

**16QAM LTE BAND 4 (3.0MHZ BANDWIDTH)**

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company:										
Project #:	11792137									
Date:	05/26/17									
Test Engineer:	10641									
Configuration:	EUT Only									
Mode:	LTE Band 4, 3MHz 16QAM									
<u>Test Equipment:</u>										
Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		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	-67.3	H	3.0	-18.0	38.5	1.0	55.5	-13.0	-42.5	
5.16	-66.0	H	3.0	-12.8	38.7	1.0	50.5	-13.0	-37.5	
6.88	-66.1	H	3.0	-9.1	38.1	1.0	46.2	-13.0	-33.2	
3.44	-66.5	V	3.0	-17.4	38.5	1.0	54.9	-13.0	-41.9	
5.16	-64.5	V	3.0	-11.7	38.7	1.0	49.4	-13.0	-36.4	
6.88	-66.3	V	3.0	-9.6	38.1	1.0	46.7	-13.0	-33.7	
Mid Channel (1732.5MHz)										
3.47	-65.5	H	3.0	-16.1	38.5	1.0	53.7	-13.0	-40.7	
5.20	-65.7	H	3.0	-12.5	38.7	1.0	50.1	-13.0	-37.1	
6.93	-65.5	H	3.0	-8.5	38.1	1.0	45.6	-13.0	-32.6	
3.47	-64.7	V	3.0	-15.5	38.5	1.0	53.0	-13.0	-40.0	
5.20	-65.4	V	3.0	-12.5	38.7	1.0	50.2	-13.0	-37.2	
6.93	-65.8	V	3.0	-9.0	38.1	1.0	46.1	-13.0	-33.1	
High Channel (1745MHz)										
3.49	-66.9	H	3.0	-17.5	38.5	1.0	55.0	-13.0	-42.0	
5.24	-65.8	H	3.0	-12.5	38.7	1.0	50.1	-13.0	-37.1	
6.98	-66.0	H	3.0	-8.9	38.1	1.0	46.0	-13.0	-33.0	
3.49	-67.5	V	3.0	-18.2	38.5	1.0	55.8	-13.0	-42.8	
5.24	-65.3	V	3.0	-12.2	38.7	1.0	49.9	-13.0	-36.9	
6.98	-66.8	V	3.0	-9.9	38.1	1.0	47.0	-13.0	-34.0	

Rev. 05.21.15

### 9.1.3. LTE BAND 5

#### QPSK LTE BAND 5 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company:										
Project #:	11792137									
Date:	05/16/17									
Test Engineer:	37290									
Configuration:	EUT Only									
Mode:	LTE Band 5, 10MHz QPSK									
<u>Test Equipment:</u> Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		Filter		Limit				
3m Chamber F		3m Chamber F		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	-71.0	H	3.0	-29.7	33.7	1.0	-62.4	-13.0	-49.4	
2.49	-70.2	H	3.0	-26.0	34.1	1.0	-59.1	-13.0	-46.1	
3.32	-71.1	H	3.0	-22.8	34.6	1.0	-56.4	-13.0	-43.4	
1.66	-68.0	V	3.0	-24.6	33.7	1.0	-57.3	-13.0	-44.3	
2.49	-71.4	V	3.0	-26.6	34.1	1.0	-59.7	-13.0	-46.7	
3.32	-72.4	V	3.0	-23.9	34.6	1.0	-57.5	-13.0	-44.5	
Mid Channel (836.5MHz)										
1.67	-70.6	H	3.0	-29.3	33.7	1.0	-62.0	-13.0	-49.0	
2.51	-70.3	H	3.0	-26.1	34.1	1.0	-59.2	-13.0	-46.2	
3.35	-71.2	H	3.0	-22.7	34.6	1.0	-56.4	-13.0	-43.4	
1.67	-69.8	V	3.0	-26.4	33.7	1.0	-59.1	-13.0	-46.1	
2.51	-69.0	V	3.0	-24.2	34.1	1.0	-57.3	-13.0	-44.3	
3.35	-70.8	V	3.0	-22.2	34.6	1.0	-55.8	-13.0	-42.8	
High Channel (844MHz)										
1.69	-70.6	H	3.0	-29.2	33.7	1.0	-61.9	-13.0	-48.9	
2.53	-70.4	H	3.0	-26.1	34.1	1.0	-59.2	-13.0	-46.2	
3.38	-71.0	H	3.0	-22.4	34.6	1.0	-56.1	-13.0	-43.1	
1.69	-70.0	V	3.0	-26.6	33.7	1.0	-59.3	-13.0	-46.3	
2.53	-70.3	V	3.0	-25.4	34.1	1.0	-58.5	-13.0	-45.5	
3.38	-70.2	V	3.0	-21.5	34.6	1.0	-55.1	-13.0	-42.1	
Rev. 05.21.15										

**16QAM LTE BAND 5 (10.0MHZ BANDWIDTH)**

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company:										
Project #:	11792137									
Date:	05/16/17									
Test Engineer:	37290									
Configuration:	EUT Only									
Mode:	LTE Band 5, 10MHz 16QAM									
<u>Test Equipment:</u> Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		Filter		Limit				
3m Chamber F		3m Chamber F		Filter		EIRP				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
<u>Low Channel (829MHz)</u>										
1.66	-70.5	H	3.0	-29.1	33.7	1.0	-61.8	-13.0	-48.8	
2.49	-70.2	H	3.0	-27.1	34.1	1.0	-60.2	-13.0	-47.2	
3.32	-71.5	H	3.0	-25.5	34.6	1.0	-59.2	-13.0	-46.2	
1.66	-69.2	V	3.0	-27.4	33.7	1.0	-60.1	-13.0	-47.1	
2.49	-71.7	V	3.0	-27.6	34.1	1.0	-60.7	-13.0	-47.7	
3.32	-72.5	V	3.0	-26.5	34.6	1.0	-60.2	-13.0	-47.2	
<u>Mid Channel (836.5MHz)</u>										
1.67	-70.8	H	3.0	-29.3	33.7	1.0	-62.0	-13.0	-49.0	
2.51	-69.7	H	3.0	-26.5	34.1	1.0	-59.6	-13.0	-46.6	
3.35	-70.2	H	3.0	-24.2	34.6	1.0	-57.8	-13.0	-44.8	
1.67	-70.1	V	3.0	-28.3	33.7	1.0	-61.0	-13.0	-48.0	
2.51	-70.6	V	3.0	-26.4	34.1	1.0	-59.5	-13.0	-46.5	
3.35	-70.2	V	3.0	-24.2	34.6	1.0	-57.8	-13.0	-44.8	
<u>High Channel (844MHz)</u>										
1.69	-70.3	H	3.0	-28.8	33.7	1.0	-61.5	-13.0	-48.5	
2.53	-70.7	H	3.0	-27.4	34.1	1.0	-60.5	-13.0	-47.5	
3.38	-71.5	H	3.0	-25.4	34.6	1.0	-59.0	-13.0	-46.0	
1.69	-70.6	V	3.0	-28.8	33.7	1.0	-61.5	-13.0	-48.5	
2.53	-70.5	V	3.0	-26.3	34.1	1.0	-59.4	-13.0	-46.4	
3.38	-70.7	V	3.0	-24.5	34.6	1.0	-58.2	-13.0	-45.2	

Rev. 05.21.15

## 9.1.4. LTE BAND 7

### QPSK LTE BAND 7 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
<b>Company:</b> Project #: 11792137 Date: 05/26/17 Test Engineer: 10641 Configuration: EUT Only Mode: LTE Band 7, 20MHz QPSK										
<b>Test Equipment:</b> Substitution: Horn T69 Substitution, and 8ft SMA Cable										
Chamber			Pre-amplifier		Filter		Limit			
3m Chamber E	3m Chamber E	Filter	LTE B7							
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
<b>Low Channel (2510MHz)</b>										
5.02	-64.5	H	3.0	-11.6	38.7	1.0	-49.3	-25.0	-24.3	
7.53	-66.3	H	3.0	-8.5	37.7	1.0	-45.2	-25.0	-20.2	
10.04	-67.0	H	3.0	-6.1	36.2	1.0	-41.3	-25.0	-16.3	
5.02	-65.2	V	3.0	-12.6	38.7	1.0	-50.3	-25.0	-25.3	
7.53	-66.2	V	3.0	-8.5	37.7	1.0	-45.3	-25.0	-20.3	
10.04	-67.4	V	3.0	-6.6	36.2	1.0	-41.8	-25.0	-16.8	
<b>Mid Channel (2535MHz)</b>										
5.07	-64.3	H	3.0	-11.3	38.7	1.0	-48.9	-25.0	-23.9	
7.61	-66.3	H	3.0	-8.4	37.7	1.0	-45.1	-25.0	-20.1	
10.14	-66.5	H	3.0	-5.6	36.2	1.0	-40.8	-25.0	-15.8	
5.07	-64.4	V	3.0	-11.7	38.7	1.0	-49.4	-25.0	-24.4	
7.61	-66.3	V	3.0	-8.6	37.7	1.0	-45.2	-25.0	-20.2	
10.14	-66.7	V	3.0	-5.8	36.2	1.0	-41.0	-25.0	-16.0	
<b>High Channel (2560MHz)</b>										
5.12	-65.0	H	3.0	-11.9	38.7	1.0	-49.6	-25.0	-24.6	
7.68	-65.8	H	3.0	-7.8	37.6	1.0	-44.4	-25.0	-19.4	
10.24	-66.1	H	3.0	-5.1	36.3	1.0	-40.4	-25.0	-15.4	
5.12	-64.5	V	3.0	-11.7	38.7	1.0	-49.4	-25.0	-24.4	
7.68	-66.1	V	3.0	-8.3	37.6	1.0	-44.9	-25.0	-19.9	
10.24	-66.6	V	3.0	-5.6	36.3	1.0	-40.8	-25.0	-15.8	
Rev. 05.21.15										

**16QAM LTE BAND 7 (20.0MHZ BANDWIDTH)**

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company:										
Project #:	11792137									
Date:	05/26/17									
Test Engineer:	10641									
Configuration:	EUT Only									
Mode:	LTE Band 7, 20MHz 16QAM									
<u>Test Equipment:</u> Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		Filter		Limit				
3m Chamber E		3m Chamber E		Filter		LTE B7				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
<b>Low Channel (2510MHz)</b>										
5.02	-64.3	H	3.0	-11.4	38.7	1.0	-49.1	-25.0	-24.1	
7.53	-66.9	H	3.0	-9.0	37.7	1.0	-45.8	-25.0	-20.8	
10.04	-67.4	H	3.0	-6.6	36.2	1.0	-41.8	-25.0	-16.8	
5.02	-65.8	V	3.0	-13.2	38.7	1.0	-50.9	-25.0	-25.9	
7.53	-67.4	V	3.0	-9.7	37.7	1.0	-46.5	-25.0	-21.5	
10.04	-66.8	V	3.0	-6.0	36.2	1.0	-41.2	-25.0	-16.2	
<b>Mid Channel (2535MHz)</b>										
5.07	-64.7	H	3.0	-11.7	38.7	1.0	-49.4	-25.0	-24.4	
7.61	-65.2	H	3.0	-7.3	37.7	1.0	-44.0	-25.0	-19.0	
10.14	-66.3	H	3.0	-5.4	36.2	1.0	-40.6	-25.0	-15.6	
5.07	-63.9	V	3.0	-11.2	38.7	1.0	-48.9	-25.0	-23.9	
7.61	-66.7	V	3.0	-8.9	37.7	1.0	-45.6	-25.0	-20.6	
10.14	-66.5	V	3.0	-5.6	36.2	1.0	-40.8	-25.0	-15.8	
<b>High Channel (2560MHz)</b>										
5.12	-65.7	H	3.0	-12.6	38.7	1.0	-50.3	-25.0	-25.3	
7.68	-63.7	H	3.0	-5.7	37.6	1.0	-42.4	-25.0	-17.4	
10.24	-66.5	H	3.0	-5.5	36.3	1.0	-40.8	-25.0	-15.8	
5.12	-64.4	V	3.0	-11.6	38.7	1.0	-49.3	-25.0	-24.3	
7.68	-65.3	V	3.0	-7.5	37.6	1.0	-44.1	-25.0	-19.1	
10.24	-66.5	V	3.0	-5.4	36.3	1.0	-40.7	-25.0	-15.7	
Rev. 05.21.15										

