

**LTE Band 26-Part 90**

BW (MHz)	Mode	RB/RB Size	f(MHz)	ERP	
				dBm	mW
1.4	QPSK	1/0	814.7	16.24	42.07
	16QAM	1/0	814.7	15.32	34.04
3	QPSK	1/0	815.5	16.14	41.11
	16QAM	1/0	815.5	15.09	32.28
5	QPSK	1/0	816.5	16.40	43.65
	16QAM	1/0	816.5	15.72	37.33
10	QPSK	1/0	819	16.37	43.35
	16QAM	1/0	819	15.30	33.88

**LTE Band 26-Part 22**

BW (MHz)	Mode	RB/RB Size	f(MHz)	ERP	
				dBm	mW
1.4	QPSK	1/0	824.7	16.86	48.53
		1/0	831.5	17.10	51.29
		1/0	848.3	16.33	42.95
	16QAM	1/0	824.7	15.84	38.37
		1/0	831.5	16.30	42.66
		1/0	848.3	15.32	34.04
3	QPSK	1/0	825.5	16.79	47.75
		1/0	831.5	17.03	50.47
		1/0	847.5	16.58	45.50
	16QAM	1/0	825.5	15.83	38.28
		1/0	831.5	16.19	41.59
		1/0	847.5	15.83	38.28
5	QPSK	1/0	826.5	16.84	48.31
		1/0	831.5	17.25	53.09
		1/0	846.5	16.61	45.81
	16QAM	1/0	826.5	15.98	39.63
		1/0	831.5	16.41	43.75
		1/0	846.5	15.86	38.55
10	QPSK	1/0	829	16.82	48.08
		1/0	831.5	17.13	51.64
		1/0	844	16.59	45.60
	16QAM	1/0	829	16.10	40.74
		1/0	831.5	16.32	42.85
		1/0	844	15.77	37.76
15	QPSK	1/0	831.5	17.26	53.21
		1/0	836.5	17.51	56.36
		1/0	841.5	17.09	51.17
	16QAM	1/0	831.5	16.28	42.46
		1/0	836.5	16.66	46.34
		1/0	841.5	16.28	42.46

**Fundamental Substitution Measurement (Fc < 1GHz)**  
 UL LLC, Chamber N

Company: SOMC  
 Project #: 16J23633  
 Date: 07/18/2016  
 Test Engineer: Mark Nolting  
 Configuration: Standalone (LTE Sample #1)  
 Mode: LTE 26, 1.4MHz, QPSK

**Test Equipment:**  
 Substitution: Dipole antenna AT0016, cable CBL055, and signal-source T374

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Part 90									
814.70	22.76	V	5.1	0.7	-1.45	16.24	50.0	-33.8	
814.70	13.00	H	5.1	0.7	-1.45	6.48	50.0	-43.5	
Part 22									
824.70	23.42	V	5.1	0.7	-1.45	16.86	38.5	-21.6	
824.70	14.10	H	5.1	0.7	-1.45	7.94	38.5	-30.9	
Mid Ch									
831.50	23.70	V	5.1	0.7	-1.45	17.10	38.5	-21.3	
831.50	14.33	H	5.1	0.7	-1.45	7.73	38.5	-30.7	
High Ch									
848.30	22.97	V	5.2	0.7	-1.45	16.33	38.5	-22.1	
848.30	15.10	H	5.2	0.7	-1.45	8.46	38.5	-30.0	

Rev: 11 02 2015  
 Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

LTE B26 1.4MHz QPSK

**Fundamental Substitution Measurement (Fc < 1GHz)**  
 UL LLC, Chamber N

Company: SOMC  
 Project #: 16J23633  
 Date: 07/18/2016  
 Test Engineer: Mark Nolting  
 Configuration: Standalone (LTE Sample #1)  
 Mode: LTE 26, 1.4MHz, 16QAM

**Test Equipment:**  
 Substitution: Dipole antenna AT0016, cable CBL055, and signal-source T374

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Part 90									
814.70	21.84	V	5.1	0.7	-1.45	15.32	50.0	-34.7	
814.70	12.17	H	5.1	0.7	-1.45	5.65	50.0	-44.4	
Part 22									
824.70	22.40	V	5.1	0.7	-1.45	15.84	38.5	-22.6	
824.70	13.23	H	5.1	0.7	-1.45	6.67	38.5	-31.8	
Mid Ch									
831.50	22.90	V	5.1	0.7	-1.45	16.30	38.5	-22.1	
831.50	13.37	H	5.1	0.7	-1.45	6.77	38.5	-31.7	
High Ch									
848.30	21.96	V	5.2	0.7	-1.45	15.32	38.5	-23.1	
848.30	14.19	H	5.2	0.7	-1.45	7.55	38.5	-30.9	

