9.1.8. LTE BAND 25

QPSK LTE BAND 25 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #:
Date: 04/11/17
Test Engineer: 44353
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 D	3m Chamber D	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	-63.9	H	3.0	-15.9	33.5	1.0	-48.4	-13.0	-35.4	
5.58	-66.6	H	3.0	-15.3	32.4	1.0	-46.7	-13.0	-33.7	
7.44	-65.4	H	3.0	-11.0	30.4	1.0	-40.3	-13.0	-27.3	
3.72	-63.5	H	3.0	-15.5	33.5	1.0	-48.1	-13.0	-35.1	
5.58	-65.8	H	3.0	-14.4	32.4	1.0	-45.9	-13.0	-32.9	
7.44	-66.8	V	3.0	-12.2	30.4	1.0	-41.5	-13.0	-28.5	
Mid Channel (1882.5MHz)										
3.77	-63.7	H	3.0	-15.6	33.5	1.0	-48.1	-13.0	-35.1	
5.65	-65.4	H	3.0	-13.9	32.4	1.0	-45.3	-13.0	-32.3	
7.53	-66.1	H	3.0	-11.6	30.2	1.0	-40.9	-13.0	-27.9	
3.77	-64.3	V	3.0	-16.2	33.5	1.0	-48.7	-13.0	-35.7	
5.65	-66.4	V	3.0	-15.2	32.4	1.0	-46.6	-13.0	-33.6	
7.53	-66.2	V	3.0	-11.5	30.2	1.0	-40.8	-13.0	-27.8	
High Channel (1905MHz)										
3.81	-63.4	H	3.0	-15.1	33.6	1.0	-47.7	-13.0	-34.7	
5.72	-67.0	H	3.0	-15.4	32.3	1.0	-46.7	-13.0	-33.7	
7.62	-66.9	H	3.0	-12.3	30.1	1.0	-41.4	-13.0	-28.4	
3.81	-64.8	V	3.0	-16.6	33.6	1.0	-49.2	-13.0	-36.2	
5.72	-65.7	V	3.0	-14.3	32.3	1.0	-45.6	-13.0	-32.6	
7.62	-66.8	V	3.0	-12.1	30.1	1.0	-41.2	-13.0	-28.2	

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16QAM LTE BAND 25 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #:
Date: 04/11/17
Test Engineer: 44353
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 D	3m Chamber D	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	-64.3	H	3.0	-16.3	33.5	1.0	-48.8	-13.0	-35.8	
5.58	-65.6	H	3.0	-14.3	32.4	1.0	-45.7	-13.0	-32.7	
7.44	-66.5	H	3.0	-12.1	30.4	1.0	-41.5	-13.0	-28.5	
3.72	-65.4	V	3.0	-17.4	33.5	1.0	-49.9	-13.0	-36.9	
5.58	-66.8	V	3.0	-15.7	32.4	1.0	-47.1	-13.0	-34.1	
7.44	-67.6	V	3.0	-13.0	30.4	1.0	-42.4	-13.0	-29.4	
Mid Channel (1882.5MHz)										
3.77	-64.5	H	3.0	-16.4	33.5	1.0	-48.9	-13.0	-35.9	
5.65	-66.7	H	3.0	-15.2	32.4	1.0	-46.6	-13.0	-33.6	
7.53	-66.1	H	3.0	-11.6	30.2	1.0	-40.8	-13.0	-27.8	
3.77	-65.4	V	3.0	-17.3	33.5	1.0	-49.9	-13.0	-36.9	
5.65	-66.4	V	3.0	-15.1	32.4	1.0	-46.5	-13.0	-33.5	
7.53	-68.2	V	3.0	-13.5	30.2	1.0	-42.7	-13.0	-29.7	
High Channel (1905MHz)										
3.81	-64.2	H	3.0	-16.0	33.6	1.0	-48.5	-13.0	-35.5	
5.72	-66.0	H	3.0	-14.4	32.3	1.0	-45.7	-13.0	-32.7	
7.62	-66.2	H	3.0	-11.6	30.1	1.0	-40.7	-13.0	-27.7	
3.81	-64.4	V	3.0	-16.2	33.6	1.0	-48.8	-13.0	-35.8	
5.72	-66.0	V	3.0	-14.6	32.3	1.0	-45.9	-13.0	-32.9	
7.62	-67.0	V	3.0	-12.2	30.1	1.0	-41.3	-13.0	-28.3	

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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 #:
Date: 04/13/17
Test Engineer: 44353
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 D	3m Chamber D	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	-68.5	H	3.0	-26.7	35.0	1.0	-60.8	-13.0	-47.8	
2.46	-68.1	H	3.0	-24.0	34.0	1.0	-57.1	-13.0	-44.1	
3.28	-66.5	H	3.0	-19.8	33.2	1.0	-52.0	-13.0	-39.0	
1.64	-67.4	V	3.0	-25.5	35.0	1.0	-59.5	-13.0	-46.5	
2.46	-67.8	V	3.0	-23.5	34.0	1.0	-56.5	-13.0	-43.5	
3.28	-67.1	V	3.0	-20.3	33.2	1.0	-52.5	-13.0	-39.5	

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16QAM LTE BAND 26 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #:
Date: 04/13/17
Test Engineer: 44353
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 D	3m Chamber D	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	-67.3	H	3.0	-25.5	35.0	1.0	-59.6	-13.0	-46.6	
2.46	-67.1	H	3.0	-23.1	34.0	1.0	-56.1	-13.0	-43.1	
3.28	-65.6	H	3.0	-18.9	33.2	1.0	-51.1	-13.0	-38.1	
1.64	-67.8	V	3.0	-25.8	35.0	1.0	-59.8	-13.0	-46.8	
2.46	-66.8	V	3.0	-22.5	34.0	1.0	-55.6	-13.0	-42.6	
3.28	-67.8	V	3.0	-20.9	33.2	1.0	-53.2	-13.0	-40.2	

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9.1.10. LTE BAND 30

QPSK LTE BAND 30 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #:
Date: 04/18/17
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 H	3m Chamber H	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	-66.4	H	3.0	-17.1	37.0	1.0	-53.1	-40.0	-13.1	
6.93	-68.8	H	3.0	-15.6	36.4	1.0	-51.0	-40.0	-11.0	
9.24	-72.0	H	3.0	-16.3	34.4	1.0	-49.6	-40.0	-9.6	
4.62	-66.6	V	3.0	-17.1	37.0	1.0	-53.1	-40.0	-13.1	
6.93	-68.3	V	3.0	-15.3	36.4	1.0	-50.7	-40.0	-10.7	
9.24	-72.3	V	3.0	-16.9	34.4	1.0	-50.3	-40.0	-10.3	

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16QAM LTE BAND 30 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #:
Date: 04/18/17
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 H	3m Chamber H	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	-65.5	H	3.0	-11.7	37.9	1.0	-48.7	-40.0	-8.7	
6.93	-68.9	H	3.0	-10.3	36.5	1.0	-45.7	-40.0	-5.7	
9.24	-71.0	H	3.0	-9.5	34.9	1.0	-43.4	-40.0	-3.4	
4.62	-65.8	V	3.0	-12.1	37.9	1.0	-49.0	-40.0	-9.0	
6.93	-69.5	V	3.0	-10.0	36.5	1.0	-45.5	-40.0	-5.5	
9.24	-71.5	V	3.0	-9.7	34.9	1.0	-43.6	-40.0	-3.6	