### 9.1.5. LTE BAND 12

#### QPSK LTE BAND 12 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company:										
Project #:	11792137									
Date:	05/16/17									
Test Engineer:	37290									
Configuration:	EUT Only									
Mode:	LTE Band 12, 10MHz QPSK									
<u>Test Equipment:</u> Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		Filter		Limit				
3m Chamber F		3m Chamber F		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	-69.1	H	3.0	-29.4	34.0	1.0	62.4	-13.0	-49.4	
2.11	-70.3	H	3.0	-26.7	33.7	1.0	59.3	-13.0	-46.3	
2.82	-69.4	H	3.0	-23.3	34.5	1.0	56.9	-13.0	-43.9	
1.41	-69.0	V	3.0	-26.6	34.0	1.0	59.6	-13.0	-46.6	
2.11	-69.3	V	3.0	-25.4	33.7	1.0	58.1	-13.0	-45.1	
2.82	-71.3	V	3.0	-24.8	34.5	1.0	58.3	-13.0	-45.3	
Mid Channel (707.5MHz)										
1.42	-69.6	H	3.0	-29.9	34.0	1.0	62.9	-13.0	-49.9	
2.12	-69.6	H	3.0	-25.9	33.7	1.0	58.6	-13.0	-45.6	
2.83	-70.2	H	3.0	-24.1	34.6	1.0	57.6	-13.0	-44.6	
1.42	-67.7	V	3.0	-25.2	34.0	1.0	58.2	-13.0	-45.2	
2.12	-69.6	V	3.0	-25.7	33.7	1.0	58.3	-13.0	-45.3	
2.83	-71.2	V	3.0	-24.6	34.6	1.0	58.2	-13.0	-45.2	
High Channel (711MHz)										
1.42	-69.4	H	3.0	-29.6	34.0	1.0	62.6	-13.0	-49.6	
2.13	-69.3	H	3.0	-25.7	33.7	1.0	58.4	-13.0	-45.4	
2.84	-70.6	H	3.0	-24.4	34.6	1.0	58.0	-13.0	-45.0	
1.42	-69.9	V	3.0	-27.3	34.0	1.0	60.3	-13.0	-47.3	
2.13	-68.6	V	3.0	-24.7	33.7	1.0	57.4	-13.0	-44.4	
2.84	-70.2	V	3.0	-23.5	34.6	1.0	57.1	-13.0	-44.1	

Rev. 05.21.15

**16QAM LTE BAND 12 (10.0MHZ BANDWIDTH)**

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company:										
Project #:	11792137									
Date:	05/16/17									
Test Engineer:	37290									
Configuration:	EUT Only									
Mode:	LTE Band 12, 10MHz 16QAM									
<u>Test Equipment:</u> Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		Filter		Limit				
3m Chamber F		3m Chamber F		Filter		EIRP				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
<b>Low Channel (704MHz)</b>										
1.41	-69.5	H	3.0	-29.8	34.0	1.0	62.8	-13.0	49.8	
2.11	-69.6	H	3.0	-26.0	33.7	1.0	-58.6	-13.0	-45.6	
2.82	-69.5	H	3.0	-23.5	34.5	1.0	-57.0	-13.0	-44.0	
1.41	-67.3	V	3.0	-24.8	34.0	1.0	-57.8	-13.0	-44.8	
2.11	-69.0	V	3.0	-25.1	33.7	1.0	-57.8	-13.0	-44.8	
2.82	-69.6	V	3.0	-23.1	34.5	1.0	-56.7	-13.0	-43.7	
<b>Mid Channel (707.5MHz)</b>										
1.42	-70.2	H	3.0	-30.4	34.0	1.0	63.4	-13.0	50.4	
2.12	-71.0	H	3.0	-27.3	33.7	1.0	-60.0	-13.0	-47.0	
2.83	-72.5	H	3.0	-26.4	34.6	1.0	-59.9	-13.0	-46.9	
1.42	-68.7	V	3.0	-26.1	34.0	1.0	-59.2	-13.0	-46.2	
2.12	-69.4	V	3.0	-25.5	33.7	1.0	-58.2	-13.0	-45.2	
2.83	-70.4	V	3.0	-23.9	34.6	1.0	-57.5	-13.0	-44.5	
<b>High Channel (711MHz)</b>										
1.42	-68.5	H	3.0	-28.7	34.0	1.0	61.7	-13.0	48.7	
2.13	-69.8	H	3.0	-26.1	33.7	1.0	-58.8	-13.0	-45.8	
2.84	-70.4	H	3.0	-24.2	34.6	1.0	-57.8	-13.0	-44.8	
1.42	-66.1	V	3.0	-23.6	34.0	1.0	-56.5	-13.0	-43.5	
2.13	-68.6	V	3.0	-24.6	33.7	1.0	-57.3	-13.0	-44.3	
2.84	-71.2	V	3.0	-24.6	34.6	1.0	-58.2	-13.0	-45.2	
Rev. 05.21.15										

## 9.1.6. LTE BAND 13

### QPSK LTE BAND 13 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company:										
Project #:	11792137									
Date:	05/16/17									
Test Engineer:	37290									
Configuration:	EUT Only									
Mode:	LTE Band 13, 10MHz QPSK									
<u>Test Equipment:</u> Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		Filter		Limit				
3m Chamber F		3m Chamber F		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	-68.8	H	3.0	-28.2	33.8	1.0	-61.0	-40.0	-21.0	
2.35	-69.6	H	3.0	-25.7	34.1	1.0	-58.8	-13.0	-45.8	
3.13	-67.2	H	3.0	-19.6	34.8	1.0	-53.3	-13.0	-40.3	
1.56	-62.0	V	3.0	-18.6	33.8	1.0	-51.4	-40.0	-11.4	
2.35	-68.3	V	3.0	-23.8	34.1	1.0	-56.9	-13.0	-43.9	
3.13	-69.2	V	3.0	-21.3	34.8	1.0	-55.1	-13.0	-42.1	
Rev. 05.21.15										

## **16QAM LTE BAND 13 (10.0MHZ BANDWIDTH)**

### 9.1.7. LTE BAND 17

#### QPSK LTE BAND 17 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company:										
Project #:	11792137									
Date:	07/21/17									
Test Engineer:	50822									
Configuration:	EUT Only									
Mode:	LTE Band 17, 10MHz QPSK									
<u>Test Equipment:</u> Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		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	-63.2	H	3.0	-21.5	38.0	1.0	58.5	-13.0	-45.5	
2.127	-63.8	H	3.0	-20.2	38.0	1.0	57.2	-13.0	-44.2	
2.836	-65.5	H	3.0	-18.3	38.4	1.0	55.8	-13.0	-42.8	
1.418	-63.6	V	3.0	-22.6	38.0	1.0	59.7	-13.0	-46.7	
2.127	-63.2	V	3.0	-19.0	38.0	1.0	56.0	-13.0	-43.0	
2.836	-64.9	V	3.0	-17.9	38.4	1.0	55.3	-13.0	-42.3	
Mid Channel (710MHz)										
1.420	-64.1	H	3.0	-22.4	38.0	1.0	59.4	-13.0	-46.4	
2.130	-63.9	H	3.0	-20.2	38.0	1.0	57.2	-13.0	-44.2	
2.840	-64.5	H	3.0	-17.3	38.4	1.0	54.8	-13.0	-41.8	
1.420	-63.6	V	3.0	-22.5	38.0	1.0	59.6	-13.0	-46.6	
2.130	-63.5	V	3.0	-19.3	38.0	1.0	56.3	-13.0	-43.3	
2.840	-64.0	V	3.0	-17.0	38.4	1.0	54.4	-13.0	-41.4	
High Channel (711MHz)										
1.422	-62.7	H	3.0	-21.0	38.0	1.0	58.0	-13.0	-45.0	
2.133	-63.4	H	3.0	-19.8	38.0	1.0	56.8	-13.0	-43.8	
2.844	-63.5	H	3.0	-16.3	38.4	1.0	53.7	-13.0	-40.7	
1.422	-63.5	V	3.0	-22.5	38.0	1.0	59.5	-13.0	-46.5	
2.133	-64.4	V	3.0	-20.2	38.0	1.0	57.2	-13.0	-44.2	
2.844	-64.7	V	3.0	-17.7	38.4	1.0	55.1	-13.0	-42.1	

Rev. 05.21.15

**16QAM LTE BAND 17 (10.0MHZ BANDWIDTH)**

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company:										
Project #:	11792137									
Date:	07/21/17									
Test Engineer:	50822									
Configuration:	EUT Only									
Mode:	LTE Band 17, 10MHz 16QAM									
<u>Test Equipment:</u>										
Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		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
<b>Low Channel (709MHz)</b>										
1.418	-62.8	H	3.0	-21.1	38.0	1.0	58.2	-13.0	45.2	
2.127	-63.6	H	3.0	-20.0	38.0	1.0	-56.9	-13.0	-43.9	
2.836	-64.7	H	3.0	-17.5	38.4	1.0	-55.0	-13.0	-42.0	
1.418	-62.8	V	3.0	-21.8	38.0	1.0	-58.8	-13.0	-45.8	
2.127	-63.6	V	3.0	-19.4	38.0	1.0	-56.4	-13.0	-43.4	
2.836	-64.4	V	3.0	-17.4	38.4	1.0	-54.8	-13.0	-41.8	
<b>Mid Channel (710MHz)</b>										
1.420	-63.4	H	3.0	-21.7	38.0	1.0	58.8	-13.0	45.8	
2.130	-63.7	H	3.0	-20.1	38.0	1.0	-57.1	-13.0	-44.1	
2.840	-64.4	H	3.0	-17.2	38.4	1.0	-54.6	-13.0	-41.6	
1.420	-63.6	V	3.0	-22.6	38.0	1.0	-59.7	-13.0	-46.7	
2.130	-63.1	V	3.0	-19.0	38.0	1.0	-56.0	-13.0	-43.0	
2.840	-64.8	V	3.0	-17.8	38.4	1.0	-55.2	-13.0	-42.2	
<b>High Channel (711MHz)</b>										
1.422	-63.4	H	3.0	-21.7	38.0	1.0	58.7	-13.0	45.7	
2.133	-63.8	H	3.0	-20.2	38.0	1.0	-57.2	-13.0	-44.2	
2.844	-64.9	H	3.0	-17.6	38.4	1.0	-55.0	-13.0	-42.0	
1.422	-63.9	V	3.0	-22.9	38.0	1.0	-59.9	-13.0	-46.9	
2.133	-64.7	V	3.0	-20.5	38.0	1.0	-57.5	-13.0	-44.5	
2.844	-64.5	V	3.0	-17.4	38.4	1.0	-54.9	-13.0	-41.9	

