

**High Frequency Substitution Measurement
UL RTP Radiated Chamber**

Company: SOMC
Project #: 16J23633
Date: 07/27/2016
Test Engineer: Brian Kievra / John Manser
Configuration: Unit with ear-buds and charger (LTE #1)
Mode: LTE Band 4, 5MHz QPSK

Test Equipment:
Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber		Pre-amplifier		Filter		Limit				
3m Chamber N-RTP		3m Chamber N-RTP		Filter		EIRP				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (HV)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1712.5MHz)										
3.43	69.2	H	3.0	-19.5	39.6	1.0	-58.1	-13.0	-45.1	
5.14	67.9	H	3.0	-19.0	40.3	1.0	-54.3	-13.0	-41.3	
6.85	69.5	H	3.0	-13.8	39.2	1.0	-52.0	-13.0	-39.0	
Mid Channel (1732.5MHz)										
3.47	69.3	H	3.0	-19.6	39.6	1.0	-58.2	-13.0	-45.2	
5.20	68.0	H	3.0	-15.0	40.3	1.0	-54.4	-13.0	-41.4	
6.93	68.7	H	3.0	-13.8	39.1	1.0	-51.9	-13.0	-38.9	
High Channel (1752.5MHz)										
3.47	69.3	V	3.0	-18.8	39.6	1.0	-57.4	-13.0	-44.4	
5.20	68.0	V	3.0	-15.2	40.3	1.0	-54.5	-13.0	-41.5	
6.93	69.6	V	3.0	-14.1	39.1	1.0	-52.2	-13.0	-39.2	

Rev: 10.28.15

LTE B4 5MHz QPSK

**High Frequency Substitution Measurement
UL RTP Radiated Chamber**

Company: SOMC
Project #: 16J23633
Date: 07/27/2016
Test Engineer: Brian Kievra / John Manser
Configuration: Unit with ear-buds and charger (LTE #1)
Mode: LTE Band 4, 5MHz 16QAM

Test Equipment:
Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber		Pre-amplifier		Filter		Limit				
3m Chamber N-RTP		3m Chamber N-RTP		Filter		EIRP				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (HV)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1712.5MHz)										
3.43	69.2	H	3.0	-19.6	39.6	1.0	-58.1	-13.0	-45.1	
5.14	67.8	H	3.0	-14.9	40.3	1.0	-54.3	-13.0	-41.3	
6.85	69.5	H	3.0	-13.8	39.2	1.0	-52.0	-13.0	-39.0	
Mid Channel (1732.5MHz)										
3.47	69.3	H	3.0	-19.6	39.6	1.0	-58.2	-13.0	-45.2	
5.20	67.9	H	3.0	-15.0	40.3	1.0	-54.3	-13.0	-41.3	
6.93	69.7	H	3.0	-13.9	39.1	1.0	-52.0	-13.0	-39.0	
High Channel (1752.5MHz)										
3.47	69.3	V	3.0	-18.8	39.6	1.0	-57.4	-13.0	-44.4	
5.20	68.0	V	3.0	-15.2	40.3	1.0	-54.5	-13.0	-41.5	
6.93	69.6	V	3.0	-14.1	39.1	1.0	-52.2	-13.0	-39.2	

Rev: 10.28.15

LTE B4 5MHz 16QAM

**High Frequency Substitution Measurement
UL RTP Radiated Chamber**

Company: SOMC
Project #: 16J23633
Date: 07/27/2016
Test Engineer: Brian Kievra / John Manser
Configuration: Unit with ear-buds and charger (LTE #1)
Mode: LTE Band 4, 10MHz QPSK

Test Equipment:
Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber		Pre-amplifier		Filter		Limit				
3m Chamber N-RTP		3m Chamber N-RTP		Filter		EIRP				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (HV)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1715MHz)										
3.43	66.9	H	3.0	-16.6	39.6	1.0	-55.2	-13.0	-42.2	
5.15	64.9	H	3.0	-12.1	40.3	1.0	-51.4	-13.0	-38.4	
6.86	66.6	H	3.0	-19.9	39.2	1.0	-49.1	-13.0	-36.1	
Mid Channel (1732.5MHz)										
3.43	66.2	V	3.0	-15.8	39.6	1.0	-54.4	-13.0	-41.4	
5.15	64.9	V	3.0	-12.2	40.3	1.0	-51.5	-13.0	-38.5	
6.86	66.6	V	3.0	-11.2	39.2	1.0	-49.4	-13.0	-36.4	
High Channel (1758MHz)										
3.47	66.3	H	3.0	-16.5	39.6	1.0	-55.1	-13.0	-42.1	
5.20	65.1	H	3.0	-12.1	40.3	1.0	-51.4	-13.0	-38.4	
6.93	66.6	H	3.0	-10.8	39.1	1.0	-48.9	-13.0	-35.9	

Rev: 10.28.15

LTE B4 10MHz QPSK

**High Frequency Substitution Measurement
UL RTP Radiated Chamber**

Company: SOMC
Project #: 16J23633
Date: 07/27/2016
Test Engineer: Brian Kievra / John Manser
Configuration: Unit with ear-buds and charger (LTE #1)
Mode: LTE Band 4, 10MHz 16QAM

Test Equipment:
Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber		Pre-amplifier		Filter		Limit				
3m Chamber N-RTP		3m Chamber N-RTP		Filter		EIRP				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (HV)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1715MHz)										
3.43	66.3	H	3.0	-16.7	39.6	1.0	-55.2	-13.0	-42.2	
5.15	65.0	H	3.0	-12.1	40.3	1.0	-51.4	-13.0	-38.4	
6.86	66.6	H	3.0	-10.9	39.2	1.0	-49.0	-13.0	-36.0	
Mid Channel (1732.5MHz)										
3.47	66.4	H	3.0	-16.6	39.6	1.0	-55.2	-13.0	-42.2	
5.20	64.9	V	3.0	-12.0	40.3	1.0	-51.4	-13.0	-38.4	
6.93	66.5	H	3.0	-10.7	39.1	1.0	-48.8	-13.0	-35.8	
High Channel (1758MHz)										
3.47	66.2	V	3.0	-15.7	39.6	1.0	-54.3	-13.0	-41.3	
5.20	64.9	V	3.0	-12.1	40.3	1.0	-51.4	-13.0	-38.4	
6.93	66.6	V	3.0	-11.1	39.1	1.0	-49.2	-13.0	-36.2	

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LTE B4 10MHz 16QAM

High Frequency Substitution Measurement UL RTP Radiated Chamber

Company: SOMC
Project #: 16J23633
Date: 07/27/2016
Test Engineer: Brian Kievra / John Manser
Configuration: Unit with ear-buds and charger (LTE #1)
Mode: LTE Band 4, 15MHz QPSK

Test Equipment:
Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber		Pre-amplifier		Filter		Limit	
3m Chamber N-RTP		3m Chamber N-RTP		Filter		EIRP	

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (HV)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1717.5MHz)										
3.44	64.4	H	3.0	-14.7	29.6	1.0	53.3	-13.0	-40.3	
5.15	63.3	H	3.0	-18.4	40.3	1.0	49.7	-13.0	-36.7	
6.87	64.9	H	3.0	-9.2	39.2	1.0	47.4	-13.0	-34.4	
3.44	64.2	V	3.0	-13.8	39.6	1.0	52.4	-13.0	-39.4	
5.15	63.2	V	3.0	-18.4	40.3	1.0	49.7	-13.0	-36.7	
6.87	65.0	V	3.0	-9.6	39.2	1.0	47.8	-13.0	-34.8	
Mid Channel (1732.5MHz)										
3.47	64.6	H	3.0	-14.8	39.6	1.0	53.4	-13.0	-40.4	
5.20	63.2	H	3.0	-19.3	40.3	1.0	49.6	-13.0	-36.6	
6.93	64.8	H	3.0	-9.0	39.1	1.0	47.1	-13.0	-34.1	
3.47	64.5	V	3.0	-14.0	39.6	1.0	52.6	-13.0	-38.6	
5.20	63.2	V	3.0	-19.4	40.3	1.0	49.7	-13.0	-36.7	
6.93	64.8	V	3.0	-9.3	39.1	1.0	47.4	-13.0	-34.4	
High Channel (1747.5MHz)										
3.50	64.4	H	3.0	-14.6	39.6	1.0	53.2	-13.0	-40.2	
5.24	63.3	H	3.0	-19.3	40.3	1.0	49.6	-13.0	-36.6	
6.99	64.8	H	3.0	-8.9	39.1	1.0	46.9	-13.0	-33.9	
3.50	64.5	V	3.0	-14.0	39.6	1.0	52.6	-13.0	-38.6	
5.24	63.3	V	3.0	-19.4	40.3	1.0	49.7	-13.0	-36.7	
6.99	64.9	V	3.0	-9.3	39.1	1.0	47.3	-13.0	-34.3	

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LTE B4 15MHz QPSK

High Frequency Substitution Measurement UL RTP Radiated Chamber

Company: SOMC
Project #: 16J23633
Date: 07/27/2016
Test Engineer: Brian Kievra / John Manser
Configuration: Unit with ear-buds and charger (LTE #1)
Mode: LTE Band 4, 16MHz 16QAM

Test Equipment:
Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber		Pre-amplifier		Filter		Limit	
3m Chamber N-RTP		3m Chamber N-RTP		Filter		EIRP	

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (HV)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1717.5MHz)										
3.44	64.4	H	3.0	-14.7	39.6	1.0	53.3	-13.0	-40.3	
5.15	63.3	H	3.0	-18.4	40.3	1.0	49.7	-13.0	-36.7	
6.87	65.0	H	3.0	-9.3	39.2	1.0	47.4	-13.0	-34.4	
3.44	64.3	V	3.0	-13.9	39.6	1.0	52.4	-13.0	-39.4	
5.15	63.2	V	3.0	-18.5	40.3	1.0	49.8	-13.0	-36.8	
6.87	65.0	V	3.0	-9.6	39.2	1.0	47.7	-13.0	-34.7	
Mid Channel (1732.5MHz)										
3.47	64.5	H	3.0	-14.7	39.6	1.0	53.3	-13.0	-40.3	
5.20	63.3	H	3.0	-19.3	40.3	1.0	49.7	-13.0	-36.7	
6.93	64.8	H	3.0	-9.0	39.1	1.0	47.1	-13.0	-34.1	
3.47	64.5	V	3.0	-14.8	39.6	1.0	52.6	-13.0	-38.6	
5.20	63.2	V	3.0	-19.4	40.3	1.0	49.7	-13.0	-36.7	
6.93	64.8	V	3.0	-9.3	39.1	1.0	47.4	-13.0	-34.4	
High Channel (1747.5MHz)										
3.50	64.4	H	3.0	-14.6	39.6	1.0	53.2	-13.0	-40.2	
5.24	63.3	H	3.0	-19.3	40.3	1.0	49.6	-13.0	-36.6	
6.99	64.9	H	3.0	-9.0	39.1	1.0	47.0	-13.0	-34.0	
3.50	64.5	V	3.0	-14.0	39.6	1.0	52.6	-13.0	-38.6	
5.24	63.3	V	3.0	-19.4	40.3	1.0	49.7	-13.0	-36.7	
6.99	64.9	V	3.0	-9.3	39.1	1.0	47.4	-13.0	-34.4	

Rev. 10.28.15

LTE B4 15MHz 16QAM

High Frequency Substitution Measurement UL RTP Radiated Chamber

Company: SOMC
Project #: 16J23633
Date: 07/27/2016
Test Engineer: Brian Kievra / John Manser
Configuration: Unit with ear-buds and charger (LTE #1)
Mode: LTE Band 4, 20MHz QPSK

Test Equipment:
Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber		Pre-amplifier		Filter		Limit	
3m Chamber N-RTP		3m Chamber N-RTP		Filter		EIRP	

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (HV)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1720MHz)										
3.44	63.1	H	3.0	-13.4	39.6	1.0	52.0	-13.0	-39.0	
5.16	62.1	H	3.0	-8.2	40.3	1.0	48.5	-13.0	-35.5	
6.88	63.7	H	3.0	-8.8	39.1	1.0	46.1	-13.0	-33.1	
3.44	63.1	V	3.0	-12.6	39.6	1.0	51.2	-13.0	-38.2	
5.16	62.1	V	3.0	-8.4	40.3	1.0	48.7	-13.0	-35.7	
6.88	63.7	V	3.0	-8.1	39.1	1.0	46.4	-13.0	-33.4	
Mid Channel (1732.5MHz)										
3.47	63.4	H	3.0	-13.6	39.6	1.0	52.2	-13.0	-39.2	
5.20	62.8	H	3.0	-8.1	40.3	1.0	48.4	-13.0	-35.4	
6.93	63.6	H	3.0	-7.8	39.1	1.0	45.9	-13.0	-32.9	
3.47	63.2	V	3.0	-12.7	39.6	1.0	51.3	-13.0	-38.3	
5.20	62.8	V	3.0	-8.2	40.3	1.0	48.5	-13.0	-35.5	
6.93	63.6	V	3.0	-8.1	39.1	1.0	46.2	-13.0	-33.2	
High Channel (1745MHz)										
3.49	63.5	H	3.0	-13.7	39.6	1.0	52.3	-13.0	-39.3	
5.24	62.2	H	3.0	-8.2	40.3	1.0	48.5	-13.0	-35.5	
6.98	63.6	H	3.0	-7.7	39.1	1.0	45.8	-13.0	-32.8	
3.49	63.5	V	3.0	-13.0	39.6	1.0	51.6	-13.0	-38.6	
5.24	62.2	V	3.0	-8.3	40.3	1.0	48.6	-13.0	-35.6	
6.98	63.6	V	3.0	-8.1	39.1	1.0	46.1	-13.0	-33.1	

