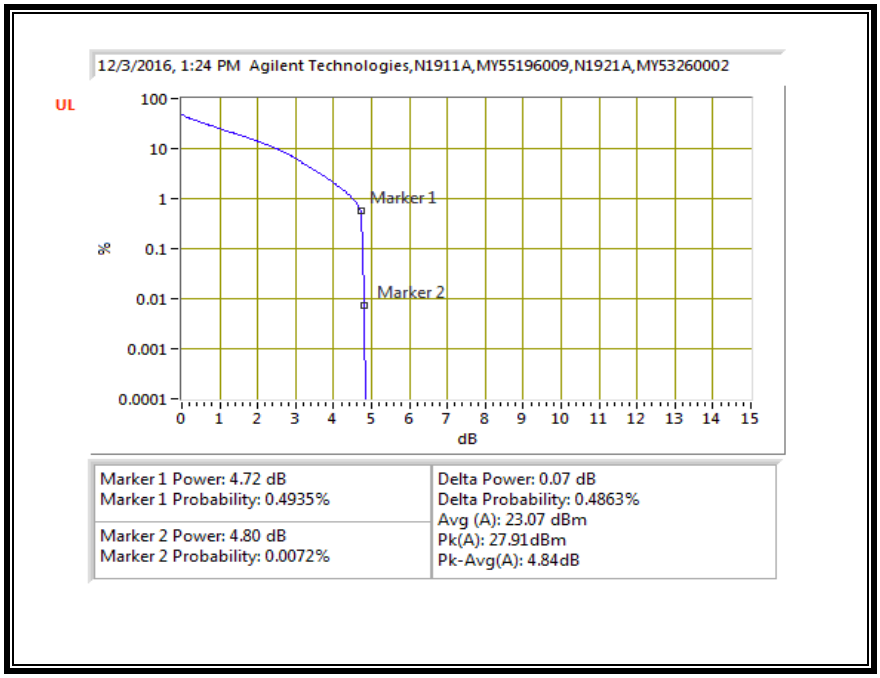
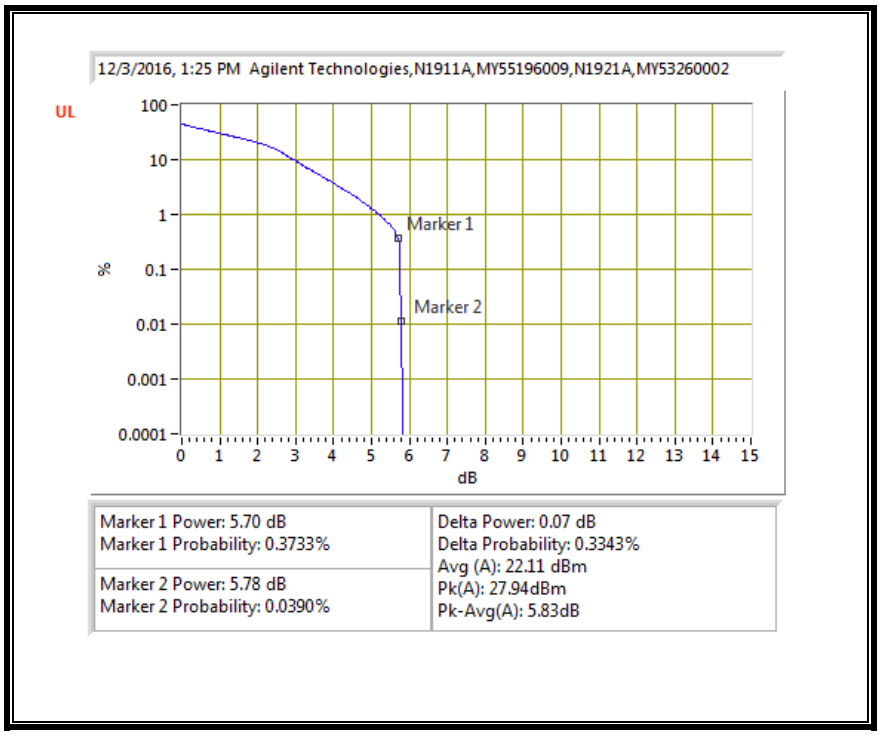
QPSK, (3.0 MHz BAND WIDTH)



16QAM, (3.0 MHz BAND WIDTH)



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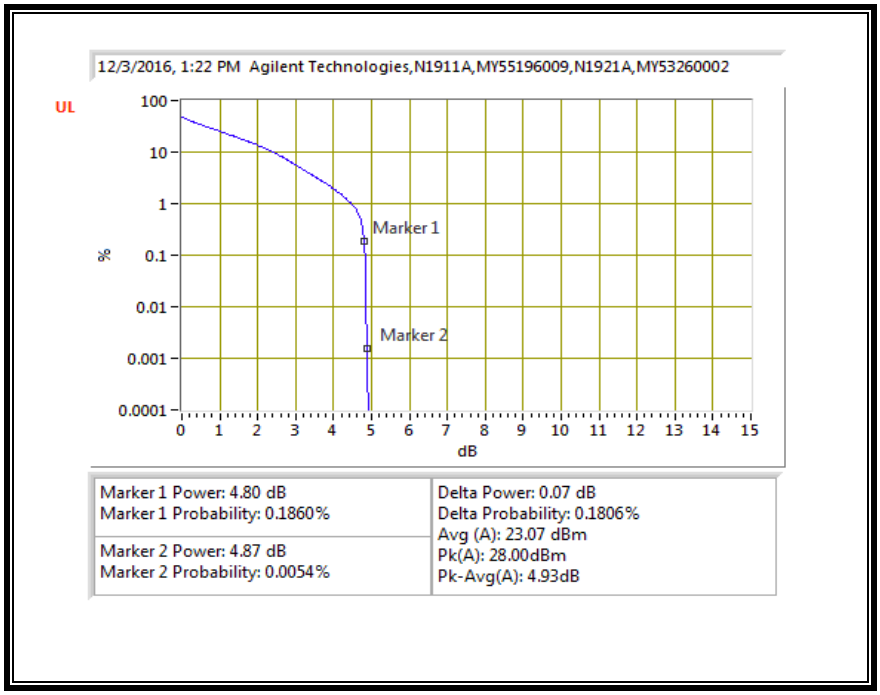
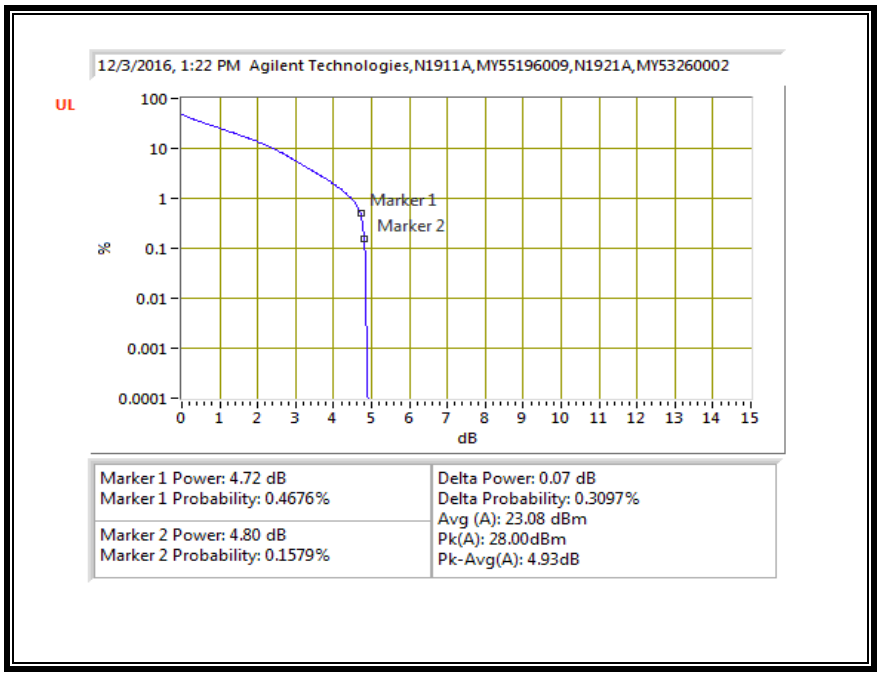
QPSK, (5.0 MHz BAND WIDTH)



16QAM, (5.0 MHz BAND WIDTH)



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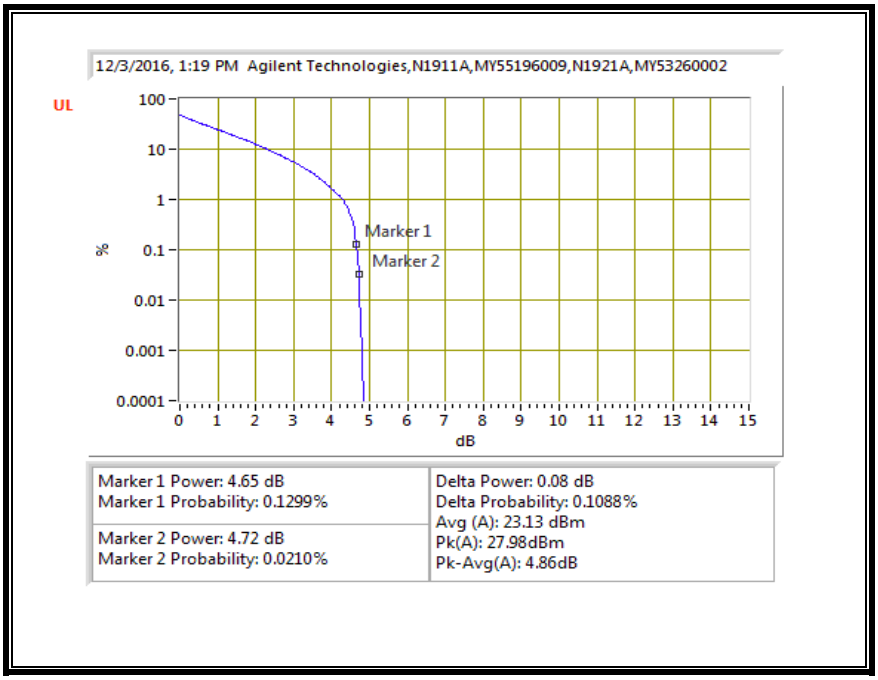
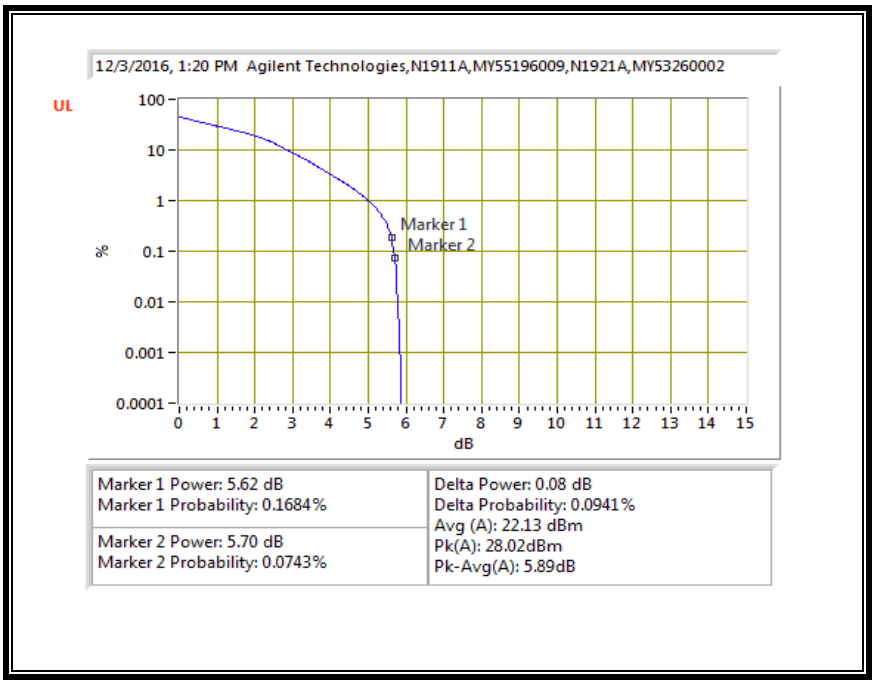
QPSK, (10.0 MHz BAND WIDTH)



16QAM, (10.0 MHz BAND WIDTH)