Rev. 05.21.15

### 9.1.8. LTE BAND 25

#### QPSK LTE BAND 25 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company:										
Project #:	11792137	Date:	05/16/17 <th>Test Engineer:</th> <td>37290</td> <th>Configuration:</th> <td>EUT Only</td> <th>Mode:</th> <td data-cs="2" data-kind="parent">LTE Band 25, 20MHz QPSK</td> <td data-kind="ghost"></td>	Test Engineer:	37290	Configuration:	EUT Only	Mode:	LTE Band 25, 20MHz QPSK	
<u>Test Equipment:</u> Substitution: Horn T69 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		Filter		Limit				
3m Chamber F		3m Chamber F	<th>Filter</th> <td><th>EIRP</th><td><th data-cs="3" data-kind="parent"></th><th data-kind="ghost"></th><th data-kind="ghost"></th></td></td>	Filter	<th>EIRP</th> <td><th data-cs="3" data-kind="parent"></th><th data-kind="ghost"></th><th data-kind="ghost"></th></td>	EIRP	<th data-cs="3" data-kind="parent"></th> <th data-kind="ghost"></th> <th data-kind="ghost"></th>			
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
<b>Low Channel (1860MHz)</b>										
3.72	-69.2	H	3.0	-19.4	34.4	1.0	-52.8	-13.0	-39.8	
5.58	-70.9	H	3.0	-17.4	34.1	1.0	-50.5	-13.0	-37.5	
7.44	-73.0	H	3.0	-16.6	33.6	1.0	-49.2	-13.0	-36.2	
3.72	-70.0	V	3.0	-20.1	34.4	1.0	-53.5	-13.0	-40.5	
5.58	-70.0	V	3.0	-16.3	34.1	1.0	-49.5	-13.0	-36.5	
7.44	-72.2	V	3.0	-16.1	33.6	1.0	-48.7	-13.0	-35.7	
<b>Mid Channel (1882.5MHz)</b>										
3.77	-70.7	H	3.0	-20.7	34.4	1.0	-54.1	-13.0	-41.1	
5.65	-70.2	H	3.0	-16.6	34.1	1.0	-49.7	-13.0	-36.7	
7.53	-72.7	H	3.0	-16.2	33.5	1.0	-48.7	-13.0	-35.7	
3.77	-70.5	V	3.0	-20.4	34.4	1.0	-53.8	-13.0	-40.8	
5.65	-70.3	V	3.0	-16.5	34.1	1.0	-49.7	-13.0	-36.7	
7.53	-72.4	V	3.0	-16.1	33.5	1.0	-48.6	-13.0	-35.6	
<b>High Channel (1905MHz)</b>										
3.81	-70.3	H	3.0	-20.1	34.4	1.0	-53.5	-13.0	-40.5	
5.72	-71.0	H	3.0	-17.3	34.1	1.0	-50.4	-13.0	-37.4	
7.62	-72.7	H	3.0	-16.1	33.4	1.0	-48.5	-13.0	-35.5	
3.81	-70.2	V	3.0	-20.0	34.4	1.0	-53.3	-13.0	-40.3	
5.72	-71.4	V	3.0	-17.6	34.1	1.0	-50.7	-13.0	-37.7	
7.62	-72.5	V	3.0	-16.1	33.4	1.0	-48.5	-13.0	-35.5	
Rev. 05.21.15										

**16QAM LTE BAND 25 (20.0MHZ BANDWIDTH)**

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company:										
Project #:	11792137									
Date:	05/16/17									
Test Engineer:	37290									
Configuration:	EUT Only									
Mode:	LTE Band 25, 20MHz 16QAM									
<u>Test Equipment:</u> Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		Filter		Limit				
3m Chamber F		3m Chamber F		Filter		EIRP				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
<b>Low Channel (1860MHz)</b>										
3.72	-67.7	H	3.0	-17.9	34.4	1.0	-51.3	-13.0	-38.3	
5.58	-70.8	H	3.0	-17.3	34.1	1.0	-50.4	-13.0	-37.4	
7.44	-71.3	H	3.0	-14.9	33.6	1.0	-47.5	-13.0	-34.5	
3.72	-69.8	V	3.0	-19.9	34.4	1.0	-53.3	-13.0	-40.3	
5.58	-69.4	V	3.0	-15.7	34.1	1.0	-48.9	-13.0	-35.9	
7.44	-73.0	V	3.0	-16.8	33.6	1.0	-49.4	-13.0	-36.4	
<b>Mid Channel (1882.5MHz)</b>										
3.77	-69.2	H	3.0	-19.2	34.4	1.0	-52.6	-13.0	-39.6	
5.65	-71.1	H	3.0	-17.5	34.1	1.0	-50.6	-13.0	-37.6	
7.53	-72.2	H	3.0	-15.7	33.5	1.0	-48.2	-13.0	-35.2	
3.77	-70.1	V	3.0	-20.0	34.4	1.0	-53.4	-13.0	-40.4	
5.65	-70.8	V	3.0	-17.0	34.1	1.0	-50.1	-13.0	-37.1	
7.53	-72.4	V	3.0	-16.1	33.5	1.0	-48.6	-13.0	-35.6	
<b>High Channel (1905MHz)</b>										
3.81	-70.0	H	3.0	-19.8	34.4	1.0	-53.2	-13.0	-40.2	
5.72	-71.0	H	3.0	-17.3	34.1	1.0	-50.4	-13.0	-37.4	
7.62	-72.9	H	3.0	-16.3	33.4	1.0	-48.7	-13.0	-35.7	
3.81	-70.2	V	3.0	-20.0	34.4	1.0	-53.4	-13.0	-40.4	
5.72	-72.2	V	3.0	-18.4	34.1	1.0	-51.5	-13.0	-38.5	
7.62	-73.0	V	3.0	-16.6	33.4	1.0	-49.0	-13.0	-36.0	

Rev. 05.21.15

### 9.1.9. LTE BAND 26

#### QPSK LTE BAND 26 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
<b>Company:</b> Project #: 11792137 Date: 05/16/17 <b>Test Engineer:</b> 37290 <b>Configuration:</b> EUT Only <b>Mode:</b> LTE Band 26 (90S), 10MHz QPSK										
<b>Test Equipment:</b> Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		Filter		Limit				
3m Chamber F		3m Chamber F		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	-65.9	H	3.0	-24.8	33.7	1.0	-57.5	-13.0	-44.5	
2.46	-69.4	H	3.0	-25.3	34.1	1.0	-58.4	-13.0	-45.4	
3.28	-69.8	H	3.0	-21.6	34.7	1.0	-55.3	-13.0	-42.3	
1.64	-58.6	V	3.0	-15.2	33.7	1.0	-48.0	-13.0	-35.0	
2.46	-69.3	V	3.0	-24.6	34.1	1.0	-57.7	-13.0	-44.7	
3.28	-70.1	V	3.0	-21.7	34.7	1.0	-55.4	-13.0	-42.4	

Rev. 05.21.15

**16QAM LTE BAND 26 (10.0MHZ BANDWIDTH)**

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company: Project #: 11792137 Date: 05/16/17 Test Engineer: 37290 Configuration: EUT Only Mode: LTE Band 26 (90S), 10MHz 16QAM										
Test Equipment: Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		Filter		Limit				
3m Chamber F		3m Chamber F		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	-65.3	H	3.0	-24.2	33.7	1.0	-56.9	-13.0	-43.9	
2.46	-69.1	H	3.0	-25.0	34.1	1.0	-58.2	-13.0	-45.2	
3.28	-70.7	H	3.0	-22.6	34.7	1.0	-56.2	-13.0	-43.2	
1.64	-58.6	V	3.0	-15.2	33.7	1.0	-48.0	-13.0	-35.0	
2.46	-69.2	V	3.0	-24.5	34.1	1.0	-57.6	-13.0	-44.6	
3.28	-70.8	V	3.0	-22.4	34.7	1.0	-56.0	-13.0	-43.0	
Rev. 05.21.15										

### 9.1.10. LTE BAND 30

#### QPSK LTE BAND 30 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company:										
Project #:	11792137									
Date:	05/26/17									
Test Engineer:	10641									
Configuration:	EUT only									
Mode:	LTE Band 30, 10MHz QPSK									
<u>Test Equipment:</u> Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		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	-67.5	H	3.0	-13.7	37.9	1.0	-50.6	-40.0	-10.6	
6.93	-68.3	H	3.0	-9.7	36.5	1.0	-45.1	-40.0	-5.1	
9.24	-70.7	H	3.0	-9.2	34.9	1.0	-43.1	-40.0	-3.1	
4.62	-65.4	V	3.0	-11.7	37.9	1.0	-48.6	-40.0	-8.6	
6.93	-69.5	V	3.0	-10.0	36.5	1.0	-45.4	-40.0	-5.4	
9.24	-70.9	V	3.0	-9.1	34.9	1.0	-43.0	-40.0	-3.0	
Rev. 05.21.15										

**16QAM LTE BAND 30 (10.0MHZ BANDWIDTH)**

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company:										
Project #:	11792137									
Date:	05/26/17									
Test Engineer:	10641									
Configuration:	EUT only									
Mode:	LTE Band 30, 10MHz 16QAM									
<u>Test Equipment:</u> Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		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	-67.3	H	3.0	-13.5	37.9	1.0	-50.4	-40.0	-10.4	
6.93	-68.7	H	3.0	-10.1	36.5	1.0	-45.6	-40.0	-5.6	
9.24	-70.8	H	3.0	-9.2	34.9	1.0	-43.1	-40.0	-3.1	
4.62	-67.4	V	3.0	-13.7	37.9	1.0	-50.6	-40.0	-10.6	
6.93	-68.6	V	3.0	-9.1	36.5	1.0	-44.6	-40.0	-4.6	
9.24	-70.9	V	3.0	-9.1	34.9	1.0	-43.0	-40.0	-3.0	
Rev. 05.21.15										

### 9.1.11. LTE BAND 41

#### QPSK LTE BAND 41 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company:										
Project #:	11792137									
Date:	05/26/17									
Test Engineer:	10641									
Configuration:	EUT Only									
Mode:	LTE Band 41, 20MHz QPSK									
Test Equipment:										
Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		Filter		Limit				
3m Chamber E		3m Chamber E		Filter		LTE B41				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2506MHz)										
5.01	-65.1	H	3.0	-12.2	38.7	1.0	-49.9	-25.0	-24.9	
7.52	-65.9	H	3.0	-8.1	37.7	1.0	-44.8	-25.0	-19.8	
10.02	-67.7	H	3.0	-6.9	36.1	1.0	-42.0	-25.0	-17.0	
5.01	-65.4	V	3.0	-12.7	38.7	1.0	-50.4	-25.0	-25.4	
7.52	-67.2	V	3.0	-9.6	37.7	1.0	-46.4	-25.0	-21.4	
10.02	-66.3	V	3.0	-5.5	36.1	1.0	-40.7	-25.0	-15.7	
Mid Channel (2593MHz)										
5.19	-65.3	H	3.0	-12.1	38.7	1.0	-49.8	-25.0	-24.8	
7.78	-65.3	H	3.0	-7.2	37.6	1.0	-43.8	-25.0	-18.8	
10.37	-65.9	H	3.0	-4.8	36.4	1.0	-40.1	-25.0	-15.1	
5.19	-65.4	V	3.0	-12.5	38.7	1.0	-50.2	-25.0	-25.2	
7.78	-65.9	V	3.0	-8.0	37.6	1.0	-44.5	-25.0	-19.5	
10.37	-66.7	V	3.0	-5.5	36.4	1.0	-40.9	-25.0	-15.9	
High Channel (2680MHz)										
5.36	-66.2	H	3.0	-12.6	38.6	1.0	-50.2	-25.0	-25.2	
8.04	-65.9	H	3.0	-7.5	37.4	1.0	-43.9	-25.0	-18.9	
10.72	-66.5	H	3.0	-5.1	36.6	1.0	-40.7	-25.0	-15.7	
5.36	-66.7	V	3.0	-13.4	38.6	1.0	-51.1	-25.0	-26.1	
8.04	-66.1	V	3.0	-7.8	37.4	1.0	-44.2	-25.0	-19.2	
10.72	-67.3	V	3.0	-5.7	36.6	1.0	-41.3	-25.0	-16.3	
Rev. 05.21.15										