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LTE B4 20MHz QPSK

High Frequency Substitution Measurement UL RTP Radiated Chamber

Company: SOMC
Project #: 16J23633
Date: 07/27/2016
Test Engineer: Brian Kievra / John Manser
Configuration: Unit with ear-buds and charger (LTE #1)
Mode: LTE Band 4, 20MHz 16QAM

Test Equipment:
Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber		Pre-amplifier		Filter		Limit	
3m Chamber N-RTP		3m Chamber N-RTP		Filter		EIRP	

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (HV)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1720MHz)										
3.44	63.1	H	3.0	-13.4	39.6	1.0	52.0	-13.0	-39.0	
5.16	62.1	H	3.0	-8.2	40.3	1.0	48.5	-13.0	-35.5	
6.88	63.8	H	3.0	-8.1	39.1	1.0	46.2	-13.0	-33.2	
3.44	63.0	V	3.0	-12.6	39.6	1.0	51.2	-13.0	-38.2	
5.16	62.1	V	3.0	-8.3	40.3	1.0	48.6	-13.0	-35.6	
6.88	63.7	V	3.0	-8.3	39.1	1.0	46.4	-13.0	-33.4	
Mid Channel (1732.5MHz)										
3.47	63.4	H	3.0	-13.6	39.6	1.0	52.2	-13.0	-39.2	
5.20	62.1	H	3.0	-8.1	40.3	1.0	48.5	-13.0	-35.5	
6.93	63.6	H	3.0	-7.8	39.1	1.0	45.9	-13.0	-32.9	
3.47	63.2	V	3.0	-12.7	39.6	1.0	51.3	-13.0	-38.3	
5.20	62.0	V	3.0	-8.1	40.3	1.0	48.5	-13.0	-35.5	
6.93	63.6	V	3.0	-8.1	39.1	1.0	46.2	-13.0	-33.2	
High Channel (1745MHz)										
3.49	63.5	H	3.0	-13.7	39.6	1.0	52.3	-13.0	-39.3	
5.24	62.2	H	3.0	-8.2	40.3	1.0	48.5	-13.0	-35.5	
6.98	63.7	H	3.0	-7.8	39.1	1.0	45.9	-13.0	-32.9	
3.49	63.5	V	3.0	-13.0	39.6	1.0	51.6	-13.0	-38.6	
5.24	62.2	V	3.0	-8.3	40.3	1.0	48.7	-13.0	-35.7	
6.98	63.7	V	3.0	-8.1	39.1	1.0	46.2	-13.0	-33.2	

Rev. 10.28.15

LTE B4 20MHz 16QAM

LTE Band 5

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
 Project #: 16J23633
 Date: 07/22/2016
 Test Engineer: Brian Kievra / John Manser
 Configuration: EUT w/AC Adaptor and Headphones (LTE Sample #1 Z-Axis)
 Mode: LTE Band 5, 1.4MHz QPSK

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber N-RTP	3m Chamber N-RTP	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (HV)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (E24.7MHz)										
1.65	-72.9	H	3.0	-29.5	39.9	1.0	-68.4	-13.0	-55.4	
2.47	-73.8	H	3.0	-27.1	39.3	1.0	-65.4	-13.0	-52.4	
3.39	-74.2	H	3.0	-24.8	39.5	1.0	-63.3	-13.0	-50.4	
1.65	-73.4	V	3.0	-28.4	39.9	1.0	-67.3	-13.0	-54.3	
2.47	-74.2	V	3.0	-26.5	39.3	1.0	-64.8	-13.0	-51.8	
3.39	-74.5	V	3.0	-24.2	39.5	1.0	-62.7	-13.0	-49.7	
Mid Channel (E36.5MHz)										
1.67	-73.4	H	3.0	-29.8	39.9	1.0	-68.7	-13.0	-55.7	
2.51	-74.3	H	3.0	-27.4	39.2	1.0	-65.7	-13.0	-52.7	
3.35	-74.7	H	3.0	-25.2	39.5	1.0	-63.7	-13.0	-50.7	
1.67	-73.3	V	3.0	-28.1	39.9	1.0	-67.8	-13.0	-54.8	
2.51	-74.3	V	3.0	-26.5	39.2	1.0	-64.7	-13.0	-51.7	
3.35	-74.6	V	3.0	-24.3	39.5	1.0	-62.8	-13.0	-49.8	
High Channel (E48.3MHz)										
1.70	-73.7	H	3.0	-29.9	40.0	1.0	-68.9	-13.0	-55.9	
2.55	-74.2	H	3.0	-27.3	39.2	1.0	-65.5	-13.0	-52.5	
3.39	-74.6	H	3.0	-25.0	39.5	1.0	-63.6	-13.0	-50.6	
1.70	-73.8	V	3.0	-28.4	40.0	1.0	-67.4	-13.0	-54.4	
2.55	-74.3	V	3.0	-26.3	39.2	1.0	-64.6	-13.0	-51.6	
3.39	-74.6	V	3.0	-24.2	39.5	1.0	-62.8	-13.0	-49.8	

Rev: 10.28.15

LTE B5 1.4MHz QPSK

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
 Project #: 16J23633
 Date: 07/22/2016
 Test Engineer: Brian Kievra / John Manser
 Configuration: EUT w/AC Adaptor and Headphones (LTE Sample #1 Z-Axis)
 Mode: LTE Band 5, 1.4MHz 16QAM

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber N-RTP	3m Chamber N-RTP	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (HV)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (E24.7MHz)										
1.65	-72.9	H	3.0	-29.5	39.9	1.0	-68.4	-13.0	-55.4	
2.47	-73.8	H	3.0	-27.2	39.3	1.0	-65.5	-13.0	-52.5	
3.39	-74.2	H	3.0	-24.9	39.5	1.0	-63.4	-13.0	-50.4	
1.65	-73.5	V	3.0	-28.4	39.9	1.0	-67.3	-13.0	-54.3	
2.47	-74.2	V	3.0	-26.6	39.3	1.0	-64.9	-13.0	-51.9	
3.39	-74.5	V	3.0	-24.2	39.5	1.0	-62.7	-13.0	-49.7	
Mid Channel (E36.5MHz)										
1.67	-73.4	H	3.0	-29.8	39.9	1.0	-68.7	-13.0	-55.7	
2.51	-74.3	H	3.0	-27.5	39.2	1.0	-65.7	-13.0	-52.7	
3.35	-74.6	H	3.0	-25.1	39.5	1.0	-63.6	-13.0	-50.6	
1.67	-73.3	V	3.0	-28.1	39.9	1.0	-67.8	-13.0	-54.8	
2.51	-74.3	V	3.0	-26.4	39.2	1.0	-64.7	-13.0	-51.7	
3.35	-74.6	V	3.0	-24.3	39.5	1.0	-62.8	-13.0	-49.8	
High Channel (E48.3MHz)										
1.70	-73.7	H	3.0	-29.9	40.0	1.0	-68.9	-13.0	-55.9	
2.55	-74.2	H	3.0	-27.2	39.2	1.0	-65.5	-13.0	-52.5	
3.39	-74.6	H	3.0	-25.0	39.5	1.0	-63.6	-13.0	-50.6	
1.70	-73.9	V	3.0	-28.5	40.0	1.0	-67.5	-13.0	-54.5	
2.55	-74.3	V	3.0	-26.3	39.2	1.0	-64.6	-13.0	-51.6	
3.39	-74.6	V	3.0	-24.2	39.5	1.0	-62.8	-13.0	-49.8	

Rev: 10.28.15

LTE B5 1.4MHz 16QAM

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
 Project #: 16J23633
 Date: 07/22/2016
 Test Engineer: Mark Nolting
 Configuration: Unit with ear-buds and charger (LTE #1)
 Mode: LTE Band 5, 3MHz QPSK

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber N-RTP	3m Chamber N-RTP	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (HV)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (E25.5MHz)										
1.65	61.7	H	3.0	-18.2	39.9	1.0	-57.1	-13.0	-44.1	
2.48	63.4	H	3.0	-16.8	39.3	1.0	-55.1	-13.0	-42.1	
3.39	64.4	H	3.0	-15.0	39.5	1.0	-53.5	-13.0	-40.5	
1.65	60.7	V	3.0	-15.7	39.9	1.0	-54.6	-13.0	-41.6	
2.48	64.1	V	3.0	-16.4	39.3	1.0	-54.7	-13.0	-41.7	
3.39	64.1	V	3.0	-13.8	39.5	1.0	-52.3	-13.0	-39.3	
Mid Channel (E36.5MHz)										
1.67	61.2	H	3.0	-17.7	39.9	1.0	-56.6	-13.0	-43.6	
2.51	63.5	H	3.0	-16.7	39.2	1.0	-54.9	-13.0	-41.9	
3.35	64.3	H	3.0	-14.8	39.5	1.0	-53.4	-13.0	-40.4	
1.67	60.9	V	3.0	-15.7	39.9	1.0	-54.6	-13.0	-41.6	
2.51	63.5	V	3.0	-15.7	39.2	1.0	-53.9	-13.0	-40.9	
3.35	63.8	V	3.0	-13.5	39.5	1.0	-52.0	-13.0	-39.0	
High Channel (E47.5MHz)										
1.70	59.6	H	3.0	-15.9	40.0	1.0	-54.8	-13.0	-41.8	
2.54	63.5	H	3.0	-16.5	39.2	1.0	-54.8	-13.0	-41.8	
3.39	64.3	H	3.0	-14.7	39.5	1.0	-53.3	-13.0	-40.3	
1.70	59.8	V	3.0	-14.4	40.0	1.0	-53.4	-13.0	-40.4	
2.54	63.9	V	3.0	-16.0	39.2	1.0	-54.7	-13.0	-41.7	
3.39	64.4	V	3.0	-14.0	39.5	1.0	-52.6	-13.0	-39.6	

Rev: 10.28.15

LTE B5 3MHz QPSK

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
 Project #: 16J23633
 Date: 07/22/2016
 Test Engineer: Mark Nolting
 Configuration: Unit with ear-buds and charger (LTE #1)
 Mode: LTE Band 5, 3MHz 16QAM

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber N-RTP	3m Chamber N-RTP	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (HV)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (E25.5MHz)										
1.65	61.7	H	3.0	-18.3	39.9	1.0	-57.2	-13.0	-44.2	
2.48	63.6	H	3.0	-17.0	39.3	1.0	-55.2	-13.0	-42.2	
3.39	64.8	H	3.0	-14.6	39.5	1.0	-53.1	-13.0	-40.1	
1.65	60.9	V	3.0	-15.9	39.9	1.0	-54.8	-13.0	-41.8	
2.48	63.7	V	3.0	-16.0	39.3	1.0	-54.3	-13.0	-41.3	
3.39	63.9	V	3.0	-13.6	39.5	1.0	-52.1	-13.0	-39.1	
Mid Channel (E36.5MHz)										
1.67	61.0	H	3.0	-17.4	39.9	1.0	-56.4	-13.0	-43.4	
2.51	63.5	H	3.0	-16.7	39.2	1.0	-56.9	-13.0	-43.9	
3.35	63.7	H	3.0	-14.3	39.5	1.0	-52.8	-13.0	-39.8	
1.67	61.0	V	3.0	-15.8	39.9	1.0	-54.8	-13.0	-41.8	
2.51	63.4	V	3.0	-15.6	39.2	1.0	-53.8	-13.0	-40.8	
3.35	64.3	V	3.0	-14.0	39.5	1.0	-52.5	-13.0	-39.5	
High Channel (E47.5MHz)										
1.70	60.2	H	3.0	-16.5	40.0	1.0	-55.4	-13.0	-42.4	
2.54	64.0	H	3.0	-17.0	39.2	1.0	-55.3	-13.0	-42.3	
3.39	64.1	H	3.0	-14.6	39.5	1.0	-53.1	-13.0	-40.1	
1.70	59.9	V	3.0	-14.5	40.0	1.0	-53.5	-13.0	-40.5	
2.54	64.0	V	3.0	-16.0	39.2	1.0	-54.3	-13.0	-41.3	
3.39	64.1	V	3.0	-13.7	39.5	1.0	-52.3	-13.0	-39.3	

Rev: 10.28.15

LTE B5 3MHz 16QAM

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
 Project #: 16J23633
 Date: 07/25/2016
 Test Engineer: Brian Kievra / John Manser
 Configuration: Unit with ear-buds and charger (LTE #1)
 Mode: LTE Band 5, 5MHz QPSK

