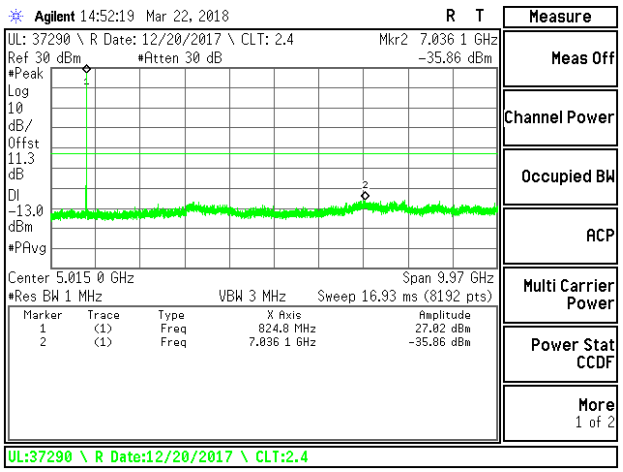
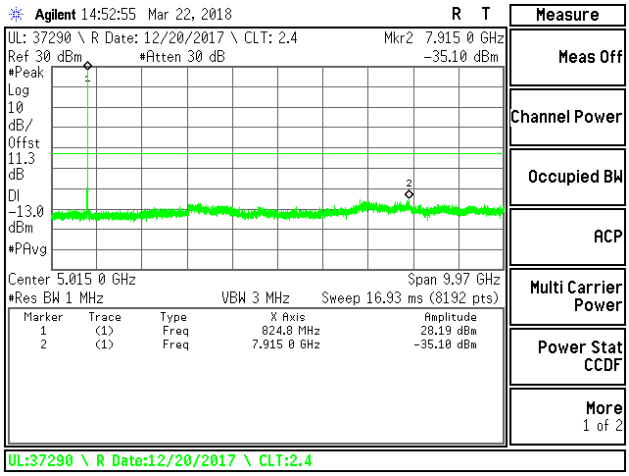
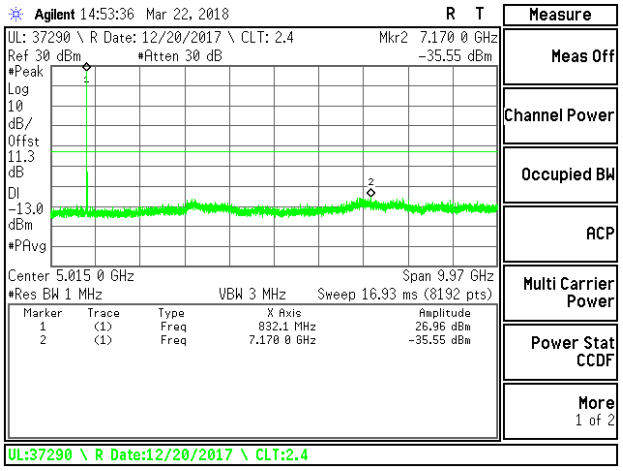


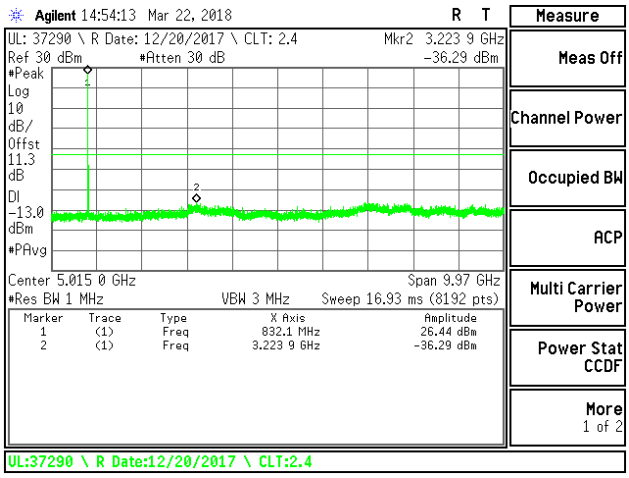
LTE B5 10MHz QPSK Low Channel RB1-0



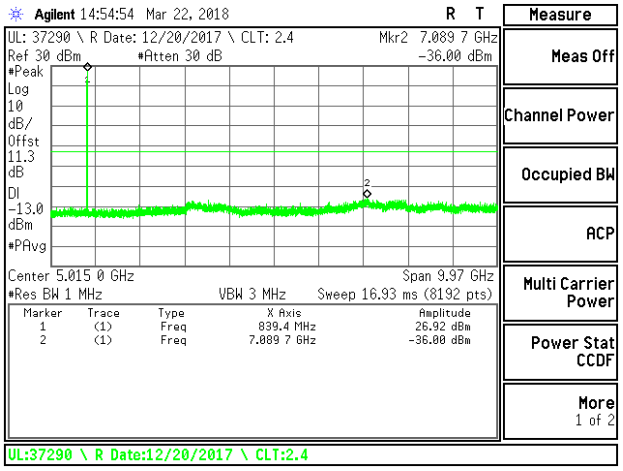
LTE B5 10MHz 16QAM Low Channel RB1-0



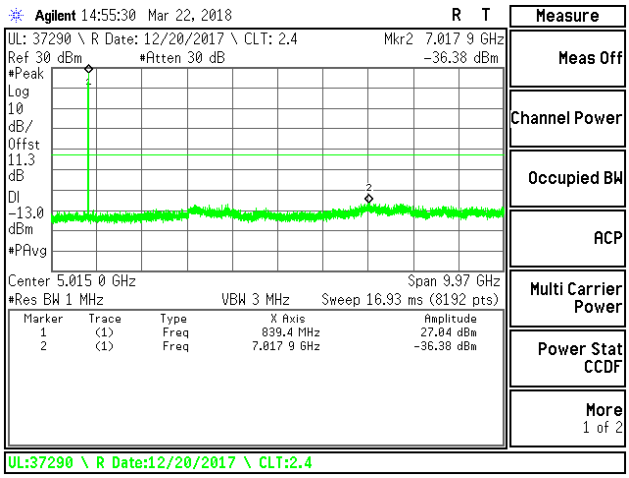
LTE B5 10MHz QPSK Middle Channel RB1-0



LTE B5 10MHz 16QAM Middle Channel RB1-0



LTE B5 10MHz QPSK High Channel RB1-0



LTE B5 10MHz 16QAM High Channel RB1-0

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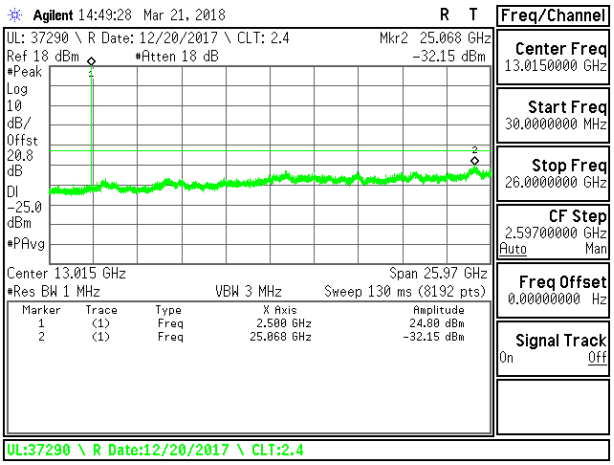
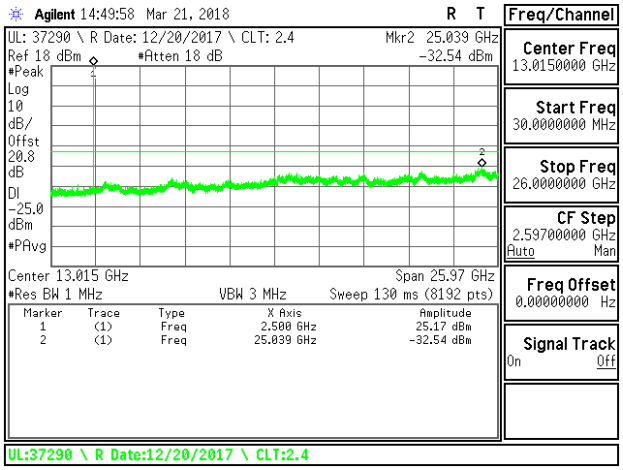
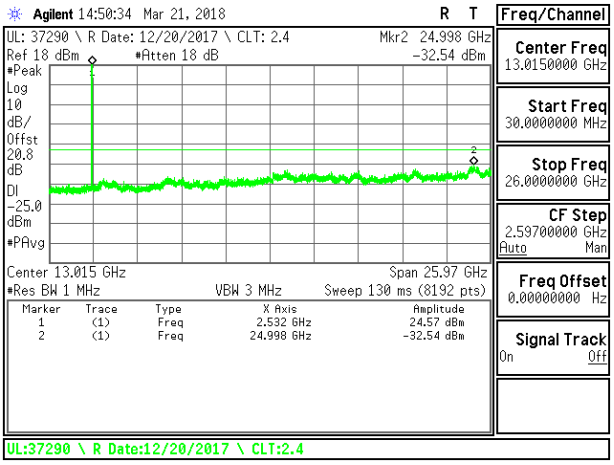
8.3.6. **LTE BAND 7**



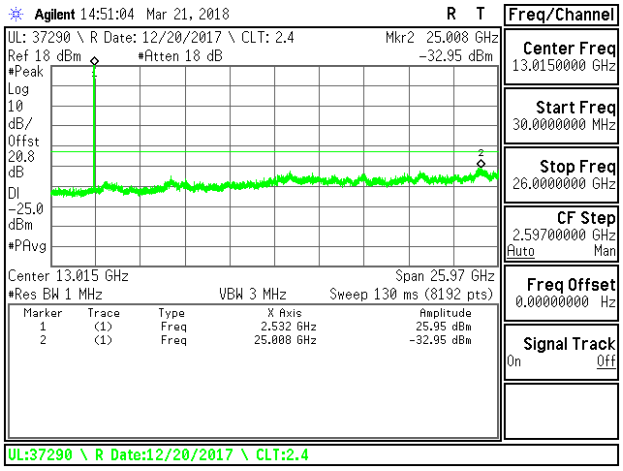
LTE B7 5MHz QPSK Low Channel RB1-0



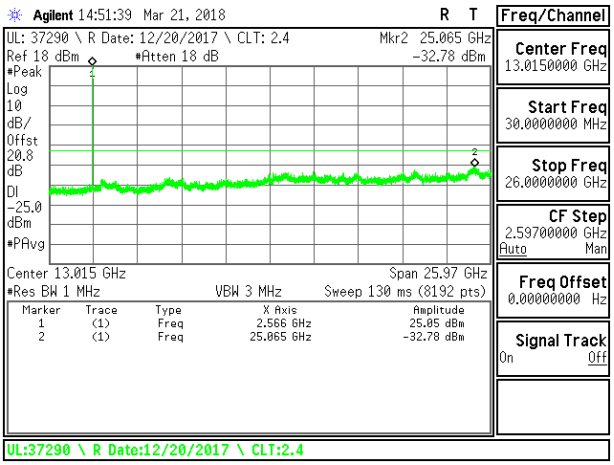
LTE B7 5MHz 16QAM Low Channel RB1-0



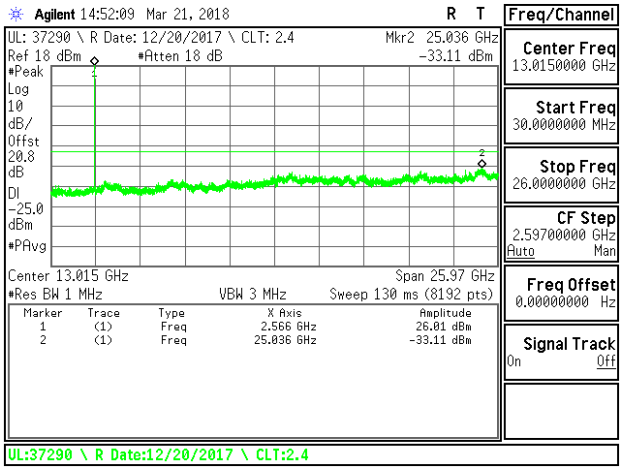
LTE B7 5MHz QPSK Middle Channel RB1-0



LTE B7 5MHz 16QAM Middle Channel RB1-0



LTE B7 5MHz QPSK High Channel RB1-0



LTE B7 5MHz 16QAM High Channel RB1-0

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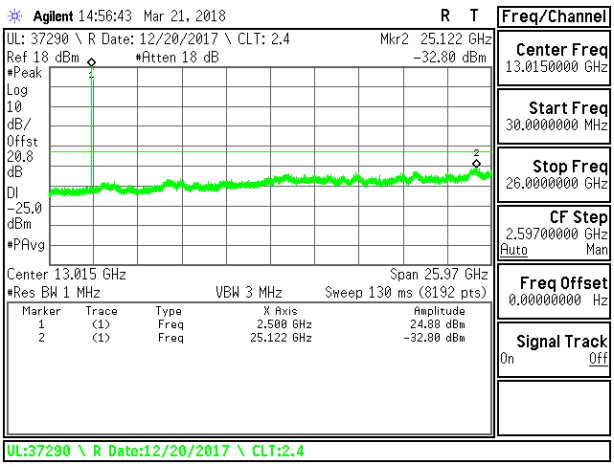
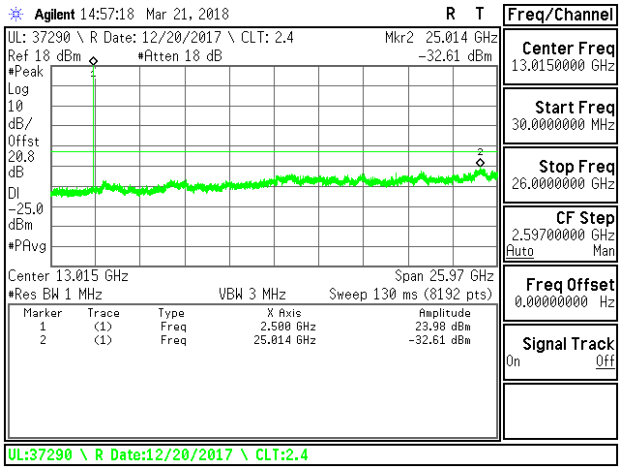
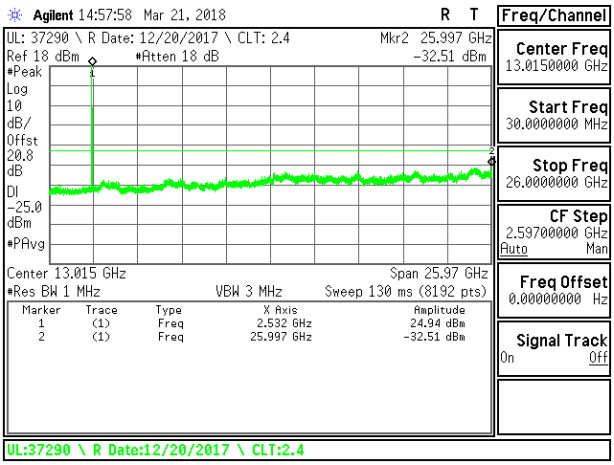


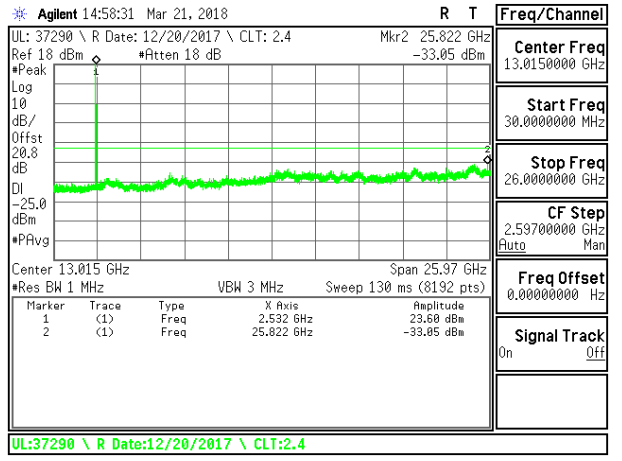
LTE B7 10MHz QPSK Low Channel RB1-0



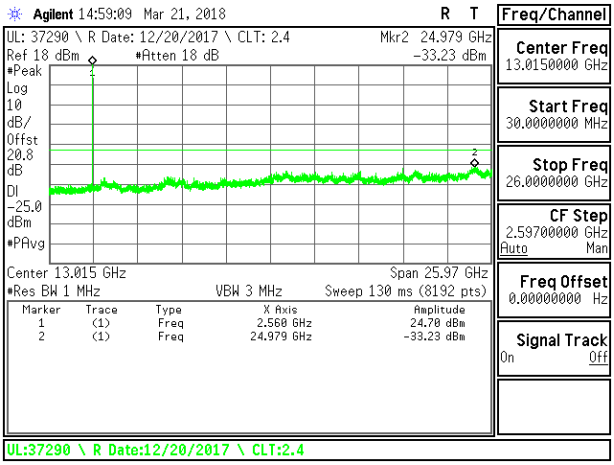
LTE B7 10MHz 16QAM Low Channel RB1-0



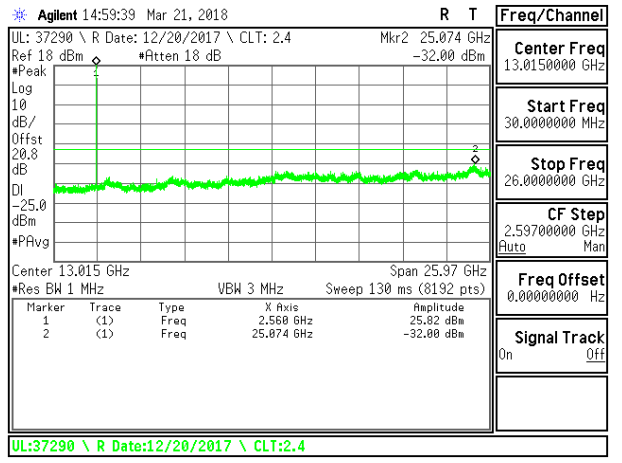
LTE B7 10MHz QPSK Middle Channel RB1-0



LTE B7 10MHz 16QAM Middle Channel RB1-0



LTE B7 10MHz QPSK High Channel RB1-0



LTE B7 10MHz 16QAM High Channel RB1-0

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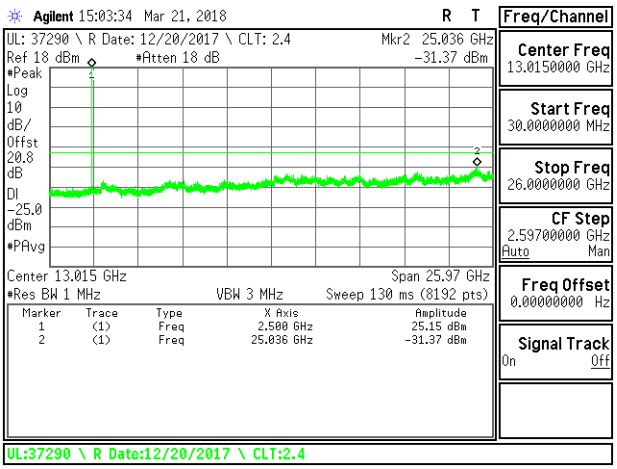
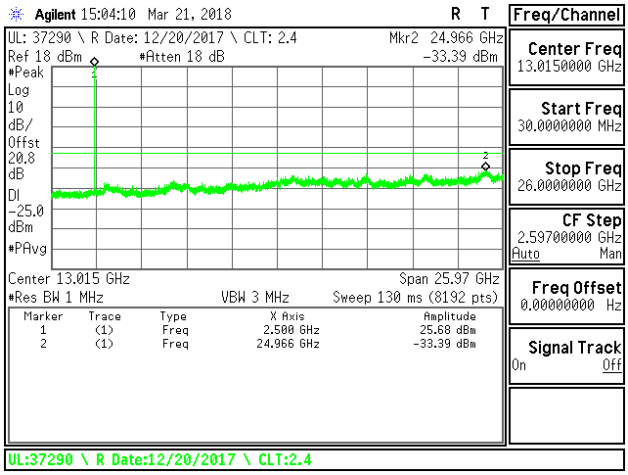
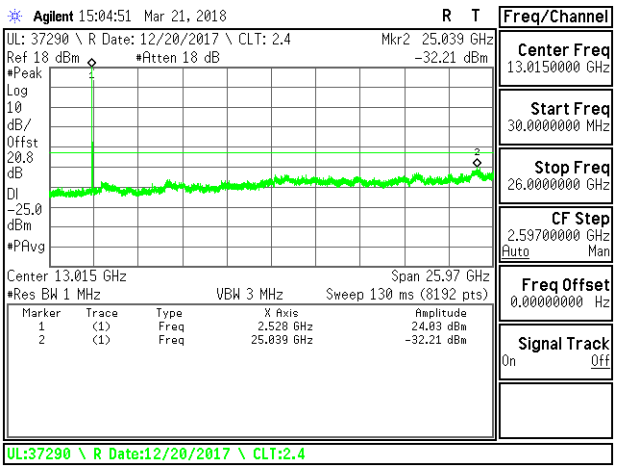


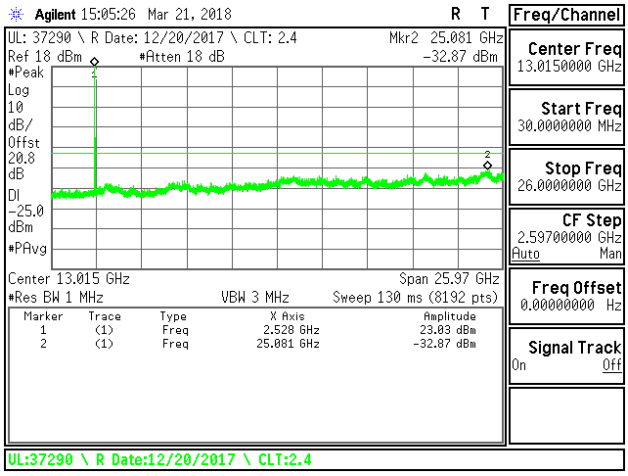
LTE B7 15MHz QPSK Low Channel RB1-0



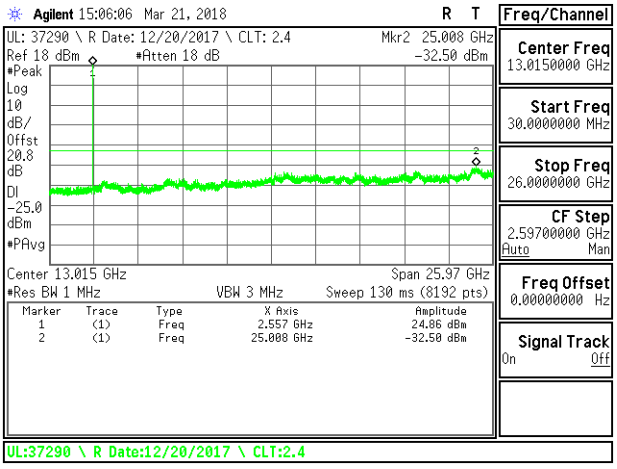
LTE B7 15MHz 16QAM Low Channel RB1-0



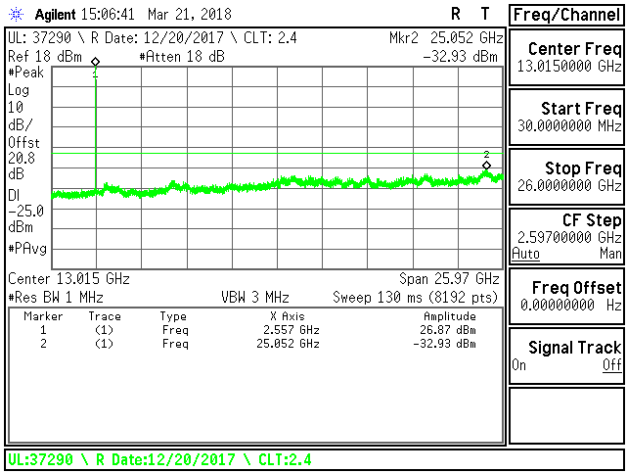
LTE B7 15MHz QPSK Middle Channel RB1-0



LTE B7 15MHz 16QAM Middle Channel RB1-0



LTE B7 15MHz QPSK High Channel RB1-0



LTE B7 15MHz 16QAM High Channel RB1-0

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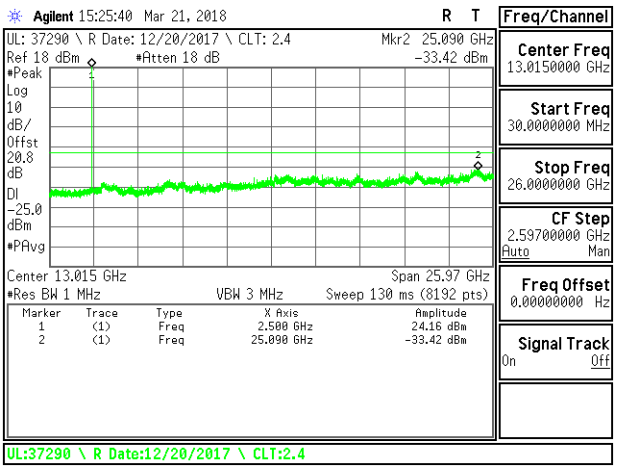
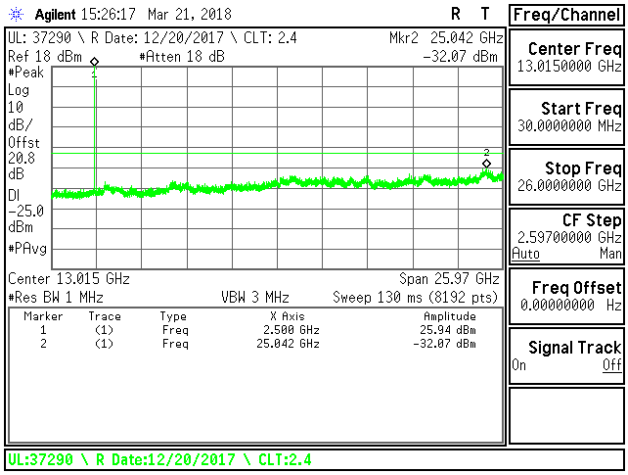
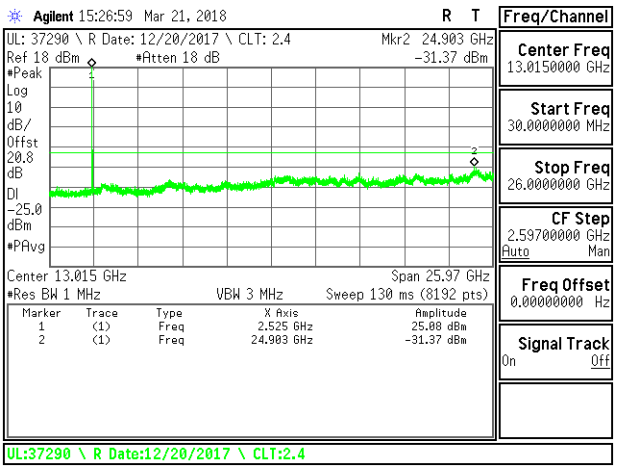


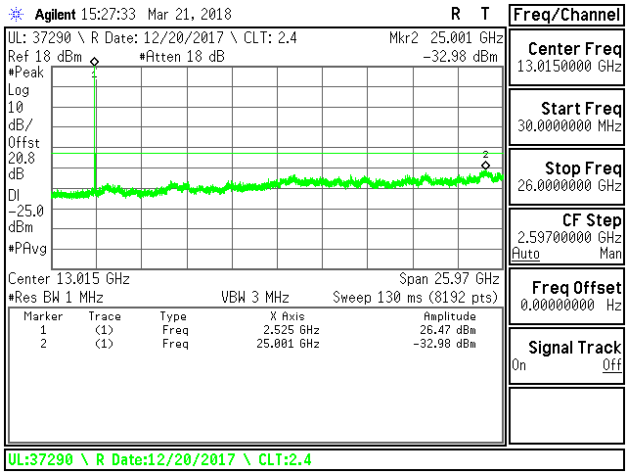
LTE B7 20MHz QPSK Low Channel RB1-0



LTE B7 20MHz 16QAM Low Channel RB1-0



LTE B7 20MHz QPSK Middle Channel RB1-0



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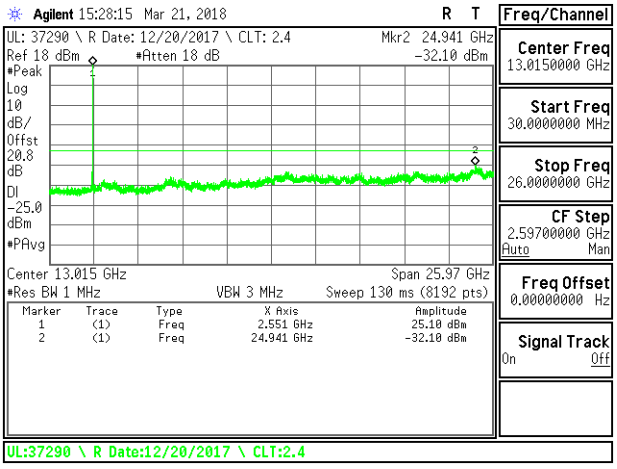
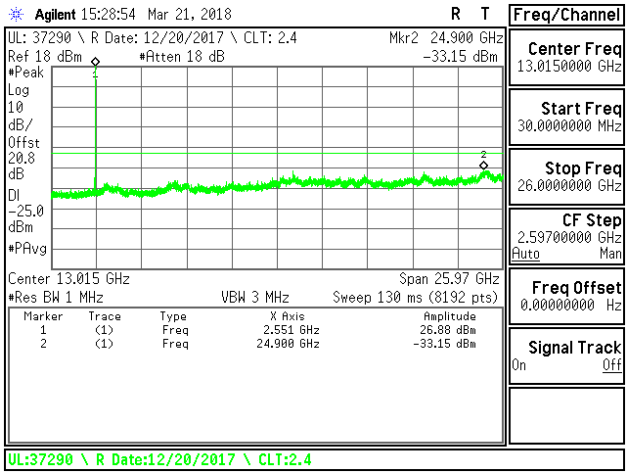


LTE B7 20MHz QPSK High Channel RB1-0



LTE B7 20MHz 16QAM High Channel RB1-0

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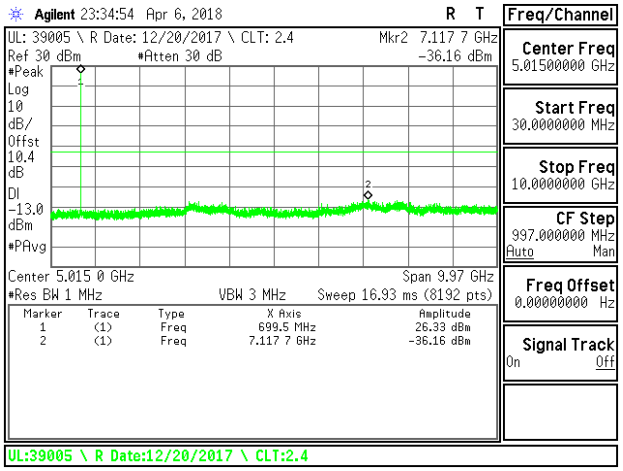
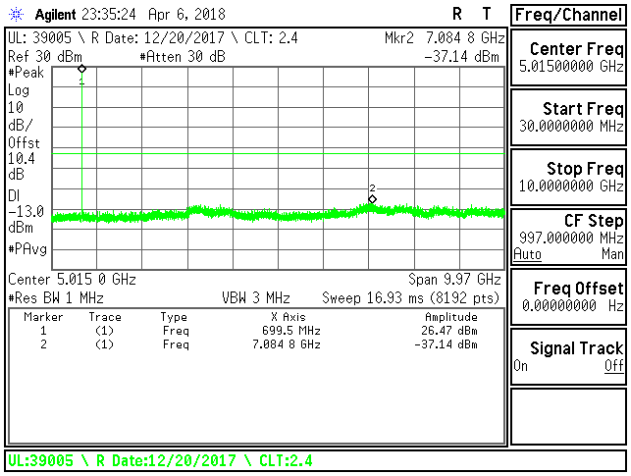
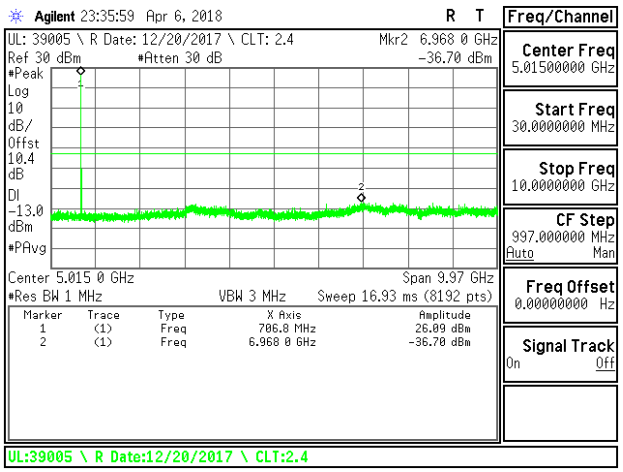
8.3.7. **LTE BAND 12**