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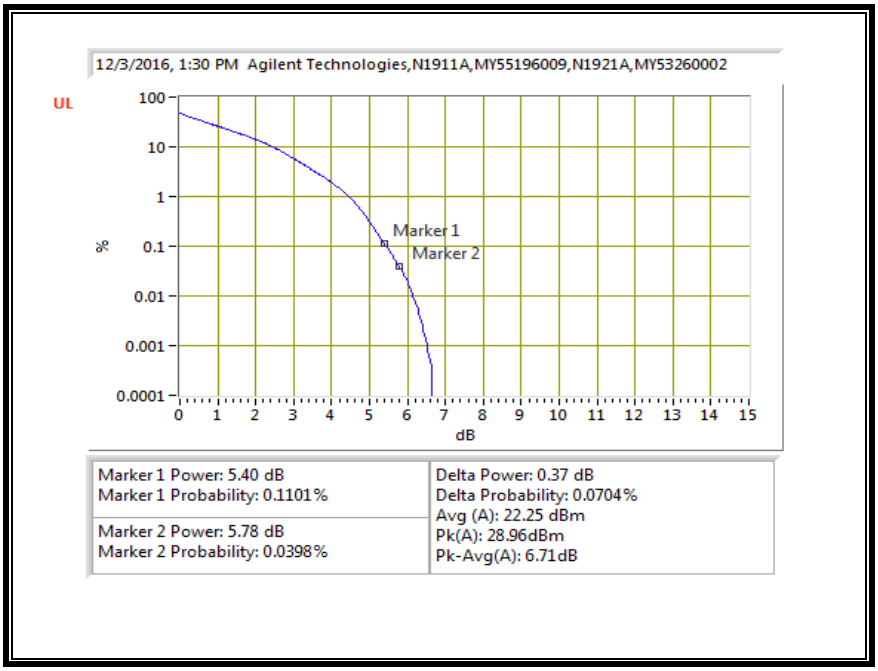
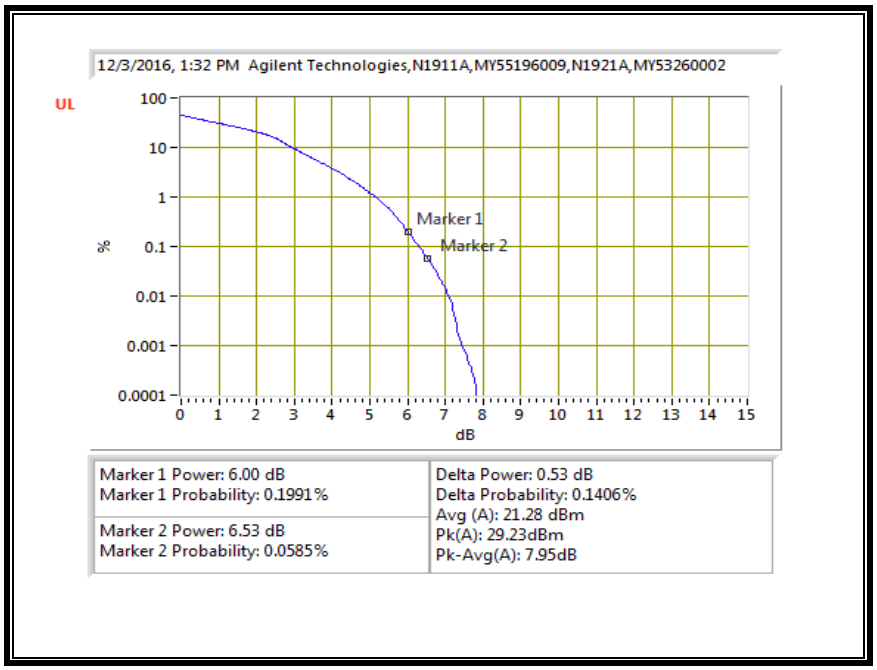
8.5.11. LTE BAND 30

QPSK, (5.0 MHz BAND WIDTH)



16QAM, (5.0 MHz BAND WIDTH)



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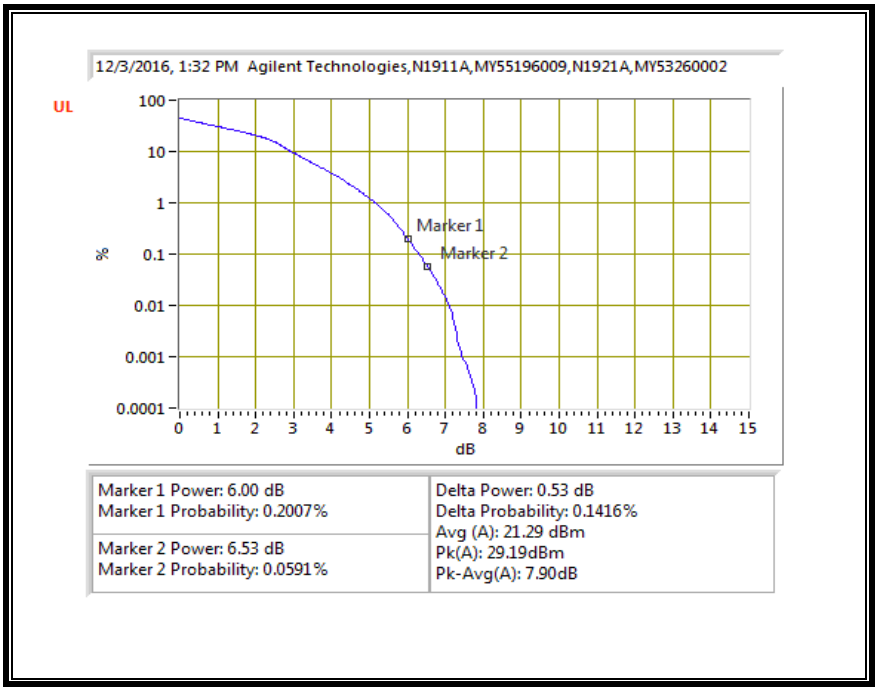
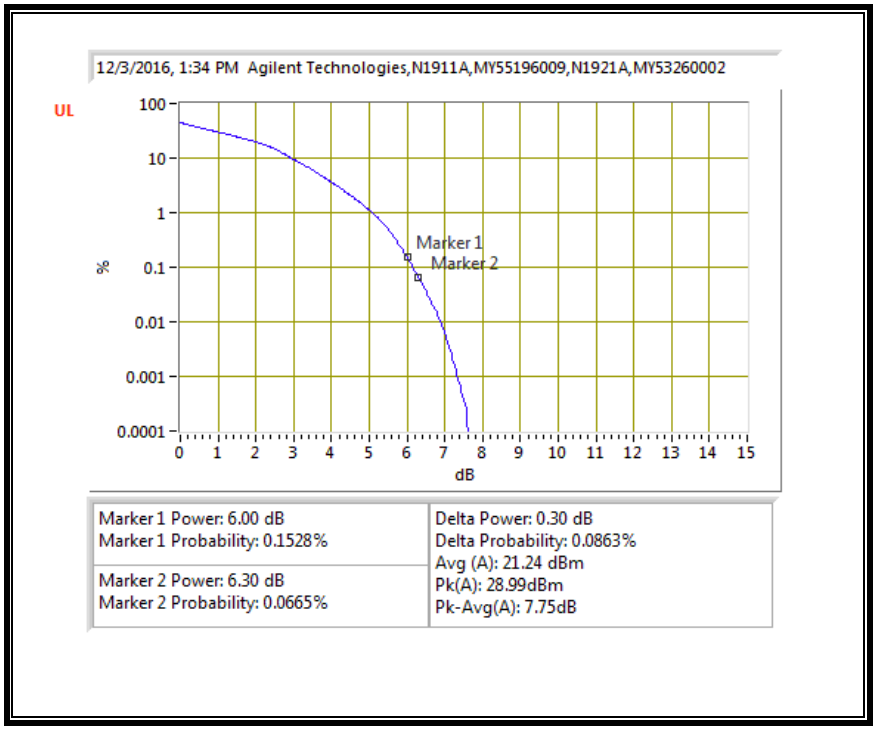
QPSK, (10.0 MHz BAND WIDTH)



16QAM, (10.0 MHz BAND WIDTH)



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8.5.12. LTE BAND 41

ID:	29439	Date:	2/20/17

Mode	Channel Band-	Frequency (MHz)	RB Size	RB OffSet	Modulation	Conducted Power (dBm)		Peak-to-Average Ratio
						Peak	Average	
LTE Band 41	5MHz	2593.0	25	0	QPSK	26.36	14.89	4.48
					16QAM	26.37	13.98	5.40
	10MHz		50	0	QPSK	28.82	14.98	6.85
					16QAM	28.28	13.97	7.32
	15MHz		75	0	QPSK	28.50	14.92	6.59
					16QAM	28.22	13.93	7.30
	20MHz		100	0	QPSK	28.29	14.92	6.38
					16QAM	28.08	14.19	6.90
Duty Cycle Correction Factor (dB)=			6.99					
Peak to Average Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor								

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9. RADIATED TEST RESULTS

9.1. IELD STRENGTH OF SPURIOUS RADIATION (ANTENNA C)

RULE PART(S)

FCC: §2.1053, §22.917, §24.238,§27.53 and §90.691

LIMIT

§22.917 (e) and §24.238 (a): Out of band emissions. 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.

§27.53 (g) For operations in the 698–746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB.

§27.53 (h) For operations in the 1710–1755 MHz and 2110–2155 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 43 + 10 log10(P) dB.

§90.691 Emission mask requirements for EA-based systems.

(a) Out-of-band emission requirement shall apply only to the “outer” channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Log10 (f/6.1) decibels or 50 + 10 Log10 (P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 43 + 10Log10 (P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

(b) When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in this section.

TEST PROCEDURE

For Cellular equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 100 kHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

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For PCS equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 MHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

The unwanted emission power shall be measured with a resolution bandwidth of at least 1% of the occupied bandwidth in the 1 MHz band immediately outside and adjacent to the channel edge of the equipment. Beyond the 1 MHz band immediately outside the channel edge of the equipment, a resolution bandwidth of 1 MHz shall be employed. A narrower resolution bandwidth is allowed to be used provided that the measured power is integrated over the full required measurement bandwidth of 1 MHz or 1% of the occupied bandwidth as applicable.

The power of any unwanted emissions measured from the channel edge of the equipment shall be attenuated below the transmitter power, P (dBW), as follows:

a. for base station and subscriber equipment, other than mobile subscriber equipment, the attenuation shall not be less than 43 + 10 Log10 (p), dB; and

b. for mobile subscriber equipment, the attenuation shall not be less than 43 + 10 Log10 (p), dB at the channel edges and 55 + 10 Log10 (p) at 5.5 MHz away and beyond the channel edges where p in (a) and (b) is the transmitter power measured in watts.

MODES TESTED

- LTE Band 2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 13
- LTE Band 17
- LTE Band 25
- LTE Band 26
- LTE Band 27
- LTE Band 30
- LTE Band 41

RESULTS

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9.1.1. LTE BAND 2

QPSK LTE BAND 2 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 11/23/16
Test Engineer: 52297
Configuration: EUT Only
Mode: LTE Band 2, 20MHz QPSK

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1860MHz)										
3.71	-64.5	H	3.0	-14.5	38.6	1.0	-52.2	-13.0	-39.2	
5.58	-66.1	H	3.0	-12.0	38.6	1.0	-49.6	-13.0	-36.6	
7.45	-67.3	H	3.0	-9.5	37.8	1.0	-46.3	-13.0	-33.3	
3.71	-65.2	V	3.0	-15.3	38.6	1.0	-52.9	-13.0	-39.9	
5.58	-65.9	V	3.0	-12.2	38.6	1.0	-49.7	-13.0	-36.7	
7.45	-66.4	V	3.0	-8.9	37.8	1.0	-45.7	-13.0	-32.7	
Mid Channel (1880MHz)										
3.76	-64.4	H	3.0	-14.3	38.6	1.0	-51.9	-13.0	-38.9	
5.65	-66.3	H	3.0	-12.1	38.5	1.0	-49.6	-13.0	-36.6	
7.52	-66.9	H	3.0	-9.1	37.7	1.0	-45.8	-13.0	-32.8	
3.77	-64.8	V	3.0	-14.7	38.6	1.0	-52.3	-13.0	-39.3	
5.65	-66.2	V	3.0	-12.3	38.5	1.0	-49.8	-13.0	-36.8	
7.51	-66.8	V	3.0	-9.2	37.8	1.0	-45.9	-13.0	-32.9	
High Channel (1900MHz)										
3.81	-64.2	H	3.0	-14.0	38.6	1.0	-51.6	-13.0	-38.6	
5.71	-65.0	H	3.0	-10.6	38.5	1.0	-48.1	-13.0	-35.1	
7.61	-67.3	H	3.0	-9.4	37.7	1.0	-46.0	-13.0	-33.0	
3.81	-64.3	V	3.0	-14.1	38.6	1.0	-51.7	-13.0	-38.7	
5.71	-65.8	V	3.0	-11.7	38.5	1.0	-49.2	-13.0	-36.2	
7.61	-67.0	V	3.0	-9.2	37.7	1.0	-45.9	-13.0	-32.9	

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16QAM LTE BAND 2 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 11/23/16
Test Engineer: 52297
Configuration: EUT Only
Mode: LTE Band 2, 20MHz 16QAM