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber		Pre-amplifier		Filter		Limit				
3m Chamber N-RTP		3m Chamber N-RTP		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 (826.5MHz)										
1.65	47.5	H	3.0	-24.0	39.9	1.0	42.9	-13.0	49.9	
2.49	48.4	H	3.0	-21.9	39.3	1.0	40.0	-13.0	47.0	
3.31	48.7	H	3.0	-19.3	39.5	1.0	57.8	-13.0	44.8	
Mid Channel (836.5MHz)										
1.65	47.6	V	3.0	-22.5	39.9	1.0	41.4	-13.0	48.4	
2.49	48.4	V	3.0	-20.7	39.3	1.0	59.0	-13.0	46.0	
3.31	48.7	V	3.0	-18.5	39.5	1.0	56.9	-13.0	43.9	
High Channel (846.5MHz)										
1.69	47.4	H	3.0	-23.7	39.9	1.0	42.6	-13.0	49.6	
2.54	49.3	H	3.0	-21.3	39.2	1.0	59.6	-13.0	46.6	
3.39	48.6	H	3.0	-19.0	39.5	1.0	57.5	-13.0	44.5	
Rev: 10/28/15										

LTE B5 5MHz QPSK

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
 Project #: 16J23633
 Date: 07/25/2016
 Test Engineer: Brian Kievra / John Manser
 Configuration: Unit with ear-buds and charger (LTE #1)
 Mode: LTE Band 5, 5MHz 16QAM

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber		Pre-amplifier		Filter		Limit				
3m Chamber N-RTP		3m Chamber N-RTP		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 (826.5MHz)										
1.65	47.5	H	3.0	-24.0	39.9	1.0	42.9	-13.0	49.9	
2.49	48.5	H	3.0	-21.8	39.3	1.0	41.8	-13.0	47.1	
3.31	48.8	H	3.0	-19.4	39.5	1.0	57.9	-13.0	44.9	
Mid Channel (836.5MHz)										
1.65	47.6	V	3.0	-22.5	39.9	1.0	41.4	-13.0	48.4	
2.49	48.4	V	3.0	-20.7	39.3	1.0	59.0	-13.0	46.0	
3.31	48.7	V	3.0	-18.5	39.5	1.0	57.0	-13.0	44.0	
High Channel (846.5MHz)										
1.69	47.4	H	3.0	-23.7	39.9	1.0	42.6	-13.0	49.6	
2.54	49.3	H	3.0	-21.3	39.2	1.0	59.6	-13.0	46.6	
3.39	48.6	H	3.0	-19.0	39.5	1.0	57.6	-13.0	44.6	
Rev: 10/28/15										

LTE B5 5MHz 16QAM

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
 Project #: 16J23633
 Date: 07/25/2016
 Test Engineer: Brian Kievra / John Manser
 Configuration: Unit with ear-buds and charger (LTE #1)
 Mode: LTE Band 5, 10MHz QPSK

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber		Pre-amplifier		Filter		Limit				
3m Chamber N-RTP		3m Chamber N-RTP		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	44.7	H	3.0	-21.3	39.9	1.0	40.2	-13.0	47.2	
2.49	45.7	H	3.0	-19.0	39.3	1.0	57.3	-13.0	44.3	
3.32	45.9	H	3.0	-16.5	39.5	1.0	55.0	-13.0	42.0	
Mid Channel (836.5MHz)										
1.66	44.8	V	3.0	-19.8	39.9	1.0	50.7	-13.0	45.7	
2.49	45.8	V	3.0	-18.0	39.3	1.0	56.3	-13.0	43.3	
3.32	45.9	V	3.0	-15.7	39.5	1.0	54.2	-13.0	41.2	
High Channel (844MHz)										
1.67	44.6	H	3.0	-21.8	39.9	1.0	49.9	-13.0	46.9	
2.51	45.6	H	3.0	-18.7	39.2	1.0	57.0	-13.0	44.0	
3.35	46.0	H	3.0	-16.5	39.5	1.0	55.1	-13.0	42.1	
Rev: 10/28/15										

LTE B5 10MHz QPSK

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
 Project #: 16J23633
 Date: 07/25/2016
 Test Engineer: Brian Kievra / John Manser
 Configuration: Unit with ear-buds and charger (LTE #1)
 Mode: LTE Band 5, 10MHz 16QAM

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber		Pre-amplifier		Filter		Limit				
3m Chamber N-RTP		3m Chamber N-RTP		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	44.8	H	3.0	-21.3	39.9	1.0	40.2	-13.0	47.2	
2.49	45.7	H	3.0	-19.0	39.3	1.0	57.3	-13.0	44.3	
3.32	45.9	H	3.0	-16.5	39.5	1.0	55.0	-13.0	42.0	
Mid Channel (836.5MHz)										
1.66	44.9	V	3.0	-19.8	39.9	1.0	50.7	-13.0	45.7	
2.49	45.8	V	3.0	-18.1	39.3	1.0	56.3	-13.0	43.3	
3.32	46.0	V	3.0	-15.7	39.5	1.0	54.2	-13.0	41.2	
High Channel (844MHz)										
1.67	44.6	H	3.0	-21.8	39.9	1.0	49.9	-13.0	46.9	
2.51	45.6	H	3.0	-18.8	39.2	1.0	57.0	-13.0	44.0	
3.35	46.1	H	3.0	-16.6	39.5	1.0	55.1	-13.0	42.1	
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LTE B5 10MHz 16QAM

LTE Band 7

**High Frequency Substitution Measurement
UL RTP Radiated Chamber**

Company: SOMC
 Project #: 16J23633
 Date: 07/27/2016
 Test Engineer: Brian Kievra / John Manser
 Configuration: Unit with ear-buds and charger (LTE #1)
 Mode: LTE Band 7, 5MHz QPSK

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber		Pre-amplifier		Filter		Limit				
3m Chamber N-RTP		3m Chamber N-RTP		Filter		LTE B7				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (HV)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2502.5MHz)										
5.91	46.9	H	3.0	-7.5	40.3	1.0	-46.8	-25.0	-21.8	
7.51	42.8	H	3.0	-6.3	38.9	1.0	-44.2	-25.0	-19.2	
10.01	43.3	H	3.0	-4.1	38.3	1.0	-41.4	-25.0	-16.4	
Mid Channel (2535MHz)										
5.07	59.9	H	3.0	-7.1	40.3	1.0	-46.4	-25.0	-21.4	
7.61	42.2	H	3.0	-5.6	38.9	1.0	-43.5	-25.0	-18.5	
10.14	42.9	H	3.0	-3.6	38.3	1.0	-40.9	-25.0	-15.9	
5.07	59.9	V	3.0	-7.2	40.3	1.0	-46.5	-25.0	-21.5	
7.61	42.3	V	3.0	-6.0	38.9	1.0	-43.9	-25.0	-19.9	
10.14	43.1	V	3.0	-3.8	38.3	1.0	-41.1	-25.0	-16.1	
High Channel (2567.5MHz)										
5.14	46.4	H	3.0	-7.5	40.3	1.0	-46.9	-25.0	-21.9	
7.70	42.1	H	3.0	-5.4	38.9	1.0	-43.3	-25.0	-18.3	
10.27	42.9	H	3.0	-3.4	38.3	1.0	-40.7	-25.0	-15.7	
5.14	46.5	V	3.0	-7.8	40.3	1.0	-47.1	-25.0	-22.1	
7.70	42.2	V	3.0	-5.7	38.9	1.0	-43.6	-25.0	-18.6	
10.27	43.0	V	3.0	-3.5	38.3	1.0	-40.8	-25.0	-15.8	

Rev: 10.28.15

LTE B7 5MHz QPSK

**High Frequency Substitution Measurement
UL RTP Radiated Chamber**

Company: SOMC
 Project #: 16J23633
 Date: 07/27/2016
 Test Engineer: Brian Kievra / John Manser
 Configuration: Unit with ear-buds and charger (LTE #1)
 Mode: LTE Band 7, 5MHz 16QAM

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber		Pre-amplifier		Filter		Limit				
3m Chamber N-RTP		3m Chamber N-RTP		Filter		LTE B7				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (HV)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2502.5MHz)										
5.91	46.3	H	3.0	-7.6	40.3	1.0	-46.9	-25.0	-21.9	
7.51	42.8	H	3.0	-6.3	38.9	1.0	-44.2	-25.0	-19.2	
10.01	43.3	H	3.0	-4.1	38.3	1.0	-41.4	-25.0	-16.4	
Mid Channel (2535MHz)										
5.07	49.0	H	3.0	-7.2	40.3	1.0	-46.5	-25.0	-21.5	
7.61	42.1	H	3.0	-5.5	38.9	1.0	-42.5	-25.0	-18.5	
10.14	42.9	H	3.0	-3.5	38.3	1.0	-40.9	-25.0	-15.9	
5.07	49.0	V	3.0	-7.2	40.3	1.0	-46.5	-25.0	-21.5	
7.61	42.4	V	3.0	-6.1	38.9	1.0	-44.0	-25.0	-19.0	
10.14	43.0	V	3.0	-3.7	38.3	1.0	-41.0	-25.0	-16.0	
High Channel (2567.5MHz)										
5.14	46.5	H	3.0	-7.7	40.3	1.0	-47.0	-25.0	-22.0	
7.70	42.0	H	3.0	-5.3	38.9	1.0	-43.2	-25.0	-18.2	
10.27	42.9	H	3.0	-3.4	38.3	1.0	-40.7	-25.0	-15.7	
5.14	46.6	V	3.0	-7.8	40.3	1.0	-47.1	-25.0	-22.1	
7.70	42.2	V	3.0	-5.8	38.9	1.0	-43.7	-25.0	-18.7	
10.27	42.9	V	3.0	-3.4	38.3	1.0	-40.7	-25.0	-15.7	

Rev: 10.28.15

LTE B7 5MHz 16QAM

**High Frequency Substitution Measurement
UL RTP Radiated Chamber**

Company: SOMC
 Project #: 16J23633
 Date: 07/28/2016
 Test Engineer: Brian Kievra / John Manser
 Configuration: Unit with ear-buds and charger (LTE #1)
 Mode: LTE Band 7, 10MHz QPSK

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber		Pre-amplifier		Filter		Limit				
3m Chamber N-RTP		3m Chamber N-RTP		Filter		LTE B7				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (HV)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2505MHz)										
5.01	57.2	H	3.0	-4.5	40.3	1.0	-43.8	-25.0	-18.8	
7.52	59.8	H	3.0	-3.3	38.9	1.0	-41.3	-25.0	-16.3	
10.02	46.3	H	3.0	-1.1	38.3	1.0	-38.4	-25.0	-13.4	
5.01	57.2	V	3.0	-4.7	40.3	1.0	-43.9	-25.0	-18.9	
7.52	59.9	V	3.0	-3.7	38.9	1.0	-41.6	-25.0	-16.6	
10.02	46.2	V	3.0	-0.9	38.3	1.0	-38.3	-25.0	-13.3	
Mid Channel (2535MHz)										
5.07	56.8	H	3.0	-4.1	40.3	1.0	-43.4	-25.0	-18.4	
7.61	59.1	H	3.0	-2.5	38.9	1.0	-40.5	-25.0	-15.5	
10.14	59.9	H	3.0	-0.6	38.3	1.0	-37.9	-25.0	-12.9	
5.07	56.9	V	3.0	-4.2	40.3	1.0	-43.5	-25.0	-18.5	
7.61	59.2	V	3.0	-2.8	38.9	1.0	-40.7	-25.0	-15.7	
10.14	60.0	V	3.0	-0.6	38.3	1.0	-38.0	-25.0	-13.0	
High Channel (2565MHz)										
5.13	57.4	H	3.0	-4.6	40.3	1.0	-43.9	-25.0	-18.9	
7.70	59.0	H	3.0	-2.4	38.9	1.0	-40.2	-25.0	-15.2	
10.26	59.7	H	3.0	-0.2	38.3	1.0	-37.5	-25.0	-12.5	
5.13	57.5	V	3.0	-4.8	40.3	1.0	-44.1	-25.0	-19.1	
7.70	58.9	V	3.0	-2.5	38.9	1.0	-40.3	-25.0	-15.3	
10.26	59.7	V	3.0	-0.2	38.3	1.0	-37.5	-25.0	-12.5	

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LTE B7 10MHz QPSK

**High Frequency Substitution Measurement
UL RTP Radiated Chamber**

Company: SOMC
 Project #: 16J23633
 Date: 07/28/2016
 Test Engineer: Brian Kievra / John Manser
 Configuration: Unit with ear-buds and charger (LTE #1)
 Mode: LTE Band 7, 10MHz 16QAM