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9.1.11. LTE BAND 41

QPSK LTE BAND 41 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #:
Date: 04/12/17
Test Engineer: 44353
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 D	3m Chamber D	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	-15.2	33.0	1.0	-47.2	-25.0	-22.2	
7.52	-66.1	H	3.0	-11.6	30.3	1.0	-40.8	-25.0	-15.8	
10.02	-67.0	H	3.0	-9.4	27.2	1.0	-35.7	-25.0	-10.7	
5.01	-65.0	V	3.0	-15.0	33.0	1.0	-47.0	-25.0	-22.0	
7.52	-66.4	V	3.0	-11.8	30.3	1.0	-41.0	-25.0	-16.0	
10.02	-67.6	V	3.0	-10.6	27.2	1.0	-36.9	-25.0	-11.9	
Mid Channel (2593MHz)										
5.19	-65.6	H	3.0	-14.9	32.9	1.0	-46.8	-25.0	-21.8	
7.78	-68.3	H	3.0	-13.5	29.9	1.0	-42.4	-25.0	-17.4	
10.37	-68.6	H	3.0	-10.9	27.5	1.0	-37.4	-25.0	-12.4	
5.19	-65.7	V	3.0	-15.5	32.9	1.0	-47.4	-25.0	-22.4	
7.78	-67.6	V	3.0	-12.6	29.9	1.0	-41.6	-25.0	-16.6	
10.37	-68.0	V	3.0	-10.8	27.5	1.0	-37.3	-25.0	-12.3	
High Channel (2680MHz)										
5.36	-67.6	H	3.0	-16.6	32.7	1.0	-48.3	-25.0	-23.3	
8.04	-66.8	H	3.0	-11.6	29.6	1.0	-40.2	-25.0	-15.2	
10.72	-67.5	H	3.0	-9.7	27.7	1.0	-36.4	-25.0	-11.4	
5.36	-67.1	V	3.0	-16.5	32.7	1.0	-48.2	-25.0	-23.2	
8.04	-66.1	V	3.0	-11.0	29.6	1.0	-39.6	-25.0	-14.6	
10.72	-66.8	V	3.0	-9.5	27.7	1.0	-36.1	-25.0	-11.1	

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16QAM LTE BAND 41 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #:
Date: 04/12/17
Test Engineer: 44353
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 D	3m Chamber D	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	-65.3	H	3.0	-14.9	33.0	1.0	-46.9	-25.0	-21.9	
7.52	-67.3	H	3.0	-12.8	30.3	1.0	-42.0	-25.0	-17.0	
10.02	-68.4	H	3.0	-10.8	27.2	1.0	-37.1	-25.0	-12.1	
5.01	-67.0	V	3.0	-16.9	33.0	1.0	-48.9	-25.0	-23.9	
7.52	-67.7	V	3.0	-13.0	30.3	1.0	-42.3	-25.0	-17.3	
10.02	-68.1	V	3.0	-11.1	27.2	1.0	-37.4	-25.0	-12.4	
Mid Channel (2593MHz)										
5.19	-66.8	H	3.0	-16.2	32.9	1.0	-48.0	-25.0	-23.0	
7.78	-67.3	H	3.0	-12.5	29.9	1.0	-41.4	-25.0	-16.4	
10.37	-68.2	H	3.0	-10.5	27.5	1.0	-36.9	-25.0	-11.9	
5.19	-66.9	V	3.0	-16.6	32.9	1.0	-48.5	-25.0	-23.5	
7.78	-67.1	V	3.0	-12.2	29.9	1.0	-41.1	-25.0	-16.1	
10.37	-67.7	V	3.0	-10.6	27.5	1.0	-37.0	-25.0	-12.0	
High Channel (2680MHz)										
5.36	-67.8	H	3.0	-16.9	32.7	1.0	-48.6	-25.0	-23.6	
8.04	-67.3	H	3.0	-12.1	29.6	1.0	-40.7	-25.0	-15.7	
10.72	-67.6	H	3.0	-9.9	27.7	1.0	-36.5	-25.0	-11.5	
5.36	-67.5	V	3.0	-16.9	32.7	1.0	-48.5	-25.0	-23.5	
8.04	-66.9	V	3.0	-11.7	29.6	1.0	-40.4	-25.0	-15.4	
10.72	-68.1	V	3.0	-10.8	27.7	1.0	-37.5	-25.0	-12.5	

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9.1.12. LTE BAND 66

QPSK LTE BAND 66 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #:
Date: 04/12/17
Test Engineer: 44353
Configuration: EUT Only
Mode: LTE Band 66, 20MHz QPSK

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber D	3m Chamber D	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 (1720.0MHz)										
3.44	-66.6	H	3.0	-19.5	33.3	1.0	-51.8	-13.0	-38.8	
5.16	-64.9	H	3.0	-14.2	32.9	1.0	-46.1	-13.0	-33.1	
6.88	-66.8	H	3.0	-13.2	31.0	1.0	-43.2	-13.0	-30.2	
3.44	-66.5	V	3.0	-19.2	33.3	1.0	-51.5	-13.0	-38.5	
5.16	-65.4	V	3.0	-15.2	32.9	1.0	-47.1	-13.0	-34.1	
6.88	-67.8	V	3.0	-13.9	31.0	1.0	-44.0	-13.0	-31.0	
Mid Channel (1745.0MHz)										
3.49	-66.8	H	3.0	-19.4	33.4	1.0	-51.8	-13.0	-38.8	
5.24	-66.4	H	3.0	-15.7	32.8	1.0	-47.5	-13.0	-34.5	
6.98	-65.9	H	3.0	-12.1	30.9	1.0	-42.0	-13.0	-29.0	
3.49	-67.0	V	3.0	-19.6	33.4	1.0	-52.0	-13.0	-39.0	
5.24	-66.5	V	3.0	-16.2	32.8	1.0	-48.0	-13.0	-35.0	
6.98	-66.6	V	3.0	-12.4	30.9	1.0	-42.3	-13.0	-29.3	
High Channel (1770.0MHz)										
3.54	-66.2	H	3.0	-18.7	33.4	1.0	-51.1	-13.0	-38.1	
5.31	-67.2	H	3.0	-16.4	32.7	1.0	-48.1	-13.0	-35.1	
7.08	-66.5	H	3.0	-12.6	30.8	1.0	-42.4	-13.0	-29.4	
3.54	-67.5	V	3.0	-20.0	33.4	1.0	-52.4	-13.0	-39.4	
5.31	-66.1	V	3.0	-15.6	32.7	1.0	-47.4	-13.0	-34.4	
7.08	-66.5	V	3.0	-12.3	30.8	1.0	-42.1	-13.0	-29.1	

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16QAM LTE BAND 66 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #:
Date: 04/12/17
Test Engineer: 44353
Configuration: EUT Only
Mode: LTE Band 66, 20MHz 16QAM