**16QAM LTE BAND 41 (20.0MHZ BANDWIDTH)**

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company:										
Project #:	11792137									
Date:	05/26/17									
Test Engineer:	10641									
Configuration:	EUT Only									
Mode:	LTE Band 41, 20MHz 16QAM									
<u>Test Equipment:</u> Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		Filter		Limit				
3m Chamber E		3m Chamber E		Filter		LTE B41				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
<b>Low Channel (2506MHz)</b>										
5.01	-63.8	H	3.0	-10.9	38.7	1.0	-48.6	-25.0	-23.6	
7.52	-67.0	H	3.0	-9.2	37.7	1.0	-46.0	-25.0	-21.0	
10.02	-67.6	H	3.0	-6.8	36.1	1.0	-41.9	-25.0	-16.9	
5.01	-64.7	V	3.0	-12.1	38.7	1.0	-49.7	-25.0	-24.7	
7.52	-67.1	V	3.0	-9.5	37.7	1.0	-46.2	-25.0	-21.2	
10.02	-66.8	V	3.0	-6.0	36.1	1.0	-41.1	-25.0	-16.1	
<b>Mid Channel (2593MHz)</b>										
5.19	-65.8	H	3.0	-12.5	38.7	1.0	-50.2	-25.0	-25.2	
7.78	-65.6	H	3.0	-7.5	37.6	1.0	-44.0	-25.0	-19.0	
10.37	-66.0	H	3.0	-4.9	36.4	1.0	-40.3	-25.0	-15.3	
5.19	-65.4	V	3.0	-12.4	38.7	1.0	-50.1	-25.0	-25.1	
7.78	-65.9	V	3.0	-7.9	37.6	1.0	-44.5	-25.0	-19.5	
10.37	-65.8	V	3.0	-4.6	36.4	1.0	-40.0	-25.0	-15.0	
<b>High Channel (2680MHz)</b>										
5.36	-66.8	H	3.0	-13.1	38.6	1.0	-50.7	-25.0	-25.7	
8.04	-66.5	H	3.0	-8.0	37.4	1.0	-44.4	-25.0	-19.4	
10.72	-66.7	H	3.0	-5.3	36.6	1.0	-40.8	-25.0	-15.8	
5.36	-66.8	V	3.0	-13.5	38.6	1.0	-51.2	-25.0	-26.2	
8.04	-66.4	V	3.0	-8.1	37.4	1.0	-44.5	-25.0	-19.5	
10.72	-67.9	V	3.0	-6.3	36.6	1.0	-41.9	-25.0	-16.9	

Rev. 05.21.15

## 9.1.12. LTE BAND 66

### QPSK LTE BAND 66 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber																		
Company:																		
Project #:	11792137	Date:	05/26/17 <th>Test Engineer:</th> <td>10641</td> <th>Configuration:</th> <td>EUT Only</td> <th>Mode:</th> <td data-cs="2" data-kind="parent">LTE Band 66, 20MHz QPSK</td> <td data-kind="ghost"></td>	Test Engineer:	10641	Configuration:	EUT Only	Mode:	LTE Band 66, 20MHz QPSK									
<u>Test Equipment:</u> Substitution: Horn T59 Substitution, and 8ft SMA Cable																		
<table border="1"><thead><tr><th>Chamber</th><th>Pre-amplifier</th><th>Filter</th><th>Limit</th></tr></thead><tbody><tr><td>3m Chamber E</td><td>3m Chamber E</td><td>Filter</td><td>EIRP</td></tr></tbody></table>											Chamber	Pre-amplifier	Filter	Limit	3m Chamber E	3m Chamber E	Filter	EIRP
Chamber	Pre-amplifier	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 (1720.0MHz)																		
3.44	-66.4	H	3.0	-17.0	38.5	1.0	-54.6	-13.0	-41.6									
5.16	-65.0	H	3.0	-11.8	38.7	1.0	-49.5	-13.0	-36.5									
6.88	-66.4	H	3.0	-9.4	38.1	1.0	-46.5	-13.0	-33.5									
3.44	-66.3	V	3.0	-17.2	38.5	1.0	-54.7	-13.0	-41.7									
5.16	-64.6	V	3.0	-11.7	38.7	1.0	-49.4	-13.0	-36.4									
6.88	-65.3	V	3.0	-8.7	38.1	1.0	-45.8	-13.0	-32.8									
Mid Channel (1745.0MHz)																		
3.49	-66.9	H	3.0	-17.5	38.5	1.0	-55.0	-13.0	-42.0									
5.23	-65.7	H	3.0	-12.3	38.7	1.0	-50.0	-13.0	-37.0									
6.98	-65.9	H	3.0	-8.8	38.1	1.0	-45.9	-13.0	-32.9									
3.49	-69.6	V	3.0	-20.3	38.5	1.0	-57.8	-13.0	-44.8									
5.23	-66.0	V	3.0	-13.0	38.7	1.0	-50.7	-13.0	-37.7									
6.98	-65.5	V	3.0	-8.6	38.1	1.0	-45.7	-13.0	-32.7									
High Channel (1770.0MHz)																		
3.54	-66.1	H	3.0	-16.6	38.6	1.0	-54.1	-13.0	-41.1									
5.31	-66.3	H	3.0	-12.7	38.6	1.0	-50.4	-13.0	-37.4									
7.08	-65.0	H	3.0	-7.7	38.0	1.0	-44.7	-13.0	-31.7									
3.54	-66.0	V	3.0	-16.6	38.6	1.0	-54.1	-13.0	-41.1									
5.31	-66.2	V	3.0	-13.1	38.6	1.0	-50.7	-13.0	-37.7									
7.08	-65.4	V	3.0	-8.3	38.0	1.0	-45.3	-13.0	-32.3									

Rev. 02.24.17

**16QAM LTE BAND 66 (20.0MHZ BANDWIDTH)**

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company:										
Project #:		11792137								
Date:		05/26/17								
Test Engineer:		10641								
Configuration:		EUT Only								
Mode:		LTE Band 66, 20MHz 16QAM								
<u>Test Equipment:</u>		Substitution: Horn T59 Substitution, and 8ft SMA Cable								
Chamber			Pre-amplifier			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
<b>Low Channel (1720.0MHz)</b>										
3.44	-65.5	H	3.0	-17.0	38.5	1.0	-54.6	-13.0	-41.6	
5.16	-64.4	H	3.0	-11.8	38.7	1.0	-49.5	-13.0	-36.5	
6.88	-66.2	H	3.0	-9.4	38.1	1.0	-46.5	-13.0	-33.5	
3.44	-64.5	V	3.0	-17.2	38.5	1.0	-54.7	-13.0	-41.7	
5.16	-65.0	V	3.0	-11.7	38.7	1.0	-49.4	-13.0	-36.4	
6.88	-66.4	V	3.0	-8.7	38.1	1.0	-45.8	-13.0	-32.8	
<b>Mid Channel (1745.0MHz)</b>										
3.49	-67.7	H	3.0	-17.5	38.5	1.0	-55.0	-13.0	-42.0	
5.23	-65.4	H	3.0	-12.3	38.7	1.0	-50.0	-13.0	-37.0	
6.98	-66.3	H	3.0	-8.8	38.1	1.0	-45.9	-13.0	-32.9	
3.49	-68.6	V	3.0	-20.3	38.5	1.0	-57.8	-13.0	-44.8	
5.23	-65.9	V	3.0	-13.0	38.7	1.0	-50.7	-13.0	-37.7	
6.98	-66.2	V	3.0	-8.6	38.1	1.0	-45.7	-13.0	-32.7	
<b>High Channel (1770.0MHz)</b>										
3.54	-66.1	H	3.0	-16.6	38.6	1.0	-54.1	-13.0	-41.1	
5.31	-67.0	H	3.0	-12.7	38.6	1.0	-50.4	-13.0	-37.4	
7.08	-66.7	H	3.0	-7.7	38.0	1.0	-44.7	-13.0	-31.7	
3.54	-66.0	V	3.0	-16.6	38.6	1.0	-54.1	-13.0	-41.1	
5.31	-66.0	V	3.0	-13.1	38.6	1.0	-50.7	-13.0	-37.7	
7.08	-66.9	V	3.0	-8.3	38.0	1.0	-45.3	-13.0	-32.3	
Rev. 02.24.17										

## 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 #:	11792137									
Date:	05/30/17									
Test Engineer:	10641									
Configuration:	EUT Only									
Mode:	LTE Band 2, 20MHz QPSK									
<u>Test Equipment:</u> Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		Filter		Limit				
3m Chamber E		3m Chamber E		Filter		EIRP				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1860MHz)										
3.72	-64.7	H	3.0	-14.7	38.6	1.0	-52.3	-13.0	-39.3	
5.58	-65.8	H	3.0	-11.7	38.6	1.0	-49.2	-13.0	-36.2	
7.44	-65.9	H	3.0	-8.2	37.8	1.0	-44.9	-13.0	-31.9	
3.72	-64.1	V	3.0	-14.2	38.6	1.0	-51.8	-13.0	-38.8	
5.58	-65.1	V	3.0	-11.3	38.6	1.0	-48.9	-13.0	-35.9	
7.44	-66.3	V	3.0	-8.8	37.8	1.0	-45.6	-13.0	-32.6	
Mid Channel (1880MHz)										
3.76	-64.6	H	3.0	-14.5	38.6	1.0	-52.1	-13.0	-39.1	
5.64	-66.5	H	3.0	-12.3	38.5	1.0	-49.8	-13.0	-36.8	
7.52	-66.8	H	3.0	-8.9	37.7	1.0	-45.7	-13.0	-32.7	
3.76	-64.4	V	3.0	-14.4	38.6	1.0	-52.0	-13.0	-39.0	
5.64	-66.8	V	3.0	-12.8	38.5	1.0	-50.4	-13.0	-37.4	
7.52	-67.0	V	3.0	-9.4	37.7	1.0	-46.1	-13.0	-33.1	
High Channel (1900MHz)										
3.80	-64.7	H	3.0	-14.5	38.6	1.0	-52.1	-13.0	-39.1	
5.70	-66.0	H	3.0	-11.6	38.5	1.0	-49.2	-13.0	-36.2	
7.60	-66.6	H	3.0	-8.7	37.7	1.0	-45.4	-13.0	-32.4	
3.80	-64.7	V	3.0	-14.5	38.6	1.0	-52.1	-13.0	-39.1	
5.70	-66.3	V	3.0	-12.2	38.5	1.0	-49.8	-13.0	-36.8	
7.60	-66.4	V	3.0	-8.7	37.7	1.0	-45.3	-13.0	-32.3	
Rev. 05.21.15										