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber		Pre-amplifier		Filter		Limit				
3m Chamber N-RTP		3m Chamber N-RTP		Filter		LTE B7				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (HV)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2505MHz)										
5.01	57.1	H	3.0	-4.5	40.3	1.0	-43.7	-25.0	-18.7	
7.52	59.8	H	3.0	-3.3	38.9	1.0	-41.2	-25.0	-16.2	
10.02	46.4	H	3.0	-1.3	38.3	1.0	-38.4	-25.0	-13.4	
5.01	57.2	V	3.0	-4.6	40.3	1.0	-43.9	-25.0	-18.9	
7.52	59.8	V	3.0	-3.5	38.9	1.0	-41.5	-25.0	-16.5	
10.02	46.3	V	3.0	-1.1	38.3	1.0	-38.4	-25.0	-13.4	
Mid Channel (2535MHz)										
5.07	56.9	H	3.0	-4.1	40.3	1.0	-43.4	-25.0	-18.4	
7.61	59.1	H	3.0	-2.5	38.9	1.0	-40.4	-25.0	-15.4	
10.14	60.0	H	3.0	-0.6	38.3	1.0	-38.0	-25.0	-13.0	
5.07	56.8	V	3.0	-4.1	40.3	1.0	-43.4	-25.0	-18.4	
7.61	59.2	V	3.0	-2.8	38.9	1.0	-40.7	-25.0	-15.7	
10.14	59.9	V	3.0	-0.5	38.3	1.0	-37.9	-25.0	-12.9	
High Channel (2565MHz)										
5.13	57.5	H	3.0	-4.7	40.3	1.0	-44.0	-25.0	-19.0	
7.70	59.1	H	3.0	-2.4	38.9	1.0	-40.3	-25.0	-15.3	
10.26	59.7	H	3.0	-0.3	38.3	1.0	-37.6	-25.0	-12.6	
5.13	57.4	V	3.0	-4.7	40.3	1.0	-44.0	-25.0	-19.0	
7.70	59.1	V	3.0	-2.7	38.9	1.0	-40.6	-25.0	-15.6	
10.26	59.6	V	3.0	-0.1	38.3	1.0	-37.5	-25.0	-12.5	

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LTE B7 10MHz 16QAM

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 16J23633
Date: 07/28/2016
Test Engineer: Brian Kievra / John Manser
Configuration: Unit with ear-buds and charger (LTE #1)
Mode: LTE Band 7, 15MHz QPSK

Test Equipment:
Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber N-RTP	3m Chamber N-RTP	Filter	LTE B7

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (HV)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2507.5MHz)										
5.02	-55.3	H	3.0	-2.6	40.3	1.0	-41.9	-25.0	-16.9	
7.52	-57.9	H	3.0	-1.4	38.9	1.0	-39.4	-25.0	-14.4	
10.03	-58.5	H	3.0	0.7	38.3	1.0	-36.6	-25.0	-11.6	
		H								
5.02	-55.2	V	3.0	-2.6	40.3	1.0	-41.9	-25.0	-16.9	
7.52	-57.9	V	3.0	-1.7	38.9	1.0	-39.6	-25.0	-14.6	
10.03	-58.5	V	3.0	0.7	38.3	1.0	-36.6	-25.0	-11.6	
		V								
Mid Channel (2535MHz)										
5.07	-54.8	H	3.0	-2.2	40.3	1.0	-41.5	-25.0	-16.5	
7.61	-57.2	H	3.0	-0.6	38.9	1.0	-38.5	-25.0	-13.5	
10.14	-58.0	H	3.0	1.4	38.3	1.0	-36.0	-25.0	-11.0	
		H								
5.07	-55.0	V	3.0	-2.3	40.3	1.0	-41.6	-25.0	-16.6	
7.61	-57.4	V	3.0	-1.0	38.9	1.0	-38.9	-25.0	-13.9	
10.14	-58.1	V	3.0	1.2	38.3	1.0	-36.1	-25.0	-11.1	
		V								
High Channel (2562.5MHz)										
5.13	-55.6	H	3.0	-2.8	40.3	1.0	-42.1	-25.0	-17.1	
7.69	-57.2	H	3.0	-0.7	38.9	1.0	-38.6	-25.0	-13.6	
10.25	-57.9	H	3.0	1.5	38.3	1.0	-35.8	-25.0	-10.8	
		H								
5.13	-55.7	V	3.0	-3.0	40.3	1.0	-42.3	-25.0	-17.3	
7.69	-57.3	V	3.0	-0.9	38.9	1.0	-38.8	-25.0	-13.8	
10.25	-57.9	V	3.0	1.6	38.3	1.0	-35.7	-25.0	-10.7	
		V								

Rev: 10.28.15

LTE B7 15MHz QPSK

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 16J23633
Date: 07/28/2016
Test Engineer: Brian Kievra / John Manser
Configuration: Unit with ear-buds and charger (LTE #1)
Mode: LTE Band 7, 15MHz 16QAM

Test Equipment:
Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber N-RTP	3m Chamber N-RTP	Filter	LTE B7

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (HV)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2507.5MHz)										
5.02	-55.2	H	3.0	-2.6	40.3	1.0	-41.9	-25.0	-16.9	
7.52	-57.9	H	3.0	-1.4	38.9	1.0	-39.4	-25.0	-14.4	
10.03	-58.5	H	3.0	0.7	38.3	1.0	-36.6	-25.0	-11.6	
		H								
5.02	-55.1	V	3.0	-2.6	40.3	1.0	-41.8	-25.0	-16.8	
7.52	-58.0	V	3.0	-1.7	38.9	1.0	-39.7	-25.0	-14.7	
10.03	-58.6	V	3.0	0.7	38.3	1.0	-36.7	-25.0	-11.7	
		V								
Mid Channel (2535MHz)										
5.07	-54.9	H	3.0	-2.1	40.3	1.0	-41.4	-25.0	-16.4	
7.61	-57.3	H	3.0	-0.7	38.9	1.0	-38.6	-25.0	-13.6	
10.14	-57.9	H	3.0	1.4	38.3	1.0	-35.9	-25.0	-10.9	
		H								
5.07	-55.0	V	3.0	-2.4	40.3	1.0	-41.6	-25.0	-16.6	
7.61	-57.3	V	3.0	-1.0	38.9	1.0	-38.9	-25.0	-13.9	
10.14	-58.1	V	3.0	1.2	38.3	1.0	-36.1	-25.0	-11.1	
		V								
High Channel (2562.5MHz)										
5.13	-55.8	H	3.0	-3.0	40.3	1.0	-42.3	-25.0	-17.3	
7.69	-57.4	H	3.0	-0.6	38.9	1.0	-38.5	-25.0	-13.5	
10.25	-57.9	H	3.0	1.5	38.3	1.0	-35.8	-25.0	-10.8	
		H								
5.13	-55.7	V	3.0	-3.0	40.3	1.0	-42.3	-25.0	-17.3	
7.69	-57.4	V	3.0	-0.9	38.9	1.0	-38.8	-25.0	-13.8	
10.25	-57.9	V	3.0	1.5	38.3	1.0	-35.8	-25.0	-10.8	
		V								

Rev: 10.28.15

LTE B7 15MHz 16QAM

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 16J23633
Date: 07/28/2016
Test Engineer: Brian Kievra / John Manser
Configuration: Unit with ear-buds and charger (LTE #1)
Mode: LTE Band 7, 20MHz QPSK

Test Equipment:
Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber N-RTP	3m Chamber N-RTP	Filter	LTE B7

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (HV)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2510MHz)										
5.02	-53.6	H	3.0	-0.9	40.3	1.0	-40.2	-25.0	-15.2	
7.53	-56.5	H	3.0	0.0	38.9	1.0	-37.9	-25.0	-12.9	
10.04	-57.3	H	3.0	1.9	38.3	1.0	-35.4	-25.0	-10.4	
		H								
5.02	-53.5	V	3.0	-1.0	40.3	1.0	-40.2	-25.0	-15.2	
7.53	-56.5	V	3.0	-0.2	38.9	1.0	-38.2	-25.0	-13.2	
10.04	-57.2	V	3.0	2.0	38.3	1.0	-35.3	-25.0	-10.3	
		V								
Mid Channel (2535MHz)										
5.07	-53.4	H	3.0	-0.7	40.3	1.0	-40.0	-25.0	-15.0	
7.61	-56.8	H	3.0	0.8	38.9	1.0	-37.1	-25.0	-12.1	
10.14	-56.7	H	3.0	2.6	38.3	1.0	-34.7	-25.0	-9.7	
		H								
5.07	-53.6	V	3.0	-0.9	40.3	1.0	-40.2	-25.0	-15.2	
7.61	-56.0	V	3.0	0.4	38.9	1.0	-37.5	-25.0	-12.5	
10.14	-56.7	V	3.0	2.7	38.3	1.0	-34.6	-25.0	-9.6	
		V								
High Channel (2560MHz)										
5.12	-54.1	H	3.0	-1.3	40.3	1.0	-40.6	-25.0	-15.6	
7.68	-55.7	H	3.0	1.0	38.9	1.0	-36.9	-25.0	-11.9	
10.24	-56.4	H	3.0	3.0	38.3	1.0	-34.3	-25.0	-9.3	
		H								
5.12	-54.2	V	3.0	-1.4	40.3	1.0	-40.7	-25.0	-15.7	
7.68	-55.7	V	3.0	0.7	38.9	1.0	-37.2	-25.0	-12.2	
10.24	-56.5	V	3.0	3.0	38.3	1.0	-34.3	-25.0	-9.3	
		V								

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LTE B7 20MHz QPSK

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 16J23633
Date: 07/28/2016
Test Engineer: Brian Kievra / John Manser
Configuration: Unit with ear-buds and charger (LTE #1)
Mode: LTE Band 7, 20MHz 16QAM

Test Equipment:
Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber N-RTP	3m Chamber N-RTP	Filter	LTE B7

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (HV)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2510MHz)										
5.02	-53.5	H	3.0	-0.9	40.3	1.0	-40.1	-25.0	-15.1	
7.53	-56.5	H	3.0	0.0	38.9	1.0	-38.0	-25.0	-13.0	
10.04	-57.2	H	3.0	2.0	38.3	1.0	-35.3	-25.0	-10.3	
		H								
5.02	-53.6	V	3.0	-1.0	40.3	1.0	-40.3	-25.0	-15.3	
7.53	-56.5	V	3.0	0.2	38.9	1.0	-38.1	-25.0	-13.1	
10.04	-57.3	V	3.0	2.0	38.3	1.0	-35.3	-25.0	-10.3	
		V								
Mid Channel (2535MHz)										
5.07	-53.4	H	3.0	-0.7	40.3	1.0	-40.0	-25.0	-15.0	
7.61	-55.8	H	3.0	0.7	38.9	1.0	-37.2	-25.0	-12.2	
10.14	-56.7	H	3.0	2.6	38.3	1.0	-34.7	-25.0	-9.7	
		H								
5.07	-53.4	V	3.0	-0.8	40.3	1.0	-40.1	-25.0	-15.1	
7.61	-55.9	V	3.0	0.4	38.9	1.0	-37.5	-25.0	-12.5	
10.14	-56.7	V	3.0	2.6	38.3	1.0	-34.7	-25.0	-9.7	
		V								
High Channel (2560MHz)										
5.12	-54.1	H	3.0	-1.3	40.3	1.0	-40.6	-25.0	-15.6	
7.68	-55.7	H	3.0	1.0	38.9	1.0	-36.9	-25.0	-11.9	
10.24	-56.3	H	3.0	3.2	38.3	1.0	-34.2	-25.0	-9.2	
		H								
5.12	-54.0	V	3.0	-1.3	40.3	1.0	-40.6	-25.0	-15.6	
7.68	-55.7	V	3.0	0.7	38.9	1.0	-37.2	-25.0	-12.2	
10.24	-56.3	V	3.0	3.1	38.3	1.0	-34.2	-25.0	-9.2	
		V								

Rev: 10.28.15

LTE B7 20MHz 16QAM

LTE Band 12

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
 Project #: 16J23633
 Date: 07/25/2016
 Test Engineer: Mark Nolting
 Configuration: Unit with ear-buds and charger (LTE #1)
 Mode: LTE Band 12, 1.4MHz QPSK

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber		Pre-amplifier		Filter		Limit					
3m Chamber N-RTP		3m Chamber N-RTP		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 (99.7MHz)											
1.40	49.0	H	3.0	-18.1	39.9	1.0	-57.0	-13.0	-44.0		
2.10	64.3	H	3.0	-18.3	40.2	1.0	-57.5	-13.0	-44.5		
2.80	65.0	H	3.0	-17.1	39.3	1.0	-55.4	-13.0	-42.4		
Mid Channel (70.5MHz)											
1.42	59.7	H	3.0	-17.7	39.9	1.0	-56.6	-13.0	-43.6		
2.12	62.5	H	3.0	-16.9	40.1	1.0	-56.0	-13.0	-43.0		
2.83	64.3	H	3.0	-16.3	39.3	1.0	-54.5	-13.0	-41.5		
High Channel (715.3MHz)											
1.43	59.4	H	3.0	-17.4	39.9	1.0	-56.3	-13.0	-43.3		
2.15	62.3	H	3.0	-16.2	40.1	1.0	-55.3	-13.0	-42.3		
2.86	64.5	H	3.0	-16.3	39.3	1.0	-54.6	-13.0	-41.6		

Rev: 10.28.15

LTE B12 1.4MHz QPSK

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
 Project #: 16J23633
 Date: 07/25/2016
 Test Engineer: Mark Nolting
 Configuration: Unit with ear-buds and charger (LTE #1)
 Mode: LTE Band 12, 1.4MHz 16QAM