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber D	3m Chamber D	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)										
3.42	-66.2	H	3.0	-19.0	33.3	1.0	-51.4	-13.0	-38.4	
5.13	-65.3	H	3.0	-14.7	32.9	1.0	-46.6	-13.0	-33.6	
6.84	-65.9	H	3.0	-12.3	31.1	1.0	-42.4	-13.0	-29.4	
3.42	-65.8	V	3.0	-18.6	33.3	1.0	-50.9	-13.0	-37.9	
5.13	-65.6	V	3.0	-15.4	32.9	1.0	-47.3	-13.0	-34.3	
6.84	-66.8	V	3.0	-13.0	31.1	1.0	-43.1	-13.0	-30.1	
Mid Channel (1745MHz)										
3.49	-67.0	H	3.0	-19.7	33.4	1.0	-52.0	-13.0	-39.0	
5.24	-66.8	H	3.0	-16.0	32.8	1.0	-47.9	-13.0	-34.9	
6.98	-66.7	H	3.0	-12.9	30.9	1.0	-42.8	-13.0	-29.8	
3.49	-66.2	V	3.0	-18.8	33.4	1.0	-51.2	-13.0	-38.2	
5.24	-66.1	V	3.0	-15.8	32.8	1.0	-47.6	-13.0	-34.6	
6.98	-66.3	V	3.0	-12.1	30.9	1.0	-42.0	-13.0	-29.0	
High Channel (1770MHz)										
3.56	-66.5	H	3.0	-19.0	33.4	1.0	-51.4	-13.0	-38.4	
5.34	-66.7	H	3.0	-15.7	32.7	1.0	-47.5	-13.0	-34.5	
7.12	-67.0	H	3.0	-13.0	30.7	1.0	-42.7	-13.0	-29.7	
3.56	-66.9	V	3.0	-19.3	33.4	1.0	-51.7	-13.0	-38.7	
5.34	-67.0	V	3.0	-16.4	32.7	1.0	-48.1	-13.0	-35.1	
7.12	-66.9	V	3.0	-12.6	30.7	1.0	-42.3	-13.0	-29.3	

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9.2. FIELD STRENGTH OF SPURIOUS RADIATION, UAT 1

9.2.1. LTE BAND 2

QPSK LTE BAND 2 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #:
Date: 04/13/17
Test Engineer: 29444
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	-62.8	H	3.0	-14.9	37.4	1.0	-51.3	-13.0	-38.3	
5.58	-66.5	H	3.0	-15.5	36.7	1.0	-51.2	-13.0	-38.2	
7.44	-68.0	H	3.0	-14.3	36.0	1.0	-49.3	-13.0	-36.3	
3.72	-62.4	V	3.0	-14.7	37.4	1.0	-51.1	-13.0	-38.1	
5.58	-66.6	V	3.0	-15.5	36.7	1.0	-51.2	-13.0	-38.2	
7.44	-68.4	V	3.0	-14.9	36.0	1.0	-49.9	-13.0	-36.9	
Mid Channel (1880MHz)										
3.76	-62.0	H	3.0	-14.0	37.4	1.0	-50.4	-13.0	-37.4	
5.64	-66.6	H	3.0	-15.5	36.7	1.0	-51.3	-13.0	-38.3	
7.52	-68.1	H	3.0	-14.2	35.9	1.0	-49.2	-13.0	-36.2	
3.76	-61.4	V	3.0	-13.6	37.4	1.0	-49.9	-13.0	-36.9	
5.64	-65.8	V	3.0	-14.7	36.7	1.0	-50.4	-13.0	-37.4	
7.52	-69.1	V	3.0	-15.4	35.9	1.0	-50.4	-13.0	-37.4	
High Channel (1900MHz)										
3.80	-63.3	H	3.0	-15.3	37.3	1.0	-51.6	-13.0	-38.6	
5.70	-65.4	H	3.0	-14.2	36.7	1.0	-49.9	-13.0	-36.9	
7.60	-68.9	H	3.0	-15.0	35.8	1.0	-49.9	-13.0	-36.9	
3.80	-62.6	V	3.0	-14.7	37.3	1.0	-51.1	-13.0	-38.1	
5.70	-66.1	V	3.0	-14.8	36.7	1.0	-50.5	-13.0	-37.5	
7.60	-67.9	V	3.0	-14.2	35.8	1.0	-49.1	-13.0	-36.1	

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16QAM LTE BAND 2 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #:
Date: 04/13/17
Test Engineer: 29444
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	-62.4	H	3.0	-14.5	37.4	1.0	-50.9	-13.0	-37.9	
5.58	-67.0	H	3.0	-16.0	36.7	1.0	-51.7	-13.0	-38.7	
7.44	-68.5	H	3.0	-14.8	36.0	1.0	-49.7	-13.0	-36.7	
3.72	-62.4	V	3.0	-14.7	37.4	1.0	-51.1	-13.0	-38.1	
5.58	-66.3	V	3.0	-15.2	36.7	1.0	-51.0	-13.0	-38.0	
7.44	-67.6	V	3.0	-14.1	36.0	1.0	-49.1	-13.0	-36.1	
Mid Channel (1880MHz)										
3.76	-62.9	H	3.0	-15.0	37.4	1.0	-51.3	-13.0	-38.3	
5.64	-66.2	H	3.0	-15.1	36.7	1.0	-50.9	-13.0	-37.9	
7.52	-69.2	H	3.0	-15.4	35.9	1.0	-50.3	-13.0	-37.3	
3.76	-62.3	V	3.0	-14.5	37.4	1.0	-50.8	-13.0	-37.8	
5.64	-65.5	V	3.0	-14.3	36.7	1.0	-50.1	-13.0	-37.1	
7.52	-68.7	V	3.0	-15.0	35.9	1.0	-50.0	-13.0	-37.0	
High Channel (1900MHz)										
3.80	-63.7	H	3.0	-15.7	37.3	1.0	-52.0	-13.0	-39.0	
5.70	-65.6	H	3.0	-14.4	36.7	1.0	-50.1	-13.0	-37.1	
7.60	-68.8	H	3.0	-14.8	35.8	1.0	-49.7	-13.0	-36.7	
3.80	-63.3	V	3.0	-15.4	37.3	1.0	-51.7	-13.0	-38.7	
5.70	-66.1	V	3.0	-14.9	36.7	1.0	-50.6	-13.0	-37.6	
7.60	-69.2	V	3.0	-15.5	35.8	1.0	-50.3	-13.0	-37.3	