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1860MHz)										
3.72	-65.0	H	3.0	-15.0	38.6	1.0	-52.6	-13.0	-39.6	
5.59	-66.0	H	3.0	-11.9	38.6	1.0	-49.4	-13.0	-36.4	
7.44	-66.9	H	3.0	-9.2	37.8	1.0	-46.0	-13.0	-33.0	
3.73	-65.1	V	3.0	-15.2	38.6	1.0	-52.8	-13.0	-39.8	
5.57	-65.9	V	3.0	-12.1	38.6	1.0	-49.7	-13.0	-36.7	
7.44	-66.7	V	3.0	-9.2	37.8	1.0	-46.0	-13.0	-33.0	
Mid Channel (1880MHz)										
3.77	-64.3	H	3.0	-14.2	38.6	1.0	-51.8	-13.0	-38.8	
5.64	-66.5	H	3.0	-12.2	38.5	1.0	-49.8	-13.0	-36.8	
7.52	-66.9	H	3.0	-9.1	37.7	1.0	-45.8	-13.0	-32.8	
3.77	-64.7	V	3.0	-14.6	38.6	1.0	-52.2	-13.0	-39.2	
5.63	-66.3	V	3.0	-12.4	38.5	1.0	-49.9	-13.0	-36.9	
7.52	-66.8	V	3.0	-9.2	37.7	1.0	-46.0	-13.0	-33.0	
High Channel (1900MHz)										
3.79	-64.6	H	3.0	-14.4	38.6	1.0	-52.1	-13.0	-39.1	
5.71	-65.2	H	3.0	-10.8	38.5	1.0	-48.3	-13.0	-35.3	
7.60	-67.9	H	3.0	-10.0	37.7	1.0	-46.7	-13.0	-33.7	
3.81	-63.6	V	3.0	-13.4	38.6	1.0	-51.0	-13.0	-38.0	
5.71	-65.6	V	3.0	-11.5	38.5	1.0	-49.0	-13.0	-36.0	
7.60	-68.0	V	3.0	-10.3	37.7	1.0	-47.0	-13.0	-34.0	

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9.1.2. LTE BAND 4

QPSK LTE BAND 4 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 11/23/16
Test Engineer: 52297
Configuration: EUT Only
Mode: LTE Band 4, 20MHz QPSK

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1720MHz)										
3.45	-65.1	H	3.0	-15.8	38.5	1.0	-53.3	-13.0	-40.3	
5.15	-65.2	H	3.0	-12.0	38.7	1.0	-49.7	-13.0	-36.7	
6.88	-65.9	H	3.0	-9.0	38.1	1.0	-46.1	-13.0	-33.1	
3.43	-65.2	V	3.0	-16.1	38.5	1.0	-53.6	-13.0	-40.6	
5.16	-65.3	V	3.0	-12.4	38.7	1.0	-50.1	-13.0	-37.1	
6.69	-66.2	V	3.0	-9.9	38.2	1.0	-47.1	-13.0	-34.1	
Mid Channel (1732.5MHz)										
3.48	-65.3	H	3.0	-15.9	38.5	1.0	-53.5	-13.0	-40.5	
5.21	-65.2	H	3.0	-11.9	38.7	1.0	-49.6	-13.0	-36.6	
6.94	-66.0	H	3.0	-8.9	38.1	1.0	-46.0	-13.0	-33.0	
3.45	-66.1	V	3.0	-17.0	38.5	1.0	-54.5	-13.0	-41.5	
5.18	-65.7	V	3.0	-12.8	38.7	1.0	-50.5	-13.0	-37.5	
6.92	-66.0	V	3.0	-9.3	38.1	1.0	-46.4	-13.0	-33.4	
High Channel (1745MHz)										
3.50	-65.4	H	3.0	-15.9	38.5	1.0	-53.5	-13.0	-40.5	
5.24	-64.3	H	3.0	-10.9	38.7	1.0	-48.6	-13.0	-35.6	
6.98	-67.0	H	3.0	-9.8	38.1	1.0	-46.9	-13.0	-33.9	
3.48	-65.3	V	3.0	-16.1	38.5	1.0	-53.7	-13.0	-40.7	
5.22	-65.4	V	3.0	-12.4	38.7	1.0	-50.0	-13.0	-37.0	
6.97	-66.6	V	3.0	-9.7	38.1	1.0	-46.8	-13.0	-33.8	

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16QAM LTE BAND 4 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 11/23/16
Test Engineer: 52297
Configuration: EUT Only
Mode: LTE Band 4, 20MHz 16QAM

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1720MHz)										
3.43	-65.4	H	3.0	-16.1	38.5	1.0	-53.6	-13.0	-40.6	
5.16	-65.2	H	3.0	-12.0	38.7	1.0	-49.7	-13.0	-36.7	
6.88	-66.1	H	3.0	-9.2	38.1	1.0	-46.3	-13.0	-33.3	
3.44	-65.5	V	3.0	-16.4	38.5	1.0	-53.9	-13.0	-40.9	
5.16	-65.8	V	3.0	-12.9	38.7	1.0	-50.6	-13.0	-37.6	
6.88	-66.0	V	3.0	-9.3	38.1	1.0	-46.5	-13.0	-33.5	
Mid Channel (1732.5MHz)										
3.46	-65.6	H	3.0	-16.2	38.5	1.0	-53.8	-13.0	-40.8	
5.20	-65.0	H	3.0	-11.8	38.7	1.0	-49.4	-13.0	-36.4	
6.93	-66.3	H	3.0	-9.3	38.1	1.0	-46.4	-13.0	-33.4	
3.45	-65.4	V	3.0	-16.3	38.5	1.0	-53.8	-13.0	-40.8	
5.18	-64.7	V	3.0	-11.8	38.7	1.0	-49.5	-13.0	-36.5	
6.94	-65.8	V	3.0	-8.9	38.1	1.0	-46.0	-13.0	-33.0	
High Channel (1745MHz)										
3.49	-65.8	H	3.0	-16.4	38.5	1.0	-53.9	-13.0	-40.9	
5.25	-64.7	H	3.0	-11.3	38.7	1.0	-48.9	-13.0	-35.9	
6.97	-66.5	H	3.0	-9.4	38.1	1.0	-46.5	-13.0	-33.5	
3.49	-65.3	V	3.0	-16.1	38.5	1.0	-53.6	-13.0	-40.6	
5.22	-65.9	V	3.0	-12.9	38.7	1.0	-50.5	-13.0	-37.5	
6.98	-66.8	V	3.0	-9.9	38.1	1.0	-47.0	-13.0	-34.0	

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9.1.3. LTE BAND 5

QPSK LTE BAND 5 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 11/22/2016
Test Engineer: 52297
Configuration: EUT Only
Mode: LTE Band 5, 10MHz QPSK

Test Equipment:
Substitution: Horn T59 (60?) Substitution, and 8ft SMA Cable

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (829MHz)										
1.66	-62.8	H	3.0	-20.3	37.8	1.0	-57.1	-13.0	-44.1	
2.49	-63.5	H	3.0	-18.4	38.5	1.0	-55.9	-13.0	-42.9	
3.32	-63.9	H	3.0	-14.9	38.5	1.0	-52.4	-13.0	-39.4	
1.66	-62.3	V	3.0	-20.2	37.8	1.0	-57.0	-13.0	-44.0	
2.49	-64.1	V	3.0	-18.9	38.5	1.0	-56.4	-13.0	-43.4	
3.32	-63.9	V	3.0	-15.1	38.5	1.0	-52.6	-13.0	-39.6	
Mid Channel (836.5MHz)										
1.67	-63.6	H	3.0	-21.0	37.8	1.0	-57.9	-13.0	-44.9	
2.51	-63.9	H	3.0	-18.7	38.6	1.0	-56.2	-13.0	-43.2	
3.35	-63.5	H	3.0	-14.4	38.5	1.0	-51.9	-13.0	-38.9	
1.67	-63.6	V	3.0	-21.3	37.8	1.0	-58.1	-13.0	-45.1	
2.51	-64.8	V	3.0	-19.4	38.6	1.0	-57.0	-13.0	-44.0	
3.35	-64.7	V	3.0	-15.9	38.5	1.0	-53.4	-13.0	-40.4	
High Channel (844MHz)										
1.69	-62.9	H	3.0	-20.3	37.9	1.0	-57.2	-13.0	-44.2	
2.53	-64.3	H	3.0	-18.9	38.6	1.0	-56.5	-13.0	-43.5	
3.38	-64.2	H	3.0	-15.1	38.5	1.0	-52.6	-13.0	-39.6	
1.69	-62.2	V	3.0	-19.8	37.9	1.0	-56.7	-13.0	-43.7	
2.53	-64.4	V	3.0	-18.9	38.6	1.0	-56.5	-13.0	-43.5	
3.38	-64.1	V	3.0	-15.2	38.5	1.0	-52.7	-13.0	-39.7	

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16QAM LTE BAND 5 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 11/22/16
Test Engineer: 52297
Configuration: EUT Only
Mode: LTE Band 5, 10MHz 16QAM

Test Equipment:
Substitution: Horn T59(60?) Substitution, and 8ft SMA Cable

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (829MHz)										
1.66	-62.6	H	3.0	-21.2	37.8	1.0	-58.0	-13.0	-45.0	
2.49	-63.7	H	3.0	-20.5	38.5	1.0	-58.0	-13.0	-45.0	
3.32	-63.6	H	3.0	-17.6	38.5	1.0	-55.1	-13.0	-42.1	
1.66	-63.2	V	3.0	-21.4	37.8	1.0	-58.3	-13.0	-45.3	
2.49	-64.2	V	3.0	-20.0	38.5	1.0	-57.6	-13.0	-44.6	
3.31	-64.5	V	3.0	-18.6	38.5	1.0	-56.1	-13.0	-43.1	
Mid Channel (836.5MHz)										
1.67	-62.9	H	3.0	-21.4	37.8	1.0	-58.3	-13.0	-45.3	
2.51	-64.8	H	3.0	-21.6	38.6	1.0	-59.2	-13.0	-46.2	
3.35	-63.9	H	3.0	-17.9	38.5	1.0	-55.4	-13.0	-42.4	
1.67	-62.4	V	3.0	-20.7	37.8	1.0	-57.5	-13.0	-44.5	
2.51	-64.2	V	3.0	-20.0	38.6	1.0	-57.6	-13.0	-44.6	
3.35	-64.4	V	3.0	-18.3	38.5	1.0	-55.8	-13.0	-42.8	
High Channel (844MHz)										
1.69	-63.4	H	3.0	-21.8	37.9	1.0	-58.7	-13.0	-45.7	
2.53	-63.9	H	3.0	-20.6	38.6	1.0	-58.1	-13.0	-45.1	
3.38	-63.9	H	3.0	-17.8	38.5	1.0	-55.3	-13.0	-42.3	
1.69	-62.9	V	3.0	-21.1	37.9	1.0	-58.0	-13.0	-45.0	
2.53	-64.2	V	3.0	-19.9	38.6	1.0	-57.5	-13.0	-44.5	
3.38	-64.3	V	3.0	-18.2	38.5	1.0	-55.7	-13.0	-42.7	

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9.1.4. LTE BAND 7

QPSK LTE BAND 7 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 11/23/16
Test Engineer: 45200
Configuration: EUT Only
Mode: LTE Band 7, 20MHz QPSK

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	Filter	LTE B7

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2510MHz)										
5.01	-72.0	H	3.0	-19.1	38.7	1.0	-56.8	-25.0	-31.8	
7.52	-71.0	H	3.0	-13.2	37.7	1.0	-50.0	-25.0	-25.0	
10.03	-69.7	H	3.0	-8.9	36.1	1.0	-44.1	-25.0	-19.1	
5.02	-71.5	V	3.0	-18.8	38.7	1.0	-56.5	-25.0	-31.5	
7.52	-71.2	V	3.0	-13.5	37.7	1.0	-50.3	-25.0	-25.3	
10.03	-70.4	V	3.0	-9.6	36.1	1.0	-44.7	-25.0	-19.7	
Mid Channel (2535MHz)										
5.08	-71.3	H	3.0	-18.3	38.7	1.0	-56.0	-25.0	-31.0	
7.62	-71.2	H	3.0	-13.2	37.7	1.0	-49.9	-25.0	-24.9	
10.13	-71.9	H	3.0	-11.0	36.2	1.0	-46.2	-25.0	-21.2	
5.08	-71.2	V	3.0	-18.5	38.7	1.0	-56.2	-25.0	-31.2	
7.59	-71.5	V	3.0	-13.8	37.7	1.0	-50.5	-25.0	-25.5	
10.13	-71.0	V	3.0	-10.1	36.2	1.0	-45.3	-25.0	-20.3	
High Channel (2560MHz)										
5.06	-71.2	H	3.0	-18.2	38.7	1.0	-55.9	-25.0	-30.9	
7.57	-71.5	H	3.0	-13.6	37.7	1.0	-50.4	-25.0	-25.4	
10.09	-70.8	H	3.0	-9.9	36.2	1.0	-45.1	-25.0	-20.1	
5.07	-70.6	V	3.0	-17.9	38.7	1.0	-55.6	-25.0	-30.6	
7.57	-71.5	V	3.0	-13.8	37.7	1.0	-50.6	-25.0	-25.6	
10.09	-69.8	V	3.0	-9.0	36.2	1.0	-44.1	-25.0	-19.1	