Rev: 11 02 2015  
 Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

LTE B26 1.4MHz 16QAM

**Fundamental Substitution Measurement (Fc < 1GHz)**  
 UL LLC, Chamber N

Company: SOMC  
 Project #: 16J23633  
 Date: 07/18/2016  
 Test Engineer: Mark Nolting  
 Configuration: Standalone (LTE Sample #1)  
 Mode: LTE 26, 3MHz, QPSK

**Test Equipment:**  
 Substitution: Dipole antenna AT0016, cable CBL055, and signal-source T374

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Part 90									
815.50	22.67	V	5.1	0.7	-1.45	16.14	50.0	-33.9	
815.50	13.32	H	5.1	0.7	-1.45	6.79	50.0	-43.2	
Part 22									
825.50	23.36	V	5.1	0.7	-1.45	16.79	38.5	-21.7	
825.50	14.22	H	5.1	0.7	-1.45	7.65	38.5	-30.8	
Mid Ch									
831.50	23.63	V	5.1	0.7	-1.45	17.03	38.5	-21.4	
831.50	14.44	H	5.1	0.7	-1.45	7.84	38.5	-30.5	
High Ch									
847.50	23.22	V	5.2	0.7	-1.45	16.58	38.5	-21.9	
847.50	15.15	H	5.2	0.7	-1.45	8.51	38.5	-29.9	

Rev: 11 02 2015  
 Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

LTE B26 3MHz QPSK

**Fundamental Substitution Measurement (Fc < 1GHz)**  
 UL LLC, Chamber N

Company: SOMC  
 Project #: 16J23633  
 Date: 07/18/2016  
 Test Engineer: Mark Nolting  
 Configuration: Standalone (LTE Sample #1)  
 Mode: LTE 26, 3MHz, 16QAM

**Test Equipment:**  
 Substitution: Dipole antenna AT0016, cable CBL055, and signal-source T374

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Part 90									
815.50	21.62	V	5.1	0.7	-1.45	15.09	50.0	-34.9	
815.50	12.45	H	5.1	0.7	-1.45	5.92	50.0	-44.1	
Part 22									
825.50	22.40	V	5.1	0.7	-1.45	15.83	38.5	-22.6	
825.50	13.96	H	5.1	0.7	-1.45	6.99	38.5	-31.5	
Mid Ch									
831.50	22.79	V	5.1	0.7	-1.45	16.19	38.5	-22.3	
831.50	13.37	H	5.1	0.7	-1.45	6.77	38.5	-31.7	
High Ch									
847.50	22.47	V	5.2	0.7	-1.45	15.83	38.5	-22.6	
847.50	14.07	H	5.2	0.7	-1.45	7.43	38.5	-31.0	

Rev: 11 02 2015  
 Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

LTE B26 3MHz 16QAM

**Fundamental Substitution Measurement (Fc < 1GHz)**  
 UL LLC, Chamber N

Company: SOMC  
 Project #: 16J23633  
 Date: 07/18/2016  
 Test Engineer: Mark Nolting  
 Configuration: Standalone (LTE Sample #1)  
 Mode: LTE 26, 5MHz, QPSK

**Test Equipment:**  
 Substitution: Dipole antenna AT0016, cable CBL055, and signal-source T374

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Part 90									
816.50	22.93	V	5.1	0.7	-1.45	16.40	50.0	-33.6	
816.50	13.39	H	5.1	0.7	-1.45	6.86	50.0	-43.1	
Part 22									
826.50	23.41	V	5.1	0.7	-1.45	16.84	38.5	-21.6	
826.50	14.41	H	5.1	0.7	-1.45	7.84	38.5	-30.6	
Mid Ch									
831.50	23.85	V	5.1	0.7	-1.45	17.25	38.5	-21.2	
831.50	14.54	H	5.1	0.7	-1.45	7.94	38.5	-30.5	
High Ch									
846.50	23.24	V	5.2	0.7	-1.45	16.61	38.5	-21.8	
846.50	15.11	H	5.2	0.7	-1.45	8.48	38.5	-30.0	