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9.2.2. LTE BAND 4

QPSK LTE BAND 4 (3.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #:
Date: 05/11/17
Test Engineer: 10641
Configuration: EUT Only
Mode: LTE Band 4, 3MHz 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)										
3.44	-67.4	H	3.0	-18.1	38.5	1.0	-55.6	-13.0	-42.6	
5.16	-64.9	H	3.0	-11.7	38.7	1.0	-49.3	-13.0	-36.3	
6.88	-66.6	H	3.0	-9.7	38.1	1.0	-46.8	-13.0	-33.8	
3.44	-66.1	V	3.0	-17.0	38.5	1.0	-54.5	-13.0	-41.5	
5.16	-64.5	V	3.0	-11.6	38.7	1.0	-49.3	-13.0	-36.3	
6.88	-66.3	V	3.0	-9.7	38.1	1.0	-46.8	-13.0	-33.8	
Mid Channel (1732.5MHz)										
3.47	-66.2	H	3.0	-16.9	38.5	1.0	-54.4	-13.0	-41.4	
5.20	-64.4	H	3.0	-11.1	38.7	1.0	-48.8	-13.0	-35.8	
6.93	-66.7	H	3.0	-9.6	38.1	1.0	-46.7	-13.0	-33.7	
3.47	-67.3	V	3.0	-18.1	38.5	1.0	-55.6	-13.0	-42.6	
5.20	-65.9	V	3.0	-13.0	38.7	1.0	-50.6	-13.0	-37.6	
6.93	-67.0	V	3.0	-10.2	38.1	1.0	-47.3	-13.0	-34.3	
High Channel (1745MHz)										
3.49	-66.3	H	3.0	-16.9	38.5	1.0	-54.5	-13.0	-41.5	
5.24	-65.3	H	3.0	-11.9	38.7	1.0	-49.6	-13.0	-36.6	
6.98	-66.8	H	3.0	-9.7	38.1	1.0	-46.8	-13.0	-33.8	
3.49	-65.8	V	3.0	-16.5	38.5	1.0	-54.1	-13.0	-41.1	
5.24	-65.7	V	3.0	-12.7	38.7	1.0	-50.4	-13.0	-37.4	
6.98	-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 (3.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #:
Date: 05/11/17
Test Engineer: 10641
Configuration: EUT Only
Mode: LTE Band 4, 3MHz 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)										
3.44	-65.8	H	3.0	-16.5	38.5	1.0	-54.0	-13.0	-41.0	
5.16	-64.2	H	3.0	-11.0	38.7	1.0	-48.7	-13.0	-35.7	
6.88	-66.1	H	3.0	-9.2	38.1	1.0	-46.3	-13.0	-33.3	
3.44	-67.5	V	3.0	-18.4	38.5	1.0	-56.0	-13.0	-43.0	
5.16	-64.6	V	3.0	-11.7	38.7	1.0	-49.4	-13.0	-36.4	
6.88	-66.8	V	3.0	-10.1	38.1	1.0	-47.2	-13.0	-34.2	
Mid Channel (1732.5MHz)										
3.47	-68.0	H	3.0	-18.6	38.5	1.0	-56.1	-13.0	-43.1	
5.20	-66.3	H	3.0	-13.0	38.7	1.0	-50.7	-13.0	-37.7	
6.93	-66.9	H	3.0	-9.9	38.1	1.0	-47.0	-13.0	-34.0	
3.47	-66.6	V	3.0	-17.4	38.5	1.0	-55.0	-13.0	-42.0	
5.20	-65.3	V	3.0	-12.4	38.7	1.0	-50.1	-13.0	-37.1	
6.93	-66.7	V	3.0	-9.9	38.1	1.0	-47.0	-13.0	-34.0	
High Channel (1745MHz)										
3.49	-66.1	H	3.0	-16.7	38.5	1.0	-54.2	-13.0	-41.2	
5.24	-65.5	H	3.0	-12.2	38.7	1.0	-49.8	-13.0	-36.8	
6.98	-66.7	H	3.0	-9.5	38.1	1.0	-46.6	-13.0	-33.6	
3.49	-67.4	V	3.0	-18.2	38.5	1.0	-55.7	-13.0	-42.7	
5.24	-65.9	V	3.0	-12.8	38.7	1.0	-50.5	-13.0	-37.5	
6.98	-66.6	V	3.0	-9.7	38.1	1.0	-46.8	-13.0	-33.8	

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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 #:
Date: 04/13/17
Test Engineer: 44353
Configuration: EUT Only
Mode: LTE Band 5, 10MHz QPSK

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber D	3m Chamber D	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	-67.4	H	3.0	-25.5	35.0	1.0	-59.6	-13.0	-46.6	
2.49	-66.4	H	3.0	-22.2	33.8	1.0	-55.0	-13.0	-42.0	
3.32	-66.5	H	3.0	-19.6	33.2	1.0	-51.9	-13.0	-38.9	
1.66	-67.5	V	3.0	-25.5	35.0	1.0	-59.5	-13.0	-46.5	
2.49	-66.9	V	3.0	-22.5	33.8	1.0	-55.3	-13.0	-42.3	
3.32	-66.7	V	3.0	-19.8	33.2	1.0	-52.1	-13.0	-39.1	
Mid Channel (836.5MHz)										
1.67	-67.2	H	3.0	-25.4	35.0	1.0	-59.4	-13.0	-46.4	
2.51	-67.3	H	3.0	-23.0	33.7	1.0	-55.7	-13.0	-42.7	
3.35	-67.2	H	3.0	-20.3	33.3	1.0	-52.6	-13.0	-39.6	
1.67	-66.4	V	3.0	-24.4	35.0	1.0	-58.4	-13.0	-45.4	
2.51	-65.8	V	3.0	-21.3	33.7	1.0	-54.0	-13.0	-41.0	
3.35	-66.9	V	3.0	-19.9	33.3	1.0	-52.2	-13.0	-39.2	
High Channel (844MHz)										
1.69	-66.3	H	3.0	-24.4	35.0	1.0	-58.4	-13.0	-45.4	
2.53	-66.8	H	3.0	-22.4	33.7	1.0	-55.1	-13.0	-42.1	
3.38	-66.7	H	3.0	-19.7	33.3	1.0	-52.0	-13.0	-39.0	
1.69	-67.2	V	3.0	-25.1	35.0	1.0	-59.1	-13.0	-46.1	
2.53	-66.8	V	3.0	-22.2	33.7	1.0	-54.9	-13.0	-41.9	
3.38	-67.2	V	3.0	-20.1	33.3	1.0	-52.4	-13.0	-39.4	

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16QAM LTE BAND 5 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #:
Date: 04/13/17
Test Engineer: 44353
Configuration: EUT Only
Mode: LTE Band 5, 10MHz 16QAM

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber D	3m Chamber D	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	-67.2	H	3.0	-25.7	35.0	1.0	-59.7	-13.0	-46.7	
2.49	-66.5	H	3.0	-23.4	33.8	1.0	-56.2	-13.0	-43.2	
3.32	-66.8	H	3.0	-20.9	33.2	1.0	-53.1	-13.0	-40.1	
1.66	-66.5	V	3.0	-24.7	35.0	1.0	-58.7	-13.0	-45.7	
2.49	-66.3	V	3.0	-22.2	33.8	1.0	-55.0	-13.0	-42.0	
3.32	-67.2	V	3.0	-21.2	33.2	1.0	-53.5	-13.0	-40.5	
Mid Channel (836.5MHz)										
1.67	-65.8	H	3.0	-24.3	35.0	1.0	-58.3	-13.0	-45.3	
2.51	-66.9	H	3.0	-23.7	33.7	1.0	-56.4	-13.0	-43.4	
3.35	-67.3	H	3.0	-21.3	33.3	1.0	-53.6	-13.0	-40.6	
1.67	-67.1	V	3.0	-25.3	35.0	1.0	-59.3	-13.0	-46.3	
2.51	-67.1	V	3.0	-22.9	33.7	1.0	-55.6	-13.0	-42.6	
3.35	-66.9	V	3.0	-20.8	33.3	1.0	-53.1	-13.0	-40.1	
High Channel (844MHz)										
1.69	-66.5	H	3.0	-25.0	35.0	1.0	-59.0	-13.0	-46.0	
2.53	-65.8	H	3.0	-22.5	33.7	1.0	-55.2	-13.0	-42.2	
3.38	-66.2	H	3.0	-20.1	33.3	1.0	-52.3	-13.0	-39.3	
1.69	-67.4	V	3.0	-25.6	35.0	1.0	-59.6	-13.0	-46.6	
2.53	-67.5	V	3.0	-23.3	33.7	1.0	-56.0	-13.0	-43.0	
3.38	-67.1	V	3.0	-20.9	33.3	1.0	-53.2	-13.0	-40.2	