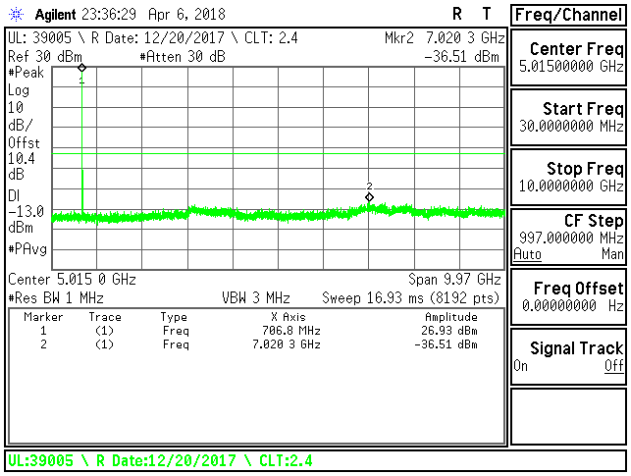
LTE B12 1.4MHz QPSK Low Channel RB1-0



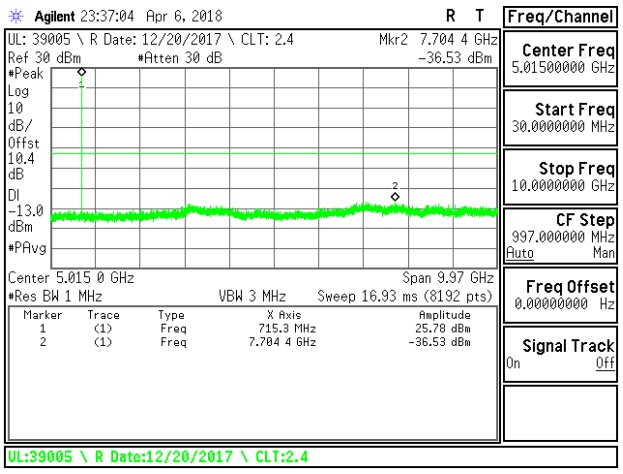
LTE B12 1.4MHz 16QAM Low Channel RB1-0



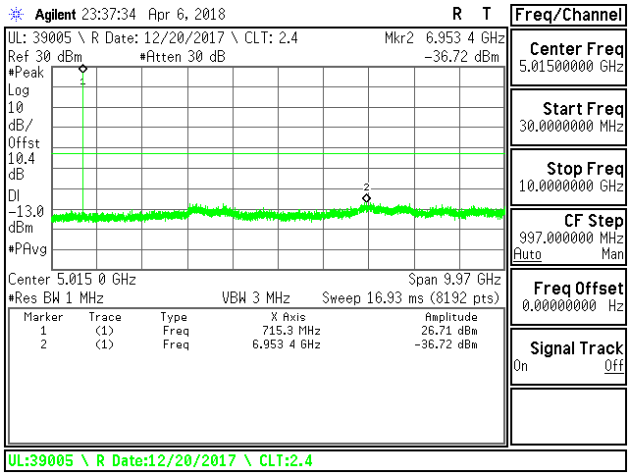
LTE B12 1.4MHz QPSK Middle Channel RB1-0



LTE B12 1.4MHz 16QAM Middle Channel B1-0



LTE B12 1.4MHz QPSK High Channel RB1-0



LTE B12 1.4MHz 16QAM High Channel RB1-0

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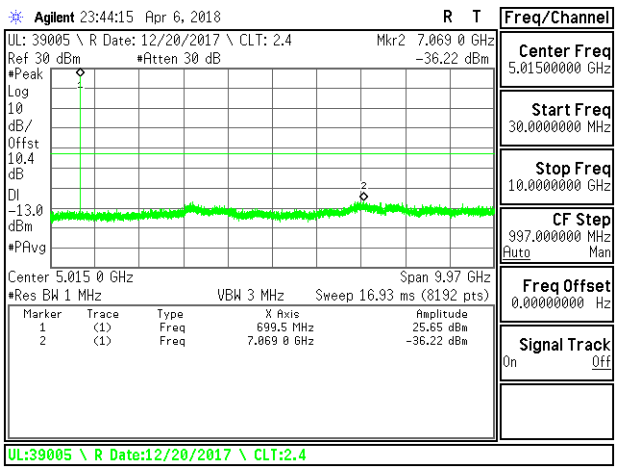
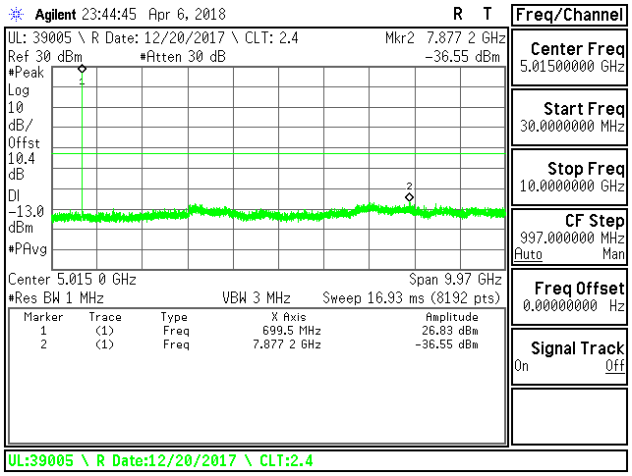
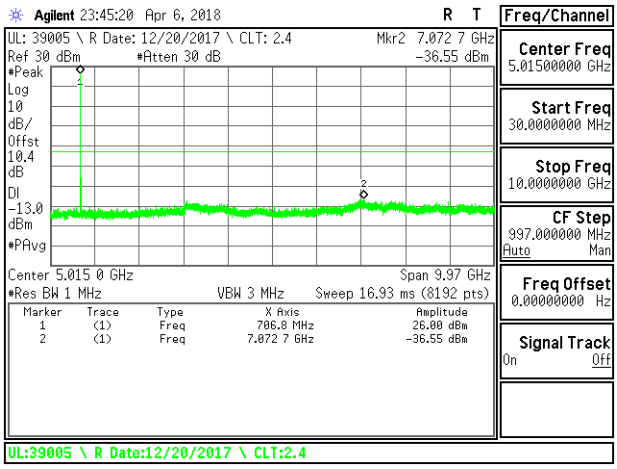


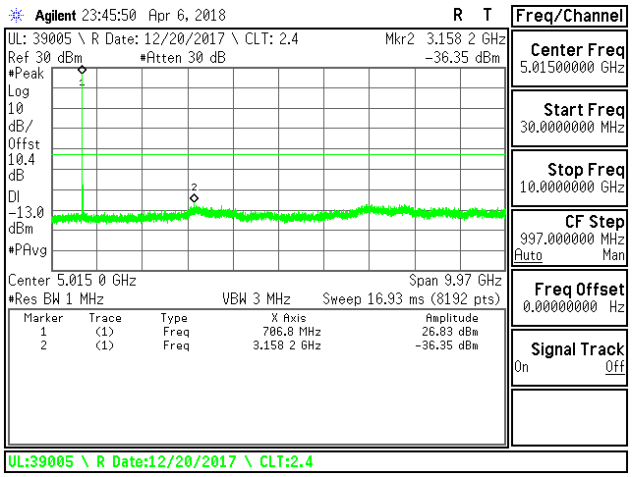
LTE B12 3MHz QPSK Low Channel RB1-0



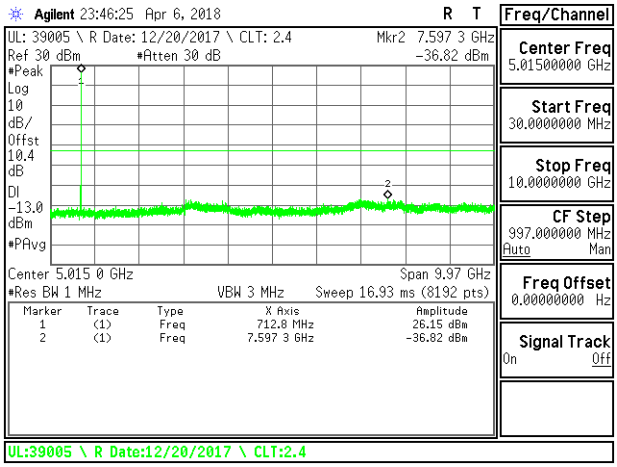
LTE B12 3MHz 16QAM Low Channel RB1-0



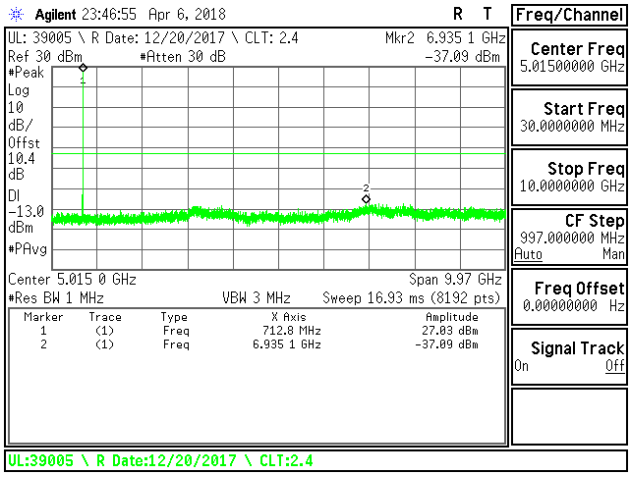
LTE B12 3MHz QPSK Middle Channel RB1-0



LTE B12 3MHz 16QAM Middle Channel RB1-0



LTE B12 3MHz QPSK High Channel RB1-0



LTE B12 3MHz 16QAM High Channel RB1-0

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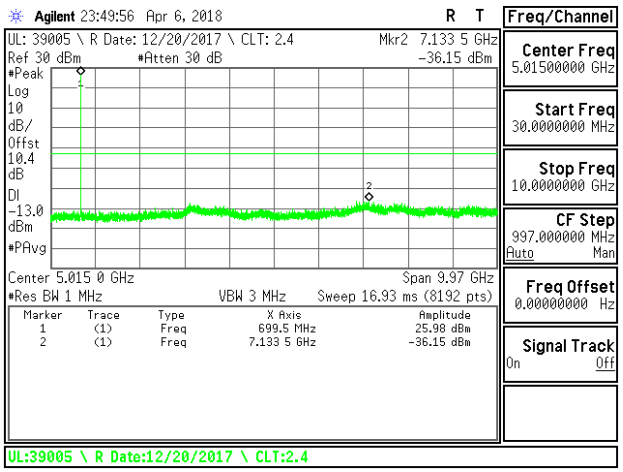
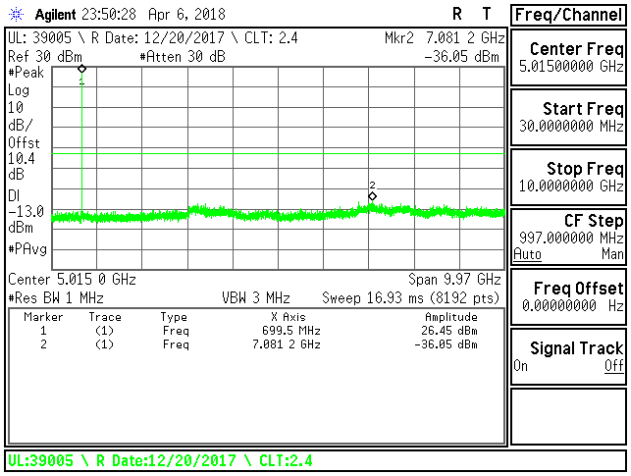
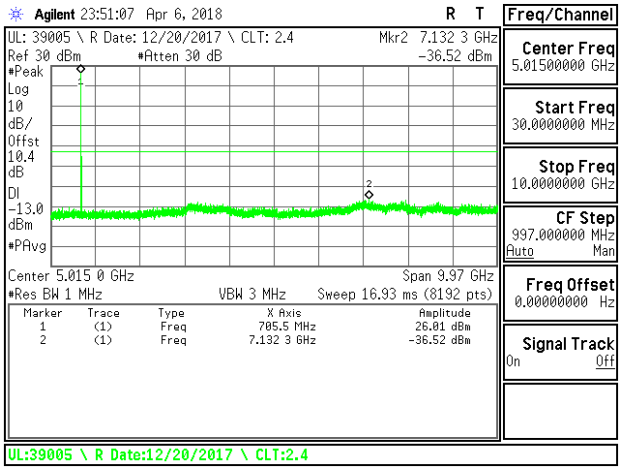


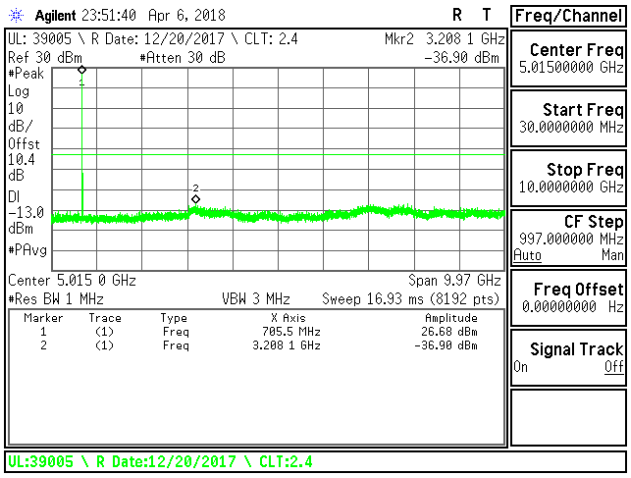
LTE B12 5MHz QPSK Low Channel RB1-0



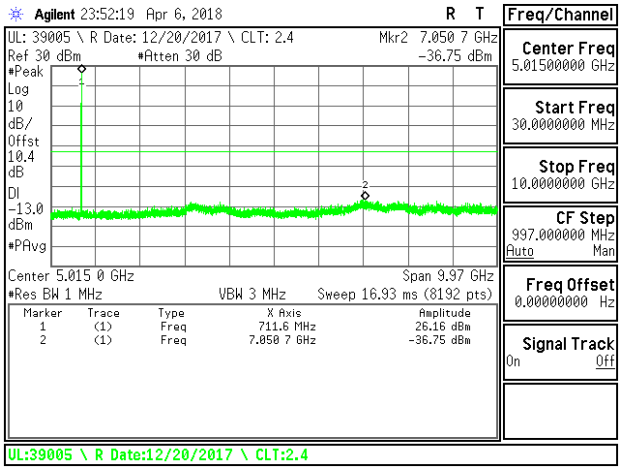
LTE B12 5MHz 16QAM Low Channel RB1-0



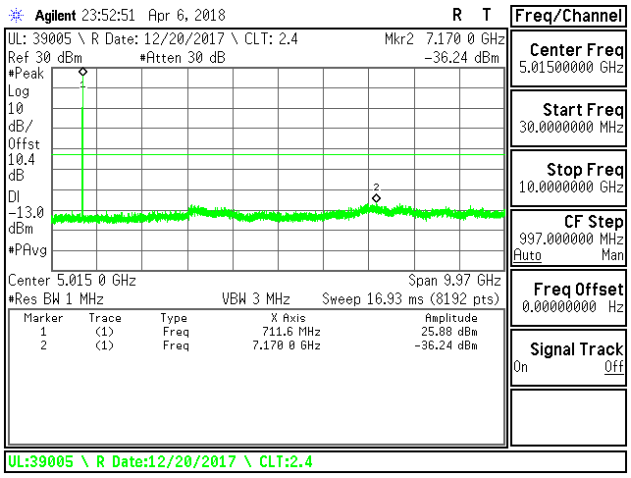
LTE B12 5MHz QPSK Middle Channel RB1-0



LTE B12 5MHz 16QAM Middle Channel RB1-0



LTE B12 5MHz QPSK High Channel RB1-0



LTE B12 5MHz 16QAM High Channel RB1-0

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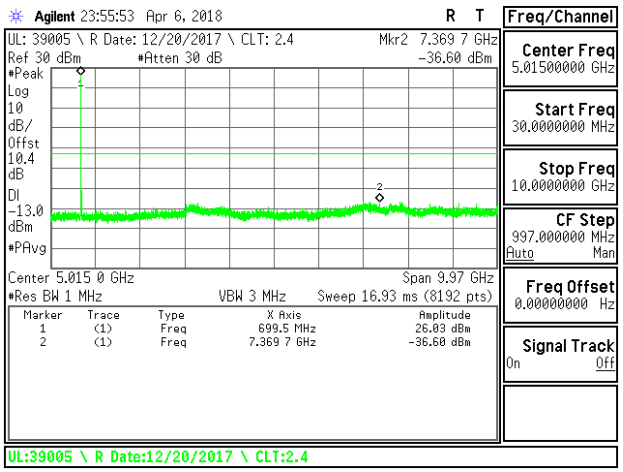
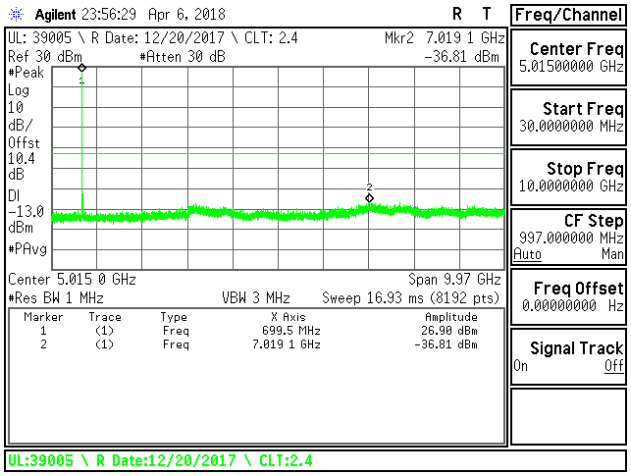
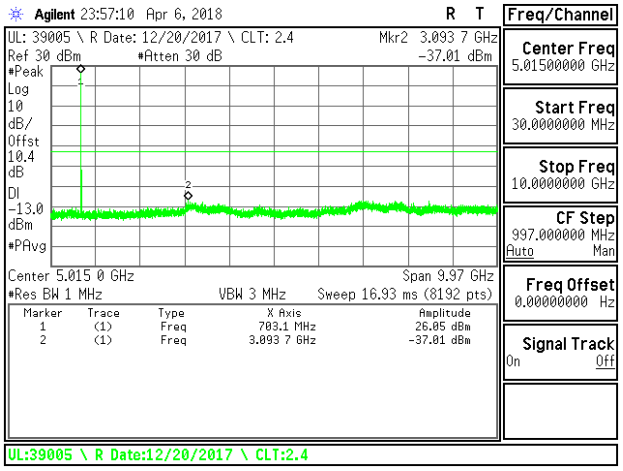


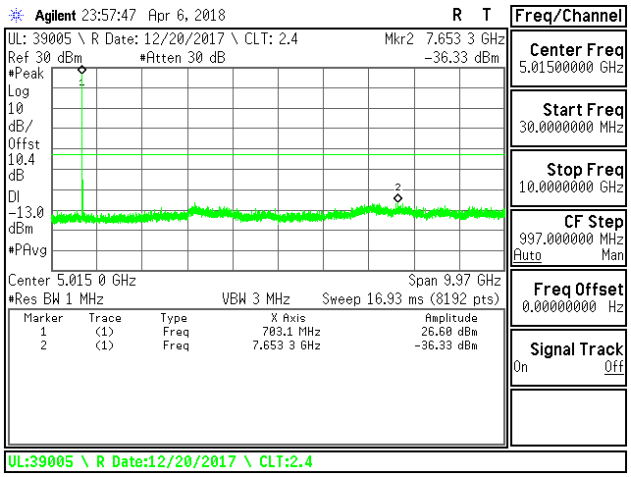
LTE B12 10MHz QPSK Low Channel RB1-0



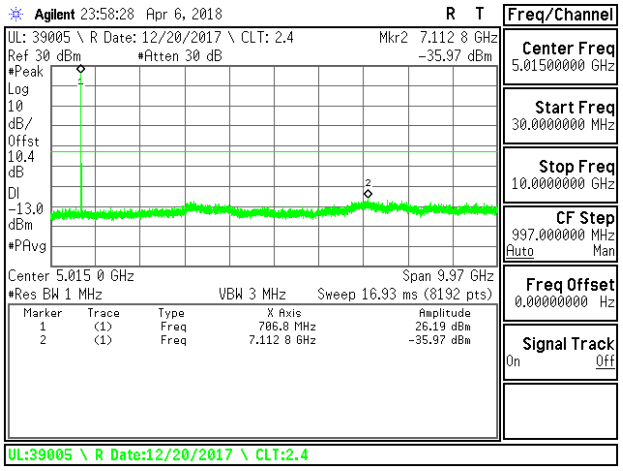
LTE B12 10MHz 16QAM Low Channel RB1-0



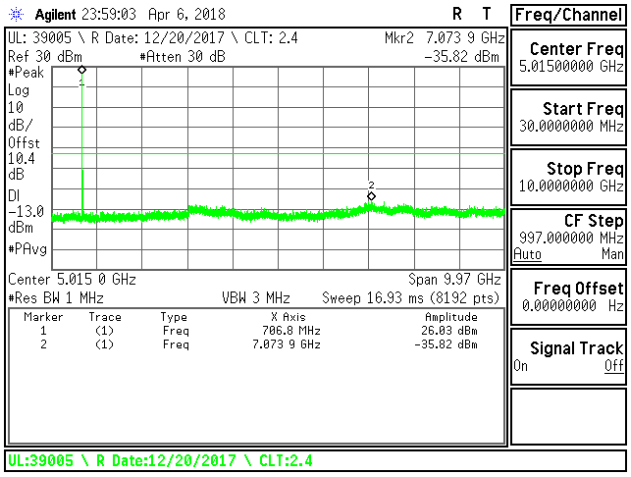
LTE B12 10MHz QPSK Middle Channel RB1-0



LTE B12 10MHz 16QAM Middle Channel RB1-0



LTE B12 10MHz QPSK High Channel RB1-0



LTE B12 10MHz 16QAM High Channel RB1-0

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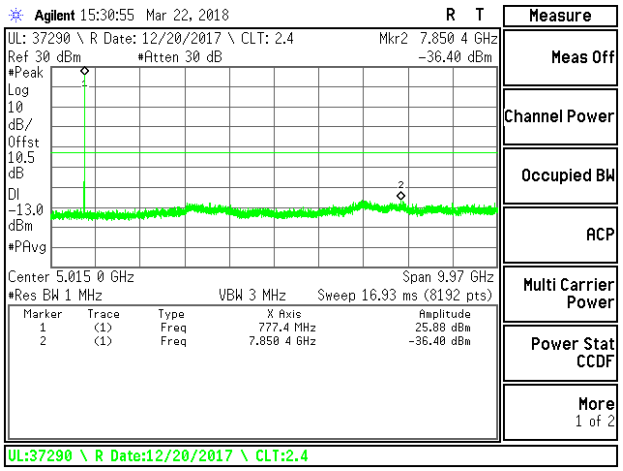
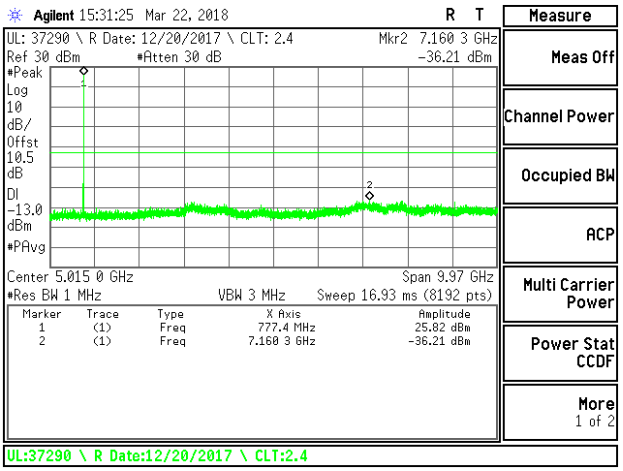
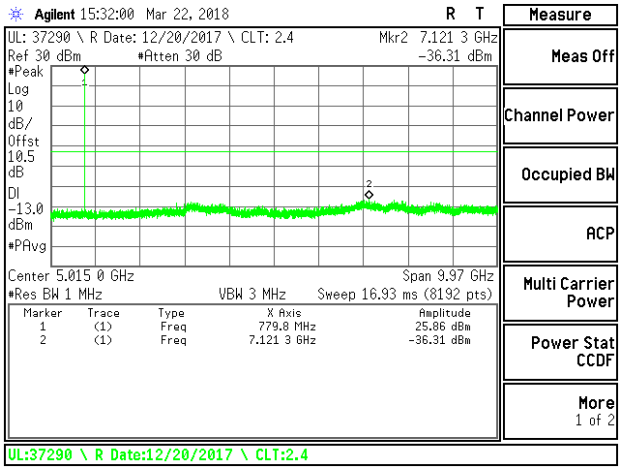
8.3.8. **LTE BAND 13**



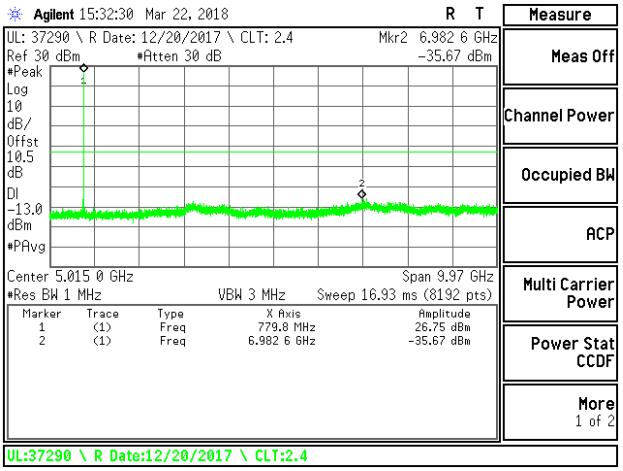
LTE B13 5MHz QPSK Low Channel RB1-0



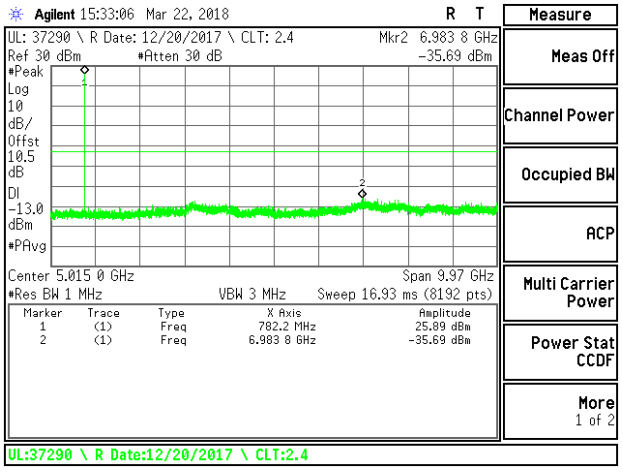
LTE B13 5MHz 16QAM Low Channel RB1-0



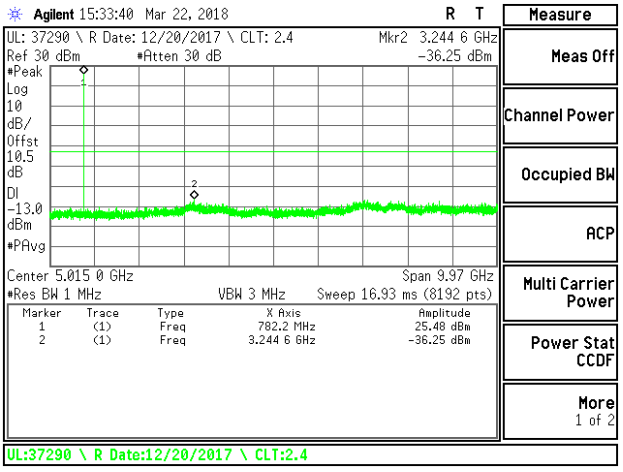
LTE B13 5MHz QPSK Middle Channel RB1-0



LTE B13 5MHz 16QAM Middle Channel RB1-0



LTE B13 5MHz QPSK High Channel RB1-0



LTE B13 5MHz 16QAM High Channel RB1-0

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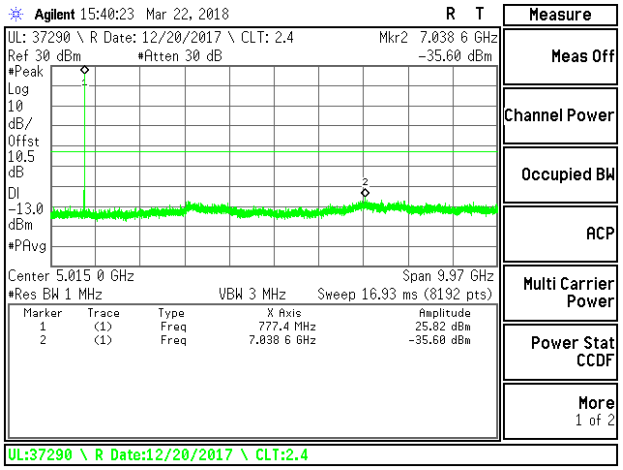
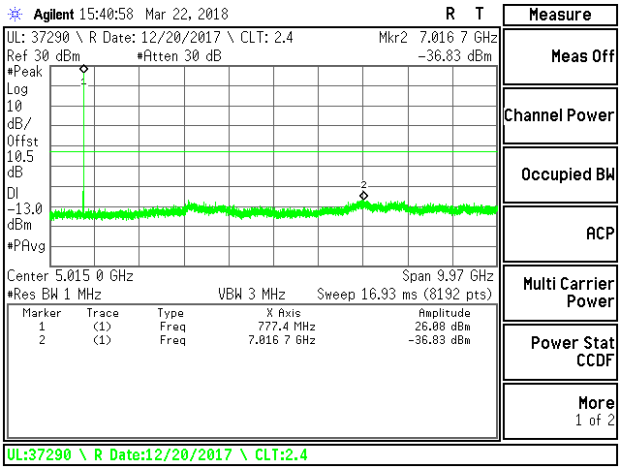