Rev: 11 02 2015  
 Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

LTE B26 5MHz QPSK

**Fundamental Substitution Measurement (Fc < 1GHz)**  
 UL LLC, Chamber N

Company: SOMC  
 Project #: 16J23633  
 Date: 07/18/2016  
 Test Engineer: Mark Nolting  
 Configuration: Standalone (LTE Sample #1)  
 Mode: LTE 26, 5MHz, 16QAM

**Test Equipment:**  
 Substitution: Dipole antenna AT0016, cable CBL055, and signal-source T374

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Part 90									
816.50	22.25	V	5.1	0.7	-1.45	15.72	50.0	-34.3	
816.50	12.65	H	5.1	0.7	-1.45	6.12	50.0	-43.9	
Part 22									
826.50	22.55	V	5.1	0.7	-1.45	15.98	38.5	-22.5	
826.50	13.96	H	5.1	0.7	-1.45	6.99	38.5	-31.5	
Mid Ch									
831.50	23.01	V	5.1	0.7	-1.45	16.41	38.5	-22.0	
831.50	13.96	H	5.1	0.7	-1.45	6.96	38.5	-31.5	
High Ch									
846.50	22.49	V	5.2	0.7	-1.45	15.86	38.5	-22.6	
846.50	14.26	H	5.2	0.7	-1.45	7.63	38.5	-30.8	

Rev: 11 02 2015  
 Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

LTE B26 5MHz 16QAM

**Fundamental Substitution Measurement (Fc < 1GHz)**  
 UL LLC, Chamber N

Company: SOMC  
 Project #: 16J23633  
 Date: 07/18/2016  
 Test Engineer: Mark Nolting  
 Configuration: Standalone (LTE Sample #1)  
 Mode: LTE 26, 10MHz, QPSK

**Test Equipment:**  
 Substitution: Dipole antenna AT0016, cable CBL055, and signal-source T374

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Part 90									
819.00	22.91	V	5.1	0.7	-1.45	16.37	50.0	-33.6	
819.00	13.35	H	5.1	0.7	-1.45	6.81	50.0	-43.2	
Part 22									
829.00	23.40	V	5.1	0.7	-1.45	16.82	38.5	-21.6	
829.00	14.20	H	5.1	0.7	-1.45	7.62	38.5	-30.8	
Mid Ch									
831.50	23.73	V	5.1	0.7	-1.45	17.13	38.5	-21.3	
831.50	14.33	H	5.1	0.7	-1.45	7.73	38.5	-30.7	
High Ch									
844.00	23.22	V	5.2	0.7	-1.45	16.59	38.5	-21.9	
844.00	14.72	H	5.2	0.7	-1.45	8.09	38.5	-30.4	

Rev: 11.02.2015  
 Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

LTE B26 10MHz QPSK

**Fundamental Substitution Measurement (Fc < 1GHz)**  
 UL LLC, Chamber N

Company: SOMC  
 Project #: 16J23633  
 Date: 07/18/2016  
 Test Engineer: Mark Nolting  
 Configuration: Standalone (LTE Sample #1)  
 Mode: LTE 26, 10MHz, 16QAM

**Test Equipment:**  
 Substitution: Dipole antenna AT0016, cable CBL055, and signal-source T374

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Part 90									
819.00	21.84	V	5.1	0.7	-1.45	15.30	50.0	-34.7	
819.00	12.54	H	5.1	0.7	-1.45	6.00	50.0	-44.0	
Part 22									
829.00	22.68	V	5.1	0.7	-1.45	16.10	38.5	-22.4	
829.00	13.43	H	5.1	0.7	-1.45	6.85	38.5	-31.6	
Mid Ch									
831.50	22.92	V	5.1	0.7	-1.45	16.32	38.5	-22.1	
831.50	13.42	H	5.1	0.7	-1.45	6.82	38.5	-31.6	
High Ch									
844.00	22.40	V	5.2	0.7	-1.45	15.77	38.5	-22.7	
844.00	13.75	H	5.2	0.7	-1.45	7.12	38.5	-31.3	

Rev: 11.02.2015  
 Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

LTE B26 10MHz 16QAM

**Fundamental Substitution Measurement (Fc < 1GHz)**  
 UL LLC, Chamber N

Company: SOMC  
 Project #: 16J23633  
 Date: 07/18/2016  
 Test Engineer: Mark Nolting  
 Configuration: Standalone (LTE Sample #1)  
 Mode: LTE 26, 15MHz, QPSK