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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 #:
Date: 04/14/17
Test Engineer: 44353
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 D	3m Chamber D	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	-65.6	H	3.0	-15.2	33.0	1.0	-47.2	-25.0	-22.2	
7.53	-66.9	H	3.0	-12.3	30.2	1.0	-41.6	-25.0	-16.6	
10.04	-67.4	H	3.0	-9.8	27.3	1.0	-36.0	-25.0	-11.0	
5.02	-65.6	V	3.0	-15.5	33.0	1.0	-47.5	-25.0	-22.5	
7.53	-67.6	V	3.0	-12.9	30.2	1.0	-42.1	-25.0	-17.1	
10.04	-68.3	V	3.0	-11.3	27.3	1.0	-37.5	-25.0	-12.5	
Mid Channel (2535MHz)										
5.07	-65.3	H	3.0	-14.8	33.0	1.0	-46.8	-25.0	-21.8	
7.61	-65.9	H	3.0	-11.3	30.2	1.0	-40.4	-25.0	-15.4	
10.14	-67.5	H	3.0	-9.8	27.3	1.0	-36.1	-25.0	-11.1	
5.07	-65.6	V	3.0	-15.5	33.0	1.0	-47.5	-25.0	-22.5	
7.61	-66.7	V	3.0	-11.9	30.2	1.0	-41.1	-25.0	-16.1	
10.14	-66.7	V	3.0	-9.6	27.3	1.0	-35.9	-25.0	-10.9	
High Channel (2560MHz)										
5.12	-65.3	H	3.0	-14.7	32.9	1.0	-46.6	-25.0	-21.6	
7.68	-66.7	H	3.0	-12.0	30.1	1.0	-41.1	-25.0	-16.1	
10.24	-67.2	H	3.0	-9.5	27.4	1.0	-35.9	-25.0	-10.9	
5.12	-66.4	V	3.0	-16.2	32.9	1.0	-48.1	-25.0	-23.1	
7.68	-67.5	V	3.0	-12.7	30.1	1.0	-41.8	-25.0	-16.8	
10.24	-67.4	V	3.0	-10.3	27.4	1.0	-36.7	-25.0	-11.7	

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16QAM LTE BAND 7 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #:
Date: 04/14/17
Test Engineer: 44353
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 D	3m Chamber D	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	-65.3	H	3.0	-14.9	33.0	1.0	-46.9	-25.0	-21.9	
7.53	-66.9	H	3.0	-12.4	30.2	1.0	-41.7	-25.0	-16.7	
10.04	-67.6	H	3.0	-9.9	27.3	1.0	-36.2	-25.0	-11.2	
5.02	-66.3	V	3.0	-16.3	33.0	1.0	-48.3	-25.0	-23.3	
7.53	-67.1	V	3.0	-12.5	30.2	1.0	-41.7	-25.0	-16.7	
10.04	-68.4	V	3.0	-11.4	27.3	1.0	-37.6	-25.0	-12.6	
Mid Channel (2535MHz)										
5.07	-65.1	H	3.0	-14.6	33.0	1.0	-46.6	-25.0	-21.6	
7.61	-67.0	H	3.0	-12.3	30.2	1.0	-41.5	-25.0	-16.5	
10.14	-66.9	H	3.0	-9.3	27.3	1.0	-35.6	-25.0	-10.6	
5.07	-65.5	V	3.0	-15.4	33.0	1.0	-47.4	-25.0	-22.4	
7.61	-67.4	V	3.0	-12.6	30.2	1.0	-41.8	-25.0	-16.8	
10.14	-67.4	V	3.0	-10.3	27.3	1.0	-36.7	-25.0	-11.7	
High Channel (2560MHz)										
5.12	-66.1	H	3.0	-15.5	32.9	1.0	-47.5	-25.0	-22.5	
7.68	-67.6	H	3.0	-12.9	30.1	1.0	-41.9	-25.0	-16.9	
10.24	-68.0	H	3.0	-10.3	27.4	1.0	-36.7	-25.0	-11.7	
5.12	-65.9	V	3.0	-15.7	32.9	1.0	-47.6	-25.0	-22.6	
7.68	-67.3	V	3.0	-12.5	30.1	1.0	-41.5	-25.0	-16.5	
10.24	-67.9	V	3.0	-10.8	27.4	1.0	-37.2	-25.0	-12.2	

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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 #:
Date: 04/13/17
Test Engineer: 44353
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 D	3m Chamber D	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	-67.0	H	3.0	-26.2	34.8	1.0	-60.0	-13.0	-47.0	
2.11	-66.1	H	3.0	-23.0	34.9	1.0	-56.9	-13.0	-43.9	
2.82	-66.9	H	3.0	-21.6	33.3	1.0	-53.9	-13.0	-40.9	
1.41	-67.7	V	3.0	-26.6	34.8	1.0	-60.4	-13.0	-47.4	
2.11	-66.9	V	3.0	-23.8	34.9	1.0	-57.7	-13.0	-44.7	
2.82	-67.2	V	3.0	-21.7	33.3	1.0	-54.0	-13.0	-41.0	
Mid Channel (707.5MHz)										
1.42	-67.7	H	3.0	-26.8	34.8	1.0	-60.6	-13.0	-47.6	
2.12	-67.2	H	3.0	-24.0	34.9	1.0	-57.9	-13.0	-44.9	
2.83	-66.5	H	3.0	-21.2	33.3	1.0	-53.4	-13.0	-40.4	
1.42	-67.2	V	3.0	-26.1	34.8	1.0	-59.9	-13.0	-46.9	
2.12	-67.0	V	3.0	-23.8	34.9	1.0	-57.7	-13.0	-44.7	
2.83	-67.3	V	3.0	-21.8	33.3	1.0	-54.0	-13.0	-41.0	
High Channel (711MHz)										
1.42	-65.9	H	3.0	-25.0	34.9	1.0	-58.8	-13.0	-45.8	
2.13	-66.4	H	3.0	-23.2	34.8	1.0	-57.1	-13.0	-44.1	
2.84	-66.4	H	3.0	-21.0	33.2	1.0	-53.2	-13.0	-40.2	
1.42	-66.6	V	3.0	-25.3	34.9	1.0	-59.2	-13.0	-46.2	
2.13	-66.8	V	3.0	-23.6	34.8	1.0	-57.4	-13.0	-44.4	
2.84	-66.3	V	3.0	-20.7	33.2	1.0	-53.0	-13.0	-40.0	

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16QAM LTE BAND 12 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #:
Date: 04/12/17
Test Engineer: 44353
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 D	3m Chamber D	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	-65.7	H	3.0	-24.9	34.8	1.0	-58.7	-13.0	-45.7	
2.11	-66.2	H	3.0	-23.0	34.9	1.0	-56.9	-13.0	-43.9	
2.82	-66.0	H	3.0	-20.7	33.3	1.0	-53.0	-13.0	-40.0	
1.41	-66.6	V	3.0	-25.5	34.8	1.0	-59.3	-13.0	-46.3	
2.11	-67.0	V	3.0	-23.9	34.9	1.0	-57.8	-13.0	-44.8	
2.82	-66.5	V	3.0	-21.0	33.3	1.0	-53.3	-13.0	-40.3	
Mid Channel (707.5MHz)										
1.42	-66.4	H	3.0	-25.5	34.8	1.0	-59.4	-13.0	-46.4	
2.12	-65.5	H	3.0	-22.3	34.9	1.0	-56.2	-13.0	-43.2	
2.83	-66.2	H	3.0	-20.8	33.3	1.0	-53.1	-13.0	-40.1	
1.42	-66.4	V	3.0	-25.2	34.8	1.0	-59.1	-13.0	-46.1	
2.12	-66.5	V	3.0	-23.4	34.9	1.0	-57.3	-13.0	-44.3	
2.83	-66.2	V	3.0	-20.7	33.3	1.0	-52.9	-13.0	-39.9	
High Channel (711MHz)										
1.42	-66.5	H	3.0	-25.5	34.9	1.0	-59.4	-13.0	-46.4	
2.13	-66.7	H	3.0	-23.5	34.8	1.0	-57.4	-13.0	-44.4	
2.84	-66.5	H	3.0	-21.1	33.2	1.0	-53.4	-13.0	-40.4	
1.42	-66.3	V	3.0	-25.1	34.9	1.0	-59.0	-13.0	-46.0	
2.13	-66.7	V	3.0	-23.6	34.8	1.0	-57.4	-13.0	-44.4	
2.84	-67.1	V	3.0	-21.5	33.2	1.0	-53.8	-13.0	-40.8	