**16QAM LTE BAND 2 (20.0MHZ BANDWIDTH)**

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company:										
Project #:	11792137									
Date:	05/30/17									
Test Engineer:	10641									
Configuration:	EUT Only									
Mode:	LTE Band 2, 20MHz 16QAM									
<u>Test Equipment:</u> Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		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
<b>Low Channel (1860MHz)</b>										
3.72	-64.2	H	3.0	-14.2	38.6	1.0	-51.8	-13.0	-38.8	
5.58	-65.3	H	3.0	-11.1	38.6	1.0	-48.7	-13.0	-35.7	
7.44	-66.1	H	3.0	-8.4	37.8	1.0	-45.2	-13.0	-32.2	
3.72	-64.5	V	3.0	-14.5	38.6	1.0	-52.1	-13.0	-39.1	
5.58	-66.1	V	3.0	-12.3	38.6	1.0	-49.9	-13.0	-36.9	
7.44	-66.2	V	3.0	-8.7	37.8	1.0	-45.5	-13.0	-32.5	
<b>Mid Channel (1880MHz)</b>										
3.76	-63.9	H	3.0	-13.8	38.6	1.0	-51.5	-13.0	-38.5	
5.64	-65.5	H	3.0	-11.3	38.5	1.0	-48.8	-13.0	-35.8	
7.52	-67.2	H	3.0	-9.4	37.7	1.0	-46.1	-13.0	-33.1	
3.76	-63.7	V	3.0	-13.7	38.6	1.0	-51.3	-13.0	-38.3	
5.64	-66.4	V	3.0	-12.4	38.5	1.0	-50.0	-13.0	-37.0	
7.52	-67.3	V	3.0	-9.7	37.7	1.0	-46.4	-13.0	-33.4	
<b>High Channel (1900MHz)</b>										
3.80	-64.0	H	3.0	-13.8	38.6	1.0	-51.5	-13.0	-38.5	
5.70	-67.2	H	3.0	-12.9	38.5	1.0	-50.4	-13.0	-37.4	
7.60	-66.8	H	3.0	-8.8	37.7	1.0	-45.5	-13.0	-32.5	
3.80	-64.8	V	3.0	-14.6	38.6	1.0	-52.2	-13.0	-39.2	
5.70	-66.6	V	3.0	-12.5	38.5	1.0	-50.0	-13.0	-37.0	
7.60	-67.1	V	3.0	-9.4	37.7	1.0	-46.1	-13.0	-33.1	
Rev. 05.21.15										

## 9.2.2. LTE BAND 4

### QPSK LTE BAND 4 (3.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company:										
Project #:	11792137									
Date:	05/26/17									
Test Engineer:	10641									
Configuration:	EUT Only									
Mode:	LTE Band 4, 3.0MHz QPSK									
<u>Test Equipment:</u>										
Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		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 (1711.5MHz)										
3.44	-66.9	H	3.0	-17.6	38.5	1.0	-55.1	-13.0	-42.1	
5.16	-64.6	H	3.0	-11.4	38.7	1.0	-49.1	-13.0	-36.1	
6.88	-65.6	H	3.0	-8.7	38.1	1.0	-45.8	-13.0	-32.8	
3.44	-67.3	V	3.0	-18.2	38.5	1.0	-55.7	-13.0	-42.7	
5.16	-65.2	V	3.0	-12.3	38.7	1.0	-50.0	-13.0	-37.0	
6.88	-66.1	V	3.0	-9.4	38.1	1.0	-46.5	-13.0	-33.5	
Mid Channel (1732.5MHz)										
3.47	-67.4	H	3.0	-18.0	38.5	1.0	-55.6	-13.0	-42.6	
5.20	-65.5	H	3.0	-12.2	38.7	1.0	-49.9	-13.0	-36.9	
6.93	-66.3	H	3.0	-9.2	38.1	1.0	-46.3	-13.0	-33.3	
3.47	-67.0	V	3.0	-17.8	38.5	1.0	-55.3	-13.0	-42.3	
5.20	-65.8	V	3.0	-12.9	38.7	1.0	-50.6	-13.0	-37.6	
6.93	-65.8	V	3.0	-9.0	38.1	1.0	-46.1	-13.0	-33.1	
High Channel (1753.5MHz)										
3.49	-67.9	H	3.0	-18.4	38.5	1.0	-56.0	-13.0	-43.0	
5.24	-65.4	H	3.0	-12.1	38.7	1.0	-49.8	-13.0	-36.8	
6.98	-67.0	H	3.0	-9.8	38.1	1.0	-46.9	-13.0	-33.9	
3.49	-67.3	V	3.0	-18.0	38.5	1.0	-55.5	-13.0	-42.5	
5.24	-65.8	V	3.0	-12.8	38.7	1.0	-50.4	-13.0	-37.4	
6.98	-65.9	V	3.0	-9.0	38.1	1.0	-46.1	-13.0	-33.1	

Rev. 05.21.15

**16QAM LTE BAND 4 (3.0MHZ BANDWIDTH)**

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company:										
Project #:	11792137									
Date:	05/26/17									
Test Engineer:	10641									
Configuration:	EUT Only									
Mode:	LTE Band 4, 3.0MHz 16QAM									
<u>Test Equipment:</u>										
Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		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 (1711.5MHz)										
3.44	-66.7	H	3.0	-17.4	38.5	1.0	-54.9	-13.0	-41.9	
5.16	-64.8	H	3.0	-11.6	38.7	1.0	-49.3	-13.0	-36.3	
6.88	-66.4	H	3.0	-9.5	38.1	1.0	-46.6	-13.0	-33.6	
3.44	-65.9	V	3.0	-16.8	38.5	1.0	-54.3	-13.0	-41.3	
5.16	-65.6	V	3.0	-12.7	38.7	1.0	-50.4	-13.0	-37.4	
6.88	-65.8	V	3.0	-9.2	38.1	1.0	-46.3	-13.0	-33.3	
Mid Channel (1732.5MHz)										
3.47	-66.1	H	3.0	-16.7	38.5	1.0	-54.3	-13.0	-41.3	
5.20	-65.7	H	3.0	-12.4	38.7	1.0	-50.1	-13.0	-37.1	
6.93	-66.4	H	3.0	-9.4	38.1	1.0	-46.5	-13.0	-33.5	
3.47	-66.4	V	3.0	-17.2	38.5	1.0	-54.7	-13.0	-41.7	
5.20	-65.6	V	3.0	-12.6	38.7	1.0	-50.3	-13.0	-37.3	
6.93	-66.3	V	3.0	-9.5	38.1	1.0	-46.6	-13.0	-33.6	
High Channel (1753.5MHz)										
3.49	-66.1	H	3.0	-16.7	38.5	1.0	-54.2	-13.0	-41.2	
5.24	-64.1	H	3.0	-10.8	38.7	1.0	-48.5	-13.0	-35.5	
6.98	-65.6	H	3.0	-8.4	38.1	1.0	-45.5	-13.0	-32.5	
3.49	-68.3	V	3.0	-19.1	38.5	1.0	-56.6	-13.0	-43.6	
5.24	-66.8	V	3.0	-13.8	38.7	1.0	-51.4	-13.0	-38.4	
6.98	-66.4	V	3.0	-9.5	38.1	1.0	-46.6	-13.0	-33.6	

Rev. 05.21.15

### 9.2.3. LTE BAND 5

#### QPSK LTE BAND 5 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company:										
Project #:	11792137									
Date:	05/30/17									
Test Engineer:	10641									
Configuration:	EUT Only									
Mode:	LTE Band 5, 10MHz QPSK									
Test Equipment:										
Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		Filter		Limit				
3m Chamber E		3m Chamber E		Filter		EIRP				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (829MHz)										
1.66	67.0	H	3.0	24.5	37.8	1.0	-61.4	-13.0	-48.4	
2.49	-65.6	H	3.0	20.5	38.5	1.0	-58.0	-13.0	-45.0	
3.32	-67.8	H	3.0	-18.8	38.5	1.0	-56.3	-13.0	-43.3	
1.66	67.3	V	3.0	25.1	37.8	1.0	-61.9	-13.0	-48.9	
2.49	-65.0	V	3.0	19.7	38.5	1.0	-57.2	-13.0	-44.2	
3.32	-67.4	V	3.0	-18.6	38.5	1.0	-56.1	-13.0	-43.1	
Mid Channel (836.5MHz)										
1.67	-66.4	H	3.0	23.9	37.8	1.0	-60.7	-13.0	-47.7	
2.51	-65.9	H	3.0	20.7	38.6	1.0	-58.3	-13.0	-45.3	
3.35	-67.9	H	3.0	-18.8	38.5	1.0	-56.3	-13.0	-43.3	
1.67	-67.5	V	3.0	-25.3	37.8	1.0	-62.1	-13.0	-49.1	
2.51	-66.0	V	3.0	-20.6	38.6	1.0	-58.2	-13.0	-45.2	
3.35	-68.2	V	3.0	-19.4	38.5	1.0	-56.9	-13.0	-43.9	
High Channel (844MHz)										
1.69	-66.7	H	3.0	24.1	37.9	1.0	-61.0	-13.0	-48.0	
2.53	-66.3	H	3.0	20.9	38.6	1.0	-58.5	-13.0	-45.5	
3.38	-67.1	H	3.0	-18.0	38.5	1.0	-55.5	-13.0	-42.5	
1.69	-67.1	V	3.0	-24.8	37.9	1.0	-61.6	-13.0	-48.6	
2.53	-66.6	V	3.0	-21.1	38.6	1.0	-58.7	-13.0	-45.7	
3.38	-66.6	V	3.0	-17.7	38.5	1.0	-55.2	-13.0	-42.2	
Rev. 05.21.15										

**16QAM LTE BAND 5 (10.0MHZ BANDWIDTH)**

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company:										
Project #:	11792137									
Date:	05/30/17									
Test Engineer:	10641									
Configuration:	EUT Only									
Mode:	LTE Band 5, 10MHz 16QAM									
<u>Test Equipment:</u> Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		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
<u>Low Channel (829MHz)</u>										
1.66	-67.6	H	3.0	-26.1	37.8	1.0	-63.0	-13.0	-50.0	
2.49	-65.5	H	3.0	-22.4	38.5	1.0	-59.9	-13.0	-46.9	
3.32	-66.4	H	3.0	-20.4	38.5	1.0	-57.9	-13.0	-44.9	
1.66	-67.9	V	3.0	-26.1	37.8	1.0	-62.9	-13.0	-49.9	
2.49	-66.0	V	3.0	-21.9	38.5	1.0	-59.4	-13.0	-46.4	
3.32	-67.5	V	3.0	-21.5	38.5	1.0	-59.0	-13.0	-46.0	
<u>Mid Channel (836.5MHz)</u>										
1.67	-65.4	H	3.0	-24.0	37.8	1.0	-60.8	-13.0	-47.8	
2.51	-65.8	H	3.0	-22.6	38.6	1.0	-60.2	-13.0	-47.2	
3.35	-66.7	H	3.0	-20.7	38.5	1.0	-58.2	-13.0	-45.2	
1.67	-66.0	V	3.0	-24.2	37.8	1.0	-61.0	-13.0	-48.0	
2.51	-65.6	V	3.0	-21.3	38.6	1.0	-58.9	-13.0	-45.9	
3.35	-68.1	V	3.0	-22.0	38.5	1.0	-59.5	-13.0	-46.5	
<u>High Channel (844MHz)</u>										
1.69	-66.2	H	3.0	-24.7	37.9	1.0	-61.5	-13.0	-48.5	
2.53	-65.2	H	3.0	-21.9	38.6	1.0	-59.5	-13.0	-46.5	
3.38	-67.6	H	3.0	-21.5	38.5	1.0	-59.0	-13.0	-46.0	
1.69	-67.5	V	3.0	-25.8	37.9	1.0	-62.6	-13.0	-49.6	
2.53	-64.9	V	3.0	-20.6	38.6	1.0	-58.2	-13.0	-45.2	
3.38	-67.8	V	3.0	-21.6	38.5	1.0	-59.1	-13.0	-46.1	
Rev. 05.21.15										