**Test Equipment:**  
 Substitution: Dipole antenna AT0016, cable CBL055, and signal-source T374

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low									
831.50	23.86	V	5.1	0.7	-1.45	17.26	38.5	-21.2	
831.50	14.55	H	5.1	0.7	-1.45	7.95	38.5	-30.5	
Mid Ch									
836.50	24.13	V	5.2	0.7	-1.45	17.51	38.5	-20.9	
836.50	14.64	H	5.2	0.7	-1.45	8.02	38.5	-30.4	
High Ch									
841.50	23.72	V	5.2	0.7	-1.45	17.09	38.5	-21.4	
841.50	14.78	H	5.2	0.7	-1.45	8.15	38.5	-30.3	

Rev: 11.02.2015  
 Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

LTE B26 15MHz QPSK

**Fundamental Substitution Measurement (Fc < 1GHz)**  
 UL LLC, Chamber N

Company: SOMC  
 Project #: 16J23633  
 Date: 07/18/2016  
 Test Engineer: Mark Nolting  
 Configuration: Standalone (LTE Sample #1)  
 Mode: LTE 26, 15MHz, 16QAM

**Test Equipment:**  
 Substitution: Dipole antenna AT0016, cable CBL055, and signal-source T374

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low									
831.50	22.88	V	5.1	0.7	-1.45	16.28	38.5	-22.2	
831.50	13.77	H	5.1	0.7	-1.45	7.17	38.5	-31.3	
Mid Ch									
836.50	23.28	V	5.2	0.7	-1.45	16.66	38.5	-21.8	
836.50	13.69	H	5.2	0.7	-1.45	7.07	38.5	-31.4	
High Ch									
841.50	22.91	V	5.2	0.7	-1.45	16.28	38.5	-22.2	
841.50	14.11	H	5.2	0.7	-1.45	7.48	38.5	-31.0	

Rev: 11.02.2015  
 Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

LTE B26 15MHz 16QAM

**LTE Band 41**

BW (MHz)	Mode	RB/RB Size	f(MHz)	EIRP (PEAK)	
				dBm	mW
5	QPSK	1/0	2498.5	25.31	339.63
		1/0	2593	26.67	464.52
		1/0	2687.5	23.42	219.79
	16QAM	1/0	2498.5	25.37	344.35
		1/0	2593	26.65	462.81
		1/0	2687.5	23.44	220.80
10	QPSK	1/0	2501	25.25	334.97
		1/0	2593	26.44	440.55
		1/0	2685	23.12	205.12
	16QAM	1/0	2501	25.23	333.43
		1/0	2593	26.44	440.55
		1/0	2685	23.33	215.28
15	QPSK	1/0	2503.5	25.03	318.42
		1/0	2593	26.63	460.26
		1/0	2682.5	23.46	221.82
	16QAM	1/0	2503.5	25.12	325.09
		1/0	2593	26.58	454.99
		1/0	2682.5	23.64	231.21
20	QPSK	1/0	2506	25.37	344.35
		1/0	2593	26.55	451.86
		1/0	2680	23.35	216.27
	16QAM	1/0	2506	25.44	349.95
		1/0	2593	26.53	449.78
		1/0	2680	23.53	225.42

**Fundamental Substitution Measurement (Fc > 1GHz)**  
 UL LLC, Chamber N

Company: SOMC  
 Project #: 16J23633  
 Date: 07/20/2016  
 Test Engineer: Mark Nolting  
 Configuration: Standalone (LTE sample #2)  
 Mode: LTE 41, 5M, QPSK

**Test Equipment:**  
 Substitution: Horn antenna AT0078, cable CBL055, and signal-source T374

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2498.50	29.37	V	9.6	5.5	25.31	33.0	-7.7	Pk
2498.50	27.48	H	9.6	5.5	23.42	33.0	-9.6	Pk
Mid Ch								
2593.00	30.70	V	9.8	5.8	26.67	33.0	-6.3	Pk
2593.00	28.53	H	9.8	5.8	24.50	33.0	-8.5	Pk
High Ch								
2687.50	27.38	V	10.0	6.0	23.42	33.0	-9.6	Pk
2687.50	24.23	H	10.0	6.0	20.27	33.0	-12.7	Pk