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber		Pre-amplifier		Filter		Limit					
3m Chamber N-RTP		3m Chamber N-RTP		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 (99.7MHz)											
1.40	66.5	H	3.0	-18.6	39.9	1.0	-57.6	-13.0	-44.6		
2.10	64.2	H	3.0	-18.2	40.2	1.0	-57.3	-13.0	-44.3		
2.80	64.8	H	3.0	-16.9	39.3	1.0	-55.2	-13.0	-42.2		
Mid Channel (70.5MHz)											
1.42	60.2	H	3.0	-18.2	39.9	1.0	-57.1	-13.0	-44.1		
2.12	63.0	H	3.0	-17.0	40.1	1.0	-56.1	-13.0	-43.1		
2.83	63.6	H	3.0	-15.6	39.3	1.0	-53.5	-13.0	-40.9		
High Channel (715.3MHz)											
1.43	60.2	H	3.0	-16.8	39.9	1.0	-55.8	-13.0	-42.8		
2.10	62.5	V	3.0	-15.0	40.2	1.0	-54.2	-13.0	-41.2		
2.80	64.2	V	3.0	-15.1	39.3	1.0	-53.4	-13.0	-40.4		

Rev: 10.28.15

LTE B12 1.4MHz 16QAM

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
 Project #: 16J23633
 Date: 07/25/2016
 Test Engineer: Mark Nolting
 Configuration: Unit with ear-buds and charger (LTE #1)
 Mode: LTE Band 12, 3MHz QPSK

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber		Pre-amplifier		Filter		Limit					
3m Chamber N-RTP		3m Chamber N-RTP		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 (700.5MHz)											
1.40	59.6	H	3.0	-17.7	39.9	1.0	-56.6	-13.0	-43.6		
2.10	62.6	H	3.0	-16.5	40.2	1.0	-55.7	-13.0	-42.7		
2.80	64.4	H	3.0	-16.4	39.3	1.0	-54.7	-13.0	-41.7		
Mid Channel (70.5MHz)											
1.42	60.1	V	3.0	-16.7	39.9	1.0	-55.7	-13.0	-42.7		
2.10	62.7	V	3.0	-15.2	40.2	1.0	-54.4	-13.0	-41.4		
2.80	64.5	V	3.0	-15.4	39.3	1.0	-53.7	-13.0	-40.7		
High Channel (714.5MHz)											
1.43	60.4	H	3.0	-17.4	39.9	1.0	-56.2	-13.0	-43.2		
2.14	61.6	H	3.0	-15.5	40.1	1.0	-54.6	-13.0	-41.6		
2.86	64.6	H	3.0	-16.5	39.3	1.0	-54.0	-13.0	-41.0		

Rev: 10.28.15

LTE B12 3MHz QPSK

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
 Project #: 16J23633
 Date: 07/25/2016
 Test Engineer: Mark Nolting
 Configuration: Unit with ear-buds and charger (LTE #1)
 Mode: LTE Band 12, 3MHz 16QAM

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber		Pre-amplifier		Filter		Limit					
3m Chamber N-RTP		3m Chamber N-RTP		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 (700.5MHz)											
1.40	59.4	H	3.0	-17.5	39.9	1.0	-56.4	-13.0	-43.4		
2.10	63.2	H	3.0	-17.2	40.2	1.0	-56.4	-13.0	-43.4		
2.80	64.6	H	3.0	-16.7	39.3	1.0	-54.9	-13.0	-41.9		
Mid Channel (70.5MHz)											
1.42	60.2	V	3.0	-16.8	39.9	1.0	-55.7	-13.0	-42.7		
2.10	62.7	V	3.0	-15.3	40.2	1.0	-54.4	-13.0	-41.4		
2.80	64.0	V	3.0	-15.0	39.3	1.0	-53.2	-13.0	-40.2		
High Channel (714.5MHz)											
1.43	60.3	H	3.0	-17.5	39.9	1.0	-56.3	-13.0	-43.3		
2.14	62.5	H	3.0	-16.4	40.1	1.0	-55.5	-13.0	-42.5		
2.86	65.3	H	3.0	-17.2	39.3	1.0	-55.5	-13.0	-42.5		

Rev: 10.28.15

LTE B12 3MHz 16QAM

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
 Project #: 16J23633
 Date: 07/28/2016
 Test Engineer: Mark Nolting
 Configuration: Unit with ear-buds and charger (LTE #1)
 Mode: LTE Band 12, 5MHz QPSK

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (707.5MHz)										
1.40	59.5	H	3.0	-17.6	39.9	1.0	-56.5	-13.0	-43.5	
2.10	62.1	H	3.0	-16.1	40.2	1.0	-55.3	-13.0	-42.3	
2.81	64.2	H	3.0	-16.3	39.3	1.0	-54.5	-13.0	-41.5	
Mid Channel (707.5MHz)										
1.42	60.4	V	3.0	-17.0	39.9	1.0	-55.9	-13.0	-42.9	
2.10	61.8	V	3.0	-14.3	40.2	1.0	-53.5	-13.0	-40.5	
2.81	64.1	V	3.0	-15.0	39.3	1.0	-53.3	-13.0	-40.3	
High Channel (713.5MHz)										
1.43	60.0	H	3.0	-17.4	40.1	1.0	-56.5	-13.0	-43.5	
2.14	61.8	H	3.0	-15.7	40.1	1.0	-54.8	-13.0	-41.8	
2.85	64.6	H	3.0	-16.5	39.3	1.0	-54.8	-13.0	-41.8	
Low Channel (707.5MHz)										
1.42	60.0	V	3.0	-16.2	39.9	1.0	-55.1	-13.0	-42.1	
2.12	62.2	V	3.0	-14.7	40.1	1.0	-53.8	-13.0	-40.8	
2.83	64.4	V	3.0	-15.3	39.3	1.0	-53.5	-13.0	-40.5	
Mid Channel (707.5MHz)										
1.42	60.4	H	3.0	-18.0	39.9	1.0	-56.9	-13.0	-43.9	
2.12	63.4	H	3.0	-17.4	40.1	1.0	-56.5	-13.0	-43.5	
2.83	64.1	H	3.0	-16.1	39.3	1.0	-54.4	-13.0	-41.4	
High Channel (713.5MHz)										
1.43	60.0	H	3.0	-17.8	39.9	1.0	-55.9	-13.0	-42.9	
2.14	61.6	H	3.0	-15.5	40.1	1.0	-54.8	-13.0	-41.8	
2.85	65.0	H	3.0	-16.9	39.3	1.0	-55.2	-13.0	-42.2	

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LTE B12 5MHz QPSK

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
 Project #: 16J23633
 Date: 07/28/2016
 Test Engineer: Mark Nolting
 Configuration: Unit with ear-buds and charger (LTE #1)
 Mode: LTE Band 12, 5MHz 16QAM

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (707.5MHz)										
1.40	59.7	H	3.0	-17.3	39.9	1.0	-56.3	-13.0	-43.3	
2.10	62.8	H	3.0	-16.7	40.2	1.0	-55.9	-13.0	-42.9	
2.81	63.9	H	3.0	-16.0	39.3	1.0	-54.2	-13.0	-41.2	
Mid Channel (707.5MHz)										
1.40	60.4	V	3.0	-17.0	39.9	1.0	-55.9	-13.0	-42.9	
2.10	62.3	V	3.0	-14.8	40.2	1.0	-54.0	-13.0	-41.0	
2.81	64.2	V	3.0	-15.2	39.3	1.0	-53.5	-13.0	-40.5	
High Channel (713.5MHz)										
1.43	60.0	H	3.0	-18.0	39.9	1.0	-56.9	-13.0	-43.9	
2.14	61.6	H	3.0	-15.5	40.1	1.0	-54.8	-13.0	-41.8	
2.85	65.0	H	3.0	-16.9	39.3	1.0	-55.2	-13.0	-42.2	
Low Channel (707.5MHz)										
1.42	60.0	V	3.0	-16.5	39.9	1.0	-55.4	-13.0	-42.4	
2.12	62.5	V	3.0	-15.0	40.1	1.0	-54.2	-13.0	-41.2	
2.83	63.5	V	3.0	-14.4	39.3	1.0	-52.6	-13.0	-39.6	
Mid Channel (707.5MHz)										
1.42	60.4	H	3.0	-18.5	39.9	1.0	-57.4	-13.0	-44.4	
2.12	63.4	H	3.0	-17.3	40.1	1.0	-56.4	-13.0	-43.4	
2.83	63.9	H	3.0	-15.8	39.3	1.0	-54.1	-13.0	-41.1	
High Channel (713.5MHz)										
1.43	60.0	H	3.0	-18.0	39.9	1.0	-56.9	-13.0	-43.9	
2.14	61.6	H	3.0	-15.5	40.1	1.0	-54.8	-13.0	-41.8	
2.85	65.0	H	3.0	-16.9	39.3	1.0	-55.2	-13.0	-42.2	

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LTE B12 5MHz 16QAM

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
 Project #: 16J23633
 Date: 07/28/2016
 Test Engineer: Mark Nolting
 Configuration: Unit with ear-buds and charger (LTE #1)
 Mode: LTE Band 12, 10MHz QPSK

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

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	59.9	H	3.0	-17.9	39.9	1.0	-56.8	-13.0	-43.8	
2.11	61.0	H	3.0	-15.0	40.1	1.0	-54.1	-13.0	-41.1	
2.82	63.8	H	3.0	-15.9	39.3	1.0	-54.1	-13.0	-41.1	
Mid Channel (707.5MHz)										
1.41	60.8	V	3.0	-17.4	39.9	1.0	-56.3	-13.0	-43.3	
2.11	61.3	V	3.0	-13.8	40.1	1.0	-53.0	-13.0	-40.0	
2.82	64.2	V	3.0	-15.1	39.3	1.0	-53.4	-13.0	-40.4	
High Channel (718MHz)										
1.42	59.9	H	3.0	-17.9	39.9	1.0	-56.8	-13.0	-43.8	
2.13	63.0	H	3.0	-16.9	40.1	1.0	-56.0	-13.0	-43.0	
2.84	64.0	H	3.0	-16.0	39.3	1.0	-54.3	-13.0	-41.3	
Low Channel (704MHz)										
1.41	60.1	V	3.0	-16.6	39.9	1.0	-55.4	-13.0	-42.4	
2.13	62.5	V	3.0	-15.0	40.1	1.0	-54.1	-13.0	-41.1	
2.84	64.5	V	3.0	-15.3	39.3	1.0	-53.6	-13.0	-40.6	

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LTE B12 10MHz QPSK

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
 Project #: 16J23633
 Date: 07/28/2016
 Test Engineer: Mark Nolting
 Configuration: Unit with ear-buds and charger (LTE #1)
 Mode: LTE Band 12, 10MHz 16QAM

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

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	59.9	H	3.0	-17.9	39.9	1.0	-56.8	-13.0	-43.8	
2.11	61.4	H	3.0	-15.4	40.1	1.0	-54.5	-13.0	-41.5	
2.82	63.2	H	3.0	-15.3	39.3	1.0	-53.5	-13.0	-40.5	
Mid Channel (707.5MHz)										
1.41	60.7	V	3.0	-17.3	39.9	1.0	-56.2	-13.0	-43.2	
2.11	62.4	V	3.0	-14.9	40.1	1.0	-54.0	-13.0	-41.0	
2.82	63.6	V	3.0	-14.5	39.3	1.0	-52.8	-13.0	-39.8	
High Channel (718MHz)										
1.42	59.5	H	3.0	-17.5	39.9	1.0	-56.4	-13.0	-43.4	
2.12	62.9	H	3.0	-16.9	40.1	1.0	-56.2	-13.0	-43.2	
2.83	64.0	H	3.0	-16.0	39.3	1.0	-54.2	-13.0	-41.2	
Low Channel (704MHz)										
1.42	60.5	V	3.0	-16.1	39.9	1.0	-55.8	-13.0	-42.8	
2.12	62.2	V	3.0	-14.8	40.1	1.0	-53.9	-13.0	-40.9	
2.83	63.7	V	3.0	-14.5	39.3	1.0	-52.8	-13.0	-39.8	
High Channel (718MHz)										
1.42	60.0	H	3.0	-18.0	39.9	1.0	-56.9	-13.0	-43.9	
2.13	63.2	H	3.0	-17.2	40.1	1.0	-56.2	-13.0	-43.2	
2.84	64.7	H	3.0	-16.6	39.3	1.0	-54.9	-13.0	-41.9	
Low Channel (704MHz)										
1.42	60.3	V	3.0	-16.8	39.9	1.0	-55.6	-13.0	-42.6	
2.13	63.2	V	3.0	-15.7	40.1	1.0	-54.8	-13.0	-41.8	
2.84	64.5	V	3.0	-15.2	39.3	1.0	-53.5	-13.0	-40.5	

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LTE B12 10MHz 16QAM

LTE Band 13

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
 Project #: 16J23633
 Date: 07/25/2016
 Test Engineer: Mark Nolting
 Configuration: Unit with ear-buds and charger (LTE #1)
 Mode: LTE Band 13, 5MHz QPSK

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber N-RTP	3m Chamber N-RTP	Filter	LTE B13