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16QAM LTE BAND 7 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 11/23/16
Test Engineer: 45200
Configuration: EUT Only
Mode: LTE Band 7, 20MHz 16QAM

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	Filter	LTE B7

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2510MHz)										
5.02	-71.84	H	3.0	-19.0	38.7	1.0	-56.6	-25.0	-31.6	
7.52	-71.59	H	3.0	-13.8	37.7	1.0	-50.5	-25.0	-25.5	
10.04	-69.73	H	3.0	-8.9	36.2	1.0	-44.0	-25.0	-19.0	
5.02	-71.83	V	3.0	-19.2	38.7	1.0	-56.9	-25.0	-31.9	
7.53	-71.06	V	3.0	-13.4	37.7	1.0	-50.2	-25.0	-25.2	
10.03	-69.72	V	3.0	-8.9	36.1	1.0	-44.1	-25.0	-19.1	
Mid Channel (2535MHz)										
5.08	-72.08	H	3.0	-19.0	38.7	1.0	-56.7	-25.0	-31.7	
7.61	-71.21	H	3.0	-13.3	37.7	1.0	-50.0	-25.0	-25.0	
10.14	-71.17	H	3.0	-10.3	36.2	1.0	-45.5	-25.0	-20.5	
5.08	-72.27	V	3.0	-19.5	38.7	1.0	-57.2	-25.0	-32.2	
7.60	-72.17	V	3.0	-14.5	37.7	1.0	-51.2	-25.0	-26.2	
10.13	-71.41	V	3.0	-10.5	36.2	1.0	-45.7	-25.0	-20.7	
High Channel (2560MHz)										
5.13	-71.16	H	3.0	-18.0	38.7	1.0	-55.7	-25.0	-30.7	
7.57	-71.31	H	3.0	-13.4	37.7	1.0	-50.1	-25.0	-25.1	
10.08	-70.89	H	3.0	-10.0	36.2	1.0	-45.2	-25.0	-20.2	
5.07	-72.37	V	3.0	-19.7	38.7	1.0	-57.4	-25.0	-32.4	
7.57	-71.42	V	3.0	-13.8	37.7	1.0	-50.5	-25.0	-25.5	
10.08	-70.93	V	3.0	-10.1	36.2	1.0	-45.3	-25.0	-20.3	

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9.1.5. LTE BAND 12

QPSK LTE BAND 12 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 11/22/16
Test Engineer: 52297
Configuration: EUT Only
Mode: LTE Band 12, 10MHz QPSK

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (704MHz)										
1.41	-62.43	H	3.0	-20.8	38.1	1.0	-57.9	-13.0	-44.9	
2.11	-63.93	H	3.0	-20.3	38.0	1.0	-57.3	-13.0	-44.3	
2.82	-64.54	H	3.0	-17.5	38.4	1.0	-54.9	-13.0	-41.9	
1.41	-62.16	V	3.0	-21.2	38.1	1.0	-58.3	-13.0	-45.3	
2.11	-64.84	V	3.0	-20.7	38.0	1.0	-57.7	-13.0	-44.7	
2.82	-63.84	V	3.0	-16.9	38.4	1.0	-54.4	-13.0	-41.4	
Mid Channel (707.5MHz)										
1.42	-62.72	H	3.0	-21.0	38.0	1.0	-58.1	-13.0	-45.1	
2.12	-64.12	H	3.0	-20.5	38.0	1.0	-57.5	-13.0	-44.5	
2.83	-64.25	H	3.0	-17.1	38.4	1.0	-54.5	-13.0	-41.5	
1.42	-62.61	V	3.0	-21.6	38.0	1.0	-58.7	-13.0	-45.7	
2.12	-64.16	V	3.0	-20.0	38.0	1.0	-57.0	-13.0	-44.0	
2.83	-63.68	V	3.0	-16.7	38.4	1.0	-54.2	-13.0	-41.2	
High Channel (711MHz)										
1.42	-62.33	H	3.0	-20.6	38.0	1.0	-57.6	-13.0	-44.6	
2.13	-63.71	H	3.0	-20.1	38.0	1.0	-57.0	-13.0	-44.0	
2.84	-64.22	H	3.0	-17.0	38.4	1.0	-54.4	-13.0	-41.4	
1.42	-62.36	V	3.0	-21.3	38.0	1.0	-58.4	-13.0	-45.4	
2.13	-64.07	V	3.0	-19.9	38.0	1.0	-56.9	-13.0	-43.9	
2.84	-64.06	V	3.0	-17.0	38.4	1.0	-54.5	-13.0	-41.5	

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16QAM LTE BAND 12 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 11/22/16
Test Engineer: 52297
Configuration: EUT Only
Mode: LTE Band 12, 10MHz 16QAM

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (704MHz)										
1.41	-62.11	H	3.0	-20.5	38.1	1.0	-57.5	-13.0	-44.5	
2.11	-63.18	H	3.0	-19.6	38.0	1.0	-56.6	-13.0	-43.6	
2.82	-64.36	H	3.0	-17.3	38.4	1.0	-54.7	-13.0	-41.7	
1.41	-61.99	V	3.0	-21.0	38.1	1.0	-58.1	-13.0	-45.1	
2.11	-64.90	V	3.0	-20.8	38.0	1.0	-57.8	-13.0	-44.8	
2.82	-64.13	V	3.0	-17.2	38.4	1.0	-54.7	-13.0	-41.7	
Mid Channel (707.5MHz)										
1.41	-61.94	H	3.0	-20.3	38.0	1.0	-57.3	-13.0	-44.3	
2.12	-64.14	H	3.0	-20.5	38.0	1.0	-57.5	-13.0	-44.5	
2.83	-64.13	H	3.0	-17.0	38.4	1.0	-54.4	-13.0	-41.4	
1.42	-62.24	V	3.0	-21.3	38.0	1.0	-58.3	-13.0	-45.3	
2.12	-64.52	V	3.0	-20.4	38.0	1.0	-57.4	-13.0	-44.4	
2.83	-63.87	V	3.0	-16.9	38.4	1.0	-54.4	-13.0	-41.4	
High Channel (711MHz)										
1.42	-62.61	H	3.0	-20.9	38.0	1.0	-57.9	-13.0	-44.9	
2.13	-63.33	H	3.0	-19.7	38.0	1.0	-56.7	-13.0	-43.7	
2.84	-64.31	H	3.0	-17.1	38.4	1.0	-54.5	-13.0	-41.5	
1.42	-62.93	V	3.0	-21.9	38.0	1.0	-58.9	-13.0	-45.9	
2.13	-63.28	V	3.0	-19.1	38.0	1.0	-56.1	-13.0	-43.1	
2.84	-64.31	V	3.0	-17.3	38.4	1.0	-54.7	-13.0	-41.7	

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9.1.6. LTE BAND 13

QPSK LTE BAND 13 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 11/22/16
Test Engineer: 52297
Configuration: EUT Only
Mode: LTE Band 13, 10MHz QPSK

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	Filter	LTE B13

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Mid Channel (782MHz)										
1.56	-62.37	H	3.0	-20.1	37.8	1.0	-56.9	-40.0	-16.9	
2.35	-63.62	H	3.0	-19.2	38.1	1.0	-56.3	-13.0	-43.3	
3.12	-64.58	H	3.0	-16.1	38.4	1.0	-53.5	-13.0	-40.5	
1.56	-62.59	V	3.0	-20.9	37.8	1.0	-57.7	-40.0	-17.7	
2.35	-63.61	V	3.0	-18.9	38.1	1.0	-56.1	-13.0	-43.1	
3.13	-63.64	V	3.0	-15.5	38.4	1.0	-52.9	-13.0	-39.9	

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16QAM LTE BAND 13 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 11/22/16
Test Engineer: 52297
Configuration: EUT Only
Mode: LTE Band 13, 10MHz 16QAM

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	Filter	LTE B13

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Mid Channel (782MHz)										
1.56	-62.26	H	3.0	-20.0	37.8	1.0	-56.8	-40.0	-16.8	
2.35	-64.16	H	3.0	-19.7	38.1	1.0	-56.9	-13.0	-43.9	
3.13	-63.90	H	3.0	-15.4	38.4	1.0	-52.8	-13.0	-39.8	
1.56	-63.37	V	3.0	-21.6	37.8	1.0	-58.5	-40.0	-18.5	
2.35	-63.90	V	3.0	-19.2	38.1	1.0	-56.4	-13.0	-43.4	
3.13	-63.95	V	3.0	-15.8	38.4	1.0	-53.2	-13.0	-40.2	

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9.1.7. LTE BAND 17

QPSK LTE BAND 17 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 11/22/16
Test Engineer: 52297
Configuration: EUT Only
Mode: LTE Band 17, 10MHz QPSK

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Mid Channel (710MHz)										
1.42	-62.48	H	3.0	-20.8	38.0	1.0	-57.8	-13.0	-44.8	
2.13	-63.68	H	3.0	-20.0	38.0	1.0	-57.0	-13.0	-44.0	
2.85	-62.34	H	3.0	-15.1	38.4	1.0	-52.5	-13.0	-39.5	
1.42	-62.67	V	3.0	-21.7	38.0	1.0	-58.7	-13.0	-45.7	
2.13	-64.03	V	3.0	-19.9	38.0	1.0	-56.9	-13.0	-43.9	
2.84	-63.61	V	3.0	-16.6	38.4	1.0	-54.0	-13.0	-41.0	

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16QAM LTE BAND 17 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 11/22/16
Test Engineer: 52297
Configuration: EUT Only
Mode: LTE Band 17, 10MHz 16QAM

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Mid Channel (710MHz)										
1.42	-61.68	H	3.0	-20.0	38.0	1.0	-57.0	-13.0	-44.0	
2.13	-63.46	H	3.0	-19.8	38.0	1.0	-56.8	-13.0	-43.8	
2.84	-63.83	H	3.0	-16.6	38.4	1.0	-54.0	-13.0	-41.0	
1.42	-61.97	V	3.0	-21.0	38.0	1.0	-58.0	-13.0	-45.0	
2.13	-63.62	V	3.0	-19.4	38.0	1.0	-56.4	-13.0	-43.4	
2.84	-64.55	V	3.0	-17.5	38.4	1.0	-55.0	-13.0	-42.0	

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9.1.8. LTE BAND 25

QPSK LTE BAND 25 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 11/23/16
Test Engineer: 45200
Configuration: EUT Only
Mode: LTE Band 25, 20MHz QPSK

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1860MHz)										
3.71	-70.61	H	3.0	-20.6	38.6	1.0	-58.2	-13.0	-45.2	
5.59	-72.68	H	3.0	-18.5	38.6	1.0	-56.1	-13.0	-43.1	
7.44	-71.13	H	3.0	-13.4	37.8	1.0	-50.2	-13.0	-37.2	
3.73	-69.99	V	3.0	-20.0	38.6	1.0	-57.7	-13.0	-44.7	
5.58	-72.67	V	3.0	-18.9	38.6	1.0	-56.4	-13.0	-43.4	
7.44	-71.19	V	3.0	-13.7	37.8	1.0	-50.5	-13.0	-37.5	
Mid Channel (1882.5MHz)										
3.77	-69.40	H	3.0	-19.3	38.6	1.0	-56.9	-13.0	-43.9	
5.65	-72.94	H	3.0	-18.7	38.5	1.0	-56.2	-13.0	-43.2	
7.53	-72.06	H	3.0	-14.2	37.7	1.0	-51.0	-13.0	-38.0	
3.78	-69.78	V	3.0	-19.7	38.6	1.0	-57.3	-13.0	-44.3	
5.66	-73.34	V	3.0	-19.4	38.5	1.0	-56.9	-13.0	-43.9	
7.54	-71.16	V	3.0	-13.5	37.7	1.0	-50.3	-13.0	-37.3	
High Channel (1905MHz)										
3.80	-68.86	H	3.0	-18.7	38.6	1.0	-56.3	-13.0	-43.3	
5.71	-71.13	H	3.0	-16.7	38.5	1.0	-54.2	-13.0	-41.2	
7.62	-71.88	H	3.0	-13.9	37.7	1.0	-50.6	-13.0	-37.6	
3.81	-69.96	V	3.0	-19.8	38.6	1.0	-57.4	-13.0	-44.4	
5.73	-71.39	V	3.0	-17.3	38.5	1.0	-54.8	-13.0	-41.8	
7.62	-72.55	V	3.0	-14.8	37.7	1.0	-51.5	-13.0	-38.5	

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16QAM LTE BAND 25 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 11/23/16
Test Engineer: 45200
Configuration: EUT only
Mode: LTE Band 25, 20MHz 16QAM