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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 #:
Date: 04/13/17
Test Engineer: 44353
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 D	3m Chamber D	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	-66.1	H	3.0	-24.6	35.0	1.0	-58.6	-40.0	-18.6	
2.35	-65.8	H	3.0	-22.2	34.5	1.0	-55.7	-13.0	-42.7	
3.13	-65.9	H	3.0	-19.6	33.1	1.0	-51.7	-13.0	-38.7	
1.56	-66.6	V	3.0	-24.7	35.0	1.0	-58.7	-40.0	-18.7	
2.35	-66.1	V	3.0	-22.2	34.5	1.0	-55.7	-13.0	-42.7	
3.13	-66.0	V	3.0	-19.6	33.1	1.0	-51.7	-13.0	-38.7	

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16QAM LTE BAND 13 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #:
Date: 04/13/17
Test Engineer: 44353
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 D	3m Chamber D	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	-66.6	H	3.0	-25.0	35.0	1.0	-59.0	-40.0	-19.0	
2.35	-66.2	H	3.0	-22.6	34.5	1.0	-56.0	-13.0	-43.0	
3.13	-65.5	H	3.0	-19.2	33.1	1.0	-51.3	-13.0	-38.3	
1.56	-66.4	V	3.0	-24.6	35.0	1.0	-58.6	-40.0	-18.6	
2.35	-65.9	V	3.0	-22.0	34.5	1.0	-55.5	-13.0	-42.5	
3.13	-65.9	V	3.0	-19.5	33.1	1.0	-51.6	-13.0	-38.6	

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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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9.2.7. LTE BAND 17

QPSK LTE BAND 17 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #:
Date: 07/21/17
Test Engineer: 50822
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
Low Channel (709MHz)										
1.418	-63.5	H	3.0	-21.8	38.0	1.0	-58.8	-13.0	-45.8	
2.127	-64.9	H	3.0	-21.2	38.0	1.0	-58.2	-13.0	-45.2	
2.836	-64.4	H	3.0	-17.2	38.4	1.0	-54.7	-13.0	-41.7	
1.418	-63.5	V	3.0	-22.5	38.0	1.0	-59.5	-13.0	-46.5	
2.127	-64.2	V	3.0	-20.1	38.0	1.0	-57.1	-13.0	-44.1	
2.836	-64.5	V	3.0	-17.5	38.4	1.0	-55.0	-13.0	-42.0	
Mid Channel (710MHz)										
1.420	-63.5	H	3.0	-21.8	38.0	1.0	-58.8	-13.0	-45.8	
2.130	-64.6	H	3.0	-20.9	38.0	1.0	-57.9	-13.0	-44.9	
2.840	-64.5	H	3.0	-17.3	38.4	1.0	-54.8	-13.0	-41.8	
1.420	-63.8	V	3.0	-22.8	38.0	1.0	-59.8	-13.0	-46.8	
2.130	-64.3	V	3.0	-20.1	38.0	1.0	-57.1	-13.0	-44.1	
2.840	-64.7	V	3.0	-17.7	38.4	1.0	-55.2	-13.0	-42.2	
High Channel (711MHz)										
1.422	-63.3	H	3.0	-21.6	38.0	1.0	-58.7	-13.0	-45.7	
2.133	-64.3	H	3.0	-20.6	38.0	1.0	-57.6	-13.0	-44.6	
2.844	-64.8	H	3.0	-17.6	38.4	1.0	-55.0	-13.0	-42.0	
1.422	-64.0	V	3.0	-23.0	38.0	1.0	-60.0	-13.0	-47.0	
2.133	-64.6	V	3.0	-20.4	38.0	1.0	-57.4	-13.0	-44.4	
2.844	-65.0	V	3.0	-18.0	38.4	1.0	-55.4	-13.0	-42.4	

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16QAM LTE BAND 17 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #:
Date: 7/21/22017
Test Engineer: 50822
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
Low Channel (709MHz)										
1.418	-63.8	H	3.0	-22.1	38.0	1.0	-59.1	-13.0	-46.1	
2.127	-64.1	H	3.0	-20.5	38.0	1.0	-57.5	-13.0	-44.5	
2.836	-64.8	H	3.0	-17.6	38.4	1.0	-55.1	-13.0	-42.1	
1.418	-63.7	V	3.0	-22.7	38.0	1.0	-59.8	-13.0	-46.8	
2.127	-64.1	V	3.0	-19.9	38.0	1.0	-56.9	-13.0	-43.9	
2.836	-64.7	V	3.0	-17.7	38.4	1.0	-55.2	-13.0	-42.2	
Mid Channel (710MHz)										
1.420	-63.9	H	3.0	-22.2	38.0	1.0	-59.2	-13.0	-46.2	
2.130	-64.3	H	3.0	-20.7	38.0	1.0	-57.7	-13.0	-44.7	
2.840	-64.9	H	3.0	-17.6	38.4	1.0	-55.1	-13.0	-42.1	
1.420	-64.1	V	3.0	-23.1	38.0	1.0	-60.1	-13.0	-47.1	
2.130	-64.3	V	3.0	-20.1	38.0	1.0	-57.1	-13.0	-44.1	
2.840	-64.9	V	3.0	-17.9	38.4	1.0	-55.3	-13.0	-42.3	
High Channel (711MHz)										
1.422	-64.0	H	3.0	-22.3	38.0	1.0	-59.3	-13.0	-46.3	
2.133	-64.8	H	3.0	-21.1	38.0	1.0	-58.1	-13.0	-45.1	
2.844	-64.5	H	3.0	-17.3	38.4	1.0	-54.7	-13.0	-41.7	
1.422	-63.1	V	3.0	-22.1	38.0	1.0	-59.1	-13.0	-46.1	
2.133	-64.8	V	3.0	-20.6	38.0	1.0	-57.6	-13.0	-44.6	
2.844	-64.4	V	3.0	-17.3	38.4	1.0	-54.8	-13.0	-41.8	

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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 #:
Date: 04/14/17
Test Engineer: 39472
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 D	3m Chamber D	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	-69.0	H	3.0	-21.0	33.5	1.0	-53.6	-13.0	-40.6	
5.58	-70.2	H	3.0	-18.9	32.4	1.0	-50.3	-13.0	-37.3	
7.44	-72.4	H	3.0	-18.1	30.4	1.0	-47.4	-13.0	-34.4	
3.72	-68.2	H	3.0	-20.2	33.5	1.0	-52.7	-13.0	-39.7	
5.58	-70.6	H	3.0	-19.2	32.4	1.0	-50.7	-13.0	-37.7	
7.44	-72.6	V	3.0	-18.0	30.4	1.0	-47.4	-13.0	-34.4	
Mid Channel (1882.5MHz)										
3.77	-69.9	H	3.0	-21.8	33.5	1.0	-54.3	-13.0	-41.3	
5.65	-70.9	H	3.0	-19.5	32.4	1.0	-50.8	-13.0	-37.8	
7.53	-72.2	H	3.0	-17.7	30.2	1.0	-46.9	-13.0	-33.9	
3.77	-69.7	V	3.0	-21.6	33.5	1.0	-54.2	-13.0	-41.2	
5.65	-71.3	V	3.0	-20.0	32.4	1.0	-51.4	-13.0	-38.4	
7.53	-71.3	V	3.0	-16.6	30.2	1.0	-45.9	-13.0	-32.9	
High Channel (1905MHz)										
3.81	-69.5	H	3.0	-21.2	33.6	1.0	-53.8	-13.0	-40.8	
5.72	-70.6	H	3.0	-19.0	32.3	1.0	-50.3	-13.0	-37.3	
7.62	-71.6	H	3.0	-17.0	30.1	1.0	-46.1	-13.0	-33.1	
3.81	-70.5	V	3.0	-22.2	33.6	1.0	-54.8	-13.0	-41.8	
5.72	-71.1	V	3.0	-19.7	32.3	1.0	-51.0	-13.0	-38.0	
7.62	-72.2	V	3.0	-17.4	30.1	1.0	-46.5	-13.0	-33.5	