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (779.5MHz)										
1.56	61.4	H	3.0	-18.7	39.7	1.0	-57.4	-40.0	-17.4	
2.34	63.3	H	3.0	-17.1	39.6	1.0	-55.7	-13.0	-42.7	
3.12	64.5	H	3.0	-15.6	39.4	1.0	-53.9	-13.0	-40.9	
1.56	62.4	V	3.0	-18.0	39.7	1.0	-56.8	-40.0	-16.8	
2.34	63.9	V	3.0	-16.5	39.6	1.0	-55.1	-13.0	-42.1	
3.12	64.3	V	3.0	-14.3	39.4	1.0	-52.7	-13.0	-39.7	
Mid Channel (782MHz)										
1.56	62.3	H	3.0	-19.6	39.8	1.0	-56.3	-40.0	-18.3	
2.35	64.3	H	3.0	-18.1	39.6	1.0	-56.7	-13.0	-43.7	
3.13	64.8	H	3.0	-15.9	39.4	1.0	-54.3	-13.0	-41.3	
1.56	62.3	V	3.0	-17.9	39.8	1.0	-56.7	-40.0	-16.7	
2.35	63.9	V	3.0	-16.5	39.6	1.0	-55.1	-13.0	-42.1	
3.13	65.0	V	3.0	-14.9	39.4	1.0	-53.3	-13.0	-40.3	
High Channel (784.5MHz)										
1.57	61.3	H	3.0	-18.5	39.8	1.0	-57.2	-40.0	-17.2	
2.35	64.2	H	3.0	-18.0	39.6	1.0	-56.8	-13.0	-43.5	
3.14	65.1	H	3.0	-16.1	39.4	1.0	-54.5	-13.0	-41.5	
1.57	62.6	V	3.0	-18.2	39.8	1.0	-57.0	-40.0	-17.8	
2.35	64.5	V	3.0	-17.1	39.6	1.0	-55.7	-13.0	-42.7	
3.14	64.9	V	3.0	-14.8	39.4	1.0	-53.2	-13.0	-40.2	

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LTE B13 5MHz QPSK

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
 Project #: 16J23633
 Date: 07/25/2016
 Test Engineer: Mark Nolting
 Configuration: Unit with ear-buds and charger (LTE #1)
 Mode: LTE Band 13, 5MHz 16QAM

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber N-RTP	3m Chamber N-RTP	Filter	LTE B13

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (779.5MHz)										
1.56	62.2	H	3.0	-19.5	39.7	1.0	-58.2	-40.0	-18.2	
2.34	64.2	H	3.0	-18.0	39.6	1.0	-56.6	-13.0	-43.6	
3.12	64.4	H	3.0	-15.5	39.4	1.0	-53.8	-13.0	-40.8	
1.56	62.6	V	3.0	-18.2	39.7	1.0	-57.0	-40.0	-17.0	
2.34	63.9	V	3.0	-16.5	39.6	1.0	-55.1	-13.0	-42.1	
3.12	64.6	V	3.0	-14.6	39.4	1.0	-53.0	-13.0	-40.0	
Mid Channel (782MHz)										
1.56	61.9	H	3.0	-19.1	39.8	1.0	-57.5	-40.0	-17.9	
2.35	63.9	H	3.0	-17.7	39.6	1.0	-56.3	-13.0	-43.3	
3.13	64.5	H	3.0	-15.5	39.4	1.0	-53.9	-13.0	-40.9	
1.56	62.6	V	3.0	-18.2	39.8	1.0	-57.0	-40.0	-17.0	
2.35	64.4	V	3.0	-17.0	39.6	1.0	-55.6	-13.0	-42.6	
3.13	64.8	V	3.0	-14.9	39.4	1.0	-53.1	-13.0	-40.1	
High Channel (784.5MHz)										
1.57	61.3	H	3.0	-18.7	39.8	1.0	-57.4	-40.0	-17.4	
2.35	63.9	H	3.0	-17.7	39.6	1.0	-56.3	-13.0	-43.3	
3.14	64.6	H	3.0	-15.6	39.4	1.0	-54.0	-13.0	-41.0	
1.57	62.7	V	3.0	-18.2	39.8	1.0	-57.0	-40.0	-17.0	
2.35	64.1	V	3.0	-16.7	39.6	1.0	-55.3	-13.0	-42.3	
3.14	65.0	V	3.0	-14.9	39.4	1.0	-53.3	-13.0	-40.3	

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LTE B13 5MHz 16QAM

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
 Project #: 16J23633
 Date: 07/25/2016
 Test Engineer: Mark Nolting
 Configuration: Unit with ear-buds and charger (LTE #1)
 Mode: LTE Band 13, 10MHz QPSK

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber N-RTP	3m Chamber N-RTP	Filter	LTE B13

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (-)										
		H								
		H								
		H								
		H								
		V								
		V								
		V								
		V								
		V								
		V								
Mid Channel (782MHz)										
1.56	61.0	H	3.0	-18.3	39.8	1.0	-57.0	-40.0	-17.0	
2.35	63.2	H	3.0	-17.1	39.6	1.0	-55.7	-13.0	-42.7	
3.13	64.1	H	3.0	-15.2	39.4	1.0	-53.6	-13.0	-40.6	
1.56	61.9	V	3.0	-17.5	39.8	1.0	-56.3	-40.0	-16.3	
2.35	63.3	V	3.0	-16.1	39.6	1.0	-54.8	-13.0	-41.6	
3.13	64.7	V	3.0	-14.7	39.4	1.0	-53.1	-13.0	-40.1	
High Channel (-)										
		H								
		H								
		H								
		H								
		H								
		V								
		V								
		V								
		V								
		V								

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LTE B13 10MHz QPSK

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
 Project #: 16J23633
 Date: 07/25/2016
 Test Engineer: Mark Nolting
 Configuration: Unit with ear-buds and charger (LTE #1)
 Mode: LTE Band 13, 10MHz 16QAM

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber N-RTP	3m Chamber N-RTP	Filter	LTE B13

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (-)										
		H								
		H								
		H								
		H								
		V								
		V								
		V								
		V								
		V								
		V								
Mid Channel (782MHz)										
1.56	61.5	H	3.0	-18.7	39.8	1.0	-57.5	-40.0	-17.5	
2.35	63.2	H	3.0	-17.0	39.6	1.0	-56.6	-13.0	-43.6	
3.13	64.1	H	3.0	-15.2	39.4	1.0	-53.5	-13.0	-40.5	
1.56	61.0	V	3.0	-16.6	39.8	1.0	-55.3	-40.0	-15.3	
2.35	63.3	V	3.0	-15.9	39.6	1.0	-54.5	-13.0	-41.5	
3.13	64.5	V	3.0	-14.5	39.4	1.0	-52.9	-13.0	-39.9	
High Channel (-)										
		H								
		H								
		H								
		H								
		H								
		V								
		V								
		V								
		V								
		V								

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LTE B13 10MHz 16QAM

LTE Band 17

**High Frequency Substitution Measurement
 UL RTP Radiated Chamber**

Company: SOMC
 Project #: 16J23633
 Date: 07/25/2016
 Test Engineer: Mark Nolting
 Configuration: Unit with ear-buds and charger (LTE #1)
 Mode: LTE Band 17, 5MHz QPSK

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber		Pre-amplifier		Filter		Limit				
3m Chamber N-RTP		3m Chamber N-RTP		Filter		EIRP				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (HV)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (706.5MHz)										
1.41	-59.9	H	3.0	-18.0	39.9	1.0	-56.9	-13.0	-43.9	
2.12	-60.8	H	3.0	-14.8	48.1	1.0	-53.9	-13.0	-48.9	
2.83	-63.5	H	3.0	-15.5	39.3	1.0	-53.8	-13.0	-48.8	
1.41	-59.6	V	3.0	-16.1	39.9	1.0	-55.0	-13.0	-42.8	
2.12	-61.1	V	3.0	-13.6	48.1	1.0	-52.7	-13.0	-39.7	
2.83	-62.9	V	3.0	-13.7	39.3	1.0	-52.0	-13.0	-39.0	
Mid Channel (710MHz)										
1.42	-60.3	H	3.0	-16.5	39.9	1.0	-55.2	-13.0	-42.2	
2.13	-60.7	H	3.0	-14.6	48.1	1.0	-53.7	-13.0	-40.7	
2.84	-63.7	H	3.0	-15.6	39.3	1.0	-53.8	-13.0	-48.8	
1.42	-60.2	V	3.0	-16.7	39.9	1.0	-55.6	-13.0	-42.6	
2.13	-63.8	V	3.0	-16.3	48.1	1.0	-55.4	-13.0	-42.4	
2.84	-65.0	V	3.0	-15.8	39.3	1.0	-54.1	-13.0	-41.1	
High Channel (713.5)										
1.43	-60.9	H	3.0	-16.9	39.9	1.0	-55.8	-13.0	-42.8	
2.14	-60.2	H	3.0	-14.1	48.1	1.0	-53.2	-13.0	-40.2	
2.85	-64.3	H	3.0	-16.2	39.3	1.0	-54.5	-13.0	-41.5	
1.43	-59.6	V	3.0	-16.1	39.9	1.0	-54.9	-13.0	-41.9	
2.14	-61.7	V	3.0	-14.3	48.1	1.0	-53.3	-13.0	-40.3	
2.85	-64.5	V	3.0	-15.2	39.3	1.0	-53.5	-13.0	-40.5	

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LTE B17 5MHz QPSK

**High Frequency Substitution Measurement
 UL RTP Radiated Chamber**

Company: SOMC
 Project #: 16J23633
 Date: 07/25/2016
 Test Engineer: Mark Nolting
 Configuration: Unit with ear-buds and charger (LTE #1)
 Mode: LTE Band 17, 5MHz 16QAM

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber		Pre-amplifier		Filter		Limit				
3m Chamber N-RTP		3m Chamber N-RTP		Filter		EIRP				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (HV)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (706.5MHz)										
1.41	-59.9	H	3.0	-18.0	39.9	1.0	-56.9	-13.0	-43.9	
2.12	-60.6	H	3.0	-14.6	48.1	1.0	-53.7	-13.0	-48.7	
2.83	-63.9	H	3.0	-15.9	39.3	1.0	-54.2	-13.0	-41.2	
1.41	-60.0	V	3.0	-16.5	39.9	1.0	-55.4	-13.0	-42.4	
2.12	-60.6	V	3.0	-13.1	48.1	1.0	-52.2	-13.0	-39.2	
2.83	-63.7	V	3.0	-14.5	39.3	1.0	-52.8	-13.0	-39.8	
Mid Channel (710MHz)										
1.42	-58.3	H	3.0	-16.4	39.9	1.0	-55.2	-13.0	-42.2	
2.13	-61.0	H	3.0	-14.9	48.1	1.0	-54.0	-13.0	-41.0	
2.84	-63.6	H	3.0	-15.5	39.3	1.0	-53.8	-13.0	-48.8	
1.42	-60.6	V	3.0	-17.2	39.9	1.0	-56.0	-13.0	-43.0	
2.13	-63.9	V	3.0	-16.4	48.1	1.0	-55.5	-13.0	-42.5	
2.84	-64.5	V	3.0	-15.3	39.3	1.0	-53.6	-13.0	-48.6	
High Channel (713.5)										
1.43	-58.9	H	3.0	-16.9	39.9	1.0	-55.7	-13.0	-42.7	
2.14	-60.7	H	3.0	-14.7	48.1	1.0	-53.8	-13.0	-40.8	
2.85	-64.6	H	3.0	-16.5	39.3	1.0	-54.8	-13.0	-41.8	
1.43	-60.0	V	3.0	-16.4	39.9	1.0	-55.3	-13.0	-42.3	
2.14	-61.3	V	3.0	-13.9	48.1	1.0	-52.9	-13.0	-39.9	
2.85	-63.8	V	3.0	-14.6	39.3	1.0	-52.8	-13.0	-39.8	

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LTE B17 5MHz 16QAM

**High Frequency Substitution Measurement
 UL RTP Radiated Chamber**

Company: SOMC
 Project #: 16J23633
 Date: 07/25/2016
 Test Engineer: Mark Nolting
 Configuration: Unit with ear-buds and charger (LTE #1)
 Mode: LTE Band 17, 10MHz QPSK

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber		Pre-amplifier		Filter		Limit				
3m Chamber N-RTP		3m Chamber N-RTP		Filter		EIRP				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (HV)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (709MHz)										
1.42	-59.7	H	3.0	-17.7	39.9	1.0	-56.6	-13.0	-43.6	
2.13	-61.1	H	3.0	-16.0	48.1	1.0	-54.1	-13.0	-41.1	
2.84	-64.1	H	3.0	-16.0	39.3	1.0	-54.3	-13.0	-41.3	
1.42	-60.2	V	3.0	-16.7	39.9	1.0	-55.6	-13.0	-42.6	
2.13	-61.2	V	3.0	-13.7	48.1	1.0	-52.8	-13.0	-39.8	
2.84	-63.2	V	3.0	-14.0	39.3	1.0	-52.3	-13.0	-39.3	
Mid Channel (710MHz)										
1.42	-61.1	H	3.0	-17.1	39.9	1.0	-56.0	-13.0	-43.0	
2.13	-61.2	H	3.0	-15.2	48.1	1.0	-54.3	-13.0	-41.3	
2.84	-64.5	H	3.0	-16.5	39.3	1.0	-54.8	-13.0	-41.8	
1.42	-59.8	V	3.0	-16.3	39.9	1.0	-55.2	-13.0	-42.2	
2.13	-60.5	V	3.0	-13.0	48.1	1.0	-52.1	-13.0	-39.1	
2.84	-64.0	V	3.0	-14.8	39.3	1.0	-53.0	-13.0	-40.0	
High Channel (711)										
1.42	-59.9	H	3.0	-18.0	39.9	1.0	-56.8	-13.0	-43.8	
2.13	-61.1	H	3.0	-15.1	48.1	1.0	-54.2	-13.0	-41.2	
2.84	-63.8	H	3.0	-15.8	39.3	1.0	-54.0	-13.0	-41.0	
1.42	-59.5	V	3.0	-16.8	39.9	1.0	-54.8	-13.0	-41.8	
2.13	-61.3	V	3.0	-13.8	48.1	1.0	-52.9	-13.0	-39.9	
2.84	-63.3	V	3.0	-14.1	39.3	1.0	-52.4	-13.0	-39.4	