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1860MHz)										
3.73	-70.9	H	3.0	-20.8	38.6	1.0	-58.4	-13.0	-45.4	
5.58	-71.6	H	3.0	-17.5	38.6	1.0	-55.1	-13.0	-42.1	
7.45	-70.4	H	3.0	-12.7	37.8	1.0	-49.5	-13.0	-36.5	
3.73	-70.4	V	3.0	-20.4	38.6	1.0	-58.1	-13.0	-45.1	
5.58	-72.4	V	3.0	-18.6	38.6	1.0	-56.2	-13.0	-43.2	
7.44	-70.1	V	3.0	-12.6	37.8	1.0	-49.4	-13.0	-36.4	
Mid Channel (1882.5MHz)										
3.77	-70.2	H	3.0	-20.1	38.6	1.0	-57.7	-13.0	-44.7	
5.66	-72.3	H	3.0	-18.0	38.5	1.0	-55.6	-13.0	-42.6	
7.53	-71.1	H	3.0	-13.3	37.7	1.0	-50.0	-13.0	-37.0	
3.77	-70.2	V	3.0	-20.1	38.6	1.0	-57.7	-13.0	-44.7	
5.66	-72.7	V	3.0	-18.7	38.5	1.0	-56.2	-13.0	-43.2	
7.52	-71.6	V	3.0	-14.0	37.7	1.0	-50.8	-13.0	-37.8	
High Channel (1905MHz)										
3.80	-68.8	H	3.0	-18.6	38.6	1.0	-56.2	-13.0	-43.2	
5.71	-71.5	H	3.0	-17.1	38.5	1.0	-54.6	-13.0	-41.6	
7.62	-71.6	H	3.0	-13.7	37.7	1.0	-50.4	-13.0	-37.4	
3.81	-68.8	V	3.0	-18.6	38.7	1.0	-56.2	-13.0	-43.2	
5.70	-70.9	V	3.0	-16.8	38.5	1.0	-54.3	-13.0	-41.3	
7.62	-72.4	V	3.0	-14.6	37.7	1.0	-51.3	-13.0	-38.3	

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9.1.9. LTE BAND 26

QPSK LTE BAND 26 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 11/22/16
Test Engineer: 52297
Configuration: EUT Only
Mode: LTE Band 26 (90S), 10MHz QPSK

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Mid Channel (819MHz)										
1.64	-62.6	H	3.0	-20.2	37.8	1.0	-57.0	-13.0	-44.0	
2.46	-63.6	H	3.0	-18.7	38.4	1.0	-56.1	-13.0	-43.1	
3.28	-63.8	H	3.0	-14.9	38.5	1.0	-52.4	-13.0	-39.4	
1.64	-62.6	V	3.0	-20.5	37.8	1.0	-57.4	-13.0	-44.4	
2.46	-64.0	V	3.0	-18.9	38.4	1.0	-56.3	-13.0	-43.3	
3.28	-63.5	V	3.0	-14.9	38.5	1.0	-52.4	-13.0	-39.4	

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16QAM LTE BAND 26 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 11/22/16
Test Engineer: 52297
Configuration: EUT Only
Mode: LTE Band 26 (90S), 10MHz 16QAM

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Mid Channel (819MHz)										
1.64	-63.3	H	3.0	-20.9	37.8	1.0	-57.7	-13.0	-44.7	
2.46	-63.8	H	3.0	-18.9	38.4	1.0	-56.3	-13.0	-43.3	
3.28	-64.8	H	3.0	-15.9	38.5	1.0	-53.4	-13.0	-40.4	
1.64	-62.6	V	3.0	-20.5	37.8	1.0	-57.3	-13.0	-44.3	
2.46	-63.2	V	3.0	-18.2	38.4	1.0	-55.6	-13.0	-42.6	
3.28	-64.3	V	3.0	-15.7	38.5	1.0	-53.1	-13.0	-40.1	

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9.1.10. LTE BAND 27

QPSK LTE BAND 27 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 11/22/16
Test Engineer: 52297
Configuration: EUT only
Mode: LTE Band 27, 10MHz QPSK

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Mid Channel (815.5MHz)										
1.63	-62.8	H	3.0	-20.4	37.8	1.0	-57.2	-13.0	-44.2	
2.45	-63.6	H	3.0	-18.8	38.4	1.0	-56.1	-13.0	-43.1	
3.26	-64.3	H	3.0	-15.4	38.5	1.0	-52.9	-13.0	-39.9	
1.64	-62.6	V	3.0	-20.5	37.8	1.0	-57.3	-13.0	-44.3	
2.45	-63.8	V	3.0	-18.8	38.4	1.0	-56.1	-13.0	-43.1	
3.26	-64.1	V	3.0	-15.5	38.5	1.0	-52.9	-13.0	-39.9	

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16QAM LTE BAND 27 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 11/22/16
Test Engineer: 52297
Configuration: EUT only
Mode: LTE Band 27, 10MHz 16QAM

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Mid Channel (815.5MHz)										
1.63	-62.8	H	3.0	-20.3	37.8	1.0	-57.2	-13.0	-44.2	
2.45	-63.5	H	3.0	-18.6	38.4	1.0	-56.0	-13.0	-43.0	
3.26	-64.4	H	3.0	-15.6	38.5	1.0	-53.0	-13.0	-40.0	
1.63	-63.1	V	3.0	-21.0	37.8	1.0	-57.8	-13.0	-44.8	
2.45	-63.5	V	3.0	-18.4	38.4	1.0	-55.8	-13.0	-42.8	
3.26	-64.3	V	3.0	-15.7	38.5	1.0	-53.1	-13.0	-40.1	

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9.1.11. LTE BAND 30

QPSK LTE BAND 30 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 01/24/17
Test Engineer: 37290
Configuration: EUT only
Mode: LTE Band 30, 10MHz QPSK

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	Filter	LTE B30

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Mid Channel (2310MHz)										
4.62	-67.4	H	3.0	-13.6	37.9	1.0	-50.5	-40.0	-10.5	
6.93	-69.2	H	3.0	-10.6	36.5	1.0	-46.0	-40.0	-6.0	
4.62	-68.5	V	3.0	-14.8	37.9	1.0	-51.7	-40.0	-11.7	
6.93	-70.3	V	3.0	-10.8	36.5	1.0	-46.3	-40.0	-6.3	

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16QAM LTE BAND 30 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 01/24/17
Test Engineer: 37290
Configuration: EUT only
Mode: LTE Band 30, 10MHz 16QAM

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	Filter	LTE B30

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Mid Channel (2310MHz)										
4.62	-68.0	H	3.0	-14.2	37.9	1.0	-51.1	-40.0	-11.1	
6.93	-70.5	H	3.0	-11.9	36.5	1.0	-47.3	-40.0	-7.3	
4.62	-67.2	V	3.0	-13.5	37.9	1.0	-50.4	-40.0	-10.4	
6.93	-69.5	V	3.0	-10.0	36.5	1.0	-45.5	-40.0	-5.5	

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9.1.12. LTE BAND 41

QPSK LTE BAND 41 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 11/23/16
Test Engineer: 45200
Configuration: EUT only
Mode: LTE Band 41, 20MHz QPSK

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	Filter	LTE B41

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2506MHz)										
5.01	-71.8	H	3.0	-18.9	38.7	1.0	-56.6	-25.0	-31.6	
7.53	-70.9	H	3.0	-13.1	37.7	1.0	-49.8	-25.0	-24.8	
10.01	-69.9	H	3.0	-9.1	36.1	1.0	-44.2	-25.0	-19.2	
5.00	-71.6	V	3.0	-19.0	38.7	1.0	-56.7	-25.0	-31.7	
7.51	-72.0	V	3.0	-14.4	37.7	1.0	-51.1	-25.0	-26.1	
10.01	-70.9	V	3.0	-10.1	36.1	1.0	-45.2	-25.0	-20.2	
Mid Channel (2593MHz)										
5.19	-70.6	H	3.0	-17.4	38.7	1.0	-55.0	-25.0	-30.0	
7.77	-70.9	H	3.0	-12.8	37.6	1.0	-49.4	-25.0	-24.4	
10.37	-70.4	H	3.0	-9.3	36.4	1.0	-44.7	-25.0	-19.7	
5.19	-71.3	V	3.0	-18.3	38.7	1.0	-56.0	-25.0	-31.0	
7.77	-71.3	V	3.0	-13.4	37.6	1.0	-49.9	-25.0	-24.9	
10.36	-70.9	V	3.0	-9.8	36.4	1.0	-45.1	-25.0	-20.1	
High Channel (2680MHz)										
5.35	-72.9	H	3.0	-19.3	38.6	1.0	-56.9	-25.0	-31.9	
8.05	-70.5	H	3.0	-12.1	37.4	1.0	-48.5	-25.0	-23.5	
10.71	-70.7	H	3.0	-9.3	36.6	1.0	-44.9	-25.0	-19.9	
5.35	-72.4	V	3.0	-19.1	38.6	1.0	-56.7	-25.0	-31.7	
8.03	-71.1	V	3.0	-12.8	37.4	1.0	-49.2	-25.0	-24.2	
10.71	-70.4	V	3.0	-8.8	36.6	1.0	-44.4	-25.0	-19.4	

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16QAM LTE BAND 41 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 11/23/16
Test Engineer: 45200
Configuration: EUT only
Mode: LTE Band 41, 20MHz 16QAM

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	Filter	LTE B41

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2506MHz)										
5.02	-71.4	H	3.0	-18.5	38.7	1.0	-56.2	-25.0	-31.2	
7.53	-71.0	H	3.0	-13.1	37.7	1.0	-49.9	-25.0	-24.9	
10.02	-70.4	H	3.0	-9.6	36.1	1.0	-44.8	-25.0	-19.8	
5.01	-71.7	V	3.0	-19.1	38.7	1.0	-56.8	-25.0	-31.8	
7.52	-70.2	V	3.0	-12.6	37.7	1.0	-49.3	-25.0	-24.3	
10.03	-71.0	V	3.0	-10.2	36.1	1.0	-45.4	-25.0	-20.4	
Mid Channel (2593MHz)										
5.20	-71.0	H	3.0	-17.7	38.7	1.0	-55.4	-25.0	-30.4	
7.77	-70.2	H	3.0	-12.0	37.6	1.0	-48.6	-25.0	-23.6	
10.37	-70.0	H	3.0	-8.9	36.4	1.0	-44.3	-25.0	-19.3	
5.19	-70.2	V	3.0	-17.2	38.7	1.0	-54.9	-25.0	-29.9	
7.79	-71.2	V	3.0	-13.3	37.6	1.0	-49.9	-25.0	-24.9	
10.36	-70.3	V	3.0	-9.2	36.4	1.0	-44.5	-25.0	-19.5	
High Channel (2680MHz)										
5.35	-72.3	H	3.0	-18.7	38.6	1.0	-56.3	-25.0	-31.3	
8.04	-70.9	H	3.0	-12.5	37.4	1.0	-48.9	-25.0	-23.9	
10.71	-70.1	H	3.0	-8.7	36.6	1.0	-44.2	-25.0	-19.2	
5.37	-72.9	V	3.0	-19.6	38.6	1.0	-57.2	-25.0	-32.2	
8.05	-71.0	V	3.0	-12.7	37.4	1.0	-49.1	-25.0	-24.1	
10.71	-71.6	V	3.0	-10.0	36.6	1.0	-45.6	-25.0	-20.6	

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9.2. FIELD STRENGTH OF SPURIOUS RADIATION (ANTENNA D)

9.2.1. LTE BAND 2

QPSK LTE BAND 2 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 12/02/16
Test Engineer: 39005
Configuration: EUT Only
Mode: LTE Band 2, 20MHz QPSK

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber H	3m Chamber H	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1860MHz)										
3.72	-61.5	H	3.0	-13.5	37.4	1.0	-49.9	-13.0	-36.9	
5.58	-63.4	H	3.0	-12.4	36.7	1.0	-48.2	-13.0	-35.2	
7.44	-65.0	H	3.0	-11.2	36.0	1.0	-46.2	-13.0	-33.2	
3.72	-61.2	V	3.0	-13.5	37.4	1.0	-49.9	-13.0	-36.9	
5.58	-63.3	V	3.0	-12.2	36.7	1.0	-47.9	-13.0	-34.9	
7.44	-65.0	V	3.0	-11.4	36.0	1.0	-46.4	-13.0	-33.4	
Mid Channel (1880MHz)										
3.76	-61.7	H	3.0	-13.7	37.4	1.0	-50.1	-13.0	-37.1	
5.65	-63.0	H	3.0	-11.9	36.7	1.0	-47.6	-13.0	-34.6	
7.52	-64.2	H	3.0	-10.3	35.9	1.0	-45.3	-13.0	-32.3	
3.76	-61.6	V	3.0	-13.8	37.4	1.0	-50.1	-13.0	-37.1	
5.65	-63.7	V	3.0	-12.5	36.7	1.0	-48.2	-13.0	-35.2	
7.52	-64.1	V	3.0	-10.5	35.9	1.0	-45.4	-13.0	-32.4	
High Channel (1900MHz)										
3.80	-61.7	H	3.0	-13.7	37.3	1.0	-50.0	-13.0	-37.0	
5.70	-62.5	H	3.0	-11.3	36.7	1.0	-47.0	-13.0	-34.0	
7.60	-65.1	H	3.0	-11.2	35.8	1.0	-46.0	-13.0	-33.0	
3.80	-61.3	V	3.0	-13.4	37.3	1.0	-49.7	-13.0	-36.7	
5.70	-63.6	V	3.0	-12.4	36.7	1.0	-48.1	-13.0	-35.1	
7.60	-63.8	V	3.0	-10.1	35.8	1.0	-45.0	-13.0	-32.0	