## 9.2.4. LTE BAND 7

### QPSK LTE BAND 7 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company:										
Project #:	11792137									
Date:	05/30/17									
Test Engineer:	50822									
Configuration:	EUT Only									
Mode:	LTE Band 7, 20MHz QPSK									
Test Equipment:										
Substitution: Horn T69 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		Filter		Limit				
3m Chamber E		3m Chamber E		Filter		LTE B7				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2510MHz)										
5.02	-64.7	H	3.0	-11.8	38.7	1.0	-49.5	-25.0	-24.5	
7.53	-66.4	H	3.0	-8.6	37.7	1.0	-45.4	-25.0	-20.4	
10.04	-66.8	H	3.0	-6.0	36.2	1.0	-41.2	-25.0	-16.2	
5.02	-64.5	V	3.0	-11.8	38.7	1.0	-49.5	-25.0	-24.5	
7.53	-66.2	V	3.0	-8.6	37.7	1.0	-45.3	-25.0	-20.3	
10.04	-66.0	V	3.0	-5.2	36.2	1.0	-40.3	-25.0	-15.3	
Mid Channel (2535MHz)										
5.07	-61.8	H	3.0	-8.8	38.7	1.0	-46.5	-25.0	-21.5	
7.61	-66.6	H	3.0	-8.7	37.7	1.0	-45.4	-25.0	-20.4	
10.14	-66.2	H	3.0	-5.2	36.2	1.0	-40.5	-25.0	-15.5	
5.07	-64.4	V	3.0	-11.7	38.7	1.0	-49.3	-25.0	-24.3	
7.61	-66.4	V	3.0	-8.7	37.7	1.0	-45.4	-25.0	-20.4	
10.14	-66.2	V	3.0	-5.2	36.2	1.0	-40.5	-25.0	-15.5	
High Channel (2560MHz)										
5.12	-62.1	H	3.0	-9.0	38.7	1.0	-46.7	-25.0	-21.7	
7.68	-65.5	H	3.0	-7.5	37.6	1.0	-44.1	-25.0	-19.1	
10.24	-67.3	H	3.0	-6.3	36.3	1.0	-41.6	-25.0	-16.6	
5.12	-63.2	V	3.0	-10.4	38.7	1.0	-48.1	-25.0	-23.1	
7.68	-66.4	V	3.0	-8.6	37.6	1.0	-45.2	-25.0	-20.2	
10.24	-67.0	V	3.0	-6.0	36.3	1.0	-41.3	-25.0	-16.3	
Rev. 05.21.15										

**16QAM LTE BAND 7 (20.0MHZ BANDWIDTH)**

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company:										
Project #:	11792137									
Date:	05/30/17									
Test Engineer:	10641									
Configuration:	EUT Only									
Mode:	LTE Band 7, 20MHz 16QAM									
<u>Test Equipment:</u> Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		Filter		Limit				
3m Chamber E		3m Chamber E		Filter		LTE B7				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
<b>Low Channel (2510MHz)</b>										
5.02	-65.0	H	3.0	-12.1	38.7	1.0	-49.7	-25.0	-24.7	
7.53	-66.8	H	3.0	-9.0	37.7	1.0	-45.7	-25.0	-20.7	
10.04	-67.3	H	3.0	-6.4	36.2	1.0	-41.6	-25.0	-16.6	
5.02	-64.5	V	3.0	-11.8	38.7	1.0	-49.5	-25.0	-24.5	
7.53	-66.9	V	3.0	-9.3	37.7	1.0	-46.0	-25.0	-21.0	
10.04	-67.6	V	3.0	-6.8	36.2	1.0	-41.9	-25.0	-16.9	
<b>Mid Channel (2535MHz)</b>										
5.07	-64.5	-65.4	3.0	-11.8	38.7	1.0	-49.5	-25.0	-24.5	
7.61	-66.5	-66.6	3.0	-8.8	37.7	1.0	-45.5	-25.0	-20.5	
10.14	-67.2	H	3.0	-6.3	36.2	1.0	-41.5	-25.0	-16.5	
5.07	-65.4	V	3.0	-12.7	38.7	1.0	-50.4	-25.0	-25.4	
7.61	-67.3	V	3.0	-9.6	37.7	1.0	-46.3	-25.0	-21.3	
10.14	-67.6	V	3.0	-6.7	36.2	1.0	-41.9	-25.0	-16.9	
<b>High Channel (2560MHz)</b>										
5.12	-66.0	H	3.0	-12.9	38.7	1.0	-50.6	-25.0	-25.6	
7.68	-67.2	H	3.0	-9.2	37.6	1.0	-45.9	-25.0	-20.9	
10.24	-67.7	H	3.0	-6.7	36.3	1.0	-42.0	-25.0	-17.0	
5.12	-65.2	V	3.0	-12.4	38.7	1.0	-50.1	-25.0	-25.1	
7.68	-66.4	V	3.0	-8.6	37.6	1.0	-45.2	-25.0	-20.2	
10.24	-67.7	V	3.0	-6.7	36.3	1.0	-42.0	-25.0	-17.0	
Rev. 05.21.15										

## 9.2.5. LTE BAND 12

### QPSK LTE BAND 12 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company:										
Project #:	11792137									
Date:	05/30/17									
Test Engineer:	10641									
Configuration:	EUT Only									
Mode:	LTE Band 12, 10MHz QPSK									
<u>Test Equipment:</u> Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		Filter		Limit				
3m Chamber E		3m Chamber E		Filter		EIRP				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (704MHz)										
1.41	-66.7	H	3.0	-25.1	38.1	1.0	62.2	-13.0	-49.2	
2.11	-67.7	H	3.0	-24.1	38.0	1.0	61.1	-13.0	-48.1	
2.82	-68.1	H	3.0	-21.0	38.4	1.0	58.4	-13.0	-45.4	
1.41	-66.3	V	3.0	-25.3	38.1	1.0	62.4	-13.0	-49.4	
2.11	-66.6	V	3.0	-22.4	38.0	1.0	59.4	-13.0	-46.4	
2.82	-66.9	V	3.0	-20.1	38.4	1.0	57.5	-13.0	-44.5	
Mid Channel (707.5MHz)										
1.42	-67.2	H	3.0	-25.5	38.0	1.0	62.6	-13.0	-49.6	
2.12	-66.8	H	3.0	-23.1	38.0	1.0	60.1	-13.0	-47.1	
2.83	-67.3	H	3.0	-20.1	38.4	1.0	57.5	-13.0	-44.5	
1.42	-67.0	V	3.0	-26.0	38.0	1.0	63.0	-13.0	-50.0	
2.12	-66.7	V	3.0	-22.5	38.0	1.0	59.5	-13.0	-46.5	
2.83	-67.8	V	3.0	-20.9	38.4	1.0	58.3	-13.0	-45.3	
High Channel (711MHz)										
1.42	-66.8	H	3.0	-25.0	38.0	1.0	62.1	-13.0	-49.1	
2.13	-65.6	H	3.0	-22.0	38.0	1.0	59.0	-13.0	-46.0	
2.84	-67.7	H	3.0	-20.4	38.4	1.0	57.8	-13.0	-44.8	
1.42	-66.3	V	3.0	-25.3	38.0	1.0	62.3	-13.0	-49.3	
2.13	-67.3	V	3.0	-23.1	38.0	1.0	60.1	-13.0	-47.1	
2.84	-67.6	V	3.0	-20.6	38.4	1.0	58.0	-13.0	-45.0	

Rev. 05.21.15

**16QAM LTE BAND 12 (10.0MHZ BANDWIDTH)**

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company:										
Project #:	11792137									
Date:	05/30/17									
Test Engineer:	10641									
Configuration:	EUT Only									
Mode:	LTE Band 12, 10MHz 16QAM									
<u>Test Equipment:</u> Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		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
<b>Low Channel (704MHz)</b>										
1.41	-66.4	H	3.0	-24.8	38.1	1.0	-61.8	-13.0	48.8	
2.11	-67.1	H	3.0	-23.5	38.0	1.0	-60.5	-13.0	47.5	
2.82	-67.4	H	3.0	-20.3	38.4	1.0	-57.7	-13.0	44.7	
1.41	-66.7	V	3.0	-25.8	38.1	1.0	-62.8	-13.0	49.8	
2.11	-67.0	V	3.0	-22.8	38.0	1.0	-59.8	-13.0	46.8	
2.82	-67.5	V	3.0	-20.6	38.4	1.0	-58.0	-13.0	45.0	
<b>Mid Channel (707.5MHz)</b>										
1.42	-64.8	H	3.0	-23.1	38.0	1.0	-60.1	-13.0	47.1	
2.12	-66.2	H	3.0	-22.6	38.0	1.0	-59.6	-13.0	46.6	
2.83	-66.6	H	3.0	-19.4	38.4	1.0	-56.9	-13.0	43.9	
1.42	-65.4	V	3.0	-24.4	38.0	1.0	-61.5	-13.0	48.5	
2.12	-65.8	V	3.0	-21.7	38.0	1.0	-58.7	-13.0	45.7	
2.83	-66.5	V	3.0	-19.5	38.4	1.0	-56.9	-13.0	43.9	
<b>High Channel (711MHz)</b>										
1.42	-65.7	H	3.0	-24.0	38.0	1.0	-61.0	-13.0	48.0	
2.13	-66.6	H	3.0	-22.9	38.0	1.0	-59.9	-13.0	46.9	
2.84	-67.2	H	3.0	-19.9	38.4	1.0	-57.3	-13.0	44.3	
1.42	-65.4	V	3.0	-24.4	38.0	1.0	-61.5	-13.0	48.5	
2.13	-66.0	V	3.0	-21.8	38.0	1.0	-58.8	-13.0	45.8	
2.84	-66.2	V	3.0	-19.1	38.4	1.0	-56.6	-13.0	43.6	
Rev. 05.21.15										