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LTE B17 10MHz QPSK

**High Frequency Substitution Measurement
 UL RTP Radiated Chamber**

Company: SOMC
 Project #: 16J23633
 Date: 07/25/2016
 Test Engineer: Mark Nolting
 Configuration: Unit with ear-buds and charger (LTE #1)
 Mode: LTE Band 17, 10MHz 16QAM

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber		Pre-amplifier		Filter		Limit				
3m Chamber N-RTP		3m Chamber N-RTP		Filter		EIRP				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (HV)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (709MHz)										
1.42	-60.1	H	3.0	-18.1	39.9	1.0	-57.0	-13.0	-44.0	
2.13	-61.3	H	3.0	-15.3	48.1	1.0	-54.4	-13.0	-41.4	
2.84	-63.9	H	3.0	-15.9	39.3	1.0	-54.1	-13.0	-41.1	
1.42	-60.6	V	3.0	-16.5	39.9	1.0	-55.4	-13.0	-42.4	
2.13	-61.3	V	3.0	-13.8	48.1	1.0	-52.9	-13.0	-39.9	
2.84	-63.2	V	3.0	-14.8	39.3	1.0	-52.3	-13.0	-39.3	
Mid Channel (710MHz)										
1.42	-59.9	H	3.0	-17.9	39.9	1.0	-56.8	-13.0	-43.8	
2.13	-61.3	H	3.0	-15.3	48.1	1.0	-54.4	-13.0	-41.4	
2.84	-63.4	H	3.0	-15.3	39.3	1.0	-53.6	-13.0	-48.6	
1.42	-59.9	V	3.0	-16.4	39.9	1.0	-55.2	-13.0	-42.2	
2.13	-61.3	V	3.0	-13.8	48.1	1.0	-52.9	-13.0	-39.9	
2.84	-63.3	V	3.0	-14.1	39.3	1.0	-52.4	-13.0	-39.4	
High Channel (711)										
1.42	-59.9	H	3.0	-17.9	39.9	1.0	-56.7	-13.0	-43.7	
2.13	-61.8	H	3.0	-15.7	48.1	1.0	-54.8	-13.0	-41.8	
2.84	-63.5	H	3.0	-15.4	39.3	1.0	-53.7	-13.0	-40.7	
1.42	-60.0	V	3.0	-16.5	39.9	1.0	-55.4	-13.0	-42.4	
2.13	-61.4	V	3.0	-14.8	48.1	1.0	-53.1	-13.0	-40.1	
2.84	-63.4	V	3.0	-14.2	39.3	1.0	-52.5	-13.0	-39.5	

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LTE B17 10MHz 16QAM

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
 Project #: 16J23633
 Date: 07/25/2016
 Test Engineer: Mark Nolting
 Configuration: Unit with ear-buds and charger (LTE #1)
 Mode: LTE Band 26 (B26), 15MHz QPSK

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber N-RTP	3m Chamber N-RTP	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (HV)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (831.5 MHz)										
1.66	-61.5	H	3.0	-18.0	39.9	1.0	-56.9	-13.0	-43.9	
2.49	-63.9	H	3.0	-17.2	39.3	1.0	-55.4	-13.0	-42.4	
3.33	-64.5	H	3.0	-15.1	39.5	1.0	-53.6	-13.0	-40.6	
1.66	-61.1	V	3.0	-16.0	39.9	1.0	-54.9	-13.0	-41.9	
2.49	-63.4	V	3.0	-15.7	39.3	1.0	-53.9	-13.0	-40.9	
3.33	-63.9	V	3.0	-13.5	39.5	1.0	-52.0	-13.0	-39.0	
Mid Channel (836.5 MHz)										
1.67	-61.2	H	3.0	-17.6	39.9	1.0	-56.5	-13.0	-43.5	
2.51	-64.4	H	3.0	-17.6	39.2	1.0	-55.8	-13.0	-42.8	
3.35	-64.6	H	3.0	-15.1	39.5	1.0	-53.6	-13.0	-40.6	
1.67	-60.8	V	3.0	-14.6	39.9	1.0	-53.5	-13.0	-40.5	
2.51	-64.0	V	3.0	-19.2	39.2	1.0	-54.4	-13.0	-41.4	
3.35	-64.3	V	3.0	-14.0	39.5	1.0	-52.5	-13.0	-39.5	
High Channel (841.5 MHz)										
1.68	-61.9	H	3.0	-18.2	39.9	1.0	-57.2	-13.0	-44.2	
2.52	-63.3	H	3.0	-16.4	39.2	1.0	-54.7	-13.0	-41.7	
3.37	-64.6	H	3.0	-15.1	39.5	1.0	-53.6	-13.0	-40.6	
1.68	-61.1	V	3.0	-15.9	39.9	1.0	-54.8	-13.0	-41.8	
2.52	-64.0	V	3.0	-16.1	39.2	1.0	-54.4	-13.0	-41.4	
3.37	-64.4	V	3.0	-14.1	39.5	1.0	-52.6	-13.0	-39.6	

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LTE B26 15MHz QPSK

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
 Project #: 16J23633
 Date: 07/25/2016
 Test Engineer: Mark Nolting
 Configuration: Unit with ear-buds and charger (LTE #1)
 Mode: LTE Band 26 (B26), 15MHz 16QAM

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber N-RTP	3m Chamber N-RTP	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (HV)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (831.5 MHz)										
1.66	-61.9	H	3.0	-18.4	39.9	1.0	-57.3	-13.0	-44.3	
2.49	-63.5	H	3.0	-16.8	39.3	1.0	-55.9	-13.0	-42.9	
3.33	-65.9	H	3.0	-15.6	39.5	1.0	-54.1	-13.0	-41.1	
1.66	-60.7	V	3.0	-15.6	39.9	1.0	-54.5	-13.0	-41.5	
2.49	-63.7	V	3.0	-16.0	39.3	1.0	-54.2	-13.0	-41.2	
3.33	-63.7	V	3.0	-13.4	39.5	1.0	-51.9	-13.0	-38.9	
Mid Channel (836.5 MHz)										
1.67	-60.2	H	3.0	-17.1	39.9	1.0	-56.1	-13.0	-43.1	
2.51	-63.8	H	3.0	-16.9	39.2	1.0	-55.2	-13.0	-42.2	
3.35	-64.2	H	3.0	-14.7	39.5	1.0	-53.3	-13.0	-40.3	
1.67	-60.4	V	3.0	-15.2	39.9	1.0	-54.1	-13.0	-41.1	
2.51	-63.8	V	3.0	-16.0	39.2	1.0	-54.2	-13.0	-41.2	
3.35	-64.6	V	3.0	-14.3	39.5	1.0	-52.8	-13.0	-39.8	
High Channel (841.5 MHz)										
1.68	-61.2	H	3.0	-17.5	39.9	1.0	-56.5	-13.0	-43.5	
2.52	-63.9	H	3.0	-17.0	39.2	1.0	-55.3	-13.0	-42.3	
3.37	-64.5	H	3.0	-15.0	39.5	1.0	-53.5	-13.0	-40.5	
1.68	-60.6	V	3.0	-15.4	39.9	1.0	-54.3	-13.0	-41.3	
2.52	-63.7	V	3.0	-15.8	39.2	1.0	-54.0	-13.0	-41.0	
3.37	-63.4	V	3.0	-13.1	39.5	1.0	-51.5	-13.0	-38.5	

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LTE B26 15MHz 16QAM

LTE Band 41

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
 Project #: 16J23633
 Date: 07/28/2016
 Test Engineer: Mark Nolting
 Configuration: Unit with ear-buds and charger (LTE #1)
 Mode: LTE Band 41, 5MHz QPSK

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber N-RTP	3m Chamber N-RTP	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 (250.5MHz)										
5.00	-53.9	H	3.0	-11.3	40.3	1.0	50.6	25.0	25.6	
7.50	-66.0	H	3.0	-9.5	38.9	1.0	47.4	25.0	-22.4	
9.99	-67.0	H	3.0	-7.9	38.3	1.0	-45.2	25.0	-28.2	
5.00	-62.8	V	3.0	-10.2	40.3	1.0	-49.5	25.0	-24.5	
7.50	-65.6	V	3.0	-9.4	38.9	1.0	47.3	25.0	-22.3	
9.99	-67.0	V	3.0	-7.8	38.3	1.0	-45.2	25.0	-28.2	
Mid Channel (250.5MHz)										
5.19	-61.5	H	3.0	-8.6	40.3	1.0	47.9	25.0	-22.9	
7.78	-64.2	H	3.0	-7.9	38.9	1.0	-45.3	25.0	-28.3	
10.37	-67.5	H	3.0	-7.9	38.3	1.0	-45.2	25.0	-28.2	
5.19	-59.9	V	3.0	-7.1	40.3	1.0	46.4	25.0	-21.4	
7.78	-63.7	V	3.0	-7.1	38.9	1.0	-45.0	25.0	-28.0	
10.37	-67.4	V	3.0	-7.9	38.3	1.0	-45.2	25.0	-28.2	
High Channel (268.75MHz)										
5.38	-62.2	H	3.0	-9.0	40.2	1.0	-48.2	25.0	-23.2	
8.06	-63.8	H	3.0	-6.7	38.8	1.0	-44.5	25.0	-19.5	
10.75	-67.3	H	3.0	-7.2	38.3	1.0	-44.6	25.0	-19.6	
5.38	-62.6	V	3.0	-9.5	40.2	1.0	-48.7	25.0	-23.7	
8.06	-63.7	V	3.0	-6.8	38.8	1.0	-44.6	25.0	-19.6	
10.75	-67.7	V	3.0	-7.7	38.3	1.0	-45.0	25.0	-20.0	

Rev: 10.28.15

LTE B41 5MHz QPSK

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
 Project #: 16J23633
 Date: 07/28/2016
 Test Engineer: Mark Nolting
 Configuration: Unit with ear-buds and charger (LTE #1)
 Mode: LTE Band 41, 5MHz 16QAM

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber N-RTP	3m Chamber N-RTP	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 (250.5MHz)										
5.00	-63.3	H	3.0	-10.7	40.3	1.0	50.0	25.0	25.0	
7.50	-65.8	H	3.0	-9.3	38.9	1.0	47.2	25.0	-22.2	
9.99	-66.9	H	3.0	-7.7	38.3	1.0	-45.1	25.0	-28.1	
5.00	-63.4	V	3.0	-10.9	40.3	1.0	50.1	25.0	25.1	
7.50	-66.1	V	3.0	-9.9	38.9	1.0	47.3	25.0	-22.9	
9.99	-66.9	V	3.0	-7.7	38.3	1.0	-45.0	25.0	-28.0	
Mid Channel (250.5MHz)										
5.19	-61.7	H	3.0	-8.8	40.3	1.0	48.1	25.0	-23.1	
7.78	-64.5	H	3.0	-7.7	38.9	1.0	-45.6	25.0	-20.6	
10.37	-67.0	H	3.0	-7.4	38.3	1.0	-44.7	25.0	-19.7	
5.19	-59.8	V	3.0	-7.0	40.3	1.0	46.3	25.0	-21.3	
7.78	-63.8	V	3.0	-7.2	38.9	1.0	-45.1	25.0	-20.1	
10.37	-67.1	V	3.0	-7.5	38.3	1.0	-44.8	25.0	-19.8	
High Channel (268.75MHz)										
5.38	-62.8	H	3.0	-9.6	40.2	1.0	-48.8	25.0	-23.8	
8.06	-63.9	H	3.0	-6.8	38.8	1.0	-44.6	25.0	-19.6	
10.75	-67.7	H	3.0	-7.5	38.3	1.0	-44.9	25.0	-19.9	
5.38	-62.8	V	3.0	-9.7	40.2	1.0	-48.9	25.0	-23.9	
8.06	-63.3	V	3.0	-6.5	38.8	1.0	-44.3	25.0	-19.3	
10.75	-67.8	V	3.0	-7.8	38.3	1.0	-45.1	25.0	-20.1	

Rev: 10.28.15

LTE B41 5MHz 16QAM

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
 Project #: 16J23633
 Date: 07/28/2016
 Test Engineer: Mark Nolting
 Configuration: Unit with ear-buds and charger (LTE #1)
 Mode: LTE Band 41, 10MHz QPSK