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16QAM LTE BAND 25 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #:
Date: 04/14/17
Test Engineer: 39472
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 D	3m Chamber D	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	-68.2	H	3.0	-20.2	33.5	1.0	-52.7	-13.0	-39.7	
5.58	-69.8	H	3.0	-18.5	32.4	1.0	-49.9	-13.0	-36.9	
7.44	-72.0	H	3.0	-17.6	30.4	1.0	-47.0	-13.0	-34.0	
3.72	-69.5	V	3.0	-21.5	33.5	1.0	-54.1	-13.0	-41.1	
5.58	-70.4	V	3.0	-19.4	32.4	1.0	-50.8	-13.0	-37.8	
7.44	-72.4	V	3.0	-17.9	30.4	1.0	-47.2	-13.0	-34.2	
Mid Channel (1882.5MHz)										
3.77	-69.3	H	3.0	-21.2	33.5	1.0	-53.8	-13.0	-40.8	
5.65	-70.8	H	3.0	-19.4	32.4	1.0	-50.7	-13.0	-37.7	
7.53	-72.3	H	3.0	-17.8	30.2	1.0	-47.0	-13.0	-34.0	
3.77	-69.1	V	3.0	-21.0	33.5	1.0	-53.5	-13.0	-40.5	
5.65	-71.1	V	3.0	-19.8	32.4	1.0	-51.2	-13.0	-38.2	
7.53	-72.0	V	3.0	-17.4	30.2	1.0	-46.6	-13.0	-33.6	
High Channel (1905MHz)										
3.81	-69.5	H	3.0	-21.3	33.6	1.0	-53.9	-13.0	-40.9	
5.72	-70.2	H	3.0	-18.7	32.3	1.0	-50.0	-13.0	-37.0	
7.62	-71.8	H	3.0	-17.1	30.1	1.0	-46.3	-13.0	-33.3	
3.81	-69.4	V	3.0	-21.1	33.6	1.0	-53.7	-13.0	-40.7	
5.72	-70.4	V	3.0	-19.0	32.3	1.0	-50.3	-13.0	-37.3	
7.62	-72.6	V	3.0	-17.9	30.1	1.0	-47.0	-13.0	-34.0	

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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 #:
Date: 04/14/17
Test Engineer: 44399
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 D	3m Chamber D	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	-57.2	H	3.0	-15.4	35.0	1.0	-49.4	-13.0	-36.4	
2.46	-61.9	H	3.0	-17.9	34.0	1.0	-50.9	-13.0	-37.9	
3.28	-66.2	H	3.0	-19.5	33.2	1.0	-51.7	-13.0	-38.7	
1.64	-59.2	V	3.0	-17.3	35.0	1.0	-51.3	-13.0	-38.3	
2.46	-64.7	V	3.0	-20.5	34.0	1.0	-53.5	-13.0	-40.5	
3.28	-66.8	V	3.0	-20.0	33.2	1.0	-52.2	-13.0	-39.2	

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16QAM LTE BAND 26 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #:
Date: 04/14/17
Test Engineer: 44399
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 D	3m Chamber D	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	-58.3	H	3.0	-16.6	35.0	1.0	-50.6	-13.0	-37.6	
2.46	-62.8	H	3.0	-18.8	34.0	1.0	-51.8	-13.0	-38.8	
3.28	-66.3	H	3.0	-19.6	33.2	1.0	-51.8	-13.0	-38.8	
1.64	-59.5	V	3.0	-17.6	35.0	1.0	-51.6	-13.0	-38.6	
2.46	-64.8	V	3.0	-20.5	34.0	1.0	-53.6	-13.0	-40.6	
3.28	-66.7	V	3.0	-19.9	33.2	1.0	-52.1	-13.0	-39.1	

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9.2.10. LTE BAND 30

QPSK LTE BAND 30 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #:
Date: 04/26/17
Test Engineer: 39004
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	-67.1	H	3.0	-13.3	37.9	1.0	-50.2	-40.0	-10.2	
6.93	-68.4	H	3.0	-9.8	36.5	1.0	-45.3	-40.0	-5.3	
9.24	-70.4	H	3.0	-8.8	34.9	1.0	-42.7	-40.0	-2.7	
4.62	-66.9	V	3.0	-13.2	37.9	1.0	-50.1	-40.0	-10.1	
6.93	-68.3	V	3.0	-8.8	36.5	1.0	-44.3	-40.0	-4.3	
9.24	-70.2	V	3.0	-8.4	34.9	1.0	-42.3	-40.0	-2.3	

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16QAM LTE BAND 30 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #:
Date: 04/26/17
Test Engineer: 39004
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	-66.8	H	3.0	-13.0	37.9	1.0	-49.9	-40.0	-9.9	
6.93	-68.2	H	3.0	-9.6	36.5	1.0	-45.1	-40.0	-5.1	
9.24	-70.2	H	3.0	-8.6	34.9	1.0	-42.5	-40.0	-2.5	
4.62	-66.7	V	3.0	-12.9	37.9	1.0	-49.8	-40.0	-9.8	
6.93	-68.5	V	3.0	-9.1	36.5	1.0	-44.5	-40.0	-4.5	
9.24	-70.4	V	3.0	-8.6	34.9	1.0	-42.5	-40.0	-2.5	

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9.2.11. LTE BAND 41

QPSK LTE BAND 41 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #:
Date: 04/14/17
Test Engineer: 44399
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 D	3m Chamber D	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	-67.5	H	3.0	-17.2	33.0	1.0	-49.2	-25.0	-24.2	
7.52	-69.1	H	3.0	-14.6	30.3	1.0	-43.9	-25.0	-18.9	
10.02	-71.0	H	3.0	-13.4	27.2	1.0	-39.7	-25.0	-14.7	
5.01	-66.4	V	3.0	-16.3	33.0	1.0	-48.3	-25.0	-23.3	
7.52	-69.5	V	3.0	-14.8	30.3	1.0	-44.1	-25.0	-19.1	
10.02	-71.2	V	3.0	-14.3	27.2	1.0	-40.5	-25.0	-15.5	
Mid Channel (2593MHz)										
5.19	-67.5	H	3.0	-16.9	32.9	1.0	-48.7	-25.0	-23.7	
7.78	-68.9	H	3.0	-14.1	29.9	1.0	-43.0	-25.0	-18.0	
10.37	-70.7	H	3.0	-13.1	27.5	1.0	-39.5	-25.0	-14.5	
5.19	-67.7	V	3.0	-17.4	32.9	1.0	-49.3	-25.0	-24.3	
7.78	-69.7	V	3.0	-14.8	29.9	1.0	-43.8	-25.0	-18.8	
10.37	-71.3	V	3.0	-14.2	27.5	1.0	-40.6	-25.0	-15.6	
High Channel (2680MHz)										
5.36	-68.4	H	3.0	-17.5	32.7	1.0	-49.2	-25.0	-24.2	
8.04	-69.1	H	3.0	-14.0	29.6	1.0	-42.6	-25.0	-17.6	
10.72	-71.4	H	3.0	-13.7	27.7	1.0	-40.3	-25.0	-15.3	
5.36	-68.3	V	3.0	-17.7	32.7	1.0	-49.4	-25.0	-24.4	
8.04	-69.4	V	3.0	-14.3	29.6	1.0	-42.9	-25.0	-17.9	
10.72	-71.4	V	3.0	-14.0	27.7	1.0	-40.7	-25.0	-15.7	