## 9.2.6. LTE BAND 13

## QPSK LTE BAND 13 (10.0MHZ BANDWIDTH)

## 16QAM LTE BAND 13 (10.0MHZ BANDWIDTH)

## 9.2.7. LTE BAND 17

### QPSK LTE BAND 17 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company:										
Project #:	11792137									
Date:	07/21/17									
Test Engineer:	50822									
Configuration:	EUT Only									
Mode:	LTE Band 17, 10MHz QPSK									
<u>Test Equipment:</u> Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		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	-62.5	H	3.0	-20.8	38.0	1.0	57.9	-13.0	-44.9	
2.127	-61.8	H	3.0	-18.2	38.0	1.0	55.2	-13.0	-42.2	
2.836	-64.5	H	3.0	-17.3	38.4	1.0	54.7	-13.0	-41.7	
1.418	-63.3	V	3.0	-22.3	38.0	1.0	59.4	-13.0	-46.4	
2.127	-62.8	V	3.0	-18.7	38.0	1.0	55.6	-13.0	-42.6	
2.836	-64.5	V	3.0	-17.5	38.4	1.0	54.9	-13.0	-41.9	
Mid Channel (710MHz)										
1.420	-63.1	H	3.0	-21.4	38.0	1.0	58.4	-13.0	-45.4	
2.130	-63.7	H	3.0	-20.1	38.0	1.0	57.1	-13.0	-44.1	
2.840	-64.6	H	3.0	-17.4	38.4	1.0	54.8	-13.0	-41.8	
1.420	-63.1	V	3.0	-22.1	38.0	1.0	59.1	-13.0	-46.1	
2.130	-63.9	V	3.0	-19.7	38.0	1.0	56.7	-13.0	-43.7	
2.840	-64.6	V	3.0	-17.6	38.4	1.0	55.0	-13.0	-42.0	
High Channel (711MHz)										
1.422	-63.8	H	3.0	-22.1	38.0	1.0	59.1	-13.0	-46.1	
2.133	-62.8	H	3.0	-19.2	38.0	1.0	56.2	-13.0	-43.2	
2.844	-64.5	H	3.0	-17.3	38.4	1.0	54.7	-13.0	-41.7	
1.422	-63.4	V	3.0	-22.4	38.0	1.0	59.4	-13.0	-46.4	
2.133	-64.6	V	3.0	-20.5	38.0	1.0	57.4	-13.0	-44.4	
2.844	-64.4	V	3.0	-17.4	38.4	1.0	54.8	-13.0	-41.8	

Rev. 05.21.15

**16QAM LTE BAND 17 (10.0MHZ BANDWIDTH)**

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
<b>Company:</b> Project #: 11792137 Date: 07/21/17 Test Engineer: 50822 Configuration: EUT Only Mode: LTE Band 17, 10MHz 16QAM										
<b>Test Equipment:</b> Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		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
<b>Low Channel (709MHz)</b>										
1.418	-62.7	H	3.0	-21.0	38.0	1.0	58.0	-13.0	45.0	
2.127	-63.9	H	3.0	-20.2	38.0	1.0	-57.2	-13.0	44.2	
2.836	-64.5	H	3.0	-17.3	38.4	1.0	-54.8	-13.0	41.8	
1.418	-63.2	V	3.0	-22.2	38.0	1.0	-59.3	-13.0	46.3	
2.127	-63.7	V	3.0	-19.5	38.0	1.0	-56.5	-13.0	43.5	
2.836	-63.7	V	3.0	-16.7	38.4	1.0	-54.1	-13.0	41.1	
<b>Mid Channel (710MHz)</b>										
1.420	-63.5	H	3.0	-21.8	38.0	1.0	58.8	-13.0	45.8	
2.130	-64.3	H	3.0	-20.6	38.0	1.0	-57.6	-13.0	44.6	
2.840	-65.4	H	3.0	-18.2	38.4	1.0	-55.6	-13.0	42.6	
1.420	-63.0	V	3.0	-22.0	38.0	1.0	-59.1	-13.0	46.1	
2.130	-63.8	V	3.0	-19.7	38.0	1.0	-56.7	-13.0	43.7	
2.840	-65.5	V	3.0	-18.4	38.4	1.0	-55.9	-13.0	42.9	
<b>High Channel (711MHz)</b>										
1.422	-64.5	H	3.0	-22.8	38.0	1.0	59.8	-13.0	46.8	
2.133	-64.0	H	3.0	-20.4	38.0	1.0	-57.4	-13.0	44.4	
2.844	-65.2	H	3.0	-17.9	38.4	1.0	-55.4	-13.0	42.4	
1.422	-42.9	V	3.0	-1.9	38.0	1.0	-38.9	-13.0	25.9	
2.133	-64.1	V	3.0	-20.0	38.0	1.0	-57.0	-13.0	44.0	
2.844	-64.7	V	3.0	-17.7	38.4	1.0	-55.1	-13.0	42.1	

Rev. 05.21.15

## 9.2.8. LTE BAND 25

### QPSK LTE BAND 25 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company:										
Project #:	11792137									
Date:	05/31/17									
Test Engineer:	39004									
Configuration:	EUT Only									
Mode:	LTE Band 25, 20MHz QPSK									
Test Equipment:										
Substitution: Horn T69 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		Filter		Limit				
3m Chamber E		3m Chamber E		Filter		EIRP				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1860MHz)										
3.72	-67.2	H	3.0	-17.2	38.6	1.0	-54.8	-13.0	-41.8	
5.58	-68.9	H	3.0	-14.8	38.6	1.0	-52.3	-13.0	-39.3	
7.44	-70.0	H	3.0	-12.3	37.8	1.0	-49.1	-13.0	-36.1	
3.72	-67.1	V	3.0	-17.2	38.6	1.0	-54.8	-13.0	-41.8	
5.58	-68.2	V	3.0	-14.4	38.6	1.0	-52.0	-13.0	-39.0	
7.44	-69.2	V	3.0	-11.7	37.8	1.0	-48.5	-13.0	-35.5	
Mid Channel (1882.5MHz)										
3.77	-67.3	H	3.0	-17.2	38.6	1.0	-54.8	-13.0	-41.8	
5.65	-68.2	H	3.0	-13.9	38.5	1.0	-51.5	-13.0	-38.5	
7.53	-69.7	H	3.0	-11.9	37.7	1.0	-48.6	-13.0	-35.6	
3.77	-66.9	V	3.0	-16.8	38.6	1.0	-54.5	-13.0	-41.5	
5.65	-68.3	V	3.0	-14.4	38.5	1.0	-51.9	-13.0	-38.9	
7.53	-69.1	V	3.0	-11.5	37.7	1.0	-48.2	-13.0	-35.2	
High Channel (1905MHz)										
3.81	-66.6	H	3.0	-16.4	38.6	1.0	-54.0	-13.0	-41.0	
5.72	-68.2	H	3.0	-13.8	38.5	1.0	-51.3	-13.0	-38.3	
7.62	-69.2	H	3.0	-11.2	37.7	1.0	-47.9	-13.0	-34.9	
3.81	-66.8	V	3.0	-16.6	38.6	1.0	-54.2	-13.0	-41.2	
5.72	-68.4	V	3.0	-14.3	38.5	1.0	-51.8	-13.0	-38.8	
7.62	-68.9	V	3.0	-11.2	37.7	1.0	-47.9	-13.0	-34.9	

Rev. 05.21.15

**16QAM LTE BAND 25 (20.0MHZ BANDWIDTH)**

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company:										
Project #:	11792137									
Date:	05/31/17									
Test Engineer:	39004									
Configuration:	EUT Only									
Mode:	LTE Band 25, 20MHz 16QAM									
Test Equipment:										
Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		Filter		Limit				
3m Chamber E		3m Chamber E		Filter		EIRP				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1860MHz)										
3.72	-66.5	H	3.0	-16.5	38.6	1.0	-54.1	-13.0	-41.1	
5.58	-67.9	H	3.0	-13.7	38.6	1.0	-51.3	-13.0	-38.3	
7.44	-68.8	H	3.0	-11.1	37.8	1.0	-47.9	-13.0	-34.9	
3.72	-66.4	V	3.0	-16.4	38.6	1.0	-54.0	-13.0	-41.0	
5.58	-68.8	V	3.0	-15.0	38.6	1.0	-52.6	-13.0	-39.6	
7.44	-68.9	V	3.0	-11.4	37.8	1.0	-48.2	-13.0	-35.2	
Mid Channel (1882.5MHz)										
3.77	-66.7	H	3.0	-16.5	38.6	1.0	-54.2	-13.0	-41.2	
5.65	-68.2	H	3.0	-14.0	38.5	1.0	-51.5	-13.0	-38.5	
7.53	-68.5	H	3.0	-10.6	37.7	1.0	-47.4	-13.0	-34.4	
3.77	-66.3	V	3.0	-16.3	38.6	1.0	-53.9	-13.0	-40.9	
5.65	-68.2	V	3.0	-14.3	38.5	1.0	-51.8	-13.0	-38.8	
7.53	-68.8	V	3.0	-11.1	37.7	1.0	-47.9	-13.0	-34.9	
High Channel (1905MHz)										
3.81	-66.7	H	3.0	-16.4	38.6	1.0	-54.1	-13.0	-41.1	
5.72	-67.8	H	3.0	-13.4	38.5	1.0	-50.9	-13.0	-37.9	
7.62	-68.8	H	3.0	-10.9	37.7	1.0	-47.6	-13.0	-34.6	
3.81	-66.8	V	3.0	-16.5	38.6	1.0	-54.2	-13.0	-41.2	
5.72	-68.1	V	3.0	-14.0	38.5	1.0	-51.5	-13.0	-38.5	
7.62	-68.9	V	3.0	-11.2	37.7	1.0	-47.9	-13.0	-34.9	

Rev. 05.21.15

## 9.2.9. LTE BAND 26

### QPSK LTE BAND 26 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company:										
Project #:	11792137									
Date:	05/30/17									
Test Engineer:	10641									
Configuration:	EUT Only									
Mode:	LTE Band 26 (90S), 10MHz QPSK									
Test Equipment:										
Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		Filter		Limit				
3m Chamber E		3m Chamber E		Filter		EIRP				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Mid Channel (819MHz)										
1.64	-65.1	H	3.0	-22.7	37.8	1.0	-59.5	-13.0	-46.5	
2.46	-64.8	H	3.0	-19.9	38.4	1.0	-57.3	-13.0	-44.3	
3.28	-65.7	H	3.0	-16.8	38.5	1.0	-54.3	-13.0	-41.3	
1.64	-64.9	V	3.0	-22.8	37.8	1.0	-59.6	-13.0	-46.6	
2.46	-65.2	V	3.0	-20.1	38.4	1.0	-57.5	-13.0	-44.5	
3.28	-64.5	V	3.0	-15.9	38.5	1.0	-53.3	-13.0	-40.3	

Rev. 05.21.15

**16QAM LTE BAND 26 (10.0MHZ BANDWIDTH)**

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company: Project #: 11792137 Date: 05/30/17 Test Engineer: 10641 Configuration: EUT Only Mode: LTE Band 26 (90S), 10MHz 16QAM										
Test Equipment: Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		Filter		Limit				
3m Chamber E		3m Chamber E		Filter		EIRP				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Mid Channel (819MHz)										
1.64	-65.9	H	3.0	-23.5	37.8	1.0	-60.3	-13.0	-47.3	
2.46	-64.8	H	3.0	-19.9	38.4	1.0	-57.3	-13.0	-44.3	
3.28	-66.5	H	3.0	-17.6	38.5	1.0	-55.0	-13.0	-42.0	
1.64	-65.1	V	3.0	-23.0	37.8	1.0	-59.8	-13.0	-46.8	
2.46	-64.2	V	3.0	-19.1	38.4	1.0	-56.5	-13.0	-43.5	
3.28	-66.2	V	3.0	-17.6	38.5	1.0	-55.1	-13.0	-42.1	
Rev. 05.21.15										