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber N-RTP	3m Chamber N-RTP	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 (250.5MHz)										
5.00	-63.2	H	3.0	-10.6	40.3	1.0	49.8	25.0	24.8	
7.50	-65.4	H	3.0	-8.9	38.9	1.0	46.9	25.0	-21.9	
10.00	-66.9	H	3.0	-7.8	38.3	1.0	-45.1	25.0	-20.1	
5.00	-62.2	V	3.0	-9.7	40.3	1.0	48.9	25.0	-21.9	
7.50	-65.3	V	3.0	-8.1	38.9	1.0	47.0	25.0	-22.0	
10.00	-67.0	V	3.0	-7.8	38.3	1.0	-45.1	25.0	-20.1	
Mid Channel (250.5MHz)										
5.19	-61.8	H	3.0	-8.7	40.3	1.0	48.0	25.0	-23.0	
7.78	-64.0	H	3.0	-7.3	38.9	1.0	-45.1	25.0	-20.1	
10.37	-66.8	H	3.0	-7.2	38.3	1.0	-44.5	25.0	-19.5	
5.19	-60.0	V	3.0	-7.2	40.3	1.0	46.5	25.0	-21.5	
7.78	-63.9	V	3.0	-7.3	38.9	1.0	-45.2	25.0	-20.2	
10.37	-67.3	V	3.0	-7.7	38.3	1.0	-45.0	25.0	-20.0	
High Channel (268.5MHz)										
5.37	-62.8	H	3.0	-9.6	40.2	1.0	-48.8	25.0	-23.8	
8.06	-63.8	H	3.0	-6.7	38.8	1.0	-44.5	25.0	-19.5	
10.74	-67.4	H	3.0	-7.3	38.3	1.0	-44.6	25.0	-19.6	
5.37	-62.7	V	3.0	-9.6	40.2	1.0	-48.8	25.0	-23.8	
8.06	-64.0	V	3.0	-7.1	38.8	1.0	-44.9	25.0	-19.9	
10.74	-67.7	V	3.0	-7.8	38.3	1.0	-45.1	25.0	-20.1	

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LTE B41 10MHz QPSK

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
 Project #: 16J23633
 Date: 07/28/2016
 Test Engineer: Mark Nolting
 Configuration: Unit with ear-buds and charger (LTE #1)
 Mode: LTE Band 41, 10MHz 16QAM

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber N-RTP	3m Chamber N-RTP	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 (250.5MHz)										
5.00	-63.3	H	3.0	-10.7	40.3	1.0	49.9	25.0	24.9	
7.50	-65.7	H	3.0	-9.2	38.9	1.0	47.1	25.0	-22.1	
10.00	-66.8	H	3.0	-7.7	38.3	1.0	-45.0	25.0	-20.0	
5.00	-62.3	V	3.0	-9.7	40.3	1.0	49.0	25.0	-24.0	
7.50	-65.8	V	3.0	-8.6	38.9	1.0	47.5	25.0	-22.5	
10.00	-66.8	V	3.0	-7.5	38.3	1.0	-44.9	25.0	-19.9	
Mid Channel (250.5MHz)										
5.19	-61.4	H	3.0	-8.5	40.3	1.0	47.8	25.0	-22.8	
7.78	-64.1	H	3.0	-7.4	38.9	1.0	-45.2	25.0	-20.2	
10.37	-67.0	H	3.0	-7.4	38.3	1.0	-44.7	25.0	-19.7	
5.19	-59.5	V	3.0	-6.7	40.3	1.0	46.0	25.0	-21.0	
7.78	-63.9	V	3.0	-7.3	38.9	1.0	-45.2	25.0	-20.2	
10.37	-67.5	V	3.0	-8.0	38.3	1.0	-45.3	25.0	-20.3	
High Channel (268.5MHz)										
5.37	-62.7	H	3.0	-9.4	40.2	1.0	-48.6	25.0	-23.6	
8.06	-63.9	H	3.0	-6.9	38.8	1.0	-44.7	25.0	-19.7	
10.74	-67.6	H	3.0	-7.5	38.3	1.0	-44.8	25.0	-19.8	
5.37	-62.7	V	3.0	-9.6	40.2	1.0	-48.8	25.0	-23.8	
8.06	-64.4	V	3.0	-7.5	38.8	1.0	-45.3	25.0	-20.3	
10.74	-67.5	V	3.0	-7.5	38.3	1.0	-44.9	25.0	-19.9	

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LTE B41 10MHz 16QAM

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
 Project #: 16J23633
 Date: 07/28/2016
 Test Engineer: Mark Nolting
 Configuration: Unit with ear-buds and charger (LTE #1)
 Mode: LTE Band 41, 15MHz, QPSK

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber Pre-amplifier Filter Limit
 3m Chamber N-RTP 3m Chamber N-RTP 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 (250.5MHz)										
5.01	63.0	H	3.0	-10.3	40.3	1.0	49.6	-25.0	-24.6	
7.51	65.7	H	3.0	-3.2	38.9	1.0	47.1	-25.0	-22.1	
10.01	67.3	H	3.0	-8.1	38.3	1.0	45.5	-25.0	-26.5	
5.01	63.1	V	3.0	-10.6	40.3	1.0	49.8	-25.0	-24.8	
7.51	65.7	V	3.0	-5.5	38.9	1.0	47.5	-25.0	-22.5	
10.01	66.5	V	3.0	-7.3	38.3	1.0	44.6	-25.0	-19.6	
Mid Channel (250MHz)										
5.19	61.4	H	3.0	-8.5	40.3	1.0	47.8	-25.0	-22.8	
7.78	63.4	H	3.0	-6.7	38.9	1.0	44.5	-25.0	-19.5	
10.37	67.3	H	3.0	-7.7	38.3	1.0	45.0	-25.0	-20.0	
5.19	61.5	V	3.0	-6.7	40.3	1.0	46.0	-25.0	-21.0	
7.78	64.1	V	3.0	-7.6	38.9	1.0	45.5	-25.0	-20.5	
10.37	67.5	V	3.0	-7.9	38.3	1.0	45.2	-25.0	-20.2	
High Channel (2682.5MHz)										
5.37	62.6	H	3.0	-9.3	40.2	1.0	48.6	-25.0	-23.6	
8.05	63.6	H	3.0	-6.5	38.8	1.0	44.2	-25.0	-19.2	
10.73	67.4	H	3.0	-7.4	38.3	1.0	44.7	-25.0	-19.7	
5.37	62.5	V	3.0	-9.2	40.2	1.0	48.4	-25.0	-23.4	
8.05	63.5	V	3.0	-6.6	38.8	1.0	44.4	-25.0	-19.4	
10.73	67.5	V	3.0	-7.6	38.3	1.0	44.9	-25.0	-19.9	

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LTE B41 15MHz QPSK

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
 Project #: 16J23633
 Date: 07/28/2016
 Test Engineer: Mark Nolting
 Configuration: Unit with ear-buds and charger (LTE #1)
 Mode: LTE Band 41, 15MHz, 16QAM

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber Pre-amplifier Filter Limit
 3m Chamber N-RTP 3m Chamber N-RTP 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 (250.5MHz)										
5.01	63.0	H	3.0	-10.4	40.3	1.0	49.6	-25.0	-24.6	
7.51	65.8	H	3.0	-9.3	38.9	1.0	47.2	-25.0	-22.2	
10.01	67.2	H	3.0	-8.1	38.3	1.0	45.4	-25.0	-20.4	
5.01	63.2	V	3.0	-10.7	40.3	1.0	49.9	-25.0	-24.9	
7.51	65.9	V	3.0	-8.7	38.9	1.0	47.6	-25.0	-22.6	
10.01	66.1	V	3.0	-6.9	38.3	1.0	44.2	-25.0	-19.2	
Mid Channel (250MHz)										
5.19	61.4	H	3.0	-8.5	40.3	1.0	47.8	-25.0	-22.8	
7.78	64.4	H	3.0	-7.6	38.9	1.0	45.5	-25.0	-20.5	
10.37	66.8	H	3.0	-7.2	38.3	1.0	44.5	-25.0	-19.5	
5.19	61.8	V	3.0	-7.0	40.3	1.0	46.3	-25.0	-21.3	
7.78	64.0	V	3.0	-7.4	38.9	1.0	45.3	-25.0	-20.3	
10.37	67.3	V	3.0	-7.1	38.3	1.0	45.1	-25.0	-20.1	
High Channel (2682.5MHz)										
5.37	62.5	H	3.0	-9.3	40.2	1.0	48.5	-25.0	-23.5	
8.05	64.5	H	3.0	-7.4	38.8	1.0	45.2	-25.0	-20.2	
10.73	67.8	H	3.0	-7.8	38.3	1.0	45.1	-25.0	-20.1	
5.37	62.5	V	3.0	-9.4	40.2	1.0	48.6	-25.0	-23.6	
8.05	63.3	V	3.0	-6.5	38.8	1.0	44.2	-25.0	-19.2	
10.73	67.4	V	3.0	-7.5	38.3	1.0	44.8	-25.0	-19.8	

Rev: 10.28.15

LTE B41 15MHz 16QAM

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
 Project #: 16J23633
 Date: 07/28/2016
 Test Engineer: Mark Nolting
 Configuration: Unit with ear-buds and charger (LTE #1)
 Mode: LTE Band 41, 20MHz, QPSK

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber Pre-amplifier Filter Limit
 3m Chamber N-RTP 3m Chamber N-RTP 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 (250MHz)										
5.01	62.2	H	3.0	-8.6	40.3	1.0	45.9	-25.0	-23.9	
7.52	66.2	H	3.0	-9.7	38.9	1.0	47.6	-25.0	-22.6	
10.02	67.5	H	3.0	-8.3	38.3	1.0	45.7	-25.0	-20.7	
5.01	62.3	V	3.0	-8.7	40.3	1.0	48.0	-25.0	-24.0	
7.52	64.7	V	3.0	-8.5	38.9	1.0	46.4	-25.0	-21.4	
10.02	66.9	V	3.0	-7.7	38.3	1.0	45.0	-25.0	-20.0	
Mid Channel (250MHz)										
5.19	61.4	H	3.0	-8.5	40.3	1.0	47.8	-25.0	-22.8	
7.78	64.3	H	3.0	-7.9	38.9	1.0	45.4	-25.0	-20.4	
10.37	66.8	H	3.0	-7.2	38.3	1.0	44.5	-25.0	-19.5	
5.19	61.8	V	3.0	-7.8	40.3	1.0	46.3	-25.0	-21.3	
7.78	63.9	V	3.0	-7.4	38.9	1.0	45.3	-25.0	-20.3	
10.37	67.3	V	3.0	-7.8	38.3	1.0	45.1	-25.0	-20.1	
High Channel (2680MHz)										
5.36	61.4	H	3.0	-8.9	40.2	1.0	46.1	-25.0	-23.1	
8.04	64.0	H	3.0	-7.0	38.8	1.0	44.8	-25.0	-19.8	
10.72	68.2	H	3.0	-8.2	38.3	1.0	45.5	-25.0	-20.5	
5.36	62.2	V	3.0	-9.1	40.2	1.0	48.3	-25.0	-23.3	
8.04	63.5	V	3.0	-6.7	38.8	1.0	44.5	-25.0	-19.5	
10.72	67.7	V	3.0	-7.8	38.3	1.0	45.1	-25.0	-20.1	

Rev: 10.28.15

LTE B41 20MHz QPSK

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
 Project #: 16J23633
 Date: 07/28/2016
 Test Engineer: Mark Nolting
 Configuration: Unit with ear-buds and charger (LTE #1)
 Mode: LTE Band 41, 20MHz, 16QAM

Test Equipment:
 Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber Pre-amplifier Filter Limit
 3m Chamber N-RTP 3m Chamber N-RTP 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 (250MHz)										
5.01	63.1	H	3.0	-10.5	40.3	1.0	49.7	-25.0	-24.7	
7.52	66.0	H	3.0	-9.5	38.9	1.0	47.4	-25.0	-22.4	
10.02	66.9	H	3.0	-7.7	38.3	1.0	45.8	-25.0	-20.8	
5.01	62.7	V	3.0	-10.1	40.3	1.0	49.4	-25.0	-24.4	
7.52	64.8	V	3.0	-8.5	38.9	1.0	46.5	-25.0	-21.5	
10.02	67.1	V	3.0	-7.8	38.3	1.0	45.2	-25.0	-20.2	
Mid Channel (250MHz)										
5.19	61.6	H	3.0	-8.7	40.3	1.0	48.0	-25.0	-23.0	
7.78	64.5	H	3.0	-7.7	38.9	1.0	45.4	-25.0	-20.4	
10.37	67.4	H	3.0	-7.7	38.3	1.0	45.0	-25.0	-20.0	
5.19	61.8	V	3.0	-7.8	40.3	1.0	46.3	-25.0	-21.3	
7.78	63.9	V	3.0	-7.4	38.9	1.0	45.3	-25.0	-20.3	
10.37	67.2	V	3.0	-7.6	38.3	1.0	44.9	-25.0	-19.9	
High Channel (2680MHz)										
5.36	61.9	H	3.0	-9.2	40.2	1.0	48.4	-25.0	-23.4	
8.04	64.3	H	3.0	-7.3	38.8	1.0	45.1	-25.0	-20.1	
10.72	67.4	H	3.0	-7.3	38.3	1.0	44.6	-25.0	-19.6	
5.36	63.0	V	3.0	-9.9	40.2	1.0	49.1	-25.0	-24.1	
8.04	63.8	V	3.0	-6.9	38.8	1.0	44.7	-25.0	-19.7	
10.72	67.6	V	3.0	-7.6	38.3	1.0	45.0	-25.0	-20.0	

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LTE B41 20MHz 16QAM