Rev. 11.02.2015  
 Note: For Band 4 EIRP limit is 30dBm

LTE B41 5MHz QPSK

**Fundamental Substitution Measurement (Fc > 1GHz)**  
 UL LLC, Chamber N

Company: SOMC  
 Project #: 16J23633  
 Date: 07/20/2016  
 Test Engineer: Mark Nolting  
 Configuration: Standalone (LTE sample #2)  
 Mode: LTE 41, 5M, 16QAM

**Test Equipment:**  
 Substitution: Horn antenna AT0078, cable CBL055, and signal-source T374

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2498.50	29.43	V	9.6	5.5	25.37	33.0	-7.6	Pk
2498.50	27.53	H	9.6	5.5	23.47	33.0	-9.5	Pk
Mid Ch								
2593.00	30.69	V	9.8	5.8	26.65	33.0	-6.3	Pk
2593.00	28.59	H	9.8	5.8	24.56	33.0	-8.4	Pk
High Ch								
2687.50	27.41	V	10.0	6.0	23.44	33.0	-9.6	Pk
2687.50	24.29	H	10.0	6.0	20.33	33.0	-12.7	Pk

Rev. 11.02.2015  
 Note: For Band 4 EIRP limit is 30dBm

LTE B41 5MHz 16QAM

**Fundamental Substitution Measurement (Fc > 1GHz)**  
 UL LLC, Chamber N

Company: SOMC  
 Project #: 16J23633  
 Date: 07/20/2016  
 Test Engineer: Mark Nolting  
 Configuration: Standalone (LTE sample #2)  
 Mode: LTE 41, 10M, QPSK

**Test Equipment:**  
 Substitution: Horn antenna AT0078, cable CBL055, and signal-source T374

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2501.00	29.31	V	9.6	5.5	25.25	33.0	-7.7	Pk
2501.00	27.79	H	9.6	5.5	23.73	33.0	-9.3	Pk
Mid Ch								
2593.00	30.47	V	9.8	5.8	26.44	33.0	-6.6	Pk
2593.00	28.71	H	9.8	5.8	24.67	33.0	-8.3	Pk
High Ch								
2685.00	27.09	V	10.0	6.0	23.12	33.0	-9.9	Pk
2685.00	24.41	H	10.0	6.0	20.45	33.0	-12.6	Pk

Rev. 11.02.2015  
 Note: For Band 4 EIRP limit is 30dBm

LTE B41 10MHz QPSK

**Fundamental Substitution Measurement (Fc > 1GHz)**  
 UL LLC, Chamber N

Company: SOMC  
 Project #: 16J23633  
 Date: 07/20/2016  
 Test Engineer: Mark Nolting  
 Configuration: Standalone (LTE sample #2)  
 Mode: LTE 41, 10M, 16QAM

**Test Equipment:**  
 Substitution: Horn antenna AT0078, cable CBL055, and signal-source T374

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2501.00	29.29	V	9.6	5.5	25.23	33.0	-7.8	Pk
2501.00	27.76	H	9.6	5.5	23.70	33.0	-9.3	Pk
Mid Ch								
2593.00	30.47	V	9.8	5.8	26.44	33.0	-6.6	Pk
2593.00	28.76	H	9.8	5.8	24.73	33.0	-8.3	Pk
High Ch								
2685.00	27.29	V	10.0	6.0	23.33	33.0	-9.7	Pk
2685.00	24.58	H	10.0	6.0	20.61	33.0	-12.4	Pk

Rev. 11.02.2015  
 Note: For Band 4 EIRP limit is 30dBm

LTE B41 10MHz 16QAM

**Fundamental Substitution Measurement (Fc > 1GHz)**  
 UL LLC, Chamber N

Company: SOMC  
 Project #: 16J23633  
 Date: 07/20/2016  
 Test Engineer: Mark Nolting  
 Configuration: Standalone (LTE sample #2)  
 Mode: LTE 41, 15M, QPSK

**Test Equipment:**  
 Substitution: Horn antenna AT0078, cable CBL055, and signal-source T374

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2503.50	29.09	V	9.6	5.5	25.03	33.0	-8.0	Pk
2503.50	27.75	H	9.6	5.5	23.69	33.0	-9.3	Pk
Mid Ch								
2593.00	30.66	V	9.8	5.8	26.63	33.0	-6.4	Pk
2593.00	29.07	H	9.8	5.8	25.04	33.0	-8.0	Pk
High Ch								
2682.50	27.42	V	10.0	6.0	23.46	33.0	-9.5	Pk
2682.50	24.79	H	10.0	6.0	20.83	33.0	-12.2	Pk