LTE B13 10MHz QPSK Middle Channel RB1-0



LTE B13 10MHz 16QAM Middle Channel RB1-0

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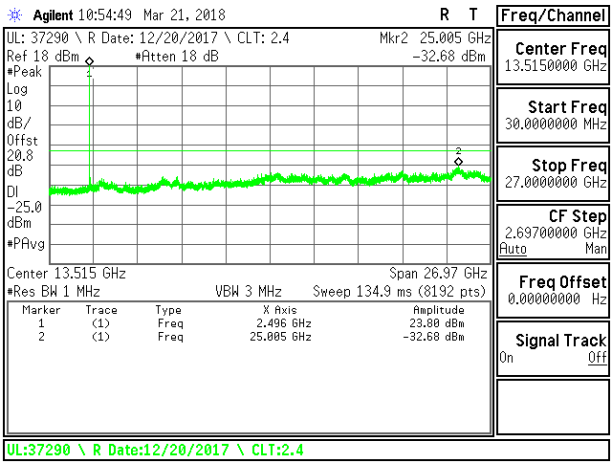
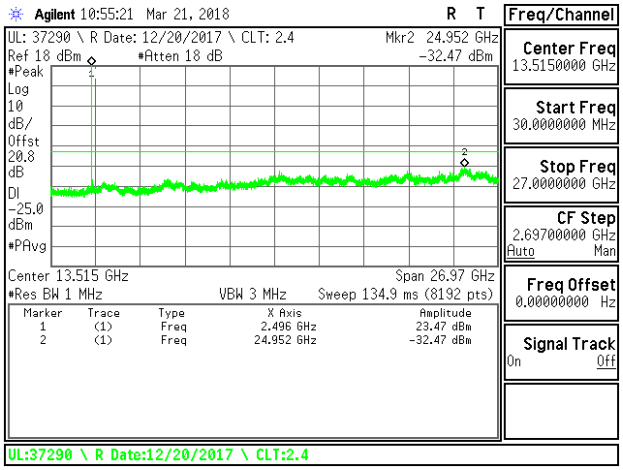
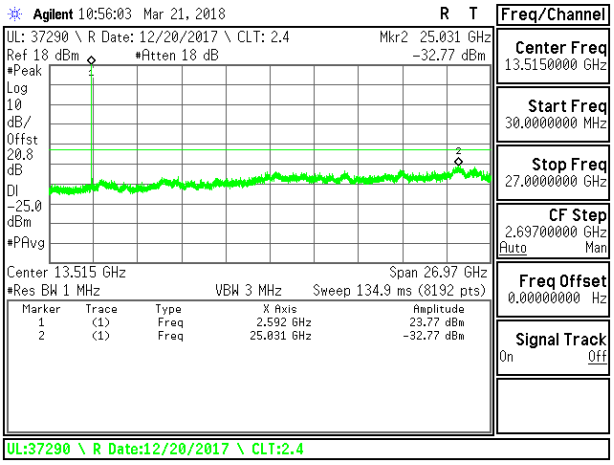
8.3.9. **LTE BAND 41**



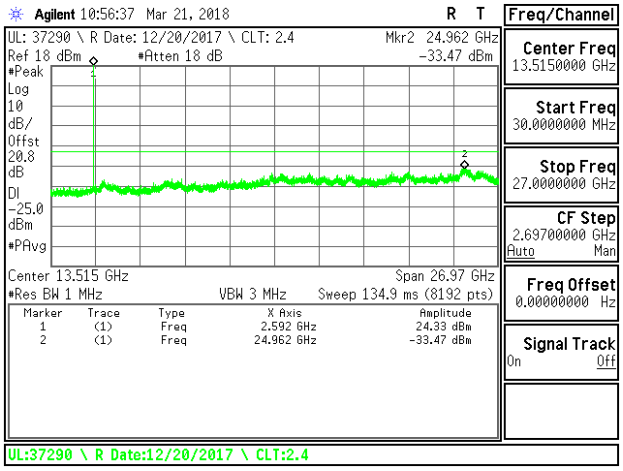
LTE B41 5MHz QPSK Low Channel RB1-0



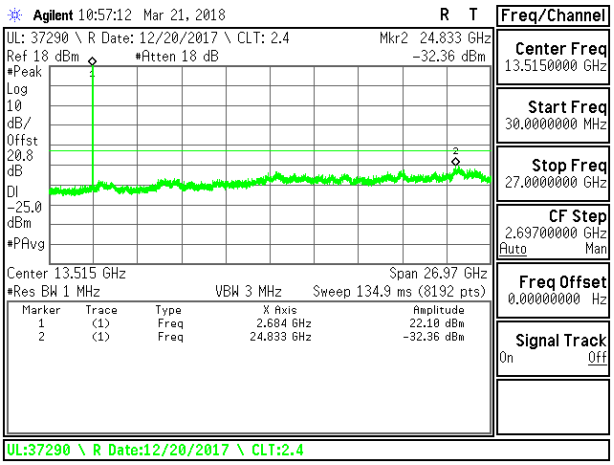
LTE B41 5MHz 16QAM Low Channel RB1-0



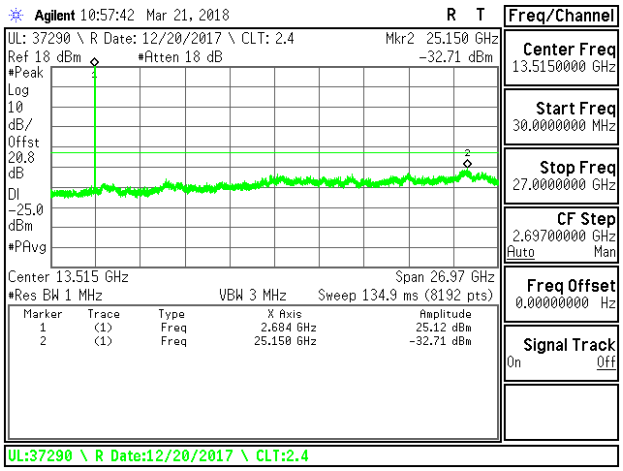
LTE B41 5MHz QPSK Middle Channel RB1-0



LTE B41 5MHz 16QAM Middle Channel RB1-0



LTE B41 5MHz QPSK High Channel RB1-0



LTE B41 5MHz 16QAM High Channel RB1-0

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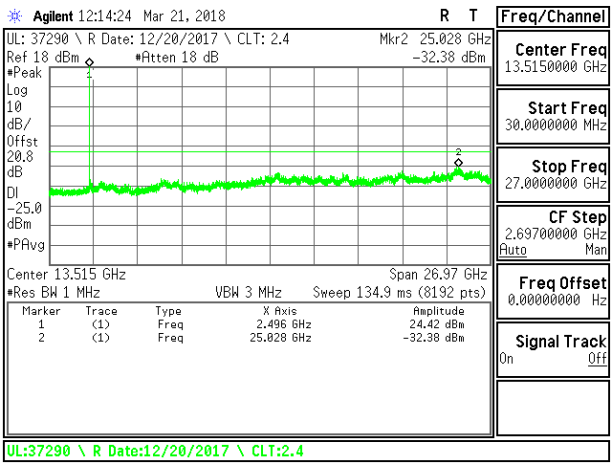
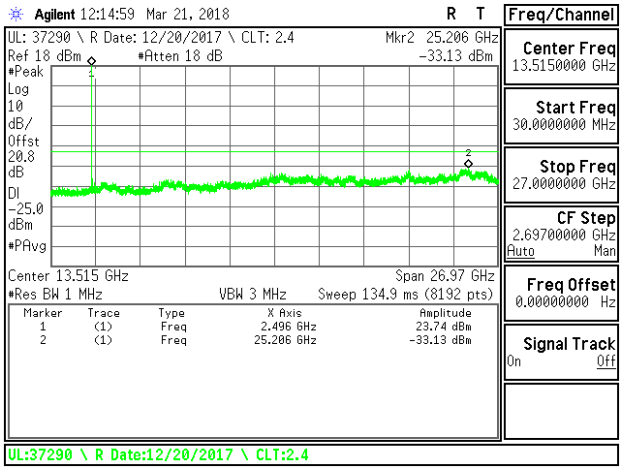
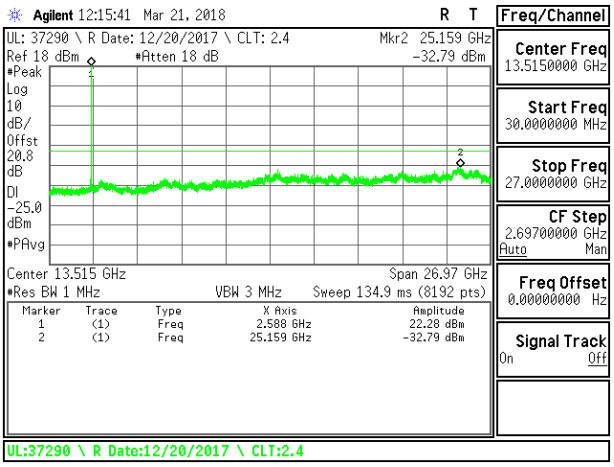


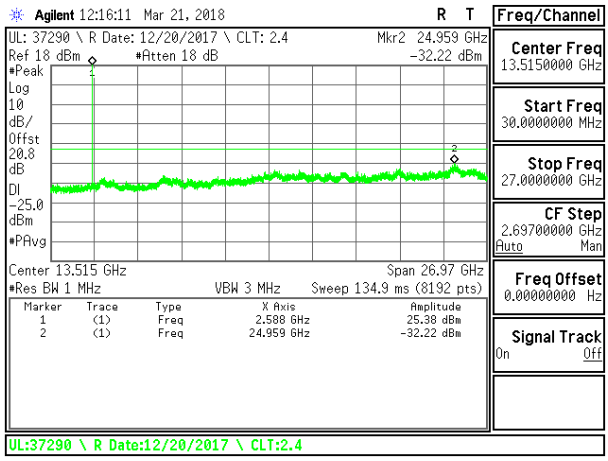
LTE B41 10MHz QPSK Low Channel RB1-0



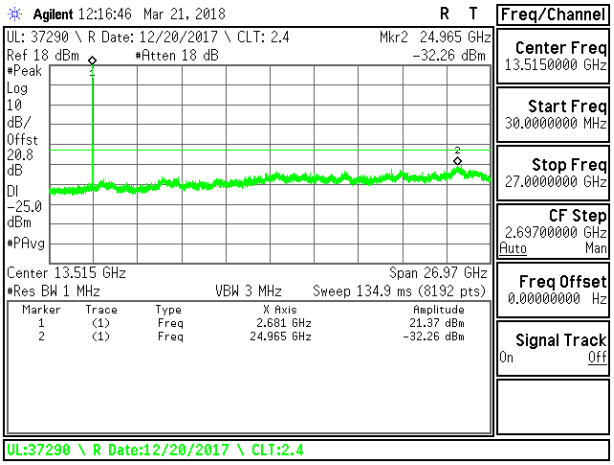
LTE B41 10MHz 16QAM Low Channel RB1-0



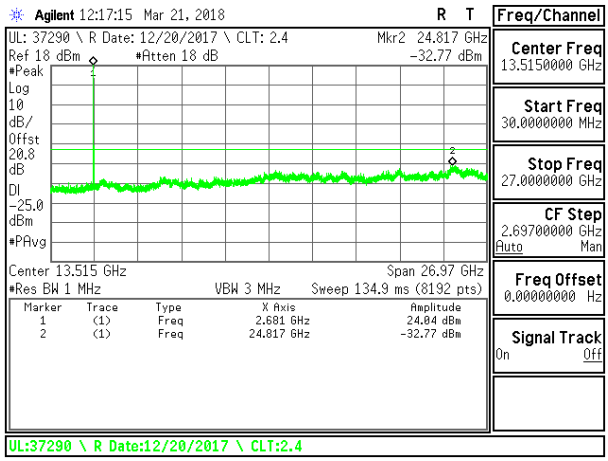
LTE B41 10MHz QPSK Middle Channel RB1-0



LTE B41 10MHz 16QAM Middle Channel RB1-0



LTE B41 10MHz QPSK High Channel RB1-0



LTE B41 10MHz 16QAM High Channel RB1-0

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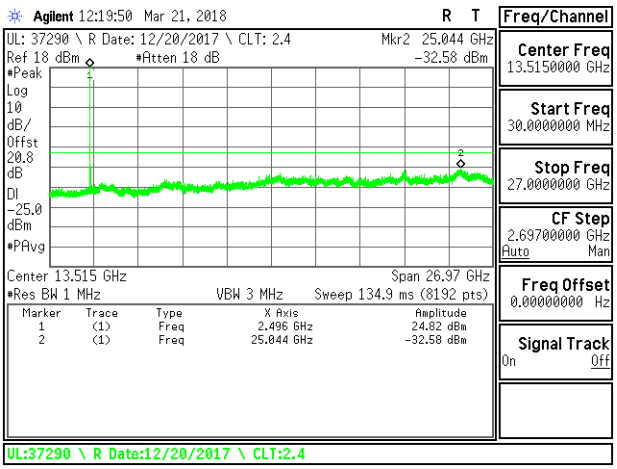
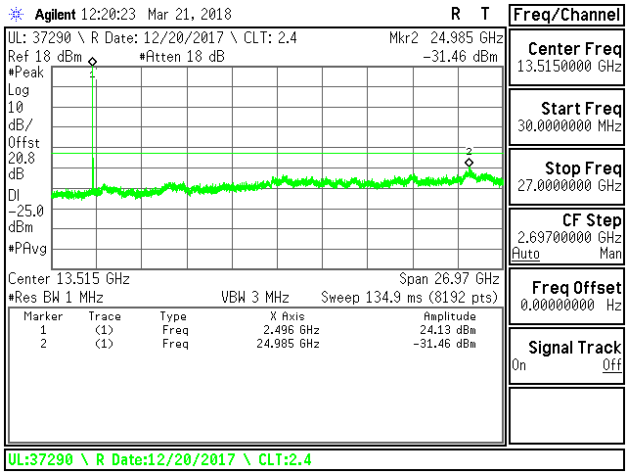
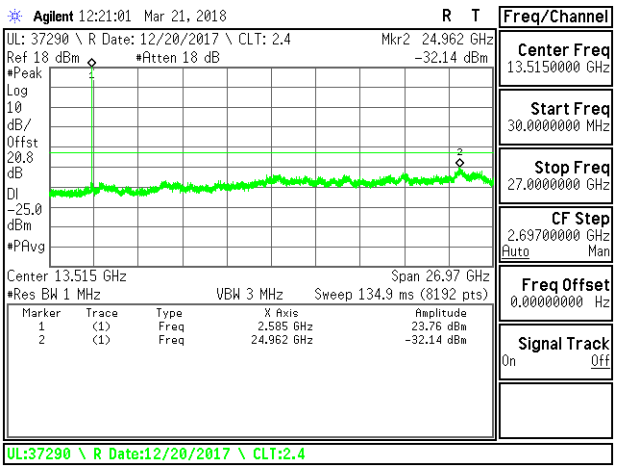


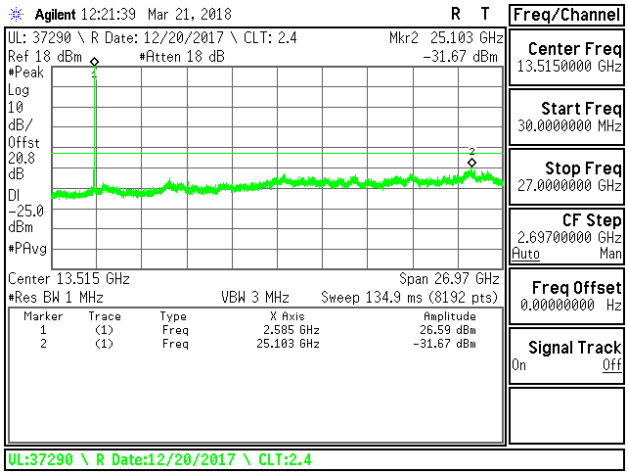
LTE B41 15MHz QPSK Low Channel RB1-0



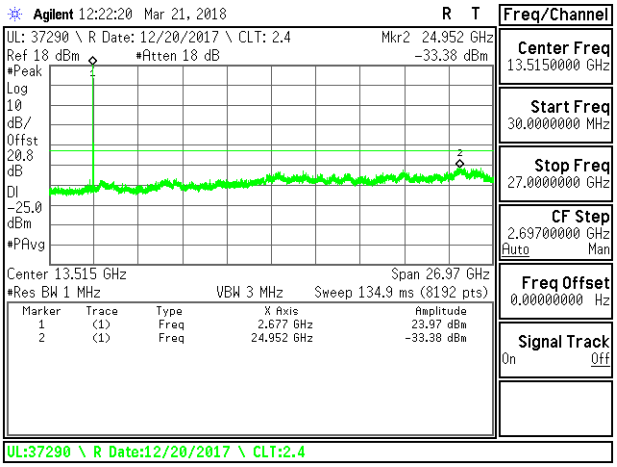
LTE B41 15MHz 16QAM Low Channel RB1-0



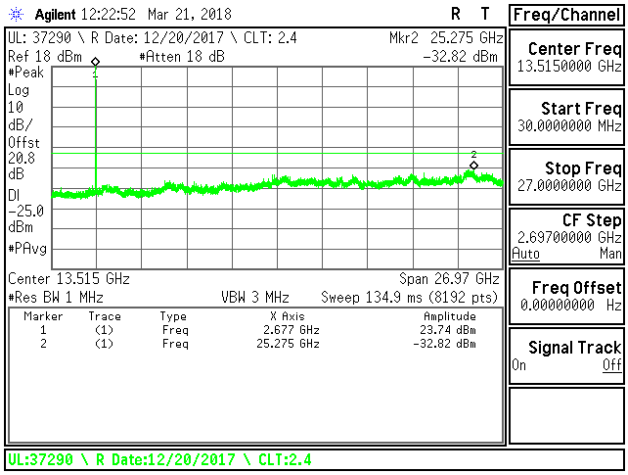
LTE B41 15MHz QPSK Middle Channel RB1-0



LTE B41 15MHz 16QAM Middle Channel RB1-0



LTE B41 15MHz QPSK High Channel RB1-0



LTE B41 15MHz 16QAM High Channel RB1-0

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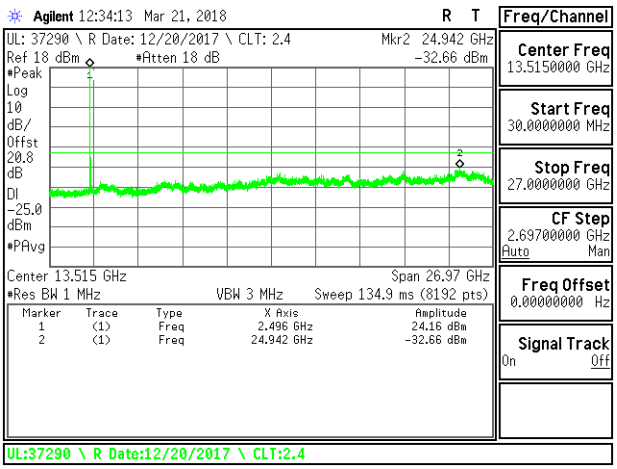
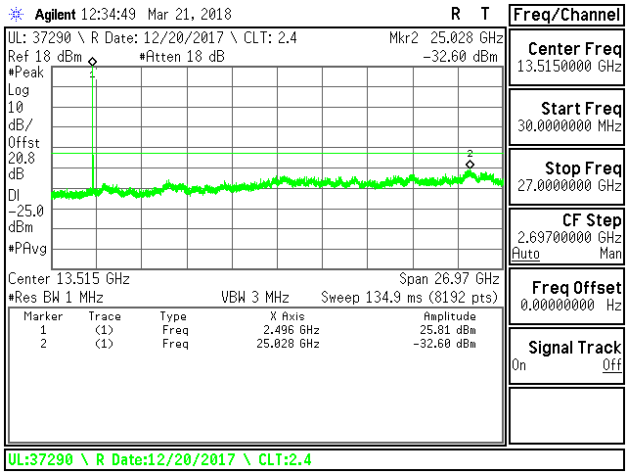
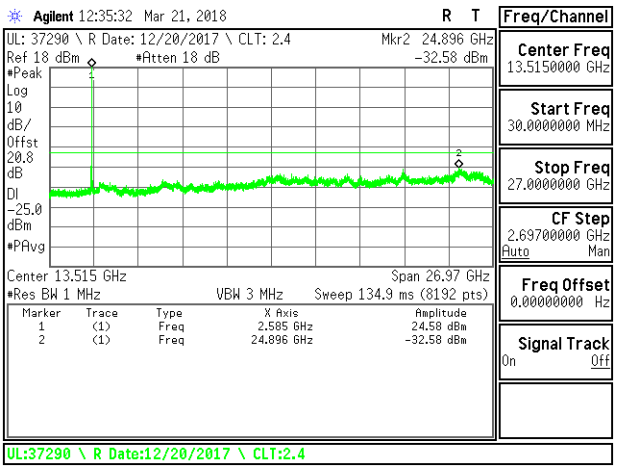


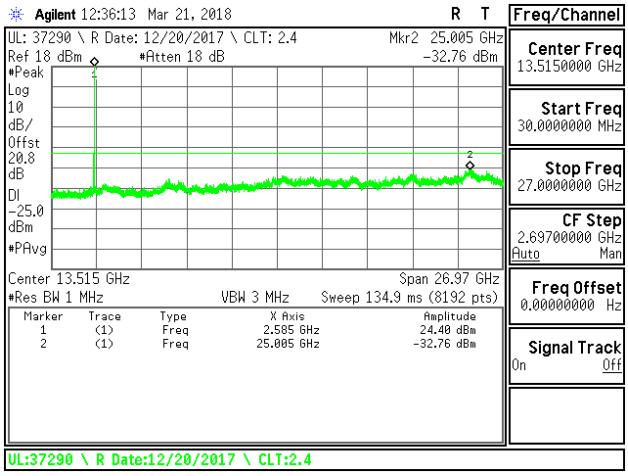
LTE B41 20MHz QPSK Low Channel RB1-0



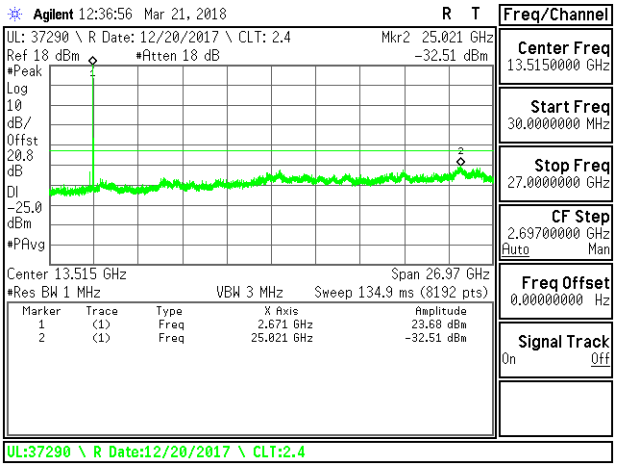
LTE B41 20MHz 16QAM Low Channel RB1-0



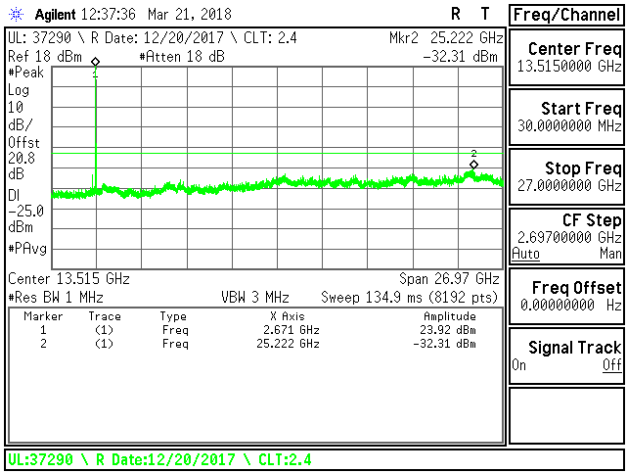
LTE B41 20MHz QPSK Middle Channel RB1-0



LTE B41 20MHz 16QAM Middle Channel RB1-0



LTE B41 20MHz QPSK High Channel RB1-0



LTE B41 20MHz 16QAM High Channel RB1-0

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8.4. FREQUENCY STABILITY

RULE PART(S)

FCC: §2.1055, §22.355, §24.235, §27.54

LIMITS

FCC §22.355

The carrier frequency shall not depart from the reference frequency in excess of ±2.5 ppm for mobile stations.

FCC §24.235 & §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

- GSM
- WCDMA
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 13
- LTE Band 17
- LTE Band 41

RESULTS

See the following pages.

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8.4.1. GSM

ID:	43575	Date:	4/4/18

GPRS 850MHz

Limit		824	849	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	824.0403	848.9595		
Extreme (50C)		824.0403	848.9595	-10.1	-0.01
Extreme (40C)		824.0403	848.9595	15.9	0.02
Extreme (30C)		824.0403	848.9595	20.0	0.02
Extreme (10C)		824.0404	848.9595	23.7	0.03
Extreme (0C)		824.0404	848.9595	24.2	0.03
Extreme (-10C)		824.0404	848.9595	21.7	0.03
Extreme (-20C)		824.0404	848.9595	22.0	0.03
Extreme (-30C)		824.0403	848.9595	15.6	0.02
20C	15%	824.0403	848.9595	14.6	0.02
	-15%	824.0403	848.9595	16.3	0.02
	End Point	824.0403	848.9595	17.0	0.02

GPRS 1900MHz

Limit		1850	1910	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	1850.0475	1909.9535		
Extreme (50C)		1850.0475	1909.9535	26.1	0.01
Extreme (40C)		1850.0475	1909.9535	26.6	0.01
Extreme (30C)		1850.0475	1909.9535	32.5	0.02
Extreme (10C)		1850.0475	1909.9535	35.8	0.02
Extreme (0C)		1850.0475	1909.9535	38.2	0.02
Extreme (-10C)		1850.0475	1909.9535	40.2	0.02
Extreme (-20C)		1850.0475	1909.9535	34.8	0.02
Extreme (-30C)		1850.0475	1909.9535	39.7	0.02
20C	15%	1850.0475	1909.9535	17.6	0.01
	-15%	1850.0475	1909.9535	27.7	0.01
	End Point	1850.0475	1909.9535	15.4	0.01

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8.4.2. UMTS

ID:	43575	Date:	4/4/18

UMTS REL99 BAND 5

Limit		824	849	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	824.2433	848.7433		
Extreme (50C)		824.2433	848.7433	-2.9	0.00
Extreme (40C)		824.2433	848.7433	-2.1	0.00
Extreme (30C)		824.2433	848.7433	-2.2	0.00
Extreme (10C)		824.2433	848.7433	-2.3	0.00
Extreme (0C)		824.2433	848.7433	-2.2	0.00
Extreme (-10C)		824.2433	848.7433	-2.4	0.00
Extreme (-20C)		824.2433	848.7433	-3.0	0.00
Extreme (-30C)		824.2433	848.7433	-3.4	0.00
20C	15%	824.2433	848.7433	3.4	0.00
	-15%	824.2433	848.7433	3.4	0.00
	End Point	824.2433	848.7433	2.9	0.00

8.4.3. LTE BAND 4

ID:	39005	Date:	4/6/18

Limit		1710	1755	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	1710.8500	1754.1700		
Extreme (50C)		1710.8500	1754.1700	8.0	0.005
Extreme (40C)		1710.8500	1754.1700	7.2	0.004
Extreme (30C)		1710.8500	1754.1700	6.3	0.004
Extreme (10C)		1710.8500	1754.1700	7.5	0.004
Extreme (0C)		1710.8500	1754.1700	5.2	0.003
Extreme (-10C)		1710.8500	1754.1700	5.8	0.003
Extreme (-20C)		1710.8500	1754.1700	6.2	0.004
Extreme (-30C)		1710.8500	1754.1700	4.3	0.003
20C	15%	1710.8500	1754.1700	6.6	0.004
	-15%	1710.8500	1754.1700	6.5	0.004
	End Point	1710.8500	1754.1700	6.4	0.004

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8.4.4. LTE BAND 5

ID:	39005	Date:	4/6/18

Limit		824	849	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	824.3950	848.5950		
Extreme (50C)		824.3950	848.5950	-9.1	-0.011
Extreme (40C)		824.3950	848.5950	-7.9	-0.009
Extreme (30C)		824.3950	848.5950	-6.9	-0.008
Extreme (10C)		824.3950	848.5950	-8.6	-0.010
Extreme (0C)		824.3950	848.5950	-9.2	-0.011
Extreme (-10C)		824.3950	848.5950	-6.9	-0.008
Extreme (-20C)		824.3950	848.5950	-8.1	-0.010
Extreme (-30C)		824.3950	848.5950	-8.3	-0.010
20C	15%	824.3950	848.5950	-7.3	-0.009
	-15%	824.3950	848.5950	-6.8	-0.008
	End Point	824.3950	848.5950	-8.1	-0.010

8.4.5. LTE BAND 7

ID:	39005	Date:	4/6/18

Limit		2500	2570	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	2500.8300	2569.1700		
Extreme (50C)		2500.8300	2569.1700	-5.4	-0.002
Extreme (40C)		2500.8300	2569.1700	-5.2	-0.002
Extreme (30C)		2500.8300	2569.1700	6.3	0.002
Extreme (10C)		2500.8300	2569.1700	7.1	0.003
Extreme (0C)		2500.8300	2569.1700	6.5	0.003
Extreme (-10C)		2500.8300	2569.1700	-5.4	-0.002
Extreme (-20C)		2500.8300	2569.1700	6.7	0.003
Extreme (-30C)		2500.8300	2569.1700	9.0	0.004
20C	15%	2500.8300	2569.1700	9.2	0.004
	-15%	2500.8300	2569.1700	8.6	0.003
	End Point	2500.8300	2569.1700	8.3	0.003

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8.4.6. LTE BAND 12

ID:	39005	Date:	4/5/18

Limit		699	716	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	699.4100	715.5900		
Extreme (50C)		699.4100	715.5900	-3.8	-0.01
Extreme (40C)		699.4100	715.5900	-2.7	0.00
Extreme (30C)		699.4100	715.5900	-2.7	0.00
Extreme (10C)		699.4100	715.5900	-6.3	-0.01
Extreme (0C)		699.4100	715.5900	-6.5	-0.01
Extreme (-10C)		699.4100	715.5900	-5.3	-0.01
Extreme (-20C)		699.4100	715.5900	-6.6	-0.01
Extreme (-30C)		699.4100	715.5900	-6.3	-0.01
20C	15%	699.4100	715.5900	-6.3	-0.01
	-15%	699.4100	715.5900	-6.4	-0.01
	End Point	699.4100	715.5900	-5.9	-0.01

8.4.7. LTE BAND 13

ID:	39005	Date:	4/5/18

Limit		777	787	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	777.1550	786.8550		
Extreme (50C)		777.1550	786.8550	-7.8	-0.010
Extreme (40C)		777.1550	786.8550	-7.5	-0.010
Extreme (30C)		777.1550	786.8550	-8.4	-0.011
Extreme (10C)		777.1550	786.8550	-6.9	-0.009
Extreme (0C)		777.1550	786.8550	-8.2	-0.010
Extreme (-10C)		777.1550	786.8550	-8.6	-0.011
Extreme (-20C)		777.1550	786.8550	-5.6	-0.007
Extreme (-30C)		777.1550	786.8550	-5.6	-0.007
20C	15%	777.1550	786.8550	-8.5	-0.011
	-15%	777.1550	786.8550	-8.2	-0.011
	End Point	777.1550	786.8550	-8.5	-0.011

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8.4.8. LTE BAND 41

ID:	39005	Date:	4/6/18

Limit		2496	2690	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	2496.7500	2689.3300		
Extreme (50C)		2496.7500	2689.3300	10.0	0.004
Extreme (40C)		2496.7500	2689.3300	9.0	0.003
Extreme (30C)		2496.7500	2689.3300	10.6	0.004
Extreme (10C)		2496.7500	2689.3300	12.7	0.005
Extreme (0C)		2496.7500	2689.3300	10.5	0.004
Extreme (-10C)		2496.7500	2689.3300	10.4	0.004
Extreme (-20C)		2496.7500	2689.3300	11.3	0.004
Extreme (-30C)		2496.7500	2689.3300	11.5	0.004
20C	15%	2496.7500	2689.3300	11.4	0.004
	-15%	2496.7500	2689.3300	12.4	0.005
	End Point	2496.7500	2689.3300	10.6	0.004

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8.5. PEAK TO AVERAGE RATIO

LIMITS

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

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 power ratio criteria..