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16QAM LTE BAND 2 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 12/02/16
Test Engineer: 39005
Configuration: EUT Only
Mode: LTE Band 2, 20MHz 16QAM

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber H	3m Chamber H	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1860MHz)										
3.72	-61.4	H	3.0	-13.5	37.4	1.0	-49.9	-13.0	-36.9	
5.58	-63.3	H	3.0	-12.3	36.7	1.0	-48.0	-13.0	-35.0	
7.44	-65.4	H	3.0	-11.6	36.0	1.0	-46.6	-13.0	-33.6	
3.72	-61.2	V	3.0	-13.4	37.4	1.0	-49.8	-13.0	-36.8	
5.58	-63.4	V	3.0	-12.3	36.7	1.0	-48.0	-13.0	-35.0	
7.44	-64.9	V	3.0	-11.3	36.0	1.0	-46.3	-13.0	-33.3	
Mid Channel (1880MHz)										
3.76	-61.7	H	3.0	-13.7	37.4	1.0	-50.1	-13.0	-37.1	
5.65	-63.5	H	3.0	-12.4	36.7	1.0	-48.1	-13.0	-35.1	
7.52	-64.2	H	3.0	-10.3	35.9	1.0	-45.2	-13.0	-32.2	
3.76	-61.6	V	3.0	-13.8	37.4	1.0	-50.2	-13.0	-37.2	
5.65	-63.5	V	3.0	-12.4	36.7	1.0	-48.1	-13.0	-35.1	
7.52	-64.1	V	3.0	-10.5	35.9	1.0	-45.4	-13.0	-32.4	
High Channel (1900MHz)										
3.80	-61.7	H	3.0	-13.7	37.3	1.0	-50.0	-13.0	-37.0	
5.70	-62.4	H	3.0	-11.2	36.7	1.0	-47.0	-13.0	-34.0	
7.60	-65.0	H	3.0	-11.1	35.8	1.0	-45.9	-13.0	-32.9	
3.80	-61.4	V	3.0	-13.5	37.3	1.0	-49.8	-13.0	-36.8	
5.70	-63.6	V	3.0	-12.4	36.7	1.0	-48.1	-13.0	-35.1	
7.60	-63.9	V	3.0	-10.2	35.8	1.0	-45.0	-13.0	-32.0	

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9.2.2. LTE BAND 4

QPSK LTE BAND 4 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 12/02/16
Test Engineer: 39005
Configuration: EUT Only
Mode: LTE Band 4, 20MHz QPSK

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber H	3m Chamber H	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1720MHz)										
3.44	-61.5	H	3.0	-13.6	37.7	1.0	-50.3	-13.0	-37.3	
5.16	-62.4	H	3.0	-12.1	36.8	1.0	-47.9	-13.0	-34.9	
6.88	-63.8	H	3.0	-10.7	36.4	1.0	-46.2	-13.0	-33.2	
3.44	-61.3	V	3.0	-14.2	37.7	1.0	-50.9	-13.0	-37.9	
5.16	-62.3	V	3.0	-11.9	36.8	1.0	-47.7	-13.0	-34.7	
6.88	-63.8	V	3.0	-10.9	36.4	1.0	-46.3	-13.0	-33.3	
Mid Channel (1732.5MHz)										
3.47	-61.1	H	3.0	-13.2	37.7	1.0	-49.9	-13.0	-36.9	
5.20	-62.8	H	3.0	-12.5	36.8	1.0	-48.3	-13.0	-35.3	
6.93	-63.4	H	3.0	-10.2	36.4	1.0	-45.6	-13.0	-32.6	
3.47	-61.5	V	3.0	-14.3	37.7	1.0	-51.0	-13.0	-38.0	
5.20	-63.1	V	3.0	-12.5	36.8	1.0	-48.4	-13.0	-35.4	
6.93	-64.4	V	3.0	-11.4	36.4	1.0	-46.8	-13.0	-33.8	
High Channel (1745MHz)										
3.49	-61.2	H	3.0	-13.3	37.6	1.0	-49.9	-13.0	-36.9	
5.24	-62.8	H	3.0	-12.4	36.8	1.0	-48.2	-13.0	-35.2	
6.98	-63.4	H	3.0	-10.2	36.4	1.0	-45.6	-13.0	-32.6	
3.49	-61.5	V	3.0	-14.2	37.6	1.0	-50.9	-13.0	-37.9	
5.24	-63.2	V	3.0	-12.6	36.8	1.0	-48.4	-13.0	-35.4	
6.98	-64.2	V	3.0	-11.2	36.4	1.0	-46.6	-13.0	-33.6	

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16QAM LTE BAND 4 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 12/02/16
Test Engineer: 39005
Configuration: EUT Only
Mode: LTE Band 4, 20MHz 16QAM

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber H	3m Chamber H	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1720MHz)										
3.44	-61.3	H	3.0	-13.5	37.7	1.0	-50.2	-13.0	-37.2	
5.16	-62.2	H	3.0	-11.9	36.8	1.0	-47.8	-13.0	-34.8	
6.88	-63.8	H	3.0	-10.7	36.4	1.0	-46.1	-13.0	-33.1	
3.44	-61.1	V	3.0	-14.0	37.7	1.0	-50.7	-13.0	-37.7	
5.16	-62.5	V	3.0	-12.0	36.8	1.0	-47.8	-13.0	-34.8	
6.88	-63.8	V	3.0	-10.9	36.4	1.0	-46.3	-13.0	-33.3	
Mid Channel (1732.5MHz)										
3.47	-61.3	H	3.0	-13.4	37.7	1.0	-50.1	-13.0	-37.1	
5.20	-62.8	H	3.0	-12.4	36.8	1.0	-48.3	-13.0	-35.3	
6.93	-63.3	H	3.0	-10.2	36.4	1.0	-45.6	-13.0	-32.6	
3.47	-61.2	V	3.0	-14.1	37.7	1.0	-50.7	-13.0	-37.7	
5.20	-63.3	V	3.0	-12.7	36.8	1.0	-48.5	-13.0	-35.5	
6.93	-64.6	V	3.0	-11.6	36.4	1.0	-47.0	-13.0	-34.0	
High Channel (1745MHz)										
3.49	-61.3	H	3.0	-13.5	37.6	1.0	-50.1	-13.0	-37.1	
5.24	-62.7	H	3.0	-12.3	36.8	1.0	-48.1	-13.0	-35.1	
6.98	-63.2	H	3.0	-10.0	36.4	1.0	-45.4	-13.0	-32.4	
3.49	-61.4	V	3.0	-14.1	37.6	1.0	-50.8	-13.0	-37.8	
5.24	-63.2	V	3.0	-12.6	36.8	1.0	-48.4	-13.0	-35.4	
6.98	-64.3	V	3.0	-11.2	36.4	1.0	-46.6	-13.0	-33.6	

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9.2.3. LTE BAND 5

QPSK LTE BAND 5 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 12/03/16
Test Engineer: 43578
Configuration: EUT Only
Mode: LTE Band 5, 10MHz QPSK

Test Equipment:
Substitution: Horn T59 (60?) Substitution, and 8ft SMA Cable

Chamber	Pre-amplifer	Filter	Limit
3m Chamber H	3m Chamber H	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (829MHz)										
1.66	-60.3	H	3.0	-19.8	37.7	1.0	-56.6	-13.0	-43.6	
2.49	-59.4	H	3.0	-15.4	37.1	1.0	-51.4	-13.0	-38.4	
3.32	-60.3	H	3.0	-12.5	37.8	1.0	-49.4	-13.0	-36.4	
1.66	-60.1	V	3.0	-19.4	37.7	1.0	-56.2	-13.0	-43.2	
2.49	-59.5	V	3.0	-15.4	37.1	1.0	-51.4	-13.0	-38.4	
3.32	-59.7	V	3.0	-12.9	37.8	1.0	-49.7	-13.0	-36.7	
Mid Channel (836.5MHz)										
1.67	-60.3	H	3.0	-19.7	37.8	1.0	-56.5	-13.0	-43.5	
2.51	-59.0	H	3.0	-14.8	37.1	1.0	-50.9	-13.0	-37.9	
3.35	-60.4	H	3.0	-12.6	37.8	1.0	-49.4	-13.0	-36.4	
1.67	-59.8	V	3.0	-19.0	37.8	1.0	-55.8	-13.0	-42.8	
2.51	-59.6	V	3.0	-15.4	37.1	1.0	-51.5	-13.0	-38.5	
3.35	-60.5	V	3.0	-13.6	37.8	1.0	-50.4	-13.0	-37.4	
High Channel (844MHz)										
1.69	-60.0	H	3.0	-19.4	37.8	1.0	-56.1	-13.0	-43.1	
2.53	-59.9	H	3.0	-15.6	37.1	1.0	-51.7	-13.0	-38.7	
3.38	-60.1	H	3.0	-12.3	37.8	1.0	-49.1	-13.0	-36.1	
1.69	-60.3	V	3.0	-19.4	37.8	1.0	-56.2	-13.0	-43.2	
2.53	-59.8	V	3.0	-15.5	37.1	1.0	-51.6	-13.0	-38.6	
3.38	-60.7	V	3.0	-13.8	37.8	1.0	-50.5	-13.0	-37.5	

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16QAM LTE BAND 5 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 12/03/16
Test Engineer: 43578
Configuration: EUT Only
Mode: LTE Band 5, 10MHz 16QAM

Test Equipment:
Substitution: Horn T59(60?) Substitution, and 8ft SMA Cable

Chamber	Pre-amplifer	Filter	Limit
3m Chamber H	3m Chamber H	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (829MHz)										
1.66	-59.7	H	3.0	-18.2	37.7	1.0	-55.0	-13.0	-42.0	
2.49	-58.8	H	3.0	-15.6	37.1	1.0	-51.7	-13.0	-38.7	
3.32	-60.4	H	3.0	-14.4	37.8	1.0	-51.3	-13.0	-38.3	
1.66	-59.4	V	3.0	-17.6	37.7	1.0	-54.4	-13.0	-41.4	
2.49	-59.0	V	3.0	-14.9	37.1	1.0	-51.0	-13.0	-38.0	
3.32	-60.5	V	3.0	-14.5	37.8	1.0	-51.3	-13.0	-38.3	
Mid Channel (836.5MHz)										
1.67	-59.8	H	3.0	-18.3	37.8	1.0	-55.1	-13.0	-42.1	
2.51	-59.1	H	3.0	-15.9	37.1	1.0	-52.0	-13.0	-39.0	
3.35	-60.2	H	3.0	-14.2	37.8	1.0	-51.0	-13.0	-38.0	
1.67	-60.2	V	3.0	-18.4	37.8	1.0	-55.2	-13.0	-42.2	
2.51	-59.0	V	3.0	-14.8	37.1	1.0	-50.9	-13.0	-37.9	
3.35	-60.0	V	3.0	-13.9	37.8	1.0	-50.7	-13.0	-37.7	
High Channel (844MHz)										
1.69	-59.2	H	3.0	-17.7	37.8	1.0	-54.4	-13.0	-41.4	
2.53	-59.8	H	3.0	-16.5	37.1	1.0	-52.7	-13.0	-39.7	
3.38	-60.6	H	3.0	-14.5	37.8	1.0	-51.3	-13.0	-38.3	
1.69	-59.9	V	3.0	-18.1	37.8	1.0	-54.8	-13.0	-41.8	
2.53	-59.6	V	3.0	-15.3	37.1	1.0	-51.4	-13.0	-38.4	
3.38	-60.4	V	3.0	-14.3	37.8	1.0	-51.0	-13.0	-38.0	

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9.2.4. LTE BAND 7

QPSK LTE BAND 7 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 12/04/16
Test Engineer: 43578
Configuration: EUT Only
Mode: LTE Band 7, 20MHz QPSK

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber H	3m Chamber H	Filter	LTE B7