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16QAM LTE BAND 41 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #:
Date: 04/14/17
Test Engineer: 44399
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 D	3m Chamber D	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	-67.9	H	3.0	-17.5	33.0	1.0	-49.5	-25.0	-24.5	
7.52	-70.7	H	3.0	-16.2	30.3	1.0	-45.5	-25.0	-20.5	
10.02	-71.2	H	3.0	-13.6	27.2	1.0	-39.8	-25.0	-14.8	
5.01	-67.9	V	3.0	-17.9	33.0	1.0	-49.8	-25.0	-24.8	
7.52	-69.2	V	3.0	-14.5	30.3	1.0	-43.8	-25.0	-18.8	
10.02	-71.3	V	3.0	-14.3	27.2	1.0	-40.6	-25.0	-15.6	
Mid Channel (2593MHz)										
5.19	-67.8	H	3.0	-17.1	32.9	1.0	-49.0	-25.0	-24.0	
7.78	-69.7	H	3.0	-14.8	29.9	1.0	-43.8	-25.0	-18.8	
10.37	-71.4	H	3.0	-13.7	27.5	1.0	-40.2	-25.0	-15.2	
5.19	-67.9	V	3.0	-17.6	32.9	1.0	-49.5	-25.0	-24.5	
7.78	-71.0	V	3.0	-16.1	29.9	1.0	-45.1	-25.0	-20.1	
10.37	-69.9	V	3.0	-12.7	27.5	1.0	-39.2	-25.0	-14.2	
High Channel (2680MHz)										
5.36	-66.0	H	3.0	-15.1	32.7	1.0	-46.8	-25.0	-21.8	
8.04	-70.4	H	3.0	-15.3	29.6	1.0	-43.9	-25.0	-18.9	
10.72	-70.7	H	3.0	-12.9	27.7	1.0	-39.6	-25.0	-14.6	
5.36	-67.0	V	3.0	-16.4	32.7	1.0	-48.1	-25.0	-23.1	
8.04	-69.3	V	3.0	-14.2	29.6	1.0	-42.8	-25.0	-17.8	
10.72	-71.3	V	3.0	-14.0	27.7	1.0	-40.6	-25.0	-15.6	

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9.2.12. LTE BAND 66

QPSK LTE BAND 66 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #:
Date: 04/14/17
Test Engineer: 44353
Configuration: EUT Only
Mode: LTE Band 66, 20MHz QPSK

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber D	3m Chamber D	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 (1720.0MHz)										
3.44	-67.0	H	3.0	-19.8	33.3	1.0	-52.1	-13.0	-39.1	
5.16	-64.8	H	3.0	-14.2	32.9	1.0	-46.1	-13.0	-33.1	
6.88	-68.1	H	3.0	-14.5	31.0	1.0	-44.5	-13.0	-31.5	
3.44	-67.3	V	3.0	-20.0	33.3	1.0	-52.4	-13.0	-39.4	
5.16	-66.0	V	3.0	-15.8	32.9	1.0	-47.7	-13.0	-34.7	
6.88	-66.6	V	3.0	-12.7	31.0	1.0	-42.8	-13.0	-29.8	
Mid Channel (1745.0MHz)										
3.49	-67.2	H	3.0	-19.9	33.4	1.0	-52.2	-13.0	-39.2	
5.24	-66.4	H	3.0	-15.7	32.8	1.0	-47.5	-13.0	-34.5	
6.98	-66.9	H	3.0	-13.1	30.9	1.0	-43.0	-13.0	-30.0	
3.49	-67.9	V	3.0	-20.6	33.4	1.0	-52.9	-13.0	-39.9	
5.24	-67.3	V	3.0	-16.9	32.8	1.0	-48.7	-13.0	-35.7	
6.98	-68.0	V	3.0	-13.9	30.9	1.0	-43.8	-13.0	-30.8	
High Channel (1770.0MHz)										
3.54	-66.7	H	3.0	-19.2	33.4	1.0	-51.6	-13.0	-38.6	
5.31	-67.5	H	3.0	-16.6	32.7	1.0	-48.3	-13.0	-35.3	
7.08	-66.7	H	3.0	-12.8	30.8	1.0	-42.6	-13.0	-29.6	
3.54	-67.6	V	3.0	-20.1	33.4	1.0	-52.5	-13.0	-39.5	
5.31	-67.3	V	3.0	-16.8	32.7	1.0	-48.5	-13.0	-35.5	
7.08	-67.0	V	3.0	-12.8	30.8	1.0	-42.5	-13.0	-29.5	

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16QAM LTE BAND 66 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #:
Date: 04/14/17
Test Engineer: 44353
Configuration: EUT Only
Mode: LTE Band 66, 20MHz 16QAM

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber D	3m Chamber D	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)										
3.42	-67.6	H	3.0	-20.5	33.3	1.0	-52.8	-13.0	-39.8	
5.13	-66.8	H	3.0	-16.2	32.9	1.0	-48.1	-13.0	-35.1	
6.84	-67.9	H	3.0	-14.3	31.1	1.0	-44.4	-13.0	-31.4	
3.42	-67.3	V	3.0	-20.1	33.3	1.0	-52.4	-13.0	-39.4	
5.13	-67.3	V	3.0	-17.1	32.9	1.0	-49.0	-13.0	-36.0	
6.84	-67.7	V	3.0	-13.9	31.1	1.0	-43.9	-13.0	-30.9	
Mid Channel (1745MHz)										
3.49	-67.0	H	3.0	-19.7	33.4	1.0	-52.0	-13.0	-39.0	
5.24	-66.5	H	3.0	-15.8	32.8	1.0	-47.6	-13.0	-34.6	
6.98	-67.4	H	3.0	-13.6	30.9	1.0	-43.5	-13.0	-30.5	
3.49	-66.6	V	3.0	-19.2	33.4	1.0	-51.6	-13.0	-38.6	
5.24	-67.6	V	3.0	-17.3	32.8	1.0	-49.1	-13.0	-36.1	
6.98	-67.6	V	3.0	-13.5	30.9	1.0	-43.4	-13.0	-30.4	
High Channel (1770MHz)										
3.56	-66.8	H	3.0	-19.3	33.4	1.0	-51.7	-13.0	-38.7	
5.34	-66.3	H	3.0	-15.4	32.7	1.0	-47.1	-13.0	-34.1	
7.12	-66.8	H	3.0	-12.8	30.7	1.0	-42.5	-13.0	-29.5	
3.56	-67.2	V	3.0	-19.6	33.4	1.0	-52.0	-13.0	-39.0	
5.34	-66.5	V	3.0	-15.9	32.7	1.0	-47.6	-13.0	-34.6	
7.12	-67.3	V	3.0	-13.0	30.7	1.0	-42.8	-13.0	-29.8	

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