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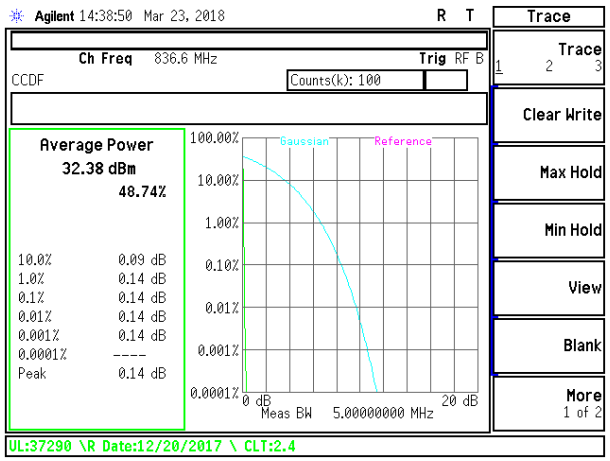
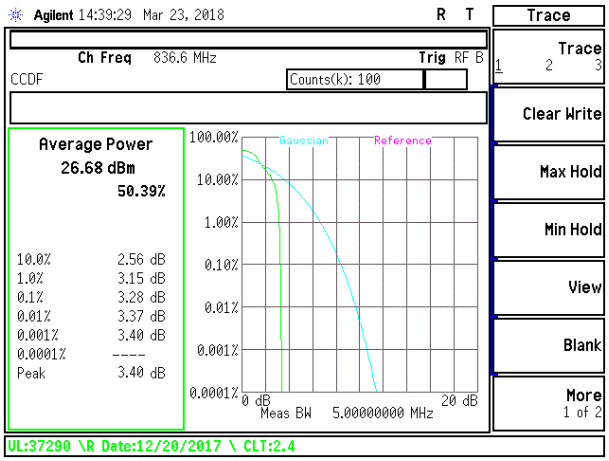
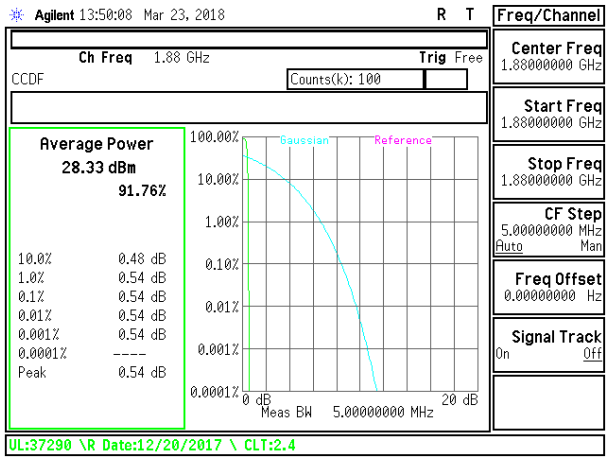
8.5.1. **GSM**



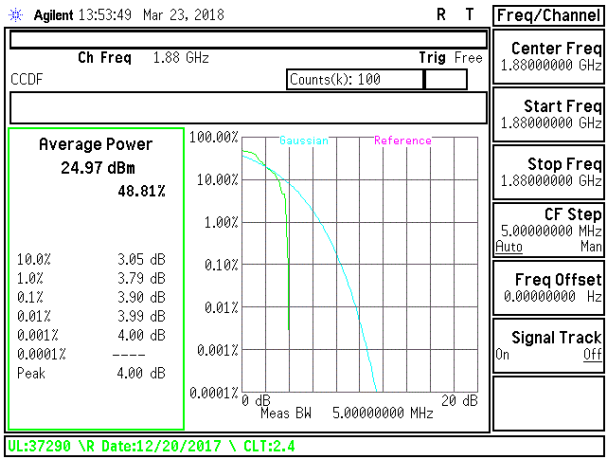
GSM 850MHz GPRS Middle Channel



GSM 850MHz EGPRS Middle Channel



GSM 1900MHz GPRS Middle Channel



GSM 1900MHz EGPRS Middle Channel

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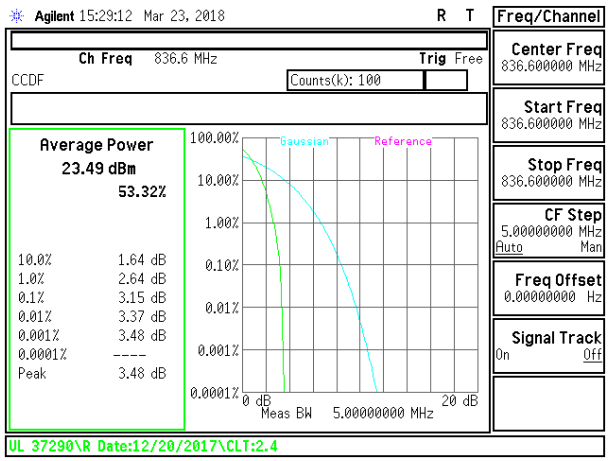
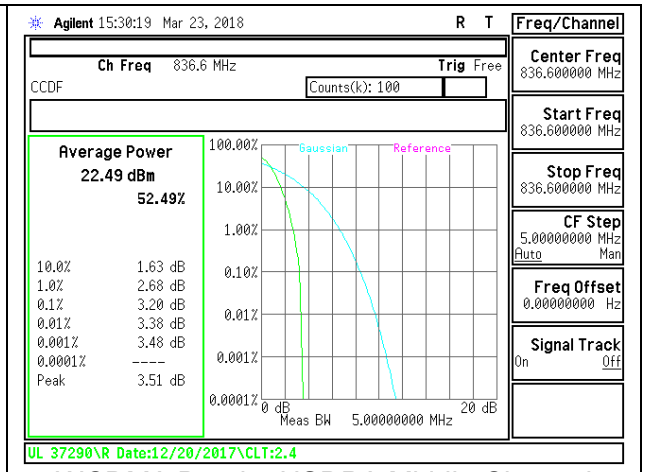
8.5.2. **WCDMA**



WCDMA Band 5 Rel 99 Middle Channel



WCDMA Band 5 HSDPA Middle Channel

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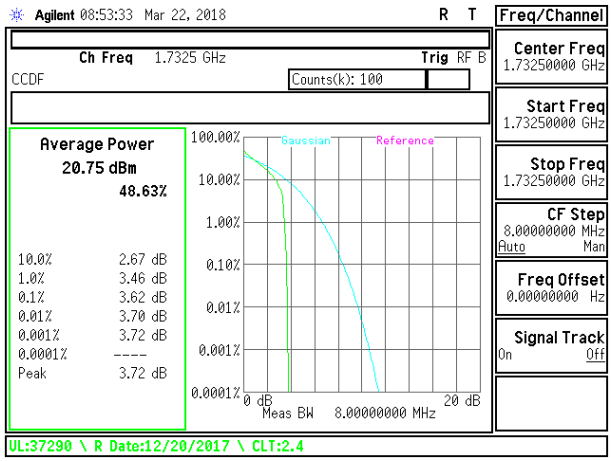
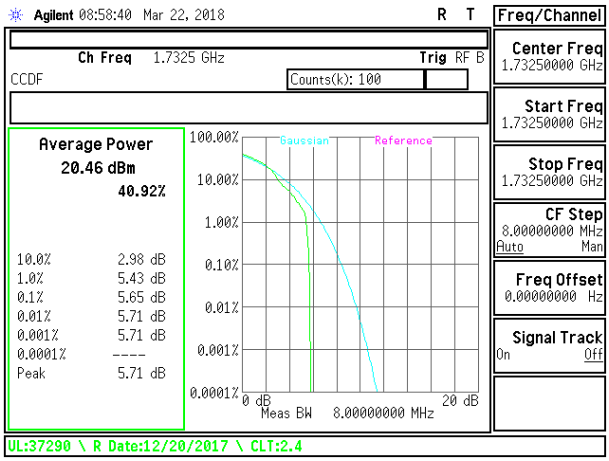
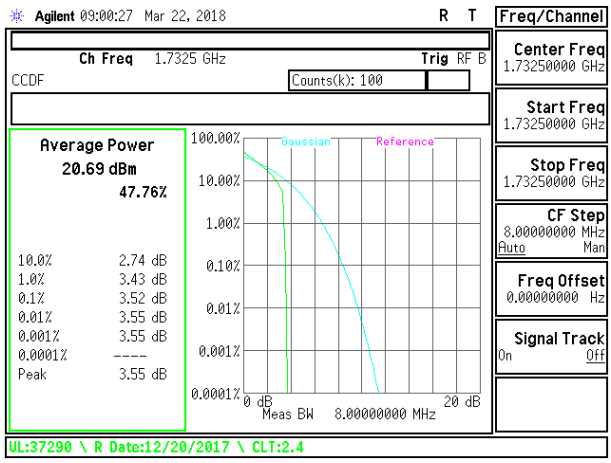
8.5.3. **LTE BAND 4**



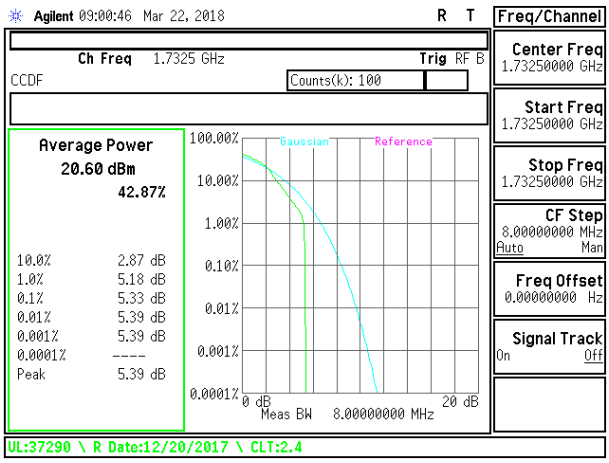
LTE B4 1.4MHz QPSK Mid Channel



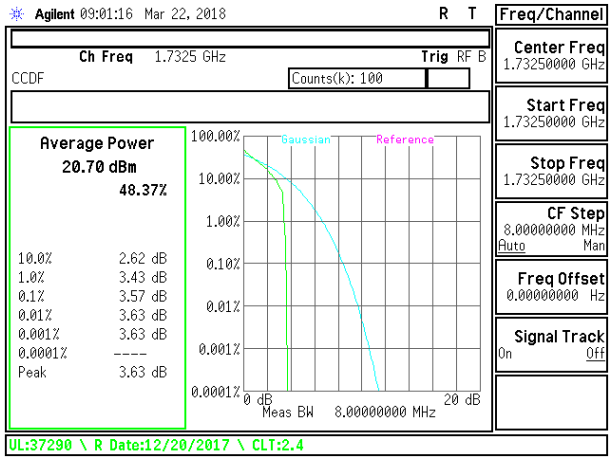
LTE B4 1.4MHz 16QAM Mid Channel



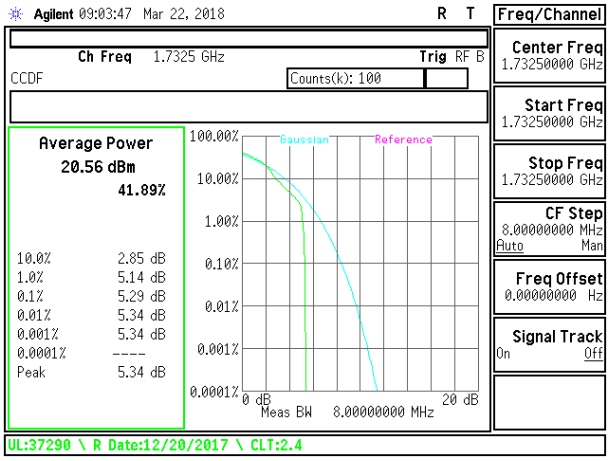
LTE B4 3MHz QPSK Mid Channel



LTE B4 3MHz 16QAM Mid Channel



LTE B4 5MHz QPSK Mid Channel



LTE B4 5MHz 16QAM Mid Channel

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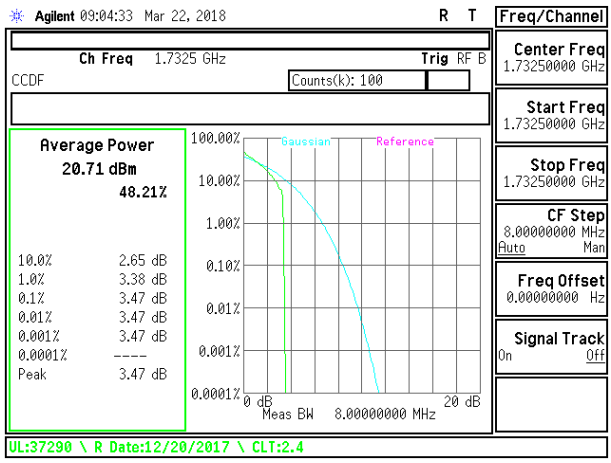
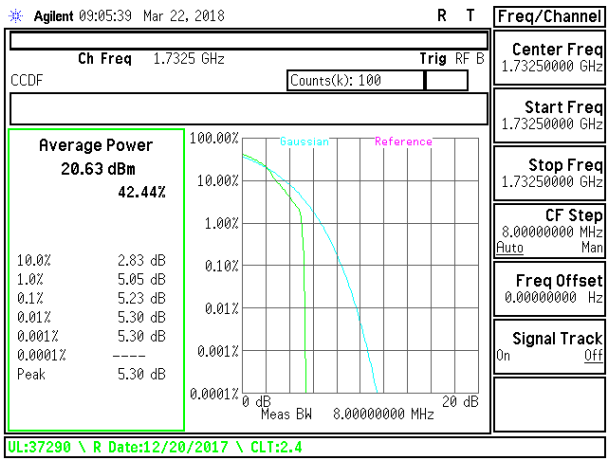
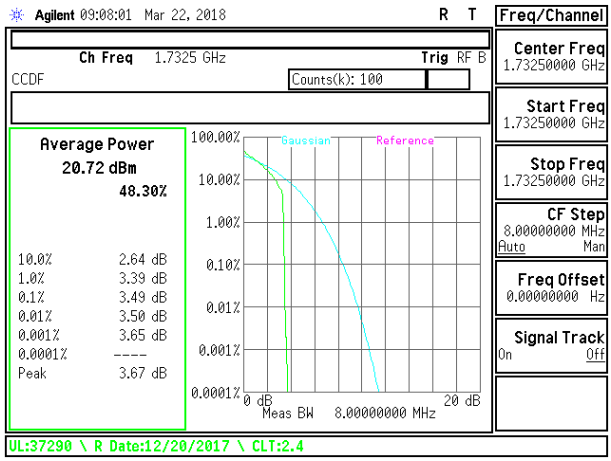


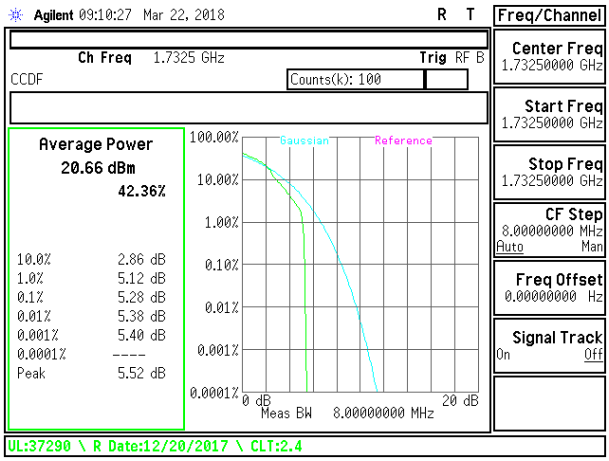
LTE B2 10MHz QPSK Mid Channel



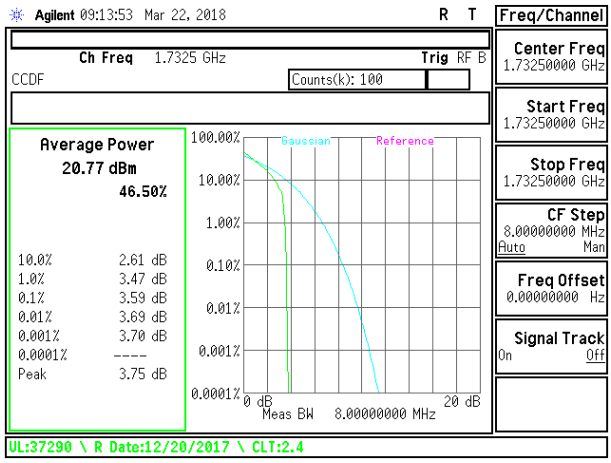
LTE B2 10MHz 16QAM Mid Channel



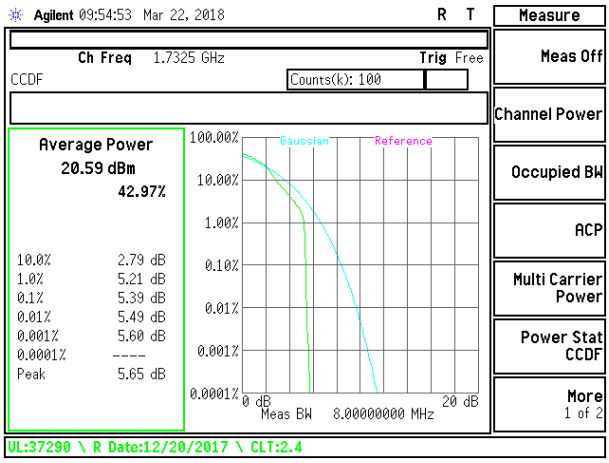
LTE B2 15MHz QPSK Mid Channel



LTE B2 15MHz 16QAM Mid Channel



LTE B2 20MHz QPSK Mid Channel



LTE B2 20MHz 16QAM Mid Channel

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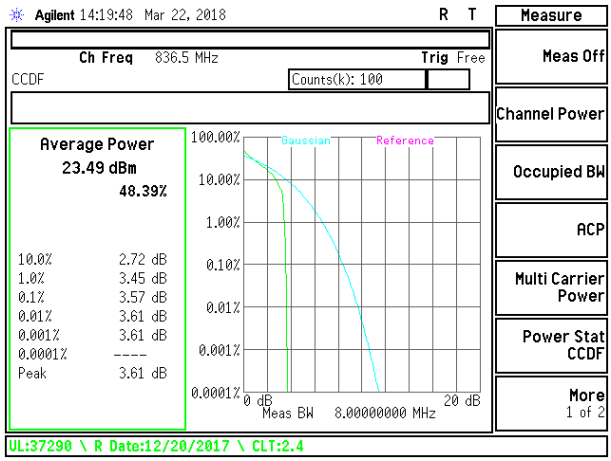
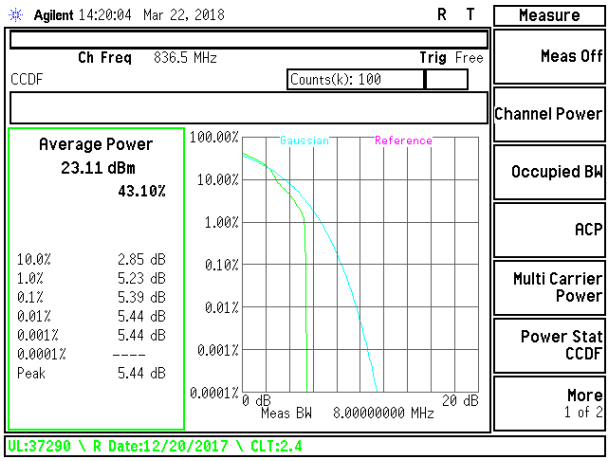
8.5.4. LTE BAND 5



LTE B5 1.4MHz QPSK Mid Channel



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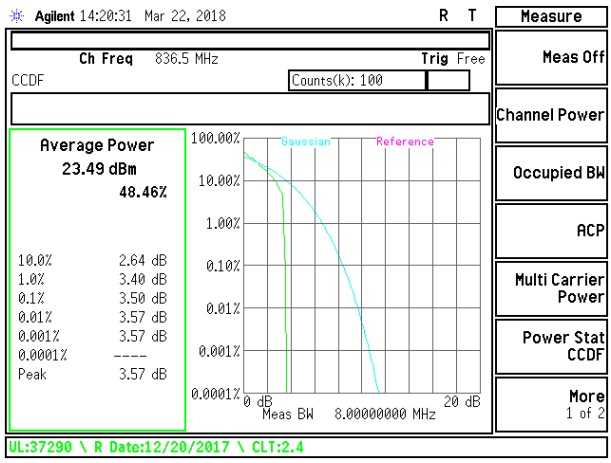
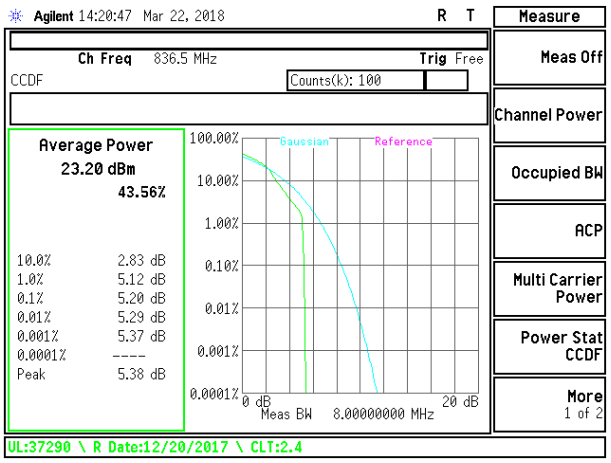
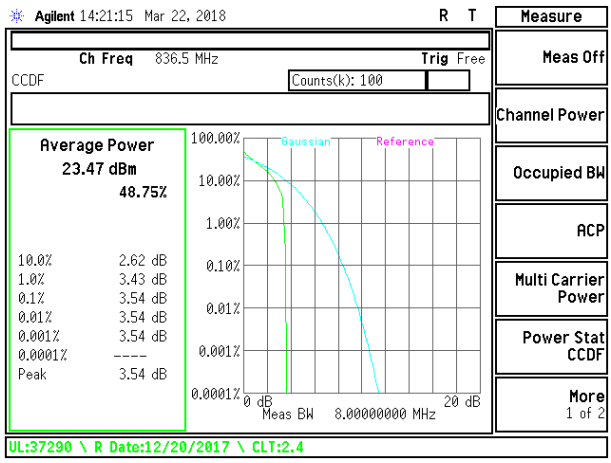


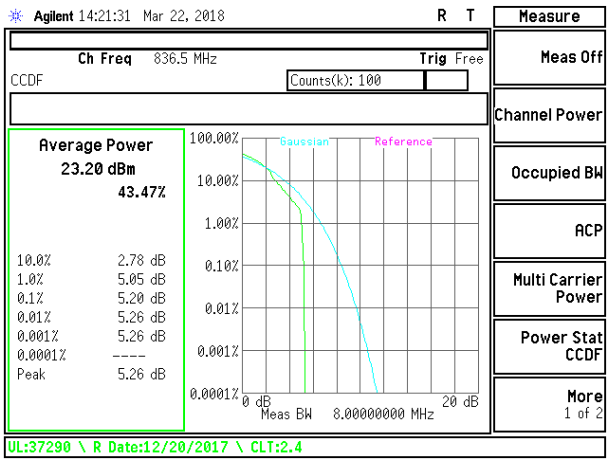
LTE B5 3MHz QPSK Mid Channel



LTE B5 3MHz 16QAM Mid Channel



LTE B5 5MHz QPSK Mid Channel



LTE B5 5MHz 16QAM Mid Channel

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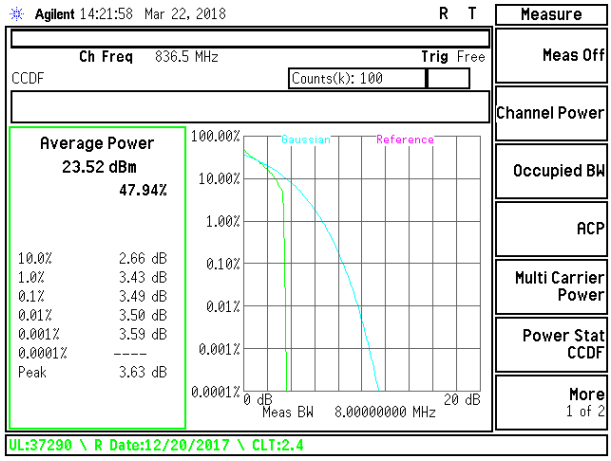
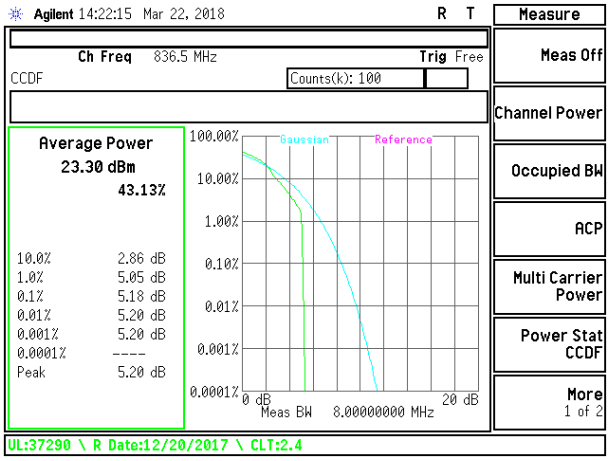


LTE B5 10MHz QPSK Mid Channel



LTE B5 10MHz 16QAM Mid Channel

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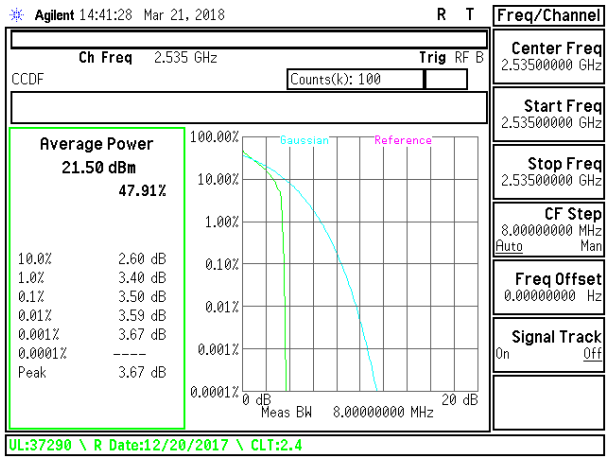
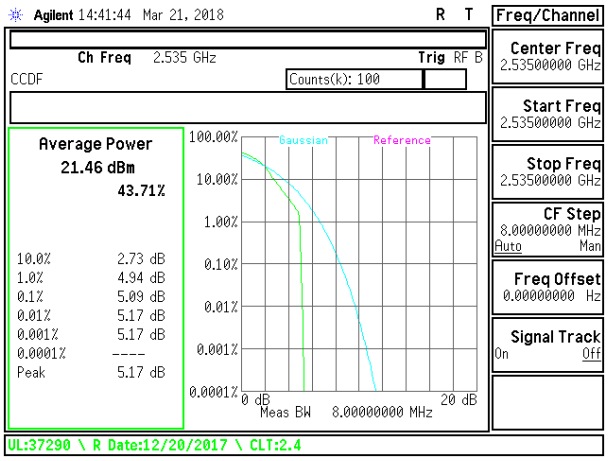
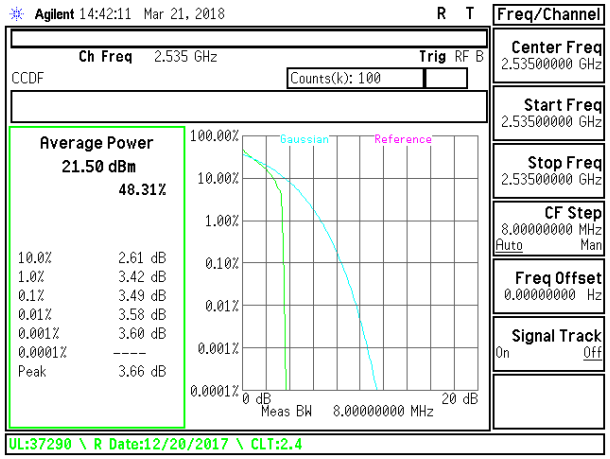
8.5.5. **LTE BAND 7**



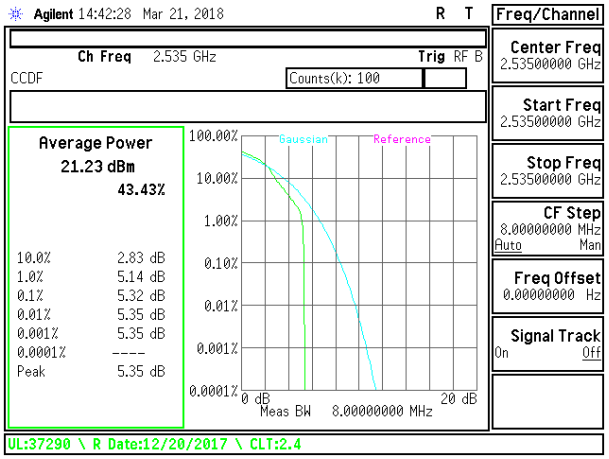
LTE B7 5MHz QPSK Mid Channel



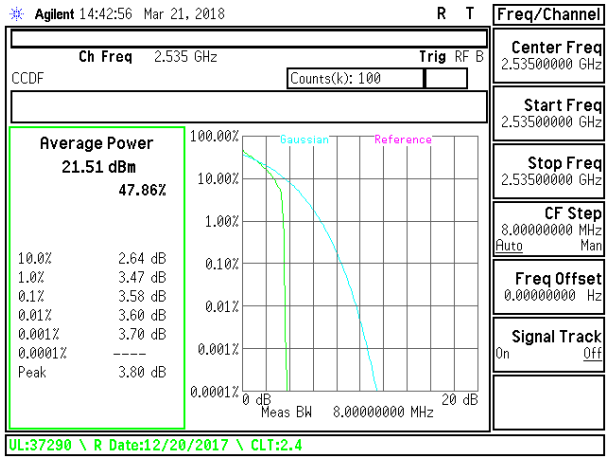
LTE B7 5MHz 16QAM Mid Channel



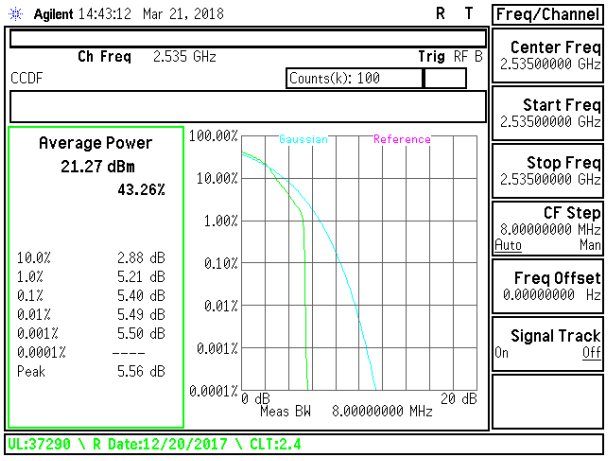
LTE B7 10MHz QPSK Mid Channel



LTE B7 10MHz 16QAM Mid Channel



LTE B7 15MHz QPSK Mid Channel



LTE B7 15MHz 16QAM Mid Channel

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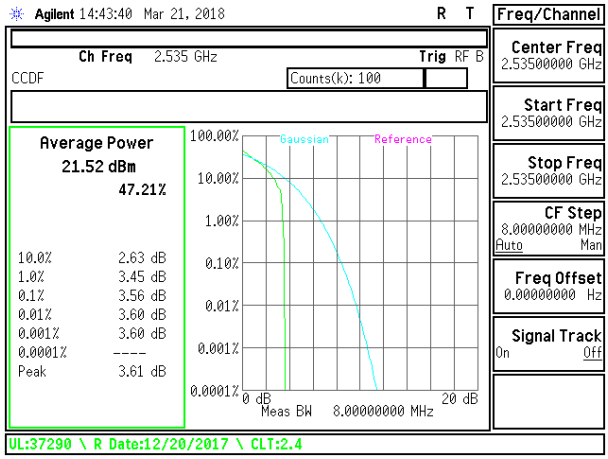
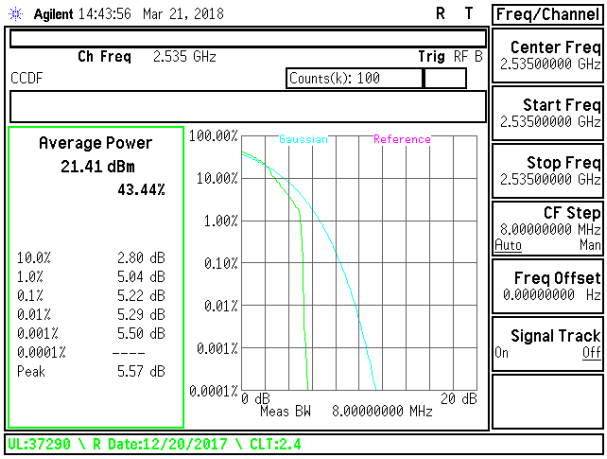