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2510MHz)										
5.02	-62.6	H	3.0	-12.6	36.9	1.0	-48.5	-25.0	-23.5	
7.53	-63.3	H	3.0	-9.5	35.9	1.0	-44.4	-25.0	-19.4	
10.04	-64.1	H	3.0	-7.5	33.7	1.0	-40.2	-25.0	-15.2	
5.02	-62.5	V	3.0	-12.2	36.9	1.0	-48.1	-25.0	-23.1	
7.53	-64.8	V	3.0	-11.2	35.9	1.0	-46.1	-25.0	-21.1	
10.04	-65.4	V	3.0	-9.2	33.7	1.0	-41.9	-25.0	-16.9	
Mid Channel (2535MHz)										
5.07	-61.3	H	3.0	-11.1	36.9	1.0	-47.0	-25.0	-22.0	
7.61	-63.8	H	3.0	-9.9	35.8	1.0	-44.7	-25.0	-19.7	
10.14	-64.1	H	3.0	-7.5	33.7	1.0	-40.2	-25.0	-15.2	
5.07	-61.7	V	3.0	-11.4	36.9	1.0	-47.3	-25.0	-22.3	
7.61	-64.4	V	3.0	-10.7	35.8	1.0	-45.6	-25.0	-20.6	
10.14	-64.6	V	3.0	-8.3	33.7	1.0	-41.0	-25.0	-16.0	
High Channel (2560MHz)										
5.12	-61.5	H	3.0	-11.3	36.8	1.0	-47.1	-25.0	-22.1	
7.68	-63.6	H	3.0	-9.6	35.8	1.0	-44.4	-25.0	-19.4	
10.24	-64.6	H	3.0	-7.9	33.7	1.0	-40.6	-25.0	-15.6	
5.12	-62.4	V	3.0	-12.0	36.8	1.0	-47.9	-25.0	-22.9	
7.68	-64.5	V	3.0	-10.7	35.8	1.0	-45.5	-25.0	-20.5	
10.24	-65.6	V	3.0	-9.4	33.7	1.0	-42.1	-25.0	-17.1	

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16QAM LTE BAND 7 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 12/04/16
Test Engineer: 43578
Configuration: EUT Only
Mode: LTE Band 7, 20MHz 16QAM

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber H	3m Chamber H	Filter	LTE B7

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2510MHz)										
5.02	-62.02	H	3.0	-12.0	36.9	1.0	-47.9	-25.0	-22.9	
7.53	-63.59	H	3.0	-9.7	35.9	1.0	-44.6	-25.0	-19.6	
10.04	-64.50	H	3.0	-8.0	33.7	1.0	-40.6	-25.0	-15.6	
5.02	-62.98	V	3.0	-12.8	36.9	1.0	-48.6	-25.0	-23.6	
7.53	-64.46	V	3.0	-10.8	35.9	1.0	-45.7	-25.0	-20.7	
10.04	-65.30	V	3.0	-9.1	33.7	1.0	-41.8	-25.0	-16.8	
Mid Channel (2535MHz)										
5.07	-62.02	H	3.0	-11.9	36.9	1.0	-47.8	-25.0	-22.8	
7.61	-63.92	H	3.0	-10.0	35.8	1.0	-44.8	-25.0	-19.8	
10.14	-64.73	H	3.0	-8.1	33.7	1.0	-40.8	-25.0	-15.8	
5.07	-62.74	V	3.0	-12.4	36.9	1.0	-48.3	-25.0	-23.3	
7.61	-64.42	V	3.0	-10.7	35.8	1.0	-45.6	-25.0	-20.6	
10.14	-65.30	V	3.0	-9.1	33.7	1.0	-41.8	-25.0	-16.8	
High Channel (2560MHz)										
5.12	-62.48	H	3.0	-12.3	36.8	1.0	-48.1	-25.0	-23.1	
7.68	-64.44	H	3.0	-10.4	35.8	1.0	-45.2	-25.0	-20.2	
10.24	-64.31	H	3.0	-7.7	33.7	1.0	-40.3	-25.0	-15.3	
5.12	-61.89	V	3.0	-11.5	36.8	1.0	-47.3	-25.0	-22.3	
7.68	-63.61	V	3.0	-9.8	35.8	1.0	-44.6	-25.0	-19.6	
10.24	-65.03	V	3.0	-8.8	33.7	1.0	-41.5	-25.0	-16.5	

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9.2.5. LTE BAND 12

QPSK LTE BAND 12 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 12/03/16
Test Engineer: 43578
Configuration: EUT Only
Mode: LTE Band 12, 10MHz QPSK

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber H	3m Chamber H	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (704MHz)										
1.41	-60.30	H	3.0	-21.4	37.4	1.0	-57.7	-13.0	-44.7	
2.11	-59.66	H	3.0	-16.5	37.7	1.0	-53.2	-13.0	-40.2	
2.82	-59.39	H	3.0	-13.0	37.8	1.0	-49.8	-13.0	-36.8	
1.41	-60.58	V	3.0	-21.3	37.4	1.0	-57.7	-13.0	-44.7	
2.11	-59.17	V	3.0	-16.1	37.7	1.0	-52.8	-13.0	-39.8	
2.82	-59.75	V	3.0	-14.3	37.8	1.0	-51.1	-13.0	-38.1	
Mid Channel (707.5MHz)										
1.42	-60.07	H	3.0	-21.1	37.4	1.0	-57.5	-13.0	-44.5	
2.12	-59.58	H	3.0	-16.4	37.7	1.0	-53.1	-13.0	-40.1	
2.83	-59.63	H	3.0	-13.2	37.8	1.0	-50.0	-13.0	-37.0	
1.42	-60.52	V	3.0	-21.2	37.4	1.0	-57.6	-13.0	-44.6	
2.12	-59.81	V	3.0	-16.7	37.7	1.0	-53.4	-13.0	-40.4	
2.83	-59.90	V	3.0	-14.4	37.8	1.0	-51.2	-13.0	-38.2	
High Channel (711MHz)										
1.42	-60.08	H	3.0	-21.1	37.4	1.0	-57.5	-13.0	-44.5	
2.13	-59.47	H	3.0	-16.3	37.6	1.0	-52.9	-13.0	-39.9	
2.84	-59.41	H	3.0	-12.9	37.8	1.0	-49.7	-13.0	-36.7	
1.42	-60.40	V	3.0	-21.1	37.4	1.0	-57.5	-13.0	-44.5	
2.13	-58.94	V	3.0	-15.8	37.6	1.0	-52.4	-13.0	-39.4	
2.84	-59.68	V	3.0	-14.1	37.8	1.0	-51.0	-13.0	-38.0	

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16QAM LTE BAND 12 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 12/03/16
Test Engineer: 43578
Configuration: EUT Only
Mode: LTE Band 12, 10MHz 16QAM

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber H	3m Chamber H	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (704MHz)										
1.41	-60.77	H	3.0	-21.8	37.4	1.0	-58.2	-13.0	-45.2	
2.11	-59.54	H	3.0	-16.4	37.7	1.0	-53.1	-13.0	-40.1	
2.82	-59.83	H	3.0	-13.5	37.8	1.0	-50.3	-13.0	-37.3	
1.41	-59.66	V	3.0	-20.4	37.4	1.0	-56.8	-13.0	-43.8	
2.11	-59.48	V	3.0	-16.4	37.7	1.0	-53.1	-13.0	-40.1	
2.82	-59.37	V	3.0	-14.0	37.8	1.0	-50.7	-13.0	-37.7	
Mid Channel (707.5MHz)										
1.42	-60.24	H	3.0	-21.3	37.4	1.0	-57.7	-13.0	-44.7	
2.12	-59.36	H	3.0	-16.2	37.7	1.0	-52.9	-13.0	-39.9	
2.83	-59.87	H	3.0	-13.4	37.8	1.0	-50.2	-13.0	-37.2	
1.42	-60.57	V	3.0	-21.3	37.4	1.0	-57.7	-13.0	-44.7	
2.12	-59.31	V	3.0	-16.2	37.7	1.0	-52.9	-13.0	-39.9	
2.83	-59.85	V	3.0	-14.4	37.8	1.0	-51.2	-13.0	-38.2	
High Channel (711MHz)										
1.42	-60.59	H	3.0	-21.6	37.4	1.0	-58.0	-13.0	-45.0	
2.13	-59.07	H	3.0	-15.9	37.6	1.0	-52.5	-13.0	-39.5	
2.84	-60.08	H	3.0	-13.5	37.8	1.0	-50.4	-13.0	-37.4	
1.42	-59.81	V	3.0	-20.5	37.4	1.0	-56.9	-13.0	-43.9	
2.13	-59.89	V	3.0	-16.8	37.6	1.0	-53.4	-13.0	-40.4	
2.84	-59.85	V	3.0	-14.3	37.8	1.0	-51.2	-13.0	-38.2	

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9.2.6. LTE BAND 13

QPSK LTE BAND 13 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 12/03/16
Test Engineer: 43578
Configuration: EUT Only
Mode: LTE Band 13, 10MHz QPSK

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber H	3m Chamber H	Filter	LTE B13

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Mid Channel (782MHz)										
1.56	-59.84	H	3.0	-20.0	37.7	1.0	-56.7	-40.0	-16.7	
2.35	-59.75	H	3.0	-16.1	37.1	1.0	-52.2	-13.0	-39.2	
3.13	-59.55	H	3.0	-11.8	38.0	1.0	-48.9	-13.0	-35.9	
1.56	-60.31	V	3.0	-20.2	37.7	1.0	-56.9	-40.0	-16.9	
2.35	-60.01	V	3.0	-16.2	37.1	1.0	-52.3	-13.0	-39.3	
3.13	-60.15	V	3.0	-13.7	38.0	1.0	-50.8	-13.0	-37.8	

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16QAM LTE BAND 13 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 12/03/16
Test Engineer: 43578
Configuration: EUT Only
Mode: LTE Band 13, 10MHz 16QAM

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber H	3m Chamber H	Filter	LTE B13

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Mid Channel (782MHz)										
1.56	-59.70	H	3.0	-19.9	37.7	1.0	-56.6	-40.0	-16.6	
2.35	-59.09	H	3.0	-15.4	37.1	1.0	-51.5	-13.0	-38.5	
3.13	-59.97	H	3.0	-12.2	38.0	1.0	-49.3	-13.0	-36.3	
1.56	-60.85	V	3.0	-20.7	37.7	1.0	-57.4	-40.0	-17.4	
2.35	-60.09	V	3.0	-16.2	37.1	1.0	-52.4	-13.0	-39.4	
3.13	-60.48	V	3.0	-14.1	38.0	1.0	-51.1	-13.0	-38.1	

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9.2.7. LTE BAND 17

QPSK LTE BAND 17 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 12/03/16
Test Engineer: 43578
Configuration: EUT Only
Mode: LTE Band 17, 10MHz QPSK

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber H	3m Chamber H	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Mid Channel (710MHz)										
1.42	-59.73	H	3.0	-20.7	37.4	1.0	-57.2	-13.0	-44.2	
2.13	-59.12	H	3.0	-16.0	37.6	1.0	-52.6	-13.0	-39.6	
2.84	-59.64	H	3.0	-13.1	37.8	1.0	-49.9	-13.0	-36.9	
1.42	-60.43	V	3.0	-21.1	37.4	1.0	-57.5	-13.0	-44.5	
2.13	-60.25	V	3.0	-17.1	37.6	1.0	-53.8	-13.0	-40.8	
2.84	-60.17	V	3.0	-14.7	37.8	1.0	-51.5	-13.0	-38.5	

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16QAM LTE BAND 17 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 12/03/16
Test Engineer: 43578
Configuration: EUT Only
Mode: LTE Band 17, 10MHz 16QAM

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber H	3m Chamber H	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Mid Channel (710MHz)										
1.42	-59.80	H	3.0	-20.8	37.4	1.0	-57.2	-13.0	-44.2	
2.13	-59.79	H	3.0	-16.6	37.6	1.0	-53.3	-13.0	-40.3	
2.84	-59.85	H	3.0	-13.3	37.8	1.0	-50.1	-13.0	-37.1	
1.42	-60.47	V	3.0	-21.1	37.4	1.0	-57.6	-13.0	-44.6	
2.13	-60.05	V	3.0	-16.9	37.6	1.0	-53.6	-13.0	-40.6	
2.84	-60.45	V	3.0	-14.9	37.8	1.0	-51.8	-13.0	-38.8	

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9.2.8. LTE BAND 25

QPSK LTE BAND 25 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 12/02/16
Test Engineer: 39005
Configuration: EUT Only
Mode: LTE Band 25, 20MHz QPSK