## 9.2.10. LTE BAND 30

### QPSK LTE BAND 30 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company:										
Project #:	11792137									
Date:	05/30/17									
Test Engineer:	50822									
Configuration:	EUT only									
Mode:	LTE Band 30, 10MHz QPSK									
<u>Test Equipment:</u> Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		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	-66.3	H	3.0	-12.6	37.9	1.0	-49.5	-40.0	-9.5	
6.93	-68.6	H	3.0	-10.0	36.5	1.0	-45.5	-40.0	-5.5	
9.24	-70.5	H	3.0	-9.0	34.9	1.0	-42.8	-40.0	-2.8	
4.62	-66.2	V	3.0	-12.5	37.9	1.0	-49.4	-40.0	-9.4	
6.93	-67.9	V	3.0	-8.4	36.5	1.0	-43.9	-40.0	-3.9	
9.24	-70.5	V	3.0	-8.7	34.9	1.0	-42.6	-40.0	-2.6	
Rev. 05.21.15										

**16QAM LTE BAND 30 (10.0MHZ BANDWIDTH)**

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company:										
Project #:	11792137									
Date:	05/30/17									
Test Engineer:	50822									
Configuration:	EUT Only									
Mode:	LTE Band 30, 10MHz 16QAM									
<u>Test Equipment:</u> Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		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	-67.3	H	3.0	-13.5	37.9	1.0	-50.4	-40.0	-10.4	
6.93	-69.0	H	3.0	-10.4	36.5	1.0	-45.8	-40.0	-5.8	
9.24	-70.5	H	3.0	-8.9	34.9	1.0	-42.8	-40.0	-2.8	
4.62	-67.3	V	3.0	-13.6	37.9	1.0	-50.5	-40.0	-10.5	
6.93	-68.9	V	3.0	-9.4	36.5	1.0	-44.9	-40.0	-4.9	
9.24	-70.8	V	3.0	-9.0	34.9	1.0	-42.9	-40.0	-2.9	
Rev. 05.21.15										

## 9.2.11. LTE BAND 41

### QPSK LTE BAND 41 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company:										
Project #:	11792137									
Date:	05/30/17									
Test Engineer:	50822									
Configuration:	EUT Only									
Mode:	LTE Band 41, 20MHz QPSK									
<u>Test Equipment:</u> Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		Filter		Limit				
3m Chamber E		3m Chamber E		Filter		LTE B41				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2506MHz)										
5.01	-64.1	H	3.0	-11.2	38.7	1.0	-48.9	-25.0	-23.9	
7.52	-66.6	H	3.0	-8.8	37.7	1.0	-45.5	-25.0	-20.5	
10.02	-67.7	H	3.0	-6.9	36.1	1.0	-42.0	-25.0	-17.0	
5.01	-62.7	V	3.0	-10.1	38.7	1.0	-47.8	-25.0	-22.8	
7.52	-66.7	V	3.0	-9.1	37.7	1.0	-45.9	-25.0	-20.9	
10.02	-67.4	V	3.0	-6.6	36.1	1.0	-41.8	-25.0	-16.8	
Mid Channel (2593MHz)										
5.19	-63.8	H	3.0	-10.6	38.7	1.0	-48.2	-25.0	-23.2	
7.78	-66.1	H	3.0	-7.9	37.6	1.0	-44.5	-25.0	-19.5	
10.37	-67.6	H	3.0	-6.5	36.4	1.0	-41.9	-25.0	-16.9	
5.19	-63.9	V	3.0	-11.0	38.7	1.0	-48.7	-25.0	-23.7	
7.78	-66.7	V	3.0	-8.7	37.6	1.0	-45.3	-25.0	-20.3	
10.37	-67.1	V	3.0	-5.9	36.4	1.0	-41.3	-25.0	-16.3	
High Channel (2680MHz)										
5.36	-63.6	H	3.0	-10.0	38.6	1.0	-47.6	-25.0	-22.6	
8.04	-66.1	H	3.0	-7.7	37.4	1.0	-44.1	-25.0	-19.1	
10.72	-67.6	H	3.0	-6.2	36.6	1.0	-41.8	-25.0	-16.8	
5.36	-62.7	V	3.0	-9.4	38.6	1.0	-47.0	-25.0	-22.0	
8.04	-66.4	V	3.0	-8.1	37.4	1.0	-44.5	-25.0	-19.5	
10.72	-67.4	V	3.0	-5.8	36.6	1.0	-41.4	-25.0	-16.4	

Rev. 05.21.15

**16QAM LTE BAND 41 (20.0MHZ BANDWIDTH)**

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company:										
Project #:	11792137									
Date:	05/30/17									
Test Engineer:	50822									
Configuration:	EUT Only									
Mode:	LTE Band 41, 20MHz 16QAM									
<u>Test Equipment:</u> Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		Filter		Limit				
3m Chamber E		3m Chamber E		Filter		LTE B41				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
<b>Low Channel (2506MHz)</b>										
5.01	-64.5	H	3.0	-11.6	38.7	1.0	-49.3	-25.0	-24.3	
7.52	-67.1	H	3.0	-9.3	37.7	1.0	-46.1	-25.0	-21.1	
10.02	-67.2	H	3.0	-6.3	36.1	1.0	-41.5	-25.0	-16.5	
5.01	-63.5	V	3.0	-10.9	38.7	1.0	-48.6	-25.0	-23.6	
7.52	-65.7	V	3.0	-8.1	37.7	1.0	-44.8	-25.0	-19.8	
10.02	-67.3	V	3.0	-6.6	36.1	1.0	-41.7	-25.0	-16.7	
<b>Mid Channel (2593MHz)</b>										
5.19	-63.8	H	3.0	-10.5	38.7	1.0	-48.2	-25.0	-23.2	
7.78	-65.7	H	3.0	-7.6	37.6	1.0	-44.2	-25.0	-19.2	
10.37	-66.1	H	3.0	-5.0	36.4	1.0	-40.4	-25.0	-15.4	
5.19	-64.3	V	3.0	-11.4	38.7	1.0	-49.1	-25.0	-24.1	
7.78	-66.6	V	3.0	-8.7	37.6	1.0	-45.2	-25.0	-20.2	
10.37	-68.1	V	3.0	-6.9	36.4	1.0	-42.3	-25.0	-17.3	
<b>High Channel (2680MHz)</b>										
5.36	-63.8	H	3.0	-10.2	38.6	1.0	-47.8	-25.0	-22.8	
8.04	-66.5	H	3.0	-8.0	37.4	1.0	-44.4	-25.0	-19.4	
10.72	-66.9	H	3.0	-5.5	36.6	1.0	-41.1	-25.0	-16.1	
5.36	-63.9	V	3.0	-10.6	38.6	1.0	-48.3	-25.0	-23.3	
8.04	-66.2	V	3.0	-7.9	37.4	1.0	-44.3	-25.0	-19.3	
10.72	-67.3	V	3.0	-5.7	36.6	1.0	-41.3	-25.0	-16.3	

Rev. 05.21.15

## 9.2.12. LTE BAND 66

### QPSK LTE BAND 66 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company:										
Project #:	11792137									
Date:	05/31/17									
Test Engineer:	39004									
Configuration:	EUT Only									
Mode:	LTE Band 66, 20MHz QPSK									
<u>Test Equipment:</u> Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		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 (1720.0MHz)										
3.44	-64.5	H	3.0	-15.2	38.5	1.0	-52.7	-13.0	-39.7	
5.16	-65.4	H	3.0	-12.2	38.7	1.0	-49.9	-13.0	-36.9	
6.88	-66.2	H	3.0	-9.3	38.1	1.0	-46.4	-13.0	-33.4	
3.44	-64.4	V	3.0	-15.3	38.5	1.0	-52.9	-13.0	-39.9	
5.16	-65.2	V	3.0	-12.3	38.7	1.0	-50.0	-13.0	-37.0	
6.88	-66.5	V	3.0	-9.8	38.1	1.0	-47.0	-13.0	-34.0	
Mid Channel (1745.0MHz)										
3.49	-65.4	H	3.0	-16.0	38.5	1.0	-53.5	-13.0	-40.5	
5.23	-65.7	H	3.0	-12.4	38.7	1.0	-50.1	-13.0	-37.1	
6.98	-66.6	H	3.0	-9.4	38.1	1.0	-46.5	-13.0	-33.5	
3.49	-65.6	V	3.0	-16.4	38.5	1.0	-53.9	-13.0	-40.9	
5.23	-66.0	V	3.0	-12.9	38.7	1.0	-50.6	-13.0	-37.6	
6.98	-66.3	V	3.0	-9.4	38.1	1.0	-46.5	-13.0	-33.5	
High Channel (1770.0MHz)										
3.54	-65.1	H	3.0	-15.5	38.6	1.0	-53.1	-13.0	-40.1	
5.31	-66.5	H	3.0	-12.9	38.6	1.0	-50.6	-13.0	-37.6	
7.08	-66.9	H	3.0	-9.6	38.0	1.0	-46.6	-13.0	-33.6	
3.54	-65.8	V	3.0	-16.4	38.6	1.0	-53.9	-13.0	-40.9	
5.31	-66.7	V	3.0	-13.5	38.6	1.0	-51.1	-13.0	-38.1	
7.08	-66.9	V	3.0	-9.8	38.0	1.0	-46.9	-13.0	-33.9	
Rev. 02.24.17										

**16QAM LTE BAND 66 (20.0MHZ BANDWIDTH)**

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company:										
Project #:	11792137									
Date:	05/31/17									
Test Engineer:	39004									
Configuration:	EUT Only									
Mode:	LTE Band 66, 20MHz 16QAM									
<u>Test Equipment:</u> Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		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
<b>Low Channel (1720.0MHz)</b>										
3.44	-65.3	H	3.0	-16.0	38.5	1.0	-53.6	-13.0	-40.6	
5.16	-66.0	H	3.0	-12.8	38.7	1.0	-50.4	-13.0	-37.4	
6.88	-66.6	H	3.0	-9.6	38.1	1.0	-46.8	-13.0	-33.8	
3.44	-65.3	V	3.0	-16.2	38.5	1.0	-53.7	-13.0	-40.7	
5.16	-65.9	V	3.0	-13.0	38.7	1.0	-50.7	-13.0	-37.7	
6.88	-66.3	V	3.0	-9.7	38.1	1.0	-46.8	-13.0	-33.8	
<b>Mid Channel (1745.0MHz)</b>										
3.49	-65.9	H	3.0	-16.5	38.5	1.0	-54.0	-13.0	-41.0	
5.23	-65.8	H	3.0	-12.5	38.7	1.0	-50.1	-13.0	-37.1	
6.98	-66.9	H	3.0	-9.8	38.1	1.0	-46.9	-13.0	-33.9	
3.49	-65.6	V	3.0	-16.3	38.5	1.0	-53.8	-13.0	-40.8	
5.23	-66.2	V	3.0	-13.2	38.7	1.0	-50.9	-13.0	-37.9	
6.98	-66.5	V	3.0	-9.6	38.1	1.0	-46.7	-13.0	-33.7	
<b>High Channel (1770.0MHz)</b>										
3.54	-65.2	H	3.0	-15.7	38.6	1.0	-53.2	-13.0	-40.2	
5.31	-66.3	H	3.0	-12.7	38.6	1.0	-50.4	-13.0	-37.4	
7.08	-67.0	H	3.0	-9.7	38.0	1.0	-46.7	-13.0	-33.7	
3.54	-66.0	V	3.0	-16.6	38.6	1.0	-54.1	-13.0	-41.1	
5.31	-66.3	V	3.0	-13.2	38.6	1.0	-50.8	-13.0	-37.8	
7.08	-66.4	V	3.0	-9.3	38.0	1.0	-46.3	-13.0	-33.3	
Rev. 02.24.17										