LTE B7 20MHz QPSK Mid Channel



LTE B7 20MHz 16QAM Mid Channel

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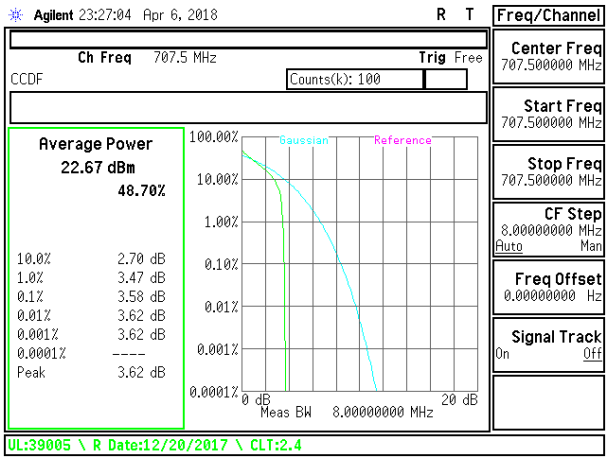
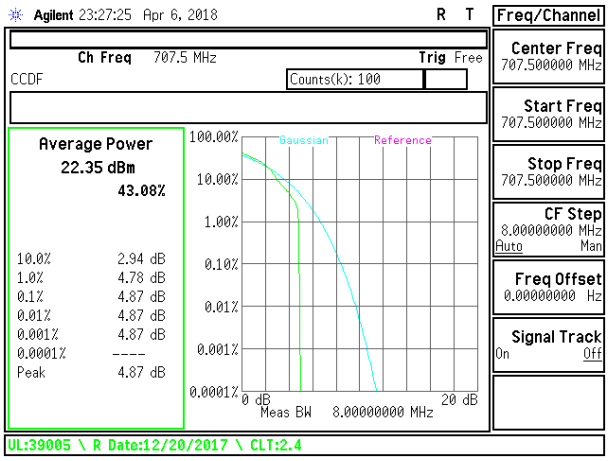
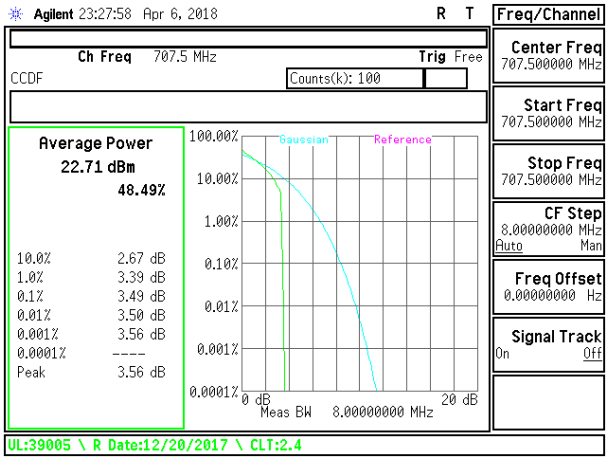
8.5.6. **LTE BAND 12**



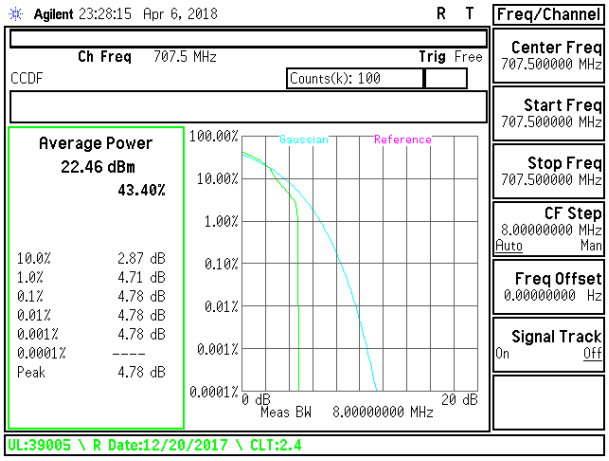
LTE B12 1.4MHz QPSK Mid Channel



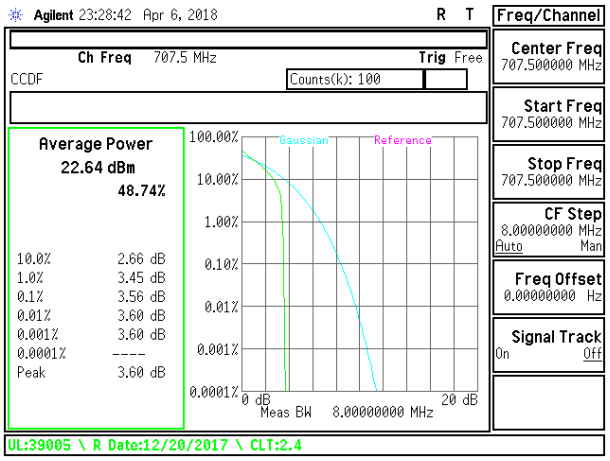
LTE B12 1.4MHz 16QAM Mid Channel



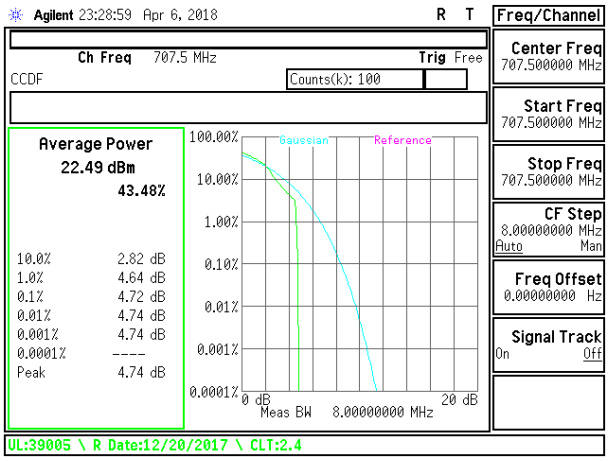
LTE B12 3MHz QPSK Mid Channel



LTE B12 3MHz 16QAM Mid Channel



LTE B12 5MHz QPSK Mid Channel



LTE B12 5MHz 16QAM Mid Channel

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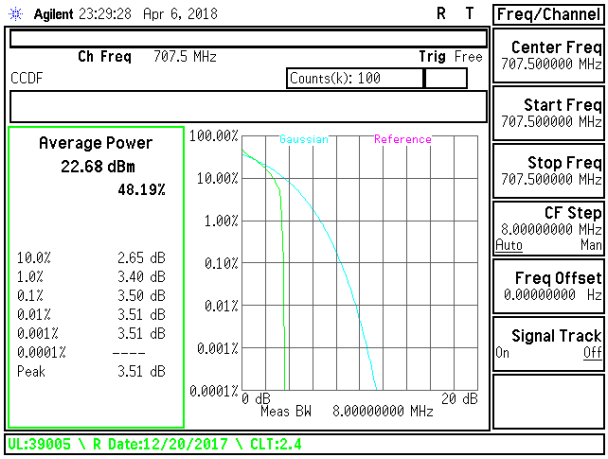
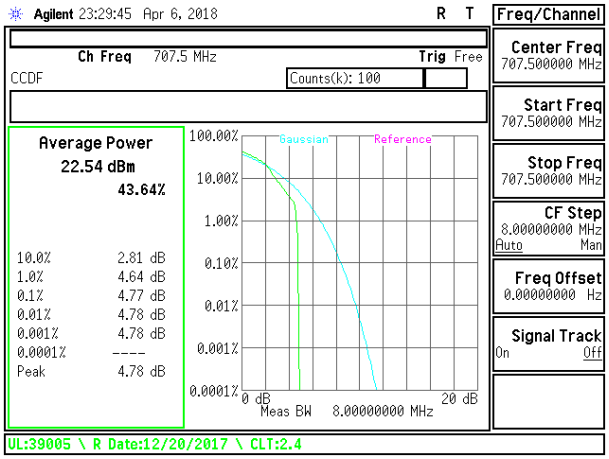


LTE B12 10MHz QPSK Mid Channel



LTE B12 10MHz 16QAM Mid Channel

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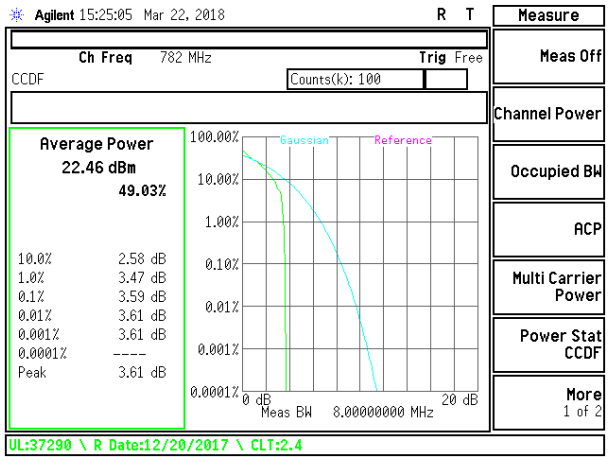
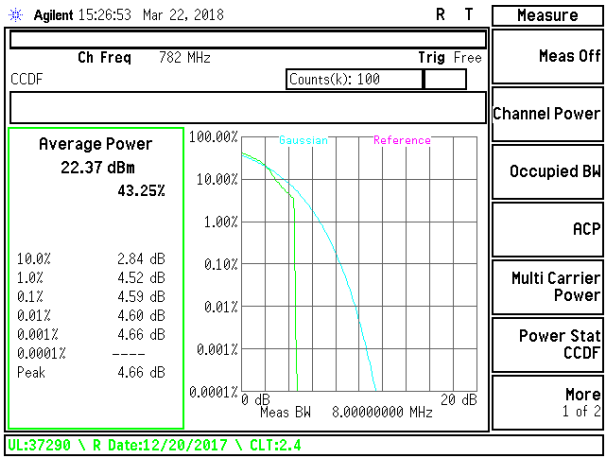
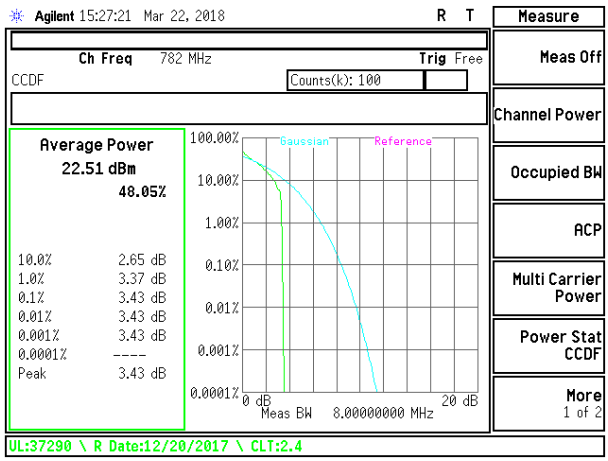
8.5.7. **LTE BAND 13**



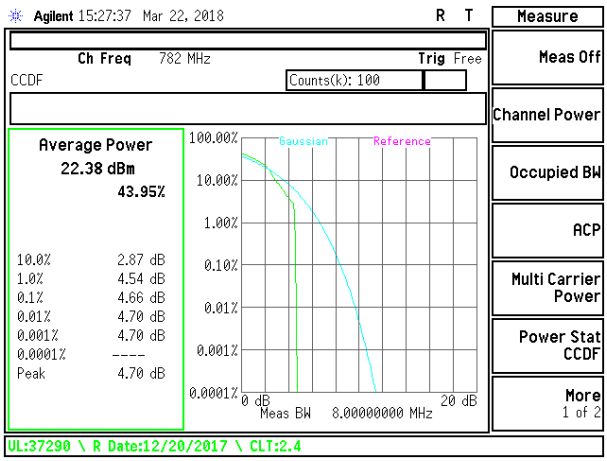
LTE B13 5MHz QPSK Mid Channel



LTE B13 5MHz 16QAM Mid Channel



LTE B13 10MHz QPSK Mid Channel



LTE B13 10MHz 16QAM Mid Channel

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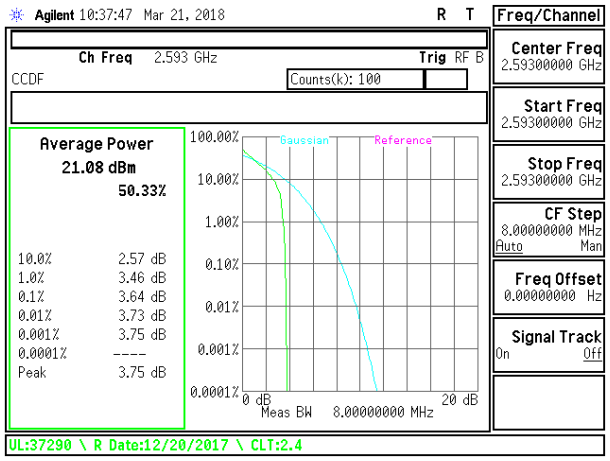
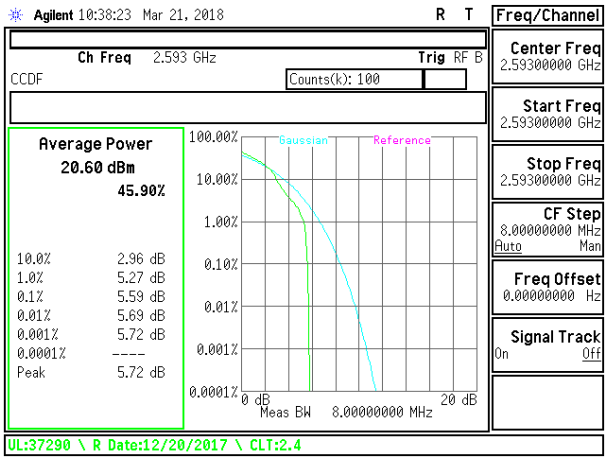
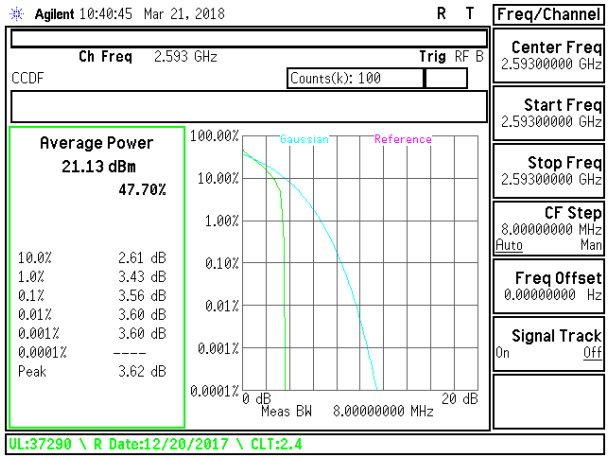
8.5.8. **LTE BAND 41**



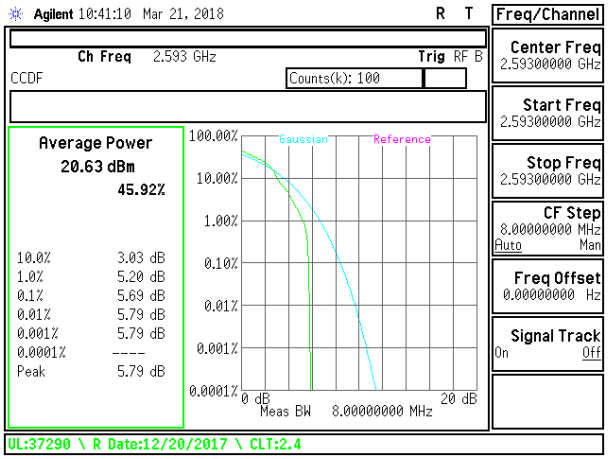
LTE B41 5MHz QPSK Mid Channel



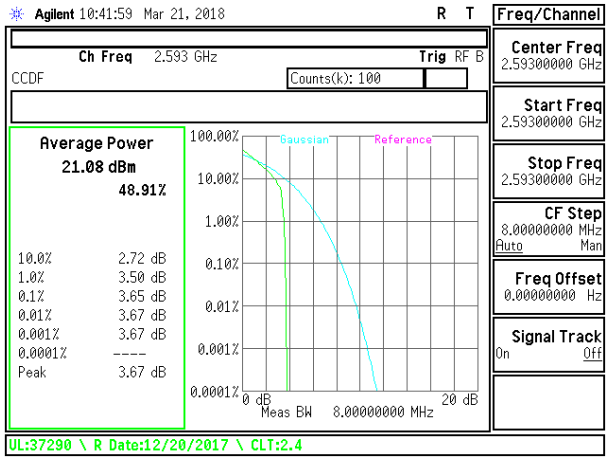
LTE B41 5MHz 16QAM Mid Channel



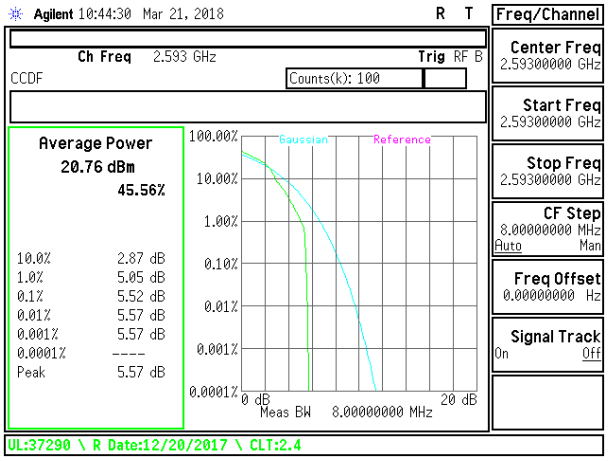
LTE B41 10MHz QPSK Mid Channel



LTE B41 10MHz 16QAM Mid Channel



LTE B41 15MHz QPSK Mid Channel



LTE B41 15MHz 16QAM Mid Channel

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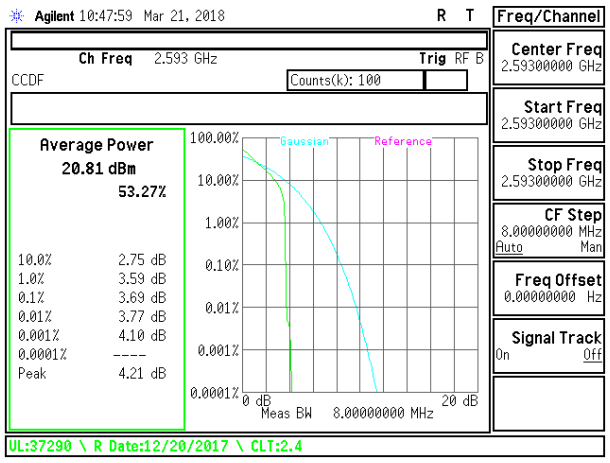
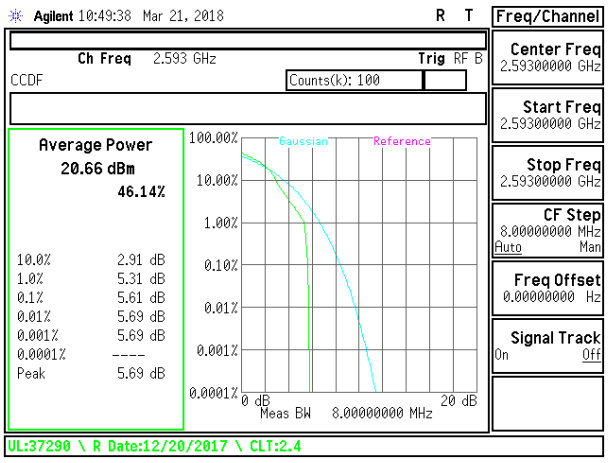


LTE B41 20MHz QPSK Mid Channel



LTE B41 20MHz 16QAM Mid Channel

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9. RADIATED TEST RESULTS

9.1. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

FCC: §2.1053, §22.917, §24.238, and §27.53

LIMITS

FCC: §22.917(a), §24.238(a), §27.53 (g), (h)
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.

FCC: §27.53 (Band 13)
(c) 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.
(f) Emissions in the band 1559-1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals. (-70 dBW/MHz = -40dBm/MHz).

FCC: §27.53 (m) (Band 7, 41)
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 v02r02/D02 v01

MODES TESTED

- GSM
- WCDMA
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 13
- LTE Band 41

RESULTS

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9.1.1. **GSM**

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/2/2018
Test Engineer: 16069 OG
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber B
Mode: GPRS 850 MHz Harmonics

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 824.2MHz									
1648.40	-27.9	V	3.0	37.0	1.0	-63.9	-13.0	-50.9	
2472.60	-23.4	V	3.0	36.4	1.0	-58.8	-13.0	-45.8	
3296.80	-21.1	V	3.0	36.2	1.0	-56.3	-13.0	-43.3	
1648.40	-27.2	H	3.0	37.0	1.0	-63.2	-13.0	-50.2	
2472.60	-25.6	H	3.0	36.4	1.0	-61.0	-13.0	-48.0	
3296.80	-20.8	H	3.0	36.2	1.0	-55.9	-13.0	-42.9	
Mid Ch, 836.6MHz									
1673.20	-27.5	V	3.0	37.0	1.0	-63.5	-13.0	-50.5	
2509.80	-22.8	V	3.0	36.4	1.0	-58.2	-13.0	-45.2	
3346.40	-20.8	V	3.0	36.1	1.0	-55.9	-13.0	-42.9	
1673.20	-27.2	H	3.0	37.0	1.0	-63.2	-13.0	-50.2	
2509.80	-25.5	H	3.0	36.4	1.0	-60.9	-13.0	-47.9	
3346.40	-19.8	H	3.0	36.1	1.0	-54.9	-13.0	-41.9	
High Ch, 848.8MHz									
1697.60	-27.8	V	3.0	37.0	1.0	-63.8	-13.0	-50.8	
2546.40	-23.7	V	3.0	36.4	1.0	-59.1	-13.0	-46.1	
3395.20	-20.4	V	3.0	36.1	1.0	-55.4	-13.0	-42.4	
1697.60	-27.0	H	3.0	37.0	1.0	-63.0	-13.0	-50.0	
2546.40	-25.0	H	3.0	36.4	1.0	-60.4	-13.0	-47.4	
3395.20	-20.9	H	3.0	36.1	1.0	-56.0	-13.0	-43.0	

GSM 850MHz GPRS

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/2/2018
Test Engineer: 16069 OG
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber B
Mode: EGPRS 850 MHz Harmonics

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 824.2MHz									
1648.40	-27.9	V	3.0	37.0	1.0	-63.9	-13.0	-50.9	
2472.60	-23.3	V	3.0	36.4	1.0	-58.7	-13.0	-45.7	
3296.80	-19.3	V	3.0	36.2	1.0	-54.4	-13.0	-41.4	
1648.40	-26.9	H	3.0	37.0	1.0	-62.9	-13.0	-49.9	
2472.60	-25.2	H	3.0	36.4	1.0	-60.6	-13.0	-47.6	
3296.80	-21.3	H	3.0	36.2	1.0	-56.4	-13.0	-43.4	
Mid Ch, 836.6MHz									
1673.20	-27.0	V	3.0	37.0	1.0	-63.0	-13.0	-50.0	
2509.80	-23.5	V	3.0	36.4	1.0	-58.9	-13.0	-45.9	
3346.40	-21.1	V	3.0	36.1	1.0	-56.2	-13.0	-43.2	
1673.20	-28.0	H	3.0	37.0	1.0	-64.0	-13.0	-51.0	
2509.80	-24.3	H	3.0	36.4	1.0	-59.7	-13.0	-46.7	
3346.40	-20.5	H	3.0	36.1	1.0	-55.6	-13.0	-42.6	
High Ch, 848.8MHz									
1697.60	-26.8	V	3.0	37.0	1.0	-62.8	-13.0	-49.8	
2546.40	-22.9	V	3.0	36.4	1.0	-58.4	-13.0	-45.4	
3395.20	-20.9	V	3.0	36.1	1.0	-56.0	-13.0	-43.0	
1697.60	-26.9	H	3.0	37.0	1.0	-62.9	-13.0	-49.9	
2546.40	-25.2	H	3.0	36.4	1.0	-60.7	-13.0	-47.7	
3395.20	-20.3	H	3.0	36.1	1.0	-55.3	-13.0	-42.3	

GSM 850MHz EGPRS

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/2/2018
Test Engineer: 16069 OG
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber B
Mode: GPRS 1900 MHz Harmonics

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1850.2MHz									
3700.40	-19.6	V	3.0	35.9	1.0	-54.4	-13.0	-41.4	
5550.60	-15.6	V	3.0	35.5	1.0	-50.1	-13.0	-37.1	
7400.80	-14.9	V	3.0	35.7	1.0	-49.6	-13.0	-36.6	
3700.40	-20.4	H	3.0	35.9	1.0	-55.2	-13.0	-42.2	
5550.60	-14.0	H	3.0	35.5	1.0	-48.4	-13.0	-35.4	
7400.80	-12.9	H	3.0	35.7	1.0	-47.6	-13.0	-34.6	
Mid Ch, 1880MHz									
3760.00	-17.5	V	3.0	35.8	1.0	-52.3	-13.0	-39.3	
5640.00	-14.6	V	3.0	35.5	1.0	-49.1	-13.0	-36.1	
7520.00	-14.3	V	3.0	35.7	1.0	-49.0	-13.0	-36.0	
3760.00	-19.5	H	3.0	35.8	1.0	-54.3	-13.0	-41.3	
5640.00	-14.3	H	3.0	35.5	1.0	-48.8	-13.0	-35.8	
7520.00	-13.2	H	3.0	35.7	1.0	-47.9	-13.0	-34.9	
High Ch, 1909.8MHz									
3819.60	-18.6	V	3.0	35.8	1.0	-53.4	-13.0	-40.4	
5729.40	-16.1	V	3.0	35.5	1.0	-50.6	-13.0	-37.6	
7639.20	-14.3	V	3.0	35.8	1.0	-49.1	-13.0	-36.1	
3819.60	-18.9	H	3.0	35.8	1.0	-53.7	-13.0	-40.7	
5729.40	-14.1	H	3.0	35.5	1.0	-48.6	-13.0	-35.6	
7639.20	-12.5	H	3.0	35.8	1.0	-47.2	-13.0	-34.2	

GSM 1900MHz GPRS

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/2/2018
Test Engineer: 16069 OG
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber B
Mode: EGPRS 1900 MHz Harmonics

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1850.2MHz									
3700.40	-19.1	V	3.0	35.9	1.0	-54.0	-13.0	-41.0	
5550.60	-15.4	V	3.0	35.5	1.0	-49.9	-13.0	-36.9	
7400.80	-15.1	V	3.0	35.7	1.0	-49.8	-13.0	-36.8	
3700.40	-19.1	H	3.0	35.9	1.0	-53.9	-13.0	-40.9	
5550.60	-15.3	H	3.0	35.5	1.0	-49.8	-13.0	-36.8	
7400.80	-12.1	H	3.0	35.7	1.0	-46.8	-13.0	-33.8	
Mid Ch, 1880MHz									
3760.00	-19.2	V	3.0	35.8	1.0	-54.1	-13.0	-41.1	
5640.00	-14.8	V	3.0	35.5	1.0	-49.3	-13.0	-36.3	
7520.00	-14.1	V	3.0	35.7	1.0	-48.9	-13.0	-35.9	
3760.00	-19.3	H	3.0	35.8	1.0	-54.1	-13.0	-41.1	
5640.00	-14.2	H	3.0	35.5	1.0	-48.7	-13.0	-35.7	
7520.00	-12.6	H	3.0	35.7	1.0	-47.3	-13.0	-34.3	
High Ch, 1909.8MHz									
3819.60	-18.1	V	3.0	35.8	1.0	-52.9	-13.0	-39.9	
5729.40	-15.3	V	3.0	35.5	1.0	-49.8	-13.0	-36.8	
7639.20	-13.5	V	3.0	35.8	1.0	-48.2	-13.0	-35.2	
3819.60	-18.1	H	3.0	35.8	1.0	-52.9	-13.0	-39.9	
5729.40	-14.6	H	3.0	35.5	1.0	-49.1	-13.0	-36.1	
7639.20	-11.9	H	3.0	35.8	1.0	-46.6	-13.0	-33.6	

GSM 1900MHz EGPRS

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4031B
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
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9.1.2. **WCDMA**

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/9/2018
Test Engineer: 39005 RA
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber B
Mode: Rel99 Band 5 Harmonics

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 826.4MHz									
1652.80	-27.3	V	3.0	37.0	1.0	-63.3	-13.0	-50.3	
2479.20	-23.5	V	3.0	36.4	1.0	-58.9	-13.0	-45.9	
3305.60	-21.2	V	3.0	36.1	1.0	-56.3	-13.0	-43.3	
1652.80	-26.8	H	3.0	37.0	1.0	-62.8	-13.0	-49.8	
2479.20	-25.1	H	3.0	36.4	1.0	-60.6	-13.0	-47.6	
3305.60	-21.1	H	3.0	36.1	1.0	-56.3	-13.0	-43.3	
Mid Ch, 836.6MHz									
1673.20	-27.4	V	3.0	37.0	1.0	-63.4	-13.0	-50.4	
2509.80	-23.0	V	3.0	36.4	1.0	-58.4	-13.0	-45.4	
3346.40	-21.0	V	3.0	36.1	1.0	-56.1	-13.0	-43.1	
1673.20	-26.8	H	3.0	37.0	1.0	-62.8	-13.0	-49.8	
2509.80	-25.2	H	3.0	36.4	1.0	-60.6	-13.0	-47.6	
3346.40	-20.9	H	3.0	36.1	1.0	-56.0	-13.0	-43.0	
High Ch, 846.6MHz									
1693.20	-26.6	V	3.0	37.0	1.0	-62.6	-13.0	-49.6	
2539.80	-22.4	V	3.0	36.4	1.0	-57.8	-13.0	-44.8	
3386.40	-20.5	V	3.0	36.1	1.0	-55.5	-13.0	-42.5	
1693.20	-27.0	H	3.0	37.0	1.0	-63.0	-13.0	-50.0	
2539.80	-24.8	H	3.0	36.4	1.0	-60.2	-13.0	-47.2	
3386.40	-21.0	H	3.0	36.1	1.0	-56.1	-13.0	-43.1	