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber H	3m Chamber H	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1860MHz)										
3.72	-61.35	H	3.0	-13.4	37.4	1.0	-49.8	-13.0	-36.8	
5.58	-63.42	H	3.0	-12.4	36.7	1.0	-48.2	-13.0	-35.2	
7.44	-65.11	H	3.0	-11.4	36.0	1.0	-46.3	-13.0	-33.3	
3.72	-61.27	V	3.0	-13.5	37.4	1.0	-49.9	-13.0	-36.9	
5.58	-63.29	V	3.0	-12.2	36.7	1.0	-47.9	-13.0	-34.9	
7.44	-64.79	V	3.0	-11.3	36.0	1.0	-46.2	-13.0	-33.2	
Mid Channel (1882.5MHz)										
3.77	-61.22	H	3.0	-13.3	37.3	1.0	-49.6	-13.0	-36.6	
5.65	-63.31	H	3.0	-12.2	36.7	1.0	-47.9	-13.0	-34.9	
7.53	-64.14	H	3.0	-10.3	35.9	1.0	-45.2	-13.0	-32.2	
3.77	-61.62	V	3.0	-13.8	37.3	1.0	-50.1	-13.0	-37.1	
5.65	-63.67	V	3.0	-12.5	36.7	1.0	-48.2	-13.0	-35.2	
7.53	-64.38	V	3.0	-10.7	35.9	1.0	-45.7	-13.0	-32.7	
High Channel (1905MHz)										
3.81	-61.76	H	3.0	-13.8	37.3	1.0	-50.1	-13.0	-37.1	
5.72	-62.53	H	3.0	-11.3	36.7	1.0	-47.0	-13.0	-34.0	
7.62	-65.25	H	3.0	-11.3	35.8	1.0	-46.1	-13.0	-33.1	
3.81	-61.17	V	3.0	-13.2	37.3	1.0	-49.5	-13.0	-36.5	
5.72	-63.63	V	3.0	-12.4	36.7	1.0	-48.1	-13.0	-35.1	
7.62	-64.13	V	3.0	-10.4	35.8	1.0	-45.2	-13.0	-32.2	

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16QAM LTE BAND 25 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 12/02/16
Test Engineer: 39005
Configuration: EUT Only
Mode: LTE Band 25, 20MHz 16QAM

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber H	3m Chamber H	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1860MHz)										
3.72	-61.4	H	3.0	-13.5	37.4	1.0	-49.9	-13.0	-36.9	
5.58	-63.4	H	3.0	-12.4	36.7	1.0	-48.1	-13.0	-35.1	
7.44	-65.2	H	3.0	-11.5	36.0	1.0	-46.5	-13.0	-33.5	
3.72	-61.8	V	3.0	-14.1	37.4	1.0	-50.5	-13.0	-37.5	
5.58	-63.6	V	3.0	-12.5	36.7	1.0	-48.2	-13.0	-35.2	
7.44	-64.9	V	3.0	-11.3	36.0	1.0	-46.3	-13.0	-33.3	
Mid Channel (1882.5MHz)										
3.77	-61.6	H	3.0	-13.6	37.3	1.0	-49.9	-13.0	-36.9	
5.65	-63.4	H	3.0	-12.3	36.7	1.0	-48.0	-13.0	-35.0	
7.53	-64.3	H	3.0	-10.5	35.9	1.0	-45.4	-13.0	-32.4	
3.77	-61.7	V	3.0	-13.9	37.3	1.0	-50.2	-13.0	-37.2	
5.65	-63.8	V	3.0	-12.7	36.7	1.0	-48.4	-13.0	-35.4	
7.53	-64.3	V	3.0	-10.7	35.9	1.0	-45.6	-13.0	-32.6	
Channel (1905MHz)										
3.81	-61.8	H	3.0	-13.9	37.3	1.0	-50.2	-13.0	-37.2	
5.72	-62.7	H	3.0	-11.5	36.7	1.0	-47.2	-13.0	-34.2	
7.62	-65.0	H	3.0	-11.0	35.8	1.0	-45.9	-13.0	-32.9	
3.81	-61.2	V	3.0	-13.3	37.3	1.0	-49.6	-13.0	-36.6	
5.72	-63.9	V	3.0	-12.6	36.7	1.0	-48.3	-13.0	-35.3	
7.62	-63.6	V	3.0	-12.4	36.7	1.0	-48.1	-13.0	-35.1	

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9.2.9. LTE BAND 26

QPSK LTE BAND 26 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 12/03/16
Test Engineer: 43578
Configuration: EUT Only
Mode: LTE Band 26 (90S), 10MHz QPSK

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber H	3m Chamber H	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Mid Channel (819MHz)										
1.64	-59.8	H	3.0	-19.5	37.7	1.0	-56.3	-13.0	-43.3	
2.46	-59.4	H	3.0	-15.4	37.0	1.0	-51.5	-13.0	-38.5	
3.28	-59.9	H	3.0	-12.2	37.9	1.0	-49.0	-13.0	-36.0	
1.64	-60.4	V	3.0	-19.8	37.7	1.0	-56.5	-13.0	-43.5	
2.46	-60.1	V	3.0	-16.0	37.0	1.0	-52.0	-13.0	-39.0	
3.28	-60.5	V	3.0	-13.7	37.9	1.0	-50.6	-13.0	-37.6	

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16QAM LTE BAND 26 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 12/03/16
Test Engineer: 43578
Configuration: EUT Only
Mode: LTE Band 26 (90S), 10MHz 16QAM

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber H	3m Chamber H	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Mid Channel (819MHz)										
1.64	-58.8	H	3.0	-18.5	37.7	1.0	-55.2	-13.0	-42.2	
2.46	-59.8	H	3.0	-15.8	37.0	1.0	-51.9	-13.0	-38.9	
3.28	-59.9	H	3.0	-12.1	37.9	1.0	-49.0	-13.0	-36.0	
1.64	-59.7	V	3.0	-19.2	37.7	1.0	-55.9	-13.0	-42.9	
2.46	-60.4	V	3.0	-16.2	37.0	1.0	-52.3	-13.0	-39.3	
3.28	-60.6	V	3.0	-13.9	37.9	1.0	-50.7	-13.0	-37.7	

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9.2.10. LTE BAND 27

QPSK LTE BAND 27 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 12/04/16
Test Engineer: 43578
Configuration: EUT only
Mode: LTE Band 27, 10MHz QPSK

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Mid Channel (815.5MHz)										
1.63	-59.3	H	3.0	-16.9	37.8	1.0	-53.7	-13.0	-40.7	
2.45	-59.6	H	3.0	-14.7	38.4	1.0	-52.1	-13.0	-39.1	
3.26	-60.1	H	3.0	-11.2	38.5	1.0	-48.7	-13.0	-35.7	
1.63	-60.4	V	3.0	-18.3	37.8	1.0	-55.1	-13.0	-42.1	
2.45	-60.6	V	3.0	-15.6	38.4	1.0	-53.0	-13.0	-40.0	
3.26	-60.5	V	3.0	-11.9	38.5	1.0	-49.4	-13.0	-36.4	

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16QAM LTE BAND 27 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 12/04/16
Test Engineer: 43578
Configuration: EUT only
Mode: LTE Band 27, 10MHz 16QAM

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber H	3m Chamber H	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Mid Channel (815.5MHz)										
1.63	-59.8	H	3.0	-19.5	37.7	1.0	-56.3	-13.0	-43.3	
2.45	-59.5	H	3.0	-15.5	37.0	1.0	-51.6	-13.0	-38.6	
3.26	-59.9	H	3.0	-12.2	37.9	1.0	-49.1	-13.0	-36.1	
1.63	-60.3	V	3.0	-19.8	37.7	1.0	-56.5	-13.0	-43.5	
2.45	-60.0	V	3.0	-15.9	37.0	1.0	-51.9	-13.0	-38.9	
3.26	-60.4	V	3.0	-13.6	37.9	1.0	-50.5	-13.0	-37.5	

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9.2.11. LTE BAND 30

QPSK LTE BAND 30 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 01/24/17
Test Engineer: 37290
Configuration: EUT only
Mode: LTE Band 30, 10MHz QPSK

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	Filter	LTE B30

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Mid Channel (2310MHz)										
4.62	-68.1	H	3.0	-14.3	37.9	1.0	-51.2	-40.0	-11.2	
6.93	-71.1	H	3.0	-12.5	36.5	1.0	-47.9	-40.0	-7.9	
4.62	-67.7	V	3.0	-14.0	37.9	1.0	-50.9	-40.0	-10.9	
6.93	-70.4	V	3.0	-10.9	36.5	1.0	-46.3	-40.0	-6.3	

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16QAM LTE BAND 30 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 01/24/17
Test Engineer: 37290
Configuration: EUT only
Mode: LTE Band 30, 10MHz 16QAM

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	Filter	LTE B30

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Mid Channel (2310MHz)										
4.62	-67.4	H	3.0	-13.6	37.9	1.0	-50.5	-40.0	-10.5	
6.93	-71.3	H	3.0	-12.7	36.5	1.0	-48.1	-40.0	-8.1	
4.62	-67.5	V	3.0	-13.7	37.9	1.0	-50.7	-40.0	-10.7	
6.93	-69.1	V	3.0	-9.6	36.5	1.0	-45.1	-40.0	-5.1	

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9.2.12. LTE BAND 41

QPSK LTE BAND 41 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 12/05/16
Test Engineer: 38602
Configuration: EUT only
Mode: LTE Band 41, 20MHz QPSK

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber H	3m Chamber H	Filter	LTE B41

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2506MHz)										
5.01	-65.5	H	3.0	-15.5	36.9	1.0	-51.4	-25.0	-26.4	
7.52	-67.0	H	3.0	-13.2	35.9	1.0	-48.1	-25.0	-23.1	
10.02	-67.7	H	3.0	-11.2	33.7	1.0	-43.8	-25.0	-18.8	
5.01	-66.6	V	3.0	-16.4	36.9	1.0	-52.3	-25.0	-27.3	
7.52	-67.2	V	3.0	-13.6	35.9	1.0	-48.5	-25.0	-23.5	
10.02	-68.2	V	3.0	-12.0	33.7	1.0	-44.7	-25.0	-19.7	
Mid Channel (2593MHz)										
5.19	-67.0	H	3.0	-16.6	36.8	1.0	-52.5	-25.0	-27.5	
7.78	-67.1	H	3.0	-13.0	35.7	1.0	-47.7	-25.0	-22.7	
10.37	-67.5	H	3.0	-10.8	33.7	1.0	-43.5	-25.0	-18.5	
5.19	-67.3	V	3.0	-16.8	36.8	1.0	-52.6	-25.0	-27.6	
7.78	-67.1	V	3.0	-13.2	35.7	1.0	-47.9	-25.0	-22.9	
10.37	-67.5	V	3.0	-11.2	33.7	1.0	-43.9	-25.0	-18.9	
High Channel (2680MHz)										
5.36	-68.0	H	3.0	-17.4	36.8	1.0	-53.2	-25.0	-28.2	
8.04	-66.5	H	3.0	-12.1	35.4	1.0	-46.5	-25.0	-21.5	
10.72	-66.5	H	3.0	-9.6	33.7	1.0	-42.3	-25.0	-17.3	
5.36	-68.6	V	3.0	-17.8	36.8	1.0	-53.6	-25.0	-28.6	
8.04	-66.9	V	3.0	-12.7	35.4	1.0	-47.1	-25.0	-22.1	
10.72	-66.1	V	3.0	-9.7	33.7	1.0	-42.4	-25.0	-17.4	

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16QAM LTE BAND 41 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23816
Date: 12/05/16
Test Engineer: 38602
Configuration: EUT only
Mode: LTE Band 41, 20MHz 16QAM

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber H	3m Chamber H	Filter	LTE B41

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2506MHz)										
5.01	-67.0	H	3.0	-17.0	36.9	1.0	-52.9	-25.0	-27.9	
7.52	-67.2	H	3.0	-13.4	35.9	1.0	-48.3	-25.0	-23.3	
10.02	-68.2	H	3.0	-11.7	33.7	1.0	-44.3	-25.0	-19.3	
5.01	-67.4	V	3.0	-17.2	36.9	1.0	-53.1	-25.0	-28.1	
7.52	-68.2	V	3.0	-14.6	35.9	1.0	-49.5	-25.0	-24.5	
10.02	-68.5	V	3.0	-12.3	33.7	1.0	-45.0	-25.0	-20.0	
Mid Channel (2593MHz)										
5.19	-67.6	H	3.0	-17.2	36.8	1.0	-53.1	-25.0	-28.1	
7.78	-68.0	H	3.0	-13.9	35.7	1.0	-48.6	-25.0	-23.6	
10.37	-69.0	H	3.0	-12.3	33.7	1.0	-45.0	-25.0	-20.0	
5.19	-67.2	V	3.0	-16.7	36.8	1.0	-52.5	-25.0	-27.5	
7.78	-67.2	V	3.0	-13.3	35.7	1.0	-48.0	-25.0	-23.0	
10.37	-67.7	V	3.0	-11.4	33.7	1.0	-44.1	-25.0	-19.1	
High Channel (2680MHz)										
5.36	-68.4	H	3.0	-17.8	36.8	1.0	-53.6	-25.0	-28.6	
8.04	-66.8	H	3.0	-12.4	35.4	1.0	-46.8	-25.0	-21.8	
10.72	-67.4	H	3.0	-10.5	33.7	1.0	-43.2	-25.0	-18.2	
5.36	-68.1	V	3.0	-17.3	36.8	1.0	-53.1	-25.0	-28.1	
8.04	-67.3	V	3.0	-13.1	35.4	1.0	-47.6	-25.0	-22.6	
10.72	-66.4	V	3.0	-10.0	33.7	1.0	-42.7	-25.0	-17.7	

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