WCDMA Band 5 Rel 99

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/9/2018
Test Engineer: 39005 RA
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber B
Mode: HSDPA Band 5 Harmonics

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 826.4MHz									
1652.80	-27.2	V	3.0	37.0	1.0	-63.2	-13.0	-50.2	
2479.20	-23.6	V	3.0	36.4	1.0	-59.1	-13.0	-46.1	
3305.60	-21.2	V	3.0	36.1	1.0	-56.4	-13.0	-43.4	
1652.80	-26.9	H	3.0	37.0	1.0	-63.0	-13.0	-50.0	
2479.20	-25.2	H	3.0	36.4	1.0	-60.6	-13.0	-47.6	
3305.60	-21.0	H	3.0	36.1	1.0	-56.2	-13.0	-43.2	
Mid Ch, 836.6MHz									
1673.20	-27.5	V	3.0	37.0	1.0	-63.5	-13.0	-50.5	
2509.80	-22.8	V	3.0	36.4	1.0	-58.2	-13.0	-45.2	
3346.40	-21.2	V	3.0	36.1	1.0	-56.3	-13.0	-43.3	
1673.20	-26.8	H	3.0	37.0	1.0	-62.8	-13.0	-49.8	
2509.80	-25.5	H	3.0	36.4	1.0	-60.9	-13.0	-47.9	
3346.40	-21.3	H	3.0	36.1	1.0	-56.5	-13.0	-43.5	
High Ch, 846.6MHz									
1693.20	-27.0	V	3.0	37.0	1.0	-63.0	-13.0	-50.0	
2539.80	-22.6	V	3.0	36.4	1.0	-58.0	-13.0	-45.0	
3386.40	-20.4	V	3.0	36.1	1.0	-55.5	-13.0	-42.5	
1693.20	-26.7	H	3.0	37.0	1.0	-62.7	-13.0	-49.7	
2539.80	-24.7	H	3.0	36.4	1.0	-60.1	-13.0	-47.1	
3386.40	-20.9	H	3.0	36.1	1.0	-56.0	-13.0	-43.0	

WCDMA Band 5 HSDPA

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9.1.3. **LTE BAND 4**

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/4/2018
Test Engineer: 16069 OG
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_QPSK Band 4 Harmonics, 1.4MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1710.7MHz									
3421.40	-25.9	V	3.0	36.1	1.0	-61.0	-13.0	-48.0	
5132.10	-18.8	V	3.0	35.4	1.0	-53.2	-13.0	-40.2	
6842.80	-16.1	V	3.0	35.7	1.0	-50.8	-13.0	-37.8	
3421.40	-26.0	H	3.0	36.1	1.0	-61.1	-13.0	-48.1	
5132.10	-18.3	H	3.0	35.4	1.0	-52.8	-13.0	-39.8	
6842.80	-14.9	H	3.0	35.7	1.0	-49.5	-13.0	-36.5	
Mid Ch, 1732.5MHz									
3465.00	-25.4	V	3.0	36.0	1.0	-60.4	-13.0	-47.4	
5197.50	-17.0	V	3.0	35.4	1.0	-51.4	-13.0	-38.4	
6930.00	-15.8	V	3.0	35.7	1.0	-50.4	-13.0	-37.4	
3465.00	-25.2	H	3.0	36.0	1.0	-60.2	-13.0	-47.2	
5197.50	-16.2	H	3.0	35.4	1.0	-50.6	-13.0	-37.6	
6930.00	-13.7	H	3.0	35.7	1.0	-48.4	-13.0	-35.4	
High Ch, 1754.3MHz									
3508.60	-25.6	V	3.0	36.0	1.0	-60.6	-13.0	-47.6	
5262.90	-17.2	V	3.0	35.4	1.0	-51.7	-13.0	-38.7	
7017.20	-15.0	V	3.0	35.7	1.0	-49.7	-13.0	-36.7	
3508.60	-25.6	H	3.0	36.0	1.0	-60.6	-13.0	-47.6	
5262.90	-15.6	H	3.0	35.4	1.0	-50.0	-13.0	-37.0	
7017.20	-14.3	H	3.0	35.7	1.0	-49.0	-13.0	-36.0	

LTE B4 1.4MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/4/2018
Test Engineer: 16069 OG
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_16QAM Band 4 Harmonics, 1.4MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1710.7MHz									
3421.40	-25.7	V	3.0	36.1	1.0	-60.7	-13.0	-47.7	
5132.10	-18.2	V	3.0	35.4	1.0	-52.6	-13.0	-39.6	
6842.80	-16.4	V	3.0	35.7	1.0	-51.1	-13.0	-38.1	
3421.40	-25.5	H	3.0	36.1	1.0	-60.5	-13.0	-47.5	
5132.10	-18.2	H	3.0	35.4	1.0	-52.6	-13.0	-39.6	
6842.80	-14.6	H	3.0	35.7	1.0	-49.3	-13.0	-36.3	
Mid Ch, 1732.5MHz									
3465.00	-25.4	V	3.0	36.0	1.0	-60.4	-13.0	-47.4	
5197.50	-17.4	V	3.0	35.4	1.0	-51.8	-13.0	-38.8	
6930.00	-15.1	V	3.0	35.7	1.0	-49.7	-13.0	-36.7	
3465.00	-25.3	H	3.0	36.0	1.0	-60.3	-13.0	-47.3	
5197.50	-17.1	H	3.0	35.4	1.0	-51.5	-13.0	-38.5	
6930.00	-14.0	H	3.0	35.7	1.0	-48.6	-13.0	-35.6	
High Ch, 1754.3MHz									
3508.60	-25.6	V	3.0	36.0	1.0	-60.6	-13.0	-47.6	
5262.90	-16.7	V	3.0	35.4	1.0	-51.2	-13.0	-38.2	
7017.20	-14.7	V	3.0	35.7	1.0	-49.4	-13.0	-36.4	
3508.60	-25.6	H	3.0	36.0	1.0	-60.6	-13.0	-47.6	
5262.90	-16.8	H	3.0	35.4	1.0	-51.2	-13.0	-38.2	
7017.20	-13.2	H	3.0	35.7	1.0	-47.8	-13.0	-34.8	

LTE B4 1.4MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/4/2018
Test Engineer: 16069 OG
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_QPSK Band 4 Harmonics, 3MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1711.5MHz									
3423.00	-26.1	V	3.0	36.1	1.0	-61.2	-13.0	-48.2	
5134.50	-18.6	V	3.0	35.4	1.0	-53.0	-13.0	-40.0	
6846.00	-15.4	V	3.0	35.7	1.0	-50.1	-13.0	-37.1	
3423.00	-26.0	H	3.0	36.1	1.0	-61.1	-13.0	-48.1	
5134.50	-18.6	H	3.0	35.4	1.0	-53.0	-13.0	-40.0	
6846.00	-15.9	H	3.0	35.7	1.0	-50.6	-13.0	-37.6	
Mid Ch, 1732.5MHz									
3465.00	-25.5	V	3.0	36.0	1.0	-60.6	-13.0	-47.6	
5197.50	-17.8	V	3.0	35.4	1.0	-52.2	-13.0	-39.2	
6930.00	-15.2	V	3.0	35.7	1.0	-49.8	-13.0	-36.8	
3465.00	-24.8	H	3.0	36.0	1.0	-59.9	-13.0	-46.9	
5197.50	-17.6	H	3.0	35.4	1.0	-52.0	-13.0	-39.0	
6930.00	-13.4	H	3.0	35.7	1.0	-48.1	-13.0	-35.1	
High Ch, 1753.5MHz									
3507.00	-26.1	V	3.0	36.0	1.0	-61.1	-13.0	-48.1	
5260.50	-16.5	V	3.0	35.4	1.0	-50.9	-13.0	-37.9	
7014.00	-14.4	V	3.0	35.7	1.0	-49.1	-13.0	-36.1	
3507.00	-25.0	H	3.0	36.0	1.0	-60.0	-13.0	-47.0	
5260.50	-16.8	H	3.0	35.4	1.0	-51.2	-13.0	-38.2	
7014.00	-13.9	H	3.0	35.7	1.0	-48.6	-13.0	-35.6	

LTE B4 3MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/4/2018
Test Engineer: 16069 OG
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_16QAM Band 4 Harmonics, 3MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1711.5MHz									
3423.00	-25.7	V	3.0	36.1	1.0	-60.8	-13.0	-47.8	
5134.50	-18.5	V	3.0	35.4	1.0	-53.0	-13.0	-40.0	
6846.00	-16.4	V	3.0	35.7	1.0	-51.0	-13.0	-38.0	
3423.00	-25.8	H	3.0	36.1	1.0	-60.9	-13.0	-47.9	
5134.50	-18.9	H	3.0	35.4	1.0	-53.3	-13.0	-40.3	
6846.00	-14.6	H	3.0	35.7	1.0	-49.3	-13.0	-36.3	
Mid Ch, 1732.5MHz									
3465.00	-25.6	V	3.0	36.0	1.0	-60.6	-13.0	-47.6	
5197.50	-17.1	V	3.0	35.4	1.0	-51.6	-13.0	-38.6	
6930.00	-15.0	V	3.0	35.7	1.0	-49.7	-13.0	-36.7	
3465.00	-25.8	H	3.0	36.0	1.0	-60.9	-13.0	-47.9	
5197.50	-17.1	H	3.0	35.4	1.0	-51.5	-13.0	-38.5	
6930.00	-14.1	H	3.0	35.7	1.0	-48.8	-13.0	-35.8	
High Ch, 1753.5MHz									
3507.00	-25.5	V	3.0	36.0	1.0	-60.5	-13.0	-47.5	
5260.50	-17.1	V	3.0	35.4	1.0	-51.5	-13.0	-38.5	
7014.00	-14.6	V	3.0	35.7	1.0	-49.3	-13.0	-36.3	
3507.00	-25.6	H	3.0	36.0	1.0	-60.6	-13.0	-47.6	
5260.50	-17.2	H	3.0	35.4	1.0	-51.7	-13.0	-38.7	
7014.00	-14.7	H	3.0	35.7	1.0	-49.4	-13.0	-36.4	

LTE B4 3MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/4/2018
Test Engineer: 16069 OG
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_QPSK Band 4 Harmonics, 5MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1712.5MHz									
3425.00	-25.7	V	3.0	36.1	1.0	-60.8	-13.0	-47.8	
5137.50	-19.1	V	3.0	35.4	1.0	-53.5	-13.0	-40.5	
6850.00	-17.1	V	3.0	35.7	1.0	-51.8	-13.0	-38.8	
3425.00	-25.4	H	3.0	36.1	1.0	-60.4	-13.0	-47.4	
5137.50	-18.5	H	3.0	35.4	1.0	-52.9	-13.0	-39.9	
6850.00	-16.0	H	3.0	35.7	1.0	-50.6	-13.0	-37.6	
Mid Ch, 1732.5MHz									
3465.00	-24.9	V	3.0	36.0	1.0	-60.0	-13.0	-47.0	
5197.50	-17.4	V	3.0	35.4	1.0	-51.8	-13.0	-38.8	
6930.00	-12.7	V	3.0	35.7	1.0	-47.4	-13.0	-34.4	
3465.00	-25.8	H	3.0	36.0	1.0	-60.8	-13.0	-47.8	
5197.50	-17.0	H	3.0	35.4	1.0	-51.4	-13.0	-38.4	
6930.00	-14.2	H	3.0	35.7	1.0	-48.9	-13.0	-35.9	
High Ch, 1752.5MHz									
3505.00	-25.4	V	3.0	36.0	1.0	-60.4	-13.0	-47.4	
5257.50	-16.2	V	3.0	35.4	1.0	-50.6	-13.0	-37.6	
7010.00	-14.3	V	3.0	35.7	1.0	-49.0	-13.0	-36.0	
3505.00	-25.7	H	3.0	36.0	1.0	-60.7	-13.0	-47.7	
5257.50	-17.4	H	3.0	35.4	1.0	-51.9	-13.0	-38.9	
7010.00	-14.3	H	3.0	35.7	1.0	-49.0	-13.0	-36.0	

LTE B4 5MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/4/2018
Test Engineer: 16069 OG
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_16QAM Band 4 Harmonics, 5MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1712.5MHz									
3425.00	-25.6	V	3.0	36.1	1.0	-60.7	-13.0	-47.7	
5137.50	-18.3	V	3.0	35.4	1.0	-52.7	-13.0	-39.7	
6850.00	-15.2	V	3.0	35.7	1.0	-49.8	-13.0	-36.8	
3425.00	-27.0	H	3.0	36.1	1.0	-62.0	-13.0	-49.0	
5137.50	-19.3	H	3.0	35.4	1.0	-53.8	-13.0	-40.8	
6850.00	-15.0	H	3.0	35.7	1.0	-49.7	-13.0	-36.7	
Mid Ch, 1732.5MHz									
3465.00	-25.4	V	3.0	36.0	1.0	-60.5	-13.0	-47.5	
5197.50	-17.8	V	3.0	35.4	1.0	-52.2	-13.0	-39.2	
6930.00	-14.4	V	3.0	35.7	1.0	-49.1	-13.0	-36.1	
3465.00	-24.6	H	3.0	36.0	1.0	-59.6	-13.0	-46.6	
5197.50	-16.9	H	3.0	35.4	1.0	-51.3	-13.0	-38.3	
6930.00	-14.6	H	3.0	35.7	1.0	-49.2	-13.0	-36.2	
High Ch, 1752.5MHz									
3505.00	-26.0	V	3.0	36.0	1.0	-61.0	-13.0	-48.0	
5257.50	-16.6	V	3.0	35.4	1.0	-51.0	-13.0	-38.0	
7010.00	-14.9	V	3.0	35.7	1.0	-49.6	-13.0	-36.6	
3505.00	-25.5	H	3.0	36.0	1.0	-60.5	-13.0	-47.5	
5257.50	-17.0	H	3.0	35.4	1.0	-51.4	-13.0	-38.4	
7010.00	-13.8	H	3.0	35.7	1.0	-48.5	-13.0	-35.5	

LTE B4 5MHz 16QAM

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UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/4/2018
Test Engineer: 16069 OG
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_QPSK Band 4 Harmonics, 10MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1715MHz									
3430.00	-25.0	V	3.0	36.1	1.0	-60.0	-13.0	-47.0	
5145.00	-19.4	V	3.0	35.4	1.0	-53.8	-13.0	-40.8	
6860.00	-17.5	V	3.0	35.7	1.0	-52.1	-13.0	-39.1	
3430.00	-26.1	H	3.0	36.1	1.0	-61.2	-13.0	-48.2	
5145.00	-18.6	H	3.0	35.4	1.0	-53.0	-13.0	-40.0	
6860.00	-16.4	H	3.0	35.7	1.0	-51.1	-13.0	-38.1	
Mid Ch, 1732.5MHz									
3465.00	-25.5	V	3.0	36.0	1.0	-60.6	-13.0	-47.6	
5197.50	-18.5	V	3.0	35.4	1.0	-52.9	-13.0	-39.9	
6930.00	-16.1	V	3.0	35.7	1.0	-50.8	-13.0	-37.8	
3465.00	-25.5	H	3.0	36.0	1.0	-60.5	-13.0	-47.5	
5197.50	-17.1	H	3.0	35.4	1.0	-51.5	-13.0	-38.5	
6930.00	-14.1	H	3.0	35.7	1.0	-48.8	-13.0	-35.8	
High Ch, 1750MHz									
3500.00	-26.2	V	3.0	36.0	1.0	-61.2	-13.0	-48.2	
5250.00	-17.2	V	3.0	35.4	1.0	-51.7	-13.0	-38.7	
7000.00	-14.9	V	3.0	35.7	1.0	-49.6	-13.0	-36.6	
3500.00	-25.2	H	3.0	36.0	1.0	-60.2	-13.0	-47.2	
5250.00	-16.7	H	3.0	35.4	1.0	-51.1	-13.0	-38.1	
7000.00	-14.6	H	3.0	35.7	1.0	-49.3	-13.0	-36.3	

LTE B4 10MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/4/2018
Test Engineer: 16069 OG
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_16QAM Band 4 Harmonics, 10MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1715MHz									
3430.00	-26.0	V	3.0	36.1	1.0	-61.1	-13.0	-48.1	
5145.00	-18.8	V	3.0	35.4	1.0	-53.2	-13.0	-40.2	
6860.00	-16.0	V	3.0	35.7	1.0	-50.6	-13.0	-37.6	
3430.00	-25.5	H	3.0	36.1	1.0	-60.5	-13.0	-47.5	
5145.00	-18.9	H	3.0	35.4	1.0	-53.3	-13.0	-40.3	
6860.00	-15.8	H	3.0	35.7	1.0	-50.5	-13.0	-37.5	
Mid Ch, 1732.5MHz									
3465.00	-25.3	V	3.0	36.0	1.0	-60.3	-13.0	-47.3	
5197.50	-17.2	V	3.0	35.4	1.0	-51.6	-13.0	-38.6	
6930.00	-15.6	V	3.0	35.7	1.0	-50.3	-13.0	-37.3	
3465.00	-25.4	H	3.0	36.0	1.0	-60.4	-13.0	-47.4	
5197.50	-18.1	H	3.0	35.4	1.0	-52.5	-13.0	-39.5	
6930.00	-14.7	H	3.0	35.7	1.0	-49.4	-13.0	-36.4	
High Ch, 1750MHz									
3500.00	-25.2	V	3.0	36.0	1.0	-60.2	-13.0	-47.2	
5250.00	-17.5	V	3.0	35.4	1.0	-51.9	-13.0	-38.9	
7000.00	-14.2	V	3.0	35.7	1.0	-48.9	-13.0	-35.9	
3500.00	-26.0	H	3.0	36.0	1.0	-61.0	-13.0	-48.0	
5250.00	-16.9	H	3.0	35.4	1.0	-51.4	-13.0	-38.4	
7000.00	-14.5	H	3.0	35.7	1.0	-49.2	-13.0	-36.2	

LTE B4 10MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/4/2018
Test Engineer: 16069 OG
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_QPSK Band 4 Harmonics, 15MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1717.5MHz									
3435.00	-28.3	V	3.0	36.1	1.0	-63.4	-13.0	-50.4	
5152.50	-21.3	V	3.0	35.4	1.0	-55.7	-13.0	-42.7	
6870.00	-19.1	V	3.0	35.7	1.0	-53.7	-13.0	-40.7	
3435.00	-28.7	H	3.0	36.1	1.0	-63.8	-13.0	-50.8	
5152.50	-21.5	H	3.0	35.4	1.0	-55.9	-13.0	-42.9	
6870.00	-19.1	H	3.0	35.7	1.0	-53.7	-13.0	-40.7	
Mid Ch, 1732.5MHz									
3465.00	-28.7	V	3.0	36.0	1.0	-63.7	-13.0	-50.7	
5197.50	-21.0	V	3.0	35.4	1.0	-55.4	-13.0	-42.4	
6930.00	-17.3	V	3.0	35.7	1.0	-52.0	-13.0	-39.0	
3465.00	-29.0	H	3.0	36.0	1.0	-64.0	-13.0	-51.0	
5197.50	-20.7	H	3.0	35.4	1.0	-55.1	-13.0	-42.1	
6930.00	-18.1	H	3.0	35.7	1.0	-52.7	-13.0	-39.7	
High Ch, 1747.5MHz									
3495.00	-28.2	V	3.0	36.0	1.0	-63.2	-13.0	-50.2	
5242.50	-21.6	V	3.0	35.4	1.0	-56.0	-13.0	-43.0	
6990.00	-19.1	V	3.0	35.7	1.0	-53.8	-13.0	-40.8	
3495.00	-29.6	H	3.0	36.0	1.0	-64.6	-13.0	-51.6	
5242.50	-22.0	H	3.0	35.4	1.0	-56.4	-13.0	-43.4	
6990.00	-17.3	H	3.0	35.7	1.0	-52.0	-13.0	-39.0	

LTE B4 15MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/4/2018
Test Engineer: 16069 OG
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_16QAM Band 4 Harmonics, 15MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1717.5MHz									
3435.00	-28.9	V	3.0	36.1	1.0	-63.9	-13.0	-50.9	
5152.50	-23.1	V	3.0	35.4	1.0	-57.5	-13.0	-44.5	
6870.00	-20.8	V	3.0	35.7	1.0	-55.5	-13.0	-42.5	
3435.00	-29.4	H	3.0	36.1	1.0	-64.4	-13.0	-51.4	
5152.50	-22.9	H	3.0	35.4	1.0	-57.3	-13.0	-44.3	
6870.00	-19.3	H	3.0	35.7	1.0	-54.0	-13.0	-41.0	
Mid Ch, 1732.5MHz									
3465.00	-28.0	V	3.0	36.0	1.0	-63.0	-13.0	-50.0	
5197.50	-21.0	V	3.0	35.4	1.0	-55.4	-13.0	-42.4	
6930.00	-20.2	V	3.0	35.7	1.0	-54.9	-13.0	-41.9	
3465.00	-29.2	H	3.0	36.0	1.0	-64.2	-13.0	-51.2	
5197.50	-22.3	H	3.0	35.4	1.0	-56.7	-13.0	-43.7	
6930.00	-17.7	H	3.0	35.7	1.0	-52.4	-13.0	-39.4	
High Ch, 1747.5MHz									
3495.00	-28.7	V	3.0	36.0	1.0	-63.7	-13.0	-50.7	
5242.50	-21.6	V	3.0	35.4	1.0	-56.0	-13.0	-43.0	
6990.00	-19.7	V	3.0	35.7	1.0	-54.4	-13.0	-41.4	
3495.00	-28.9	H	3.0	36.0	1.0	-63.9	-13.0	-50.9	
5242.50	-20.8	H	3.0	35.4	1.0	-55.2	-13.0	-42.2	
6990.00	-18.5	H	3.0	35.7	1.0	-53.2	-13.0	-40.2	

LTE B4 15MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/4/2018
Test Engineer: 16069 OG
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_QPSK Band 4 Harmonics, 20MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1720MHz									
3440.00	-28.8	V	3.0	36.0	1.0	-63.8	-13.0	-50.8	
5160.00	-23.5	V	3.0	35.4	1.0	-57.9	-13.0	-44.9	
6880.00	-19.9	V	3.0	35.7	1.0	-54.6	-13.0	-41.6	
3440.00	-29.1	H	3.0	36.0	1.0	-64.1	-13.0	-51.1	
5160.00	-23.2	H	3.0	35.4	1.0	-57.6	-13.0	-44.6	
6880.00	-19.1	H	3.0	35.7	1.0	-53.8	-13.0	-40.8	
Mid Ch, 1732.5MHz									
3465.00	-29.1	V	3.0	36.0	1.0	-64.1	-13.0	-51.1	
5197.50	-22.8	V	3.0	35.4	1.0	-57.2	-13.0	-44.2	
6930.00	-19.6	V	3.0	35.7	1.0	-54.3	-13.0	-41.3	
3465.00	-30.0	H	3.0	36.0	1.0	-65.0	-13.0	-52.0	
5197.50	-20.5	H	3.0	35.4	1.0	-55.0	-13.0	-42.0	
6930.00	-18.6	H	3.0	35.7	1.0	-53.3	-13.0	-40.3	
High Ch, 1745MHz									
3490.00	-28.2	V	3.0	36.0	1.0	-63.2	-13.0	-50.2	
5235.00	-20.9	V	3.0	35.4	1.0	-55.3	-13.0	-42.3	
6980.00	-19.6	V	3.0	35.7	1.0	-54.3	-13.0	-41.3	
3490.00	-29.9	H	3.0	36.0	1.0	-64.9	-13.0	-51.9	
5235.00	-21.0	H	3.0	35.4	1.0	-55.5	-13.0	-42.5	
6980.00	-19.2	H	3.0	35.7	1.0	-53.9	-13.0	-40.9	

LTE B4 20MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/4/2018
Test Engineer: 16069 OG
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_16QAM Band 4 Harmonics, 20MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1720MHz									
3440.00	-29.2	V	3.0	36.0	1.0	-64.3	-13.0	-51.3	
5160.00	-24.1	V	3.0	35.4	1.0	-58.5	-13.0	-45.5	
6880.00	-21.1	V	3.0	35.7	1.0	-55.8	-13.0	-42.8	
3440.00	-29.6	H	3.0	36.0	1.0	-64.7	-13.0	-51.7	
5160.00	-23.9	H	3.0	35.4	1.0	-58.3	-13.0	-45.3	
6880.00	-19.7	H	3.0	35.7	1.0	-54.4	-13.0	-41.4	
Mid Ch, 1732.5MHz									
3465.00	-29.2	V	3.0	36.0	1.0	-64.2	-13.0	-51.2	
5197.50	-23.8	V	3.0	35.4	1.0	-58.3	-13.0	-45.3	
6930.00	-21.0	V	3.0	35.7	1.0	-55.7	-13.0	-42.7	
3465.00	-28.6	H	3.0	36.0	1.0	-63.7	-13.0	-50.7	
5197.50	-22.0	H	3.0	35.4	1.0	-56.4	-13.0	-43.4	
6930.00	-18.4	H	3.0	35.7	1.0	-53.1	-13.0	-40.1	
High Ch, 1745MHz									
3490.00	-29.9	V	3.0	36.0	1.0	-64.9	-13.0	-51.9	
5235.00	-21.5	V	3.0	35.4	1.0	-55.9	-13.0	-42.9	
6980.00	-19.1	V	3.0	35.7	1.0	-53.8	-13.0	-40.8	
3490.00	-28.9	H	3.0	36.0	1.0	-63.9	-13.0	-50.9	
5235.00	-20.6	H	3.0	35.4	1.0	-55.0	-13.0	-42.0	
6980.00	-18.0	H	3.0	35.7	1.0	-52.7	-13.0	-39.7	

LTE B4 20MHz 16QAM

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4031B
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
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9.1.4. LTE BAND 5

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/9/2018
Test Engineer: 39005 RA
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_QPSK Band 5 Harmonics, 1.4MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 824.7MHz									
1649.40	-27.3	V	3.0	37.0	1.0	-63.3	-13.0	-50.3	
2474.10	-23.4	V	3.0	36.4	1.0	-58.8	-13.0	-45.8	
3298.80	-21.6	V	3.0	36.2	1.0	-56.7	-13.0	-43.7	
1649.40	-27.6	H	3.0	37.0	1.0	-63.6	-13.0	-50.6	
2474.10	-25.3	H	3.0	36.4	1.0	-60.7	-13.0	-47.7	
3298.80	-21.8	H	3.0	36.2	1.0	-57.0	-13.0	-44.0	
Mid Ch, 836.5MHz									
1673.00	-27.1	V	3.0	37.0	1.0	-63.1	-13.0	-50.1	
2509.50	-22.9	V	3.0	36.4	1.0	-58.3	-13.0	-45.3	
3346.00	-21.9	V	3.0	36.1	1.0	-57.0	-13.0	-44.0	
1673.00	-27.3	H	3.0	37.0	1.0	-63.3	-13.0	-50.3	
2509.50	-25.3	H	3.0	36.4	1.0	-60.7	-13.0	-47.7	
3346.00	-21.4	H	3.0	36.1	1.0	-56.5	-13.0	-43.5	
High Ch, 848.3MHz									
1696.60	-26.8	V	3.0	37.0	1.0	-62.8	-13.0	-49.8	
2544.90	-22.4	V	3.0	36.4	1.0	-57.8	-13.0	-44.8	
3393.20	-20.9	V	3.0	36.1	1.0	-56.0	-13.0	-43.0	
1696.60	-27.5	H	3.0	37.0	1.0	-63.5	-13.0	-50.5	
2544.90	-24.5	H	3.0	36.4	1.0	-60.0	-13.0	-47.0	
3393.20	-21.5	H	3.0	36.1	1.0	-56.6	-13.0	-43.6	

LTE B5 1.4MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/9/2018
Test Engineer: 39005 RA
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_16QAM Band 5 Harmonics, 1.4MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 824.7MHz									
1649.40	-27.7	V	3.0	37.0	1.0	-63.7	-13.0	-50.7	
2474.10	-23.8	V	3.0	36.4	1.0	-59.2	-13.0	-46.2	
3298.80	-22.0	V	3.0	36.2	1.0	-57.1	-13.0	-44.1	
1649.40	-27.6	H	3.0	37.0	1.0	-63.7	-13.0	-50.7	
2474.10	-25.4	H	3.0	36.4	1.0	-60.8	-13.0	-47.8	
3298.80	-22.2	H	3.0	36.2	1.0	-57.4	-13.0	-44.4	
Mid Ch, 836.5MHz									
1673.00	-27.0	V	3.0	37.0	1.0	-63.0	-13.0	-50.0	
2509.50	-22.9	V	3.0	36.4	1.0	-58.3	-13.0	-45.3	
3346.00	-21.4	V	3.0	36.1	1.0	-56.5	-13.0	-43.5	
1673.00	-27.4	H	3.0	37.0	1.0	-63.4	-13.0	-50.4	
2509.50	-25.2	H	3.0	36.4	1.0	-60.6	-13.0	-47.6	
3346.00	-21.4	H	3.0	36.1	1.0	-56.5	-13.0	-43.5	
High Ch, 848.3MHz									
1696.60	-26.7	V	3.0	37.0	1.0	-62.7	-13.0	-49.7	
2544.90	-22.3	V	3.0	36.4	1.0	-57.7	-13.0	-44.7	
3393.20	-20.4	V	3.0	36.1	1.0	-55.5	-13.0	-42.5	
1696.60	-27.5	H	3.0	37.0	1.0	-63.5	-13.0	-50.5	
2544.90	-24.4	H	3.0	36.4	1.0	-59.9	-13.0	-46.9	
3393.20	-21.8	H	3.0	36.1	1.0	-56.9	-13.0	-43.9	

LTE B5 1.4MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/9/2018
Test Engineer: 39005 RA
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_QPSK Band 5 Harmonics, 3MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 825.5MHz									
1651.00	-27.3	V	3.0	37.0	1.0	-63.4	-13.0	-50.4	
2476.50	-23.5	V	3.0	36.4	1.0	-58.9	-13.0	-45.9	
3302.00	-21.9	V	3.0	36.2	1.0	-57.0	-13.0	-44.0	
1651.00	-27.6	H	3.0	37.0	1.0	-63.6	-13.0	-50.6	
2476.50	-25.2	H	3.0	36.4	1.0	-60.6	-13.0	-47.6	
3302.00	-21.8	H	3.0	36.2	1.0	-56.9	-13.0	-43.9	
Mid Ch, 836.5MHz									
1673.00	-27.1	V	3.0	37.0	1.0	-63.1	-13.0	-50.1	
2509.50	-22.8	V	3.0	36.4	1.0	-58.2	-13.0	-45.2	
3346.00	-21.2	V	3.0	36.1	1.0	-56.4	-13.0	-43.4	
1673.00	-27.4	H	3.0	37.0	1.0	-63.4	-13.0	-50.4	
2509.50	-25.2	H	3.0	36.4	1.0	-60.6	-13.0	-47.6	
3346.00	-21.4	H	3.0	36.1	1.0	-56.5	-13.0	-43.5	
High Ch, 847.5MHz									
1695.00	-26.5	V	3.0	37.0	1.0	-62.5	-13.0	-49.5	
2542.50	-22.3	V	3.0	36.4	1.0	-57.8	-13.0	-44.8	
3390.00	-20.9	V	3.0	36.1	1.0	-56.0	-13.0	-43.0	
1695.00	-27.6	H	3.0	37.0	1.0	-63.6	-13.0	-50.6	
2542.50	-24.6	H	3.0	36.4	1.0	-60.0	-13.0	-47.0	
3390.00	-21.4	H	3.0	36.1	1.0	-56.5	-13.0	-43.5	

LTE B5 3MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/9/2018
Test Engineer: 39005 RA
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_16QAM Band 5 Harmonics, 3MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 825.5MHz									
1651.00	-27.3	V	3.0	37.0	1.0	-63.3	-13.0	-50.3	
2476.50	-23.5	V	3.0	36.4	1.0	-58.9	-13.0	-45.9	
3302.00	-21.9	V	3.0	36.2	1.0	-57.1	-13.0	-44.1	
1651.00	-27.6	H	3.0	37.0	1.0	-63.7	-13.0	-50.7	
2476.50	-25.3	H	3.0	36.4	1.0	-60.7	-13.0	-47.7	
3302.00	-21.8	H	3.0	36.2	1.0	-57.0	-13.0	-44.0	
Mid Ch, 836.5MHz									
1673.00	-27.0	V	3.0	37.0	1.0	-63.0	-13.0	-50.0	
2509.50	-22.8	V	3.0	36.4	1.0	-58.2	-13.0	-45.2	
3346.00	-21.5	V	3.0	36.1	1.0	-56.6	-13.0	-43.6	
1673.00	-27.5	H	3.0	37.0	1.0	-63.5	-13.0	-50.5	
2509.50	-25.2	H	3.0	36.4	1.0	-60.6	-13.0	-47.6	
3346.00	-21.4	H	3.0	36.1	1.0	-56.5	-13.0	-43.5	
High Ch, 847.5MHz									
1695.00	-26.5	V	3.0	37.0	1.0	-62.5	-13.0	-49.5	
2542.50	-22.4	V	3.0	36.4	1.0	-57.8	-13.0	-44.8	
3390.00	-20.5	V	3.0	36.1	1.0	-55.6	-13.0	-42.6	
1695.00	-27.6	H	3.0	37.0	1.0	-63.5	-13.0	-50.5	
2542.50	-24.5	H	3.0	36.4	1.0	-59.9	-13.0	-46.9	
3390.00	-21.6	H	3.0	36.1	1.0	-56.7	-13.0	-43.7	

LTE B5 3MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/9/2018
Test Engineer: 39005 RA
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_QPSK Band 5 Harmonics, 5MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 826.5MHz									
1653.00	-27.2	V	3.0	37.0	1.0	-63.2	-13.0	-50.2	
2479.50	-23.5	V	3.0	36.4	1.0	-59.0	-13.0	-46.0	
3306.00	-21.7	V	3.0	36.1	1.0	-56.9	-13.0	-43.9	
1653.00	-27.6	H	3.0	37.0	1.0	-63.6	-13.0	-50.6	
2479.50	-25.3	H	3.0	36.4	1.0	-60.7	-13.0	-47.7	
3306.00	-21.8	H	3.0	36.1	1.0	-57.0	-13.0	-44.0	
Mid Ch, 836.5MHz									
1673.00	-27.0	V	3.0	37.0	1.0	-63.0	-13.0	-50.0	
2509.50	-22.7	V	3.0	36.4	1.0	-58.1	-13.0	-45.1	
3346.00	-21.4	V	3.0	36.1	1.0	-56.6	-13.0	-43.6	
1673.00	-27.5	H	3.0	37.0	1.0	-63.5	-13.0	-50.5	
2509.50	-25.3	H	3.0	36.4	1.0	-60.7	-13.0	-47.7	
3346.00	-21.4	H	3.0	36.1	1.0	-56.5	-13.0	-43.5	
High Ch, 846.5MHz									
1693.00	-26.6	V	3.0	37.0	1.0	-62.6	-13.0	-49.6	
2539.50	-22.4	V	3.0	36.4	1.0	-57.8	-13.0	-44.8	
3386.00	-20.5	V	3.0	36.1	1.0	-55.6	-13.0	-42.6	
1693.00	-27.2	H	3.0	37.0	1.0	-63.1	-13.0	-50.1	
2539.50	-24.6	H	3.0	36.4	1.0	-60.0	-13.0	-47.0	
3386.00	-21.5	H	3.0	36.1	1.0	-56.5	-13.0	-43.5	

LTE B5 5MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/9/2018
Test Engineer: 39005 RA
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_16QAM Band 5 Harmonics, 5MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 826.5MHz									
1653.00	-27.4	V	3.0	37.0	1.0	-63.4	-13.0	-50.4	
2479.50	-23.7	V	3.0	36.4	1.0	-59.1	-13.0	-46.1	
3306.00	-22.0	V	3.0	36.1	1.0	-57.1	-13.0	-44.1	
1653.00	-27.8	H	3.0	37.0	1.0	-63.9	-13.0	-50.9	
2479.50	-25.5	H	3.0	36.4	1.0	-61.0	-13.0	-48.0	
3306.00	-22.0	H	3.0	36.1	1.0	-57.1	-13.0	-44.1	
Mid Ch, 836.5MHz									
1673.00	-27.4	V	3.0	37.0	1.0	-63.4	-13.0	-50.4	
2509.50	-22.8	V	3.0	36.4	1.0	-58.2	-13.0	-45.2	
3346.00	-21.7	V	3.0	36.1	1.0	-56.8	-13.0	-43.8	
1673.00	-27.7	H	3.0	37.0	1.0	-63.7	-13.0	-50.7	
2509.50	-25.6	H	3.0	36.4	1.0	-61.0	-13.0	-48.0	
3346.00	-21.8	H	3.0	36.1	1.0	-56.9	-13.0	-43.9	
High Ch, 846.5MHz									
1693.00	-26.9	V	3.0	37.0	1.0	-62.9	-13.0	-49.9	
2539.50	-22.6	V	3.0	36.4	1.0	-58.0	-13.0	-45.0	
3386.00	-20.5	V	3.0	36.1	1.0	-55.6	-13.0	-42.6	
1693.00	-27.3	H	3.0	37.0	1.0	-63.2	-13.0	-50.2	
2539.50	-24.8	H	3.0	36.4	1.0	-60.2	-13.0	-47.2	
3386.00	-21.7	H	3.0	36.1	1.0	-56.8	-13.0	-43.8	

LTE B5 5MHz 16QAM

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4031B
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
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UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/9/2018
Test Engineer: 39005 RA
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_QPSK Band 5 Harmonics, 10MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 829MHz									
1658.00	-27.5	V	3.0	37.0	1.0	-63.5	-13.0	-50.5	
2487.00	-22.8	V	3.0	36.4	1.0	-58.2	-13.0	-45.2	
3316.00	-20.8	V	3.0	36.1	1.0	-56.0	-13.0	-43.0	
1658.00	-28.1	H	3.0	37.0	1.0	-64.2	-13.0	-51.2	
2487.00	-24.8	H	3.0	36.4	1.0	-60.2	-13.0	-47.2	
3316.00	-20.3	H	3.0	36.1	1.0	-55.5	-13.0	-42.5	
Mid Ch, 836.5MHz									
1673.00	-27.0	V	3.0	37.0	1.0	-63.0	-13.0	-50.0	
2509.50	-22.7	V	3.0	36.4	1.0	-58.1	-13.0	-45.1	
3346.00	-21.6	V	3.0	36.1	1.0	-56.7	-13.0	-43.7	
1673.00	-27.8	H	3.0	37.0	1.0	-63.8	-13.0	-50.8	
2509.50	-24.4	H	3.0	36.4	1.0	-59.8	-13.0	-46.8	
3346.00	-22.0	H	3.0	36.1	1.0	-57.1	-13.0	-44.1	
High Ch, 844MHz									
1688.00	-27.6	V	3.0	37.0	1.0	-63.6	-13.0	-50.6	
2532.00	-23.3	V	3.0	36.4	1.0	-58.7	-13.0	-45.7	
3376.00	-21.8	V	3.0	36.1	1.0	-56.9	-13.0	-43.9	
1688.00	-27.1	H	3.0	37.0	1.0	-63.1	-13.0	-50.1	
2532.00	-24.2	H	3.0	36.4	1.0	-59.6	-13.0	-46.6	
3376.00	-21.3	H	3.0	36.1	1.0	-56.4	-13.0	-43.4	

LTE B5 10MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/9/2018
Test Engineer: 39005 RA
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_16QAM Band 5 Harmonics, 10MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 829MHz									
1658.00	-27.4	V	3.0	37.0	1.0	-63.4	-13.0	-50.4	
2487.00	-22.9	V	3.0	36.4	1.0	-58.3	-13.0	-45.3	
3316.00	-21.0	V	3.0	36.1	1.0	-56.1	-13.0	-43.1	
1658.00	-27.8	H	3.0	37.0	1.0	-63.8	-13.0	-50.8	
2487.00	-24.8	H	3.0	36.4	1.0	-60.2	-13.0	-47.2	
3316.00	-21.4	H	3.0	36.1	1.0	-56.5	-13.0	-43.5	
Mid Ch, 836.5MHz									
1673.00	-26.9	V	3.0	37.0	1.0	-62.9	-13.0	-49.9	
2509.50	-22.6	V	3.0	36.4	1.0	-58.0	-13.0	-45.0	
3346.00	-21.6	V	3.0	36.1	1.0	-56.7	-13.0	-43.7	
1673.00	-27.9	H	3.0	37.0	1.0	-63.9	-13.0	-50.9	
2509.50	-24.4	H	3.0	36.4	1.0	-59.8	-13.0	-46.8	
3346.00	-21.9	H	3.0	36.1	1.0	-57.1	-13.0	-44.1	
High Ch, 844MHz									
1688.00	-27.3	V	3.0	37.0	1.0	-63.3	-13.0	-50.3	
2532.00	-23.3	V	3.0	36.4	1.0	-58.7	-13.0	-45.7	
3376.00	-21.7	V	3.0	36.1	1.0	-56.8	-13.0	-43.8	
1688.00	-27.4	H	3.0	37.0	1.0	-63.4	-13.0	-50.4	
2532.00	-24.4	H	3.0	36.4	1.0	-59.8	-13.0	-46.8	
3376.00	-21.6	H	3.0	36.1	1.0	-56.7	-13.0	-43.7	

LTE B5 10MHz 16QAM

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4031B
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9.1.5. **LTE BAND 7**

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/10/2018
Test Engineer: 39005 RA
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_QPSK Band 7 Harmonics, 5MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2502.5MHz									
5005.00	-17.0	V	3.0	35.5	1.0	-51.5	-25.0	-26.5	
7507.50	-14.0	V	3.0	35.7	1.0	-48.8	-25.0	-23.8	
10010.00	-11.2	V	3.0	36.0	1.0	-46.2	-25.0	-21.2	
5005.00	-16.9	H	3.0	35.5	1.0	-51.3	-25.0	-26.3	
7507.50	-13.2	H	3.0	35.7	1.0	-47.9	-25.0	-22.9	
10010.00	-11.2	H	3.0	36.0	1.0	-46.2	-25.0	-21.2	
Mid Ch, 2535MHz									
5070.00	-17.1	V	3.0	35.4	1.0	-51.5	-25.0	-26.5	
7605.00	-14.1	V	3.0	35.8	1.0	-48.8	-25.0	-23.8	
10140.00	-11.8	V	3.0	36.0	1.0	-46.8	-25.0	-21.8	
5070.00	-16.8	H	3.0	35.4	1.0	-51.2	-25.0	-26.2	
7605.00	-12.3	H	3.0	35.8	1.0	-47.1	-25.0	-22.1	
10140.00	-10.5	H	3.0	36.0	1.0	-45.4	-25.0	-20.4	
High Ch, 2567.5MHz									
5135.00	-17.1	V	3.0	35.4	1.0	-51.6	-25.0	-26.6	
7702.50	-12.9	V	3.0	35.8	1.0	-47.7	-25.0	-22.7	
10270.00	-11.0	V	3.0	35.9	1.0	-45.9	-25.0	-20.9	
5135.00	-16.5	H	3.0	35.4	1.0	-51.0	-25.0	-26.0	
7702.50	-12.3	H	3.0	35.8	1.0	-47.0	-25.0	-22.0	
10270.00	-10.6	H	3.0	35.9	1.0	-45.5	-25.0	-20.5	

LTE B7 5MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/10/2018
Test Engineer: 39005 RA
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_16QAM Band 7 Harmonics, 5MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2502.5MHz									
5005.00	-17.1	V	3.0	35.5	1.0	-51.5	-25.0	-26.5	
7507.50	-14.1	V	3.0	35.7	1.0	-48.8	-25.0	-23.8	
10010.00	-11.5	V	3.0	36.0	1.0	-46.5	-25.0	-21.5	
5005.00	-17.2	H	3.0	35.5	1.0	-51.7	-25.0	-26.7	
7507.50	-13.5	H	3.0	35.7	1.0	-48.3	-25.0	-23.3	
10010.00	-11.5	H	3.0	36.0	1.0	-46.5	-25.0	-21.5	
Mid Ch, 2535MHz									
5070.00	-17.2	V	3.0	35.4	1.0	-51.6	-25.0	-26.6	
7605.00	-14.4	V	3.0	35.8	1.0	-49.1	-25.0	-24.1	
10140.00	-12.1	V	3.0	36.0	1.0	-47.1	-25.0	-22.1	
5070.00	-17.1	H	3.0	35.4	1.0	-51.5	-25.0	-26.5	
7605.00	-12.6	H	3.0	35.8	1.0	-47.4	-25.0	-22.4	
10140.00	-10.8	H	3.0	36.0	1.0	-45.8	-25.0	-20.8	
High Ch, 2567.5MHz									
5135.00	-17.4	V	3.0	35.4	1.0	-51.8	-25.0	-26.8	
7702.50	-13.4	V	3.0	35.8	1.0	-48.1	-25.0	-23.1	
10270.00	-11.7	V	3.0	35.9	1.0	-46.6	-25.0	-21.6	
5135.00	-16.8	H	3.0	35.4	1.0	-51.2	-25.0	-26.2	
7702.50	-12.6	H	3.0	35.8	1.0	-47.4	-25.0	-22.4	
10270.00	-11.0	H	3.0	35.9	1.0	-45.9	-25.0	-20.9	

LTE B7 5MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/10/2018
Test Engineer: 39005 RA
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_QPSK Band 7 Harmonics, 10MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2505MHz									
5010.00	-17.3	V	3.0	35.5	1.0	-51.8	-25.0	-26.8	
7515.00	-14.1	V	3.0	35.7	1.0	-48.8	-25.0	-23.8	
10020.00	-11.2	V	3.0	36.0	1.0	-46.2	-25.0	-21.2	
5010.00	-16.9	H	3.0	35.5	1.0	-51.4	-25.0	-26.4	
7515.00	-13.2	H	3.0	35.7	1.0	-47.9	-25.0	-22.9	
10020.00	-11.1	H	3.0	36.0	1.0	-46.1	-25.0	-21.1	
Mid Ch, 2535MHz									
5070.00	-16.8	V	3.0	35.4	1.0	-51.3	-25.0	-26.3	
7605.00	-13.8	V	3.0	35.8	1.0	-48.6	-25.0	-23.6	
10140.00	-11.9	V	3.0	36.0	1.0	-46.9	-25.0	-21.9	
5070.00	-16.7	H	3.0	35.4	1.0	-51.1	-25.0	-26.1	
7605.00	-12.3	H	3.0	35.8	1.0	-47.1	-25.0	-22.1	
10140.00	-10.3	H	3.0	36.0	1.0	-45.3	-25.0	-20.3	
High Ch, 2565MHz									
5130.00	-17.1	V	3.0	35.4	1.0	-51.5	-25.0	-26.5	
7695.00	-13.4	V	3.0	35.8	1.0	-48.1	-25.0	-23.1	
10260.00	-10.9	V	3.0	35.9	1.0	-45.8	-25.0	-20.8	
5130.00	-16.5	H	3.0	35.4	1.0	-51.0	-25.0	-26.0	
7695.00	-12.2	H	3.0	35.8	1.0	-47.0	-25.0	-22.0	
10260.00	-10.3	H	3.0	35.9	1.0	-45.2	-25.0	-20.2	

LTE B7 10MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/10/2018
Test Engineer: 39005 RA
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_16QAM Band 7 Harmonics, 10MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2505MHz									
5010.00	-17.4	V	3.0	35.5	1.0	-51.9	-25.0	-26.9	
7515.00	-14.1	V	3.0	35.7	1.0	-48.9	-25.0	-23.9	
10020.00	-11.2	V	3.0	36.0	1.0	-46.2	-25.0	-21.2	
5010.00	-16.9	H	3.0	35.5	1.0	-51.3	-25.0	-26.3	
7515.00	-13.2	H	3.0	35.7	1.0	-48.0	-25.0	-23.0	
10020.00	-10.9	H	3.0	36.0	1.0	-45.9	-25.0	-20.9	
Mid Ch, 2535MHz									
5070.00	-16.7	V	3.0	35.4	1.0	-51.1	-25.0	-26.1	
7605.00	-13.6	V	3.0	35.8	1.0	-48.4	-25.0	-23.4	
10140.00	-11.5	V	3.0	36.0	1.0	-46.4	-25.0	-21.4	
5070.00	-16.9	H	3.0	35.4	1.0	-51.4	-25.0	-26.4	
7605.00	-12.3	H	3.0	35.8	1.0	-47.1	-25.0	-22.1	
10140.00	-10.4	H	3.0	36.0	1.0	-45.4	-25.0	-20.4	
High Ch, 2565MHz									
5130.00	-17.0	V	3.0	35.4	1.0	-51.5	-25.0	-26.5	
7695.00	-13.4	V	3.0	35.8	1.0	-48.2	-25.0	-23.2	
10260.00	-11.0	V	3.0	35.9	1.0	-45.9	-25.0	-20.9	
5130.00	-16.6	H	3.0	35.4	1.0	-51.1	-25.0	-26.1	
7695.00	-12.3	H	3.0	35.8	1.0	-47.1	-25.0	-22.1	
10260.00	-10.4	H	3.0	35.9	1.0	-45.3	-25.0	-20.3	

LTE B7 10MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/10/2018
Test Engineer: 39005 RA
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_QPSK Band 7 Harmonics, 15MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2507.5MHz									
5015.00	-16.9	V	3.0	35.5	1.0	-51.3	-25.0	-26.3	
7522.50	-14.2	V	3.0	35.7	1.0	-48.9	-25.0	-23.9	
10030.00	-11.2	V	3.0	36.0	1.0	-46.2	-25.0	-21.2	
5015.00	-17.0	H	3.0	35.5	1.0	-51.4	-25.0	-26.4	
7522.50	-13.2	H	3.0	35.7	1.0	-47.9	-25.0	-22.9	
10030.00	-11.0	H	3.0	36.0	1.0	-46.0	-25.0	-21.0	
Mid Ch, 2535MHz									
5070.00	-17.1	V	3.0	35.4	1.0	-51.5	-25.0	-26.5	
7605.00	-14.0	V	3.0	35.8	1.0	-48.7	-25.0	-23.7	
10140.00	-12.0	V	3.0	36.0	1.0	-47.0	-25.0	-22.0	
5070.00	-16.7	H	3.0	35.4	1.0	-51.1	-25.0	-26.1	
7605.00	-12.4	H	3.0	35.8	1.0	-47.1	-25.0	-22.1	
10140.00	-10.2	H	3.0	36.0	1.0	-45.2	-25.0	-20.2	
High Ch, 2562.5MHz									
5125.00	-17.1	V	3.0	35.4	1.0	-51.5	-25.0	-26.5	
7687.50	-13.3	V	3.0	35.8	1.0	-48.1	-25.0	-23.1	
10250.00	-10.9	V	3.0	35.9	1.0	-45.8	-25.0	-20.8	
5125.00	-16.5	H	3.0	35.4	1.0	-51.0	-25.0	-26.0	
7687.50	-12.1	H	3.0	35.8	1.0	-46.9	-25.0	-21.9	
10250.00	-10.4	H	3.0	35.9	1.0	-45.3	-25.0	-20.3	

LTE B7 15MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/10/2018
Test Engineer: 39005 RA
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_16QAM Band 7 Harmonics, 15MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2507.5MHz									
5015.00	-17.3	V	3.0	35.5	1.0	-51.7	-25.0	-26.7	
7522.50	-14.2	V	3.0	35.7	1.0	-49.0	-25.0	-24.0	
10030.00	-11.0	V	3.0	36.0	1.0	-46.0	-25.0	-21.0	
5015.00	-16.9	H	3.0	35.5	1.0	-51.3	-25.0	-26.3	
7522.50	-13.1	H	3.0	35.7	1.0	-47.8	-25.0	-22.8	
10030.00	-10.9	H	3.0	36.0	1.0	-45.9	-25.0	-20.9	
Mid Ch, 2535MHz									
5070.00	-17.2	V	3.0	35.4	1.0	-51.6	-25.0	-26.6	
7605.00	-14.1	V	3.0	35.8	1.0	-48.9	-25.0	-23.9	
10140.00	-11.8	V	3.0	36.0	1.0	-46.8	-25.0	-21.8	
5070.00	-16.7	H	3.0	35.4	1.0	-51.1	-25.0	-26.1	
7605.00	-12.5	H	3.0	35.8	1.0	-47.2	-25.0	-22.2	
10140.00	-10.3	H	3.0	36.0	1.0	-45.3	-25.0	-20.3	
High Ch, 2562.5MHz									
5125.00	-17.1	V	3.0	35.4	1.0	-51.5	-25.0	-26.5	
7687.50	-13.3	V	3.0	35.8	1.0	-48.1	-25.0	-23.1	
10250.00	-11.0	V	3.0	35.9	1.0	-45.9	-25.0	-20.9	
5125.00	-16.5	H	3.0	35.4	1.0	-51.0	-25.0	-26.0	
7687.50	-12.3	H	3.0	35.8	1.0	-47.0	-25.0	-22.0	
10250.00	-10.5	H	3.0	35.9	1.0	-45.4	-25.0	-20.4	

LTE B7 15MHz 16QAM

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4031B
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
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UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/10/2018
Test Engineer: 39005 RA
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_QPSK Band 7 Harmonics, 20MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2510MHz									
5020.00	-17.0	V	3.0	35.5	1.0	-51.4	-25.0	-26.4	
7530.00	-13.9	V	3.0	35.7	1.0	-48.7	-25.0	-23.7	
10040.00	-11.1	V	3.0	36.0	1.0	-46.1	-25.0	-21.1	
5020.00	-16.8	H	3.0	35.5	1.0	-51.3	-25.0	-26.3	
7530.00	-12.9	H	3.0	35.7	1.0	-47.7	-25.0	-22.7	
10040.00	-10.9	H	3.0	36.0	1.0	-45.9	-25.0	-20.9	
Mid Ch, 2535MHz									
5070.00	-17.1	V	3.0	35.4	1.0	-51.5	-25.0	-26.5	
7605.00	-14.2	V	3.0	35.8	1.0	-49.0	-25.0	-24.0	
10140.00	-11.7	V	3.0	36.0	1.0	-46.7	-25.0	-21.7	
5070.00	-16.6	H	3.0	35.4	1.0	-51.0	-25.0	-26.0	
7605.00	-12.5	H	3.0	35.8	1.0	-47.2	-25.0	-22.2	
10140.00	-10.0	H	3.0	36.0	1.0	-45.0	-25.0	-20.0	
High Ch, 2560MHz									
5120.00	-17.0	V	3.0	35.4	1.0	-51.5	-25.0	-26.5	
7680.00	-13.3	V	3.0	35.8	1.0	-48.0	-25.0	-23.0	
10240.00	-11.0	V	3.0	35.9	1.0	-45.9	-25.0	-20.9	
5120.00	-16.6	H	3.0	35.4	1.0	-51.0	-25.0	-26.0	
7680.00	-12.1	H	3.0	35.8	1.0	-46.9	-25.0	-21.9	
10240.00	-10.5	H	3.0	35.9	1.0	-45.5	-25.0	-20.5	

LTE B7 20MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/10/2018
Test Engineer: 39005 RA
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_16QAM Band 7 Harmonics, 20MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2510MHz									
5020.00	-17.3	V	3.0	35.5	1.0	-51.7	-25.0	-26.7	
7530.00	-14.1	V	3.0	35.7	1.0	-48.8	-25.0	-23.8	
10040.00	-11.2	V	3.0	36.0	1.0	-46.2	-25.0	-21.2	
5020.00	-16.8	H	3.0	35.5	1.0	-51.2	-25.0	-26.2	
7530.00	-13.2	H	3.0	35.7	1.0	-47.9	-25.0	-22.9	
10040.00	-11.0	H	3.0	36.0	1.0	-46.1	-25.0	-21.1	
Mid Ch, 2535MHz									
5070.00	-17.1	V	3.0	35.4	1.0	-51.6	-25.0	-26.6	
7605.00	-14.2	V	3.0	35.8	1.0	-48.9	-25.0	-23.9	
10140.00	-11.9	V	3.0	36.0	1.0	-46.9	-25.0	-21.9	
5070.00	-16.9	H	3.0	35.4	1.0	-51.3	-25.0	-26.3	
7605.00	-12.5	H	3.0	35.8	1.0	-47.3	-25.0	-22.3	
10140.00	-10.2	H	3.0	36.0	1.0	-45.1	-25.0	-20.1	
High Ch, 2560MHz									
5120.00	-17.1	V	3.0	35.4	1.0	-51.5	-25.0	-26.5	
7680.00	-13.3	V	3.0	35.8	1.0	-48.1	-25.0	-23.1	
10240.00	-11.0	V	3.0	35.9	1.0	-45.9	-25.0	-20.9	
5120.00	-16.6	H	3.0	35.4	1.0	-51.0	-25.0	-26.0	
7680.00	-12.2	H	3.0	35.8	1.0	-46.9	-25.0	-21.9	
10240.00	-10.6	H	3.0	35.9	1.0	-45.6	-25.0	-20.6	

LTE B7 20MHz 16QAM

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4031B
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9.1.6. **LTE BAND 12**

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/10/2018
Test Engineer: 39005 RA
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber B
Mode: LTE_QPSK Band 12 Harmonics, 1.4MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 699.7MHz									
1399.40	-31.9	V	3.0	37.4	1.0	-68.3	-13.0	-55.3	
2099.10	-24.9	V	3.0	36.6	1.0	-60.5	-13.0	-47.5	
2798.80	-23.4	V	3.0	36.4	1.0	-58.7	-13.0	-45.7	
1399.40	-30.2	H	3.0	37.4	1.0	-66.6	-13.0	-53.6	
2099.10	-26.0	H	3.0	36.6	1.0	-61.5	-13.0	-48.5	
2798.80	-25.1	H	3.0	36.4	1.0	-60.5	-13.0	-47.5	
Mid Ch, 707.5MHz									
1415.00	-31.5	V	3.0	37.4	1.0	-67.8	-13.0	-54.8	
2122.50	-24.6	V	3.0	36.6	1.0	-60.2	-13.0	-47.2	
2830.00	-24.8	V	3.0	36.4	1.0	-60.2	-13.0	-47.2	
1415.00	-30.2	H	3.0	37.4	1.0	-66.5	-13.0	-53.5	
2122.50	-26.3	H	3.0	36.6	1.0	-61.9	-13.0	-48.9	
2830.00	-24.6	H	3.0	36.4	1.0	-59.9	-13.0	-46.9	
High Ch, 715.3MHz									
1430.60	-31.3	V	3.0	37.3	1.0	-67.6	-13.0	-54.6	
2145.90	-25.2	V	3.0	36.6	1.0	-60.8	-13.0	-47.8	
2861.20	-24.7	V	3.0	36.4	1.0	-60.1	-13.0	-47.1	
1430.60	-29.9	H	3.0	37.3	1.0	-66.3	-13.0	-53.3	
2145.90	-26.2	H	3.0	36.6	1.0	-61.7	-13.0	-48.7	
2861.20	-24.8	H	3.0	36.4	1.0	-60.1	-13.0	-47.1	

LTE B12 1.4MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/10/2018
Test Engineer: 39005 RA
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber B
Mode: LTE_16QAM Band 12 Harmonics, 1.4MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 699.7MHz									
1399.40	-31.3	V	3.0	37.4	1.0	-67.7	-13.0	-54.7	
2099.10	-25.0	V	3.0	36.6	1.0	-60.5	-13.0	-47.5	
2798.80	-23.9	V	3.0	36.4	1.0	-59.3	-13.0	-46.3	
1399.40	-30.1	H	3.0	37.4	1.0	-66.5	-13.0	-53.5	
2099.10	-26.4	H	3.0	36.6	1.0	-61.9	-13.0	-48.9	
2798.80	-25.2	H	3.0	36.4	1.0	-60.6	-13.0	-47.6	
Mid Ch, 707.5MHz									
1415.00	-31.7	V	3.0	37.4	1.0	-68.0	-13.0	-55.0	
2122.50	-25.1	V	3.0	36.6	1.0	-60.6	-13.0	-47.6	
2830.00	-24.5	V	3.0	36.4	1.0	-59.9	-13.0	-46.9	
1415.00	-30.1	H	3.0	37.4	1.0	-66.5	-13.0	-53.5	
2122.50	-26.5	H	3.0	36.6	1.0	-62.1	-13.0	-49.1	
2830.00	-25.1	H	3.0	36.4	1.0	-60.5	-13.0	-47.5	
High Ch, 715.3MHz									
1430.60	-31.2	V	3.0	37.3	1.0	-67.6	-13.0	-54.6	
2145.90	-25.2	V	3.0	36.6	1.0	-60.8	-13.0	-47.8	
2861.20	-24.8	V	3.0	36.4	1.0	-60.1	-13.0	-47.1	
1430.60	-30.0	H	3.0	37.3	1.0	-66.3	-13.0	-53.3	
2145.90	-26.2	H	3.0	36.6	1.0	-61.8	-13.0	-48.8	
2861.20	-24.6	H	3.0	36.4	1.0	-60.0	-13.0	-47.0	

LTE B12 1.4MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/10/2018
Test Engineer: 39005 RA
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_QPSK Band 12 Harmonics, 3MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 700.5MHz									
1401.00	-31.4	V	3.0	37.4	1.0	-67.7	-13.0	-54.7	
2101.50	-25.0	V	3.0	36.6	1.0	-60.6	-13.0	-47.6	
2802.00	-23.5	V	3.0	36.4	1.0	-58.8	-13.0	-45.8	
1401.00	-30.3	H	3.0	37.4	1.0	-66.7	-13.0	-53.7	
2101.50	-26.1	H	3.0	36.6	1.0	-61.6	-13.0	-48.6	
2802.00	-25.0	H	3.0	36.4	1.0	-60.4	-13.0	-47.4	
Mid Ch, 707.5MHz									
1415.00	-31.3	V	3.0	37.4	1.0	-67.7	-13.0	-54.7	
2122.50	-24.9	V	3.0	36.6	1.0	-60.5	-13.0	-47.5	
2830.00	-24.3	V	3.0	36.4	1.0	-59.7	-13.0	-46.7	
1415.00	-30.3	H	3.0	37.4	1.0	-66.7	-13.0	-53.7	
2122.50	-26.2	H	3.0	36.6	1.0	-61.8	-13.0	-48.8	
2830.00	-25.0	H	3.0	36.4	1.0	-60.3	-13.0	-47.3	
High Ch, 714.5MHz									
1429.00	-31.2	V	3.0	37.3	1.0	-67.5	-13.0	-54.5	
2143.50	-25.4	V	3.0	36.6	1.0	-60.9	-13.0	-47.9	
2858.00	-24.5	V	3.0	36.4	1.0	-59.9	-13.0	-46.9	
1429.00	-30.1	H	3.0	37.3	1.0	-66.4	-13.0	-53.4	
2143.50	-26.1	H	3.0	36.6	1.0	-61.7	-13.0	-48.7	
2858.00	-24.8	H	3.0	36.4	1.0	-60.2	-13.0	-47.2	

LTE B12 3MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/10/2018
Test Engineer: 39005 RA
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_16QAM Band 12 Harmonics, 3MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 700.5MHz									
1401.00	-31.5	V	3.0	37.4	1.0	-67.9	-13.0	-54.9	
2101.50	-25.0	V	3.0	36.6	1.0	-60.6	-13.0	-47.6	
2802.00	-23.5	V	3.0	36.4	1.0	-58.9	-13.0	-45.9	
1401.00	-30.5	H	3.0	37.4	1.0	-66.9	-13.0	-53.9	
2101.50	-26.0	H	3.0	36.6	1.0	-61.6	-13.0	-48.6	
2802.00	-24.8	H	3.0	36.4	1.0	-60.2	-13.0	-47.2	
Mid Ch, 707.5MHz									
1415.00	-31.3	V	3.0	37.4	1.0	-67.7	-13.0	-54.7	
2122.50	-24.9	V	3.0	36.6	1.0	-60.5	-13.0	-47.5	
2830.00	-24.2	V	3.0	36.4	1.0	-59.6	-13.0	-46.6	
1415.00	-30.3	H	3.0	37.4	1.0	-66.7	-13.0	-53.7	
2122.50	-26.5	H	3.0	36.6	1.0	-62.0	-13.0	-49.0	
2830.00	-25.1	H	3.0	36.4	1.0	-60.4	-13.0	-47.4	
High Ch, 714.5MHz									
1429.00	-31.1	V	3.0	37.3	1.0	-67.4	-13.0	-54.4	
2143.50	-25.1	V	3.0	36.6	1.0	-60.7	-13.0	-47.7	
2858.00	-24.6	V	3.0	36.4	1.0	-60.0	-13.0	-47.0	
1429.00	-30.4	H	3.0	37.3	1.0	-66.7	-13.0	-53.7	
2143.50	-26.2	H	3.0	36.6	1.0	-61.7	-13.0	-48.7	
2858.00	-24.8	H	3.0	36.4	1.0	-60.2	-13.0	-47.2	

LTE B12 3MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/10/2018
Test Engineer: 39005 RA
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_QPSK Band 12 Harmonics, 5MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 701.5MHz									
1403.00	-31.2	V	3.0	37.4	1.0	-67.6	-13.0	-54.6	
2104.50	-24.7	V	3.0	36.6	1.0	-60.2	-13.0	-47.2	
2806.00	-23.7	V	3.0	36.4	1.0	-59.1	-13.0	-46.1	
1403.00	-30.2	H	3.0	37.4	1.0	-66.6	-13.0	-53.6	
2104.50	-26.0	H	3.0	36.6	1.0	-61.6	-13.0	-48.6	
2806.00	-25.0	H	3.0	36.4	1.0	-60.4	-13.0	-47.4	
Mid Ch, 707.5MHz									
1415.00	-31.2	V	3.0	37.4	1.0	-67.6	-13.0	-54.6	
2122.50	-24.9	V	3.0	36.6	1.0	-60.5	-13.0	-47.5	
2830.00	-24.3	V	3.0	36.4	1.0	-59.6	-13.0	-46.6	
1415.00	-30.4	H	3.0	37.4	1.0	-66.7	-13.0	-53.7	
2122.50	-26.3	H	3.0	36.6	1.0	-61.8	-13.0	-48.8	
2830.00	-25.1	H	3.0	36.4	1.0	-60.5	-13.0	-47.5	
High Ch, 713.5MHz									
1427.00	-31.3	V	3.0	37.3	1.0	-67.6	-13.0	-54.6	
2140.50	-25.4	V	3.0	36.6	1.0	-60.9	-13.0	-47.9	
2854.00	-24.6	V	3.0	36.4	1.0	-59.9	-13.0	-46.9	
1427.00	-29.8	H	3.0	37.3	1.0	-66.2	-13.0	-53.2	
2140.50	-26.1	H	3.0	36.6	1.0	-61.7	-13.0	-48.7	
2854.00	-24.8	H	3.0	36.4	1.0	-60.2	-13.0	-47.2	

LTE B12 5MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/10/2018
Test Engineer: 39005 RA
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_16QAM Band 12 Harmonics, 5MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 701.5MHz									
1403.00	-31.1	V	3.0	37.4	1.0	-67.5	-13.0	-54.5	
2104.50	-24.5	V	3.0	36.6	1.0	-60.1	-13.0	-47.1	
2806.00	-23.8	V	3.0	36.4	1.0	-59.2	-13.0	-46.2	
1403.00	-30.3	H	3.0	37.4	1.0	-66.7	-13.0	-53.7	
2104.50	-25.8	H	3.0	36.6	1.0	-61.4	-13.0	-48.4	
2806.00	-24.9	H	3.0	36.4	1.0	-60.2	-13.0	-47.2	
Mid Ch, 707.5MHz									
1415.00	-31.2	V	3.0	37.4	1.0	-67.6	-13.0	-54.6	
2122.50	-24.8	V	3.0	36.6	1.0	-60.4	-13.0	-47.4	
2830.00	-24.4	V	3.0	36.4	1.0	-59.8	-13.0	-46.8	
1415.00	-30.3	H	3.0	37.4	1.0	-66.7	-13.0	-53.7	
2122.50	-26.2	H	3.0	36.6	1.0	-61.8	-13.0	-48.8	
2830.00	-24.9	H	3.0	36.4	1.0	-60.3	-13.0	-47.3	
High Ch, 713.5MHz									
1427.00	-31.5	V	3.0	37.3	1.0	-67.8	-13.0	-54.8	
2140.50	-25.4	V	3.0	36.6	1.0	-61.0	-13.0	-48.0	
2854.00	-24.6	V	3.0	36.4	1.0	-60.0	-13.0	-47.0	
1427.00	-30.1	H	3.0	37.3	1.0	-66.4	-13.0	-53.4	
2140.50	-26.1	H	3.0	36.6	1.0	-61.7	-13.0	-48.7	
2854.00	-24.8	H	3.0	36.4	1.0	-60.2	-13.0	-47.2	

LTE B12 5MHz 16QAM

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4031B
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
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UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/10/2018
Test Engineer: 39005 RA
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_QPSK Band 12 Harmonics, 10MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 704MHz									
1408.00	-31.4	V	3.0	37.4	1.0	-67.8	-13.0	-54.8	
2112.00	-24.8	V	3.0	36.6	1.0	-60.3	-13.0	-47.3	
2816.00	-24.3	V	3.0	36.4	1.0	-59.7	-13.0	-46.7	
1408.00	-30.2	H	3.0	37.4	1.0	-66.6	-13.0	-53.6	
2112.00	-26.2	H	3.0	36.6	1.0	-61.7	-13.0	-48.7	
2816.00	-25.1	H	3.0	36.4	1.0	-60.4	-13.0	-47.4	
Mid Ch, 707.5MHz									
1415.00	-31.4	V	3.0	37.4	1.0	-67.8	-13.0	-54.8	
2122.50	-24.8	V	3.0	36.6	1.0	-60.4	-13.0	-47.4	
2830.00	-24.2	V	3.0	36.4	1.0	-59.6	-13.0	-46.6	
1415.00	-30.4	H	3.0	37.4	1.0	-66.8	-13.0	-53.8	
2122.50	-26.4	H	3.0	36.6	1.0	-62.0	-13.0	-49.0	
2830.00	-25.1	H	3.0	36.4	1.0	-60.5	-13.0	-47.5	
High Ch, 711MHz									
1422.00	-31.4	V	3.0	37.3	1.0	-67.7	-13.0	-54.7	
2133.00	-25.4	V	3.0	36.6	1.0	-61.0	-13.0	-48.0	
2844.00	-24.4	V	3.0	36.4	1.0	-59.8	-13.0	-46.8	
1422.00	-29.8	H	3.0	37.3	1.0	-66.2	-13.0	-53.2	
2133.00	-26.1	H	3.0	36.6	1.0	-61.6	-13.0	-48.6	
2844.00	-24.9	H	3.0	36.4	1.0	-60.3	-13.0	-47.3	

LTE B12 10MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/10/2018
Test Engineer: 39005 RA
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_16QAM Band 12 Harmonics, 10MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 704MHz									
1408.00	-31.4	V	3.0	37.4	1.0	-67.8	-13.0	-54.8	
2112.00	-24.8	V	3.0	36.6	1.0	-60.3	-13.0	-47.3	
2816.00	-24.2	V	3.0	36.4	1.0	-59.6	-13.0	-46.6	
1408.00	-30.2	H	3.0	37.4	1.0	-66.6	-13.0	-53.6	
2112.00	-26.2	H	3.0	36.6	1.0	-61.8	-13.0	-48.8	
2816.00	-24.8	H	3.0	36.4	1.0	-60.1	-13.0	-47.1	
Mid Ch, 707.5MHz									
1415.00	-31.3	V	3.0	37.4	1.0	-67.7	-13.0	-54.7	
2122.50	-24.8	V	3.0	36.6	1.0	-60.4	-13.0	-47.4	
2830.00	-24.6	V	3.0	36.4	1.0	-60.0	-13.0	-47.0	
1415.00	-30.3	H	3.0	37.4	1.0	-66.7	-13.0	-53.7	
2122.50	-26.4	H	3.0	36.6	1.0	-61.9	-13.0	-48.9	
2830.00	-25.1	H	3.0	36.4	1.0	-60.5	-13.0	-47.5	
High Ch, 711MHz									
1422.00	-31.3	V	3.0	37.3	1.0	-67.6	-13.0	-54.6	
2133.00	-25.4	V	3.0	36.6	1.0	-60.9	-13.0	-47.9	
2844.00	-24.4	V	3.0	36.4	1.0	-59.8	-13.0	-46.8	
1422.00	-30.1	H	3.0	37.3	1.0	-66.4	-13.0	-53.4	
2133.00	-26.1	H	3.0	36.6	1.0	-61.6	-13.0	-48.6	
2844.00	-24.6	H	3.0	36.4	1.0	-60.0	-13.0	-47.0	

LTE B12 10MHz 16QAM

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4031B
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
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9.1.7. **LTE BAND 13**

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/4/2018
Test Engineer: 16069 OG
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_QPSK Band 13 Harmonics, 5MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 779.5MHz									
1559.00	-37.7	V	3.0	37.1	1.0	-73.9	-40.0	-33.9	
2338.50	-29.8	V	3.0	36.5	1.0	-65.3	-13.0	-52.3	
3118.00	-28.9	V	3.0	36.3	1.0	-64.2	-13.0	-51.2	
1559.00	-37.5	H	3.0	37.1	1.0	-73.6	-40.0	-33.6	
2338.50	-28.4	H	3.0	36.5	1.0	-63.8	-13.0	-50.8	
3118.00	-29.1	H	3.0	36.3	1.0	-64.3	-13.0	-51.3	
Mid Ch, 782MHz									
1564.00	-36.4	V	3.0	37.1	1.0	-72.5	-40.0	-32.5	
2346.00	-25.7	V	3.0	36.5	1.0	-61.2	-13.0	-48.2	
3128.00	-28.7	V	3.0	36.3	1.0	-63.9	-13.0	-50.9	
1564.00	-36.3	H	3.0	37.1	1.0	-72.5	-40.0	-32.5	
2346.00	-28.5	H	3.0	36.5	1.0	-64.0	-13.0	-51.0	
3128.00	-29.6	H	3.0	36.3	1.0	-64.9	-13.0	-51.9	
High Ch, 784.5MHz									
1569.00	-36.7	V	3.0	37.1	1.0	-72.8	-40.0	-32.8	
2353.50	-28.8	V	3.0	36.5	1.0	-64.3	-13.0	-51.3	
3138.00	-29.5	V	3.0	36.3	1.0	-64.8	-13.0	-51.8	
1569.00	-37.5	H	3.0	37.1	1.0	-73.7	-40.0	-33.7	
2353.50	-31.7	H	3.0	36.5	1.0	-67.1	-13.0	-54.1	
3138.00	-29.0	H	3.0	36.3	1.0	-64.3	-13.0	-51.3	

LTE B13 5MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/4/2018
Test Engineer: 16069 OG
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_16QAM Band 13 Harmonics, 5MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 779.5MHz									
1559.00	-37.5	V	3.0	37.1	1.0	-73.7	-40.0	-33.7	
2338.50	-30.1	V	3.0	36.5	1.0	-65.6	-13.0	-52.6	
3118.00	-29.1	V	3.0	36.3	1.0	-64.4	-13.0	-51.4	
1559.00	-37.2	H	3.0	37.1	1.0	-73.3	-40.0	-33.3	
2338.50	-29.4	H	3.0	36.5	1.0	-64.9	-13.0	-51.9	
3118.00	-29.1	H	3.0	36.3	1.0	-64.4	-13.0	-51.4	
Mid Ch, 782MHz									
1564.00	-37.2	V	3.0	37.1	1.0	-73.4	-40.0	-33.4	
2346.00	-30.0	V	3.0	36.5	1.0	-65.5	-13.0	-52.5	
3128.00	-29.4	V	3.0	36.3	1.0	-64.6	-13.0	-51.6	
1564.00	-37.9	H	3.0	37.1	1.0	-74.0	-40.0	-34.0	
2346.00	-32.5	H	3.0	36.5	1.0	-68.0	-13.0	-55.0	
3128.00	-29.7	H	3.0	36.3	1.0	-64.9	-13.0	-51.9	
High Ch, 784.5MHz									
1569.00	-36.6	V	3.0	37.1	1.0	-72.7	-40.0	-32.7	
2353.50	-29.2	V	3.0	36.5	1.0	-64.7	-13.0	-51.7	
3138.00	-29.1	V	3.0	36.3	1.0	-64.4	-13.0	-51.4	
1569.00	-35.6	H	3.0	37.1	1.0	-71.7	-40.0	-31.7	
2353.50	-30.7	H	3.0	36.5	1.0	-66.2	-13.0	-53.2	
3138.00	-29.4	H	3.0	36.3	1.0	-64.7	-13.0	-51.7	

LTE B13 5MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/4/2018
Test Engineer: 16069 OG
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_QPSK Band 13 Harmonics, 10MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Mid Ch, 782MHz									
1564.00	-36.9	V	3.0	37.1	1.0	-73.0	-40.0	-33.0	
2346.00	-31.2	V	3.0	36.5	1.0	-66.7	-13.0	-53.7	
3128.00	-29.2	V	3.0	36.3	1.0	-64.5	-13.0	-51.5	
1564.00	-35.9	H	3.0	37.1	1.0	-72.1	-40.0	-32.1	
2346.00	-31.0	H	3.0	36.5	1.0	-66.5	-13.0	-53.5	
3128.00	-29.5	H	3.0	36.3	1.0	-64.8	-13.0	-51.8	

LTE B13 10MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/4/2018
Test Engineer: 16069 OG
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber C
Mode: LTE_16QAM Band 13 Harmonics, 10MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 782MHz									
Mid Ch, 782MHz									
1564.00	-37.6	V	3.0	37.1	1.0	-73.8	-40.0	-33.8	
2346.00	-30.5	V	3.0	36.5	1.0	-66.0	-13.0	-53.0	
3128.00	-28.5	V	3.0	36.3	1.0	-63.8	-13.0	-50.8	
1564.00	-35.9	H	3.0	37.1	1.0	-72.0	-40.0	-32.0	
2346.00	-30.4	H	3.0	36.5	1.0	-65.9	-13.0	-52.9	
3128.00	-29.3	H	3.0	36.3	1.0	-64.6	-13.0	-51.6	

LTE B13 10MHz 16QAM

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9.1.8. LTE BAND 41

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/9/2018
Test Engineer: 39005 RA
Configuration: EUT + Support Equipment
Location: Chamber A
Mode: LTE_QPSK Band 41 Harmonics, 5MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2498.5MHz									
4997.00	-17.0	V	3.0	35.5	1.0	-51.4	-25.0	-26.4	
7495.50	-15.3	V	3.0	35.7	1.0	-50.0	-25.0	-25.0	
9994.00	-12.2	V	3.0	36.0	1.0	-47.2	-25.0	-22.2	
4997.00	-16.5	H	3.0	35.5	1.0	-51.0	-25.0	-26.0	
7495.50	-14.9	H	3.0	35.7	1.0	-49.6	-25.0	-24.6	
9994.00	-12.3	H	3.0	36.0	1.0	-47.3	-25.0	-22.3	
Mid Ch, 2593MHz									
5186.00	-15.8	V	3.0	35.4	1.0	-50.2	-25.0	-25.2	
7779.00	-14.7	V	3.0	35.8	1.0	-49.4	-25.0	-24.4	
10372.00	-11.6	V	3.0	35.8	1.0	-46.5	-25.0	-21.5	
5186.00	-15.7	H	3.0	35.4	1.0	-50.1	-25.0	-25.1	
7779.00	-12.9	H	3.0	35.8	1.0	-47.7	-25.0	-22.7	
10372.00	-11.0	H	3.0	35.8	1.0	-45.8	-25.0	-20.8	
High Ch, 2687.5MHz									
5375.00	-15.6	V	3.0	35.4	1.0	-50.0	-25.0	-25.0	
8062.50	-13.2	V	3.0	35.8	1.0	-48.0	-25.0	-23.0	
10750.00	-10.5	V	3.0	35.7	1.0	-45.2	-25.0	-20.2	
5375.00	-15.8	H	3.0	35.4	1.0	-50.3	-25.0	-25.3	
8062.50	-13.0	H	3.0	35.8	1.0	-47.8	-25.0	-22.8	
10750.00	-10.6	H	3.0	35.7	1.0	-45.3	-25.0	-20.3	

LTE B41 5MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/9/2018
Test Engineer: 39005 RA
Configuration: EUT + Support Equipment
Location: Chamber A
Mode: LTE_16QAM Band 41 Harmonics, 5MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2498.5MHz									
4997.00	-17.0	V	3.0	35.5	1.0	-51.5	-25.0	-26.5	
7495.50	-15.2	V	3.0	35.7	1.0	-49.9	-25.0	-24.9	
9994.00	-12.4	V	3.0	36.0	1.0	-47.4	-25.0	-22.4	
4997.00	-16.6	H	3.0	35.5	1.0	-51.0	-25.0	-26.0	
7495.50	-14.8	H	3.0	35.7	1.0	-49.6	-25.0	-24.6	
9994.00	-12.4	H	3.0	36.0	1.0	-47.4	-25.0	-22.4	
Mid Ch, 2593MHz									
5186.00	-15.8	V	3.0	35.4	1.0	-50.3	-25.0	-25.3	
7779.00	-14.2	V	3.0	35.8	1.0	-49.0	-25.0	-24.0	
10372.00	-11.9	V	3.0	35.8	1.0	-46.7	-25.0	-21.7	
5186.00	-16.0	H	3.0	35.4	1.0	-50.4	-25.0	-25.4	
7779.00	-13.0	H	3.0	35.8	1.0	-47.7	-25.0	-22.7	
10372.00	-10.9	H	3.0	35.8	1.0	-45.7	-25.0	-20.7	
High Ch, 2687.5MHz									
5375.00	-15.6	V	3.0	35.4	1.0	-50.0	-25.0	-25.0	
8062.50	-13.3	V	3.0	35.8	1.0	-48.1	-25.0	-23.1	
10750.00	-10.4	V	3.0	35.7	1.0	-45.0	-25.0	-20.0	
5375.00	-15.8	H	3.0	35.4	1.0	-50.2	-25.0	-25.2	
8062.50	-13.0	H	3.0	35.8	1.0	-47.8	-25.0	-22.8	
10750.00	-10.6	H	3.0	35.7	1.0	-45.2	-25.0	-20.2	

LTE B41 5MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/9/2018
Test Engineer: 39005 RA
Configuration: EUT + Support Equipment
Location: Chamber A
Mode: LTE_QPSK Band 41 Harmonics, 10MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2501MHz									
5002.00	-16.9	V	3.0	35.5	1.0	-51.3	-25.0	-26.3	
7503.00	-14.9	V	3.0	35.7	1.0	-49.6	-25.0	-24.6	
10004.00	-11.9	V	3.0	36.0	1.0	-46.9	-25.0	-21.9	
5002.00	-17.0	H	3.0	35.5	1.0	-51.4	-25.0	-26.4	
7503.00	-14.3	H	3.0	35.7	1.0	-49.0	-25.0	-24.0	
10004.00	-12.3	H	3.0	36.0	1.0	-47.4	-25.0	-22.4	
Mid Ch, 2593MHz									
5186.00	-16.4	V	3.0	35.4	1.0	-50.8	-25.0	-25.8	
7779.00	-14.5	V	3.0	35.8	1.0	-49.3	-25.0	-24.3	
10372.00	-11.7	V	3.0	35.8	1.0	-46.5	-25.0	-21.5	
5186.00	-16.7	H	3.0	35.4	1.0	-51.1	-25.0	-26.1	
7779.00	-13.9	H	3.0	35.8	1.0	-48.7	-25.0	-23.7	
10372.00	-11.0	H	3.0	35.8	1.0	-45.9	-25.0	-20.9	
High Ch, 2685MHz									
5370.00	-16.2	V	3.0	35.4	1.0	-50.6	-25.0	-25.6	
8055.00	-13.3	V	3.0	35.8	1.0	-48.1	-25.0	-23.1	
10740.00	-10.6	V	3.0	35.7	1.0	-45.3	-25.0	-20.3	
5370.00	-16.1	H	3.0	35.4	1.0	-50.5	-25.0	-25.5	
8055.00	-12.8	H	3.0	35.8	1.0	-47.6	-25.0	-22.6	
10740.00	-10.9	H	3.0	35.7	1.0	-45.6	-25.0	-20.6	

LTE B41 10MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/9/2018
Test Engineer: 39005 RA
Configuration: EUT + Support Equipment
Location: Chamber A
Mode: LTE_16QAM Band 41 Harmonics, 10MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2501MHz									
5002.00	-17.1	V	3.0	35.5	1.0	-51.5	-25.0	-26.5	
7503.00	-14.5	V	3.0	35.7	1.0	-49.2	-25.0	-24.2	
10004.00	-11.8	V	3.0	36.0	1.0	-46.8	-25.0	-21.8	
5002.00	-17.2	H	3.0	35.5	1.0	-51.6	-25.0	-26.6	
7503.00	-14.4	H	3.0	35.7	1.0	-49.2	-25.0	-24.2	
10004.00	-12.0	H	3.0	36.0	1.0	-47.0	-25.0	-22.0	
Mid Ch, 2593MHz									
5186.00	-16.7	V	3.0	35.4	1.0	-51.1	-25.0	-26.1	
7779.00	-14.4	V	3.0	35.8	1.0	-49.2	-25.0	-24.2	
10372.00	-11.9	V	3.0	35.8	1.0	-46.7	-25.0	-21.7	
5186.00	-16.7	H	3.0	35.4	1.0	-51.1	-25.0	-26.1	
7779.00	-14.2	H	3.0	35.8	1.0	-49.0	-25.0	-24.0	
10372.00	-11.1	H	3.0	35.8	1.0	-45.9	-25.0	-20.9	
High Ch, 2685MHz									
5370.00	-16.2	V	3.0	35.4	1.0	-50.6	-25.0	-25.6	
8055.00	-13.1	V	3.0	35.8	1.0	-47.9	-25.0	-22.9	
10740.00	-10.2	V	3.0	35.7	1.0	-44.9	-25.0	-19.9	
5370.00	-16.4	H	3.0	35.4	1.0	-50.8	-25.0	-25.8	
8055.00	-13.6	H	3.0	35.8	1.0	-48.4	-25.0	-23.4	
10740.00	-10.3	H	3.0	35.7	1.0	-45.0	-25.0	-20.0	

LTE B41 10MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/9/2018
Test Engineer: 39005 RA
Configuration: EUT + Support Equipment
Location: Chamber A
Mode: LTE_QPSK Band 41 Harmonics, 15MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2503.5MHz									
5007.00	-16.9	V	3.0	35.5	1.0	-51.4	-25.0	-26.4	
7510.50	-14.5	V	3.0	35.7	1.0	-49.2	-25.0	-24.2	
10014.00	-11.5	V	3.0	36.0	1.0	-46.6	-25.0	-21.6	
5007.00	-17.0	H	3.0	35.5	1.0	-51.5	-25.0	-26.5	
7510.50	-14.3	H	3.0	35.7	1.0	-49.0	-25.0	-24.0	
10014.00	-12.1	H	3.0	36.0	1.0	-47.1	-25.0	-22.1	
Mid Ch, 2593MHz									
5186.00	-16.4	V	3.0	35.4	1.0	-50.8	-25.0	-25.8	
7779.00	-14.0	V	3.0	35.8	1.0	-48.8	-25.0	-23.8	
10372.00	-11.5	V	3.0	35.8	1.0	-46.4	-25.0	-21.4	
5186.00	-16.5	H	3.0	35.4	1.0	-50.9	-25.0	-25.9	
7779.00	-14.1	H	3.0	35.8	1.0	-48.9	-25.0	-23.9	
10372.00	-10.9	H	3.0	35.8	1.0	-45.8	-25.0	-20.8	
High Ch, 2682.5MHz									
5365.00	-16.3	V	3.0	35.4	1.0	-50.7	-25.0	-25.7	
8047.50	-13.3	V	3.0	35.8	1.0	-48.1	-25.0	-23.1	
10730.00	-10.7	V	3.0	35.7	1.0	-45.3	-25.0	-20.3	
5365.00	-16.5	H	3.0	35.4	1.0	-51.0	-25.0	-26.0	
8047.50	-13.0	H	3.0	35.8	1.0	-47.8	-25.0	-22.8	
10730.00	-10.6	H	3.0	35.7	1.0	-45.3	-25.0	-20.3	

LTE B41 15MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/9/2018
Test Engineer: 39005 RA
Configuration: EUT + Support Equipment
Location: Chamber A
Mode: LTE_16QAM Band 41 Harmonics, 15MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2503.5MHz									
5007.00	-17.0	V	3.0	35.5	1.0	-51.5	-25.0	-26.5	
7510.50	-14.5	V	3.0	35.7	1.0	-49.3	-25.0	-24.3	
10014.00	-11.6	V	3.0	36.0	1.0	-46.6	-25.0	-21.6	
5007.00	-17.3	H	3.0	35.5	1.0	-51.7	-25.0	-26.7	
7510.50	-14.6	H	3.0	35.7	1.0	-49.3	-25.0	-24.3	
10014.00	-12.2	H	3.0	36.0	1.0	-47.3	-25.0	-22.3	
Mid Ch, 2593MHz									
5186.00	-16.3	V	3.0	35.4	1.0	-50.7	-25.0	-25.7	
7779.00	-14.1	V	3.0	35.8	1.0	-48.9	-25.0	-23.9	
10372.00	-11.6	V	3.0	35.8	1.0	-46.5	-25.0	-21.5	
5186.00	-16.3	H	3.0	35.4	1.0	-50.7	-25.0	-25.7	
7779.00	-14.0	H	3.0	35.8	1.0	-48.8	-25.0	-23.8	
10372.00	-11.1	H	3.0	35.8	1.0	-45.9	-25.0	-20.9	
High Ch, 2682.5MHz									
5365.00	-16.4	V	3.0	35.4	1.0	-50.8	-25.0	-25.8	
8047.50	-13.2	V	3.0	35.8	1.0	-48.0	-25.0	-23.0	
10730.00	-10.4	V	3.0	35.7	1.0	-45.1	-25.0	-20.1	
5365.00	-16.4	H	3.0	35.4	1.0	-50.8	-25.0	-25.8	
8047.50	-12.8	H	3.0	35.8	1.0	-47.6	-25.0	-22.6	
10730.00	-10.5	H	3.0	35.7	1.0	-45.2	-25.0	-20.2	

LTE B41 15MHz 16QAM

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4031B
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
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UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/9/2018
Test Engineer: 39005 RA
Configuration: EUT + Support Equipment
Location: Chamber A
Mode: LTE_QPSK Band 41 Harmonics, 20MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2506MHz									
5012.00	-16.9	V	3.0	35.5	1.0	-51.4	-25.0	-26.4	
7518.00	-14.3	V	3.0	35.7	1.0	-49.1	-25.0	-24.1	
10024.00	-11.3	V	3.0	36.0	1.0	-46.3	-25.0	-21.3	
5012.00	-16.9	H	3.0	35.5	1.0	-51.4	-25.0	-26.4	
7518.00	-14.2	H	3.0	35.7	1.0	-48.9	-25.0	-23.9	
10024.00	-12.0	H	3.0	36.0	1.0	-47.0	-25.0	-22.0	
Mid Ch, 2593MHz									
5186.00	-16.4	V	3.0	35.4	1.0	-50.9	-25.0	-25.9	
7779.00	-14.2	V	3.0	35.8	1.0	-49.0	-25.0	-24.0	
10372.00	-11.4	V	3.0	35.8	1.0	-46.3	-25.0	-21.3	
5186.00	-16.2	H	3.0	35.4	1.0	-50.7	-25.0	-25.7	
7779.00	-13.6	H	3.0	35.8	1.0	-48.3	-25.0	-23.3	
10372.00	-10.8	H	3.0	35.8	1.0	-45.6	-25.0	-20.6	
High Ch, 2680MHz									
5360.00	-16.1	V	3.0	35.4	1.0	-50.5	-25.0	-25.5	
8040.00	-13.1	V	3.0	35.8	1.0	-47.9	-25.0	-22.9	
10720.00	-10.4	V	3.0	35.7	1.0	-45.1	-25.0	-20.1	
5360.00	-16.0	H	3.0	35.4	1.0	-50.4	-25.0	-25.4	
8040.00	-12.9	H	3.0	35.8	1.0	-47.7	-25.0	-22.7	
10720.00	-10.7	H	3.0	35.7	1.0	-45.4	-25.0	-20.4	

LTE B41 20MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132731
Date: 4/9/2018
Test Engineer: 39005 RA
Configuration: EUT + Support Equipment
Location: Chamber A
Mode: LTE_16QAM Band 41 Harmonics, 20MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2506MHz									
5012.00	-17.0	V	3.0	35.5	1.0	-51.5	-25.0	-26.5	
7518.00	-14.3	V	3.0	35.7	1.0	-49.0	-25.0	-24.0	
10024.00	-11.4	V	3.0	36.0	1.0	-46.4	-25.0	-21.4	
5012.00	-17.1	H	3.0	35.5	1.0	-51.5	-25.0	-26.5	
7518.00	-14.2	H	3.0	35.7	1.0	-49.0	-25.0	-24.0	
10024.00	-12.0	H	3.0	36.0	1.0	-47.1	-25.0	-22.1	
Mid Ch, 2593MHz									
5186.00	-16.6	V	3.0	35.4	1.0	-51.0	-25.0	-26.0	
7779.00	-14.0	V	3.0	35.8	1.0	-48.8	-25.0	-23.8	
10372.00	-11.3	V	3.0	35.8	1.0	-46.1	-25.0	-21.1	
5186.00	-16.6	H	3.0	35.4	1.0	-51.1	-25.0	-26.1	
7779.00	-13.6	H	3.0	35.8	1.0	-48.3	-25.0	-23.3	
10372.00	-11.0	H	3.0	35.8	1.0	-45.8	-25.0	-20.8	
High Ch, 2680MHz									
5360.00	-16.4	V	3.0	35.4	1.0	-50.8	-25.0	-25.8	
8040.00	-13.1	V	3.0	35.8	1.0	-47.9	-25.0	-22.9	
10720.00	-10.1	V	3.0	35.7	1.0	-44.8	-25.0	-19.8	
5360.00	-16.3	H	3.0	35.4	1.0	-50.8	-25.0	-25.8	
8040.00	-12.8	H	3.0	35.8	1.0	-47.6	-25.0	-22.6	
10720.00	-10.9	H	3.0	35.7	1.0	-45.6	-25.0	-20.6	

LTE B41 20MHz 16QAM

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