Rev. 11.02.2015  
 Note: For Band 4 EIRP limit is 30dBm

LTE B41 15MHz QPSK

**Fundamental Substitution Measurement (Fc > 1GHz)**  
 UL LLC, Chamber N

Company: SOMC  
 Project #: 16J23633  
 Date: 07/20/2016  
 Test Engineer: Mark Nolting  
 Configuration: Standalone (LTE sample #2)  
 Mode: LTE 41, 15M, 16QAM

**Test Equipment:**  
 Substitution: Horn antenna AT0078, cable CBL055, and signal-source T374

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2503.50	29.18	V	9.6	5.5	25.12	33.0	-7.9	Pk
2503.50	27.77	H	9.6	5.5	23.71	33.0	-9.3	Pk
Mid Ch								
2593.00	30.62	V	9.8	5.8	26.58	33.0	-6.4	Pk
2593.00	29.02	H	9.8	5.8	24.99	33.0	-8.0	Pk
High Ch								
2682.50	27.60	V	10.0	6.0	23.64	33.0	-9.4	Pk
2682.50	24.96	H	10.0	6.0	21.00	33.0	-12.0	Pk

Rev. 11.02.2015  
 Note: For Band 4 EIRP limit is 30dBm

LTE B41 15MHz 16QAM

**Fundamental Substitution Measurement (Fc > 1GHz)**  
 UL LLC, Chamber N

Company: SOMC  
 Project #: 16J23633  
 Date: 07/20/2016  
 Test Engineer: Mark Nolting  
 Configuration: Standalone (LTE sample #2)  
 Mode: LTE 41, 20M, QPSK

**Test Equipment:**  
 Substitution: Horn antenna AT0078, cable CBL055, and signal-source T374

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2506.00	29.43	V	9.6	5.5	25.37	33.0	-7.6	Pk
2506.00	28.08	H	9.6	5.5	24.02	33.0	-9.0	Pk
Mid Ch								
2593.00	30.58	V	9.8	5.8	26.55	33.0	-6.5	Pk
2593.00	29.29	H	9.8	5.8	25.26	33.0	-7.7	Pk
High Ch								
2680.00	27.32	V	10.0	6.0	23.35	33.0	-9.6	Pk
2680.00	24.85	H	10.0	6.0	20.89	33.0	-12.1	Pk

Rev. 11.02.2015  
 Note: For Band 4 EIRP limit is 30dBm

**LTE B41 20MHz QPSK**

**Fundamental Substitution Measurement (Fc > 1GHz)**  
 UL LLC, Chamber N

Company: SOMC  
 Project #: 16J23633  
 Date: 07/20/2016  
 Test Engineer: Mark Nolting  
 Configuration: Standalone (LTE sample #2)  
 Mode: LTE 41, 20M, 16QAM

**Test Equipment:**  
 Substitution: Horn antenna AT0078, cable CBL055, and signal-source T374

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2506.00	29.50	V	9.6	5.5	25.44	33.0	-7.6	Pk
2506.00	28.16	H	9.6	5.5	24.10	33.0	-8.9	Pk
Mid Ch								
2593.00	30.57	V	9.8	5.8	26.53	33.0	-6.5	Pk
2593.00	29.28	H	9.8	5.8	25.25	33.0	-7.7	Pk
High Ch								
2680.00	27.49	V	10.0	6.0	23.53	33.0	-9.5	Pk
2680.00	24.92	H	10.0	6.0	20.95	33.0	-12.0	Pk

Rev. 11.02.2015  
 Note: For Band 4 EIRP limit is 30dBm

**LTE B41 20MHz 16QAM**

## 14.2. FIELD STRENGTH OF SPURIOUS RADIATION

### RULE PART(S)

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

### LIMIT

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log (P)$  dB.

Part 27: (m)(4) (4) For mobile digital stations, the attenuation factor shall be not less than  $40 + 10 \log (P)$  dB on all frequencies between the Channel edge and 5 megahertz from the Channel edge,  $43 + 10 \log (P)$  dB on all frequencies between 5 megahertz and X megahertz from the Channel edge, and  $55 + 10 \log (P)$  dB on all frequencies more than X megahertz from the Channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than  $43 + 10 \log (P)$  dB on all frequencies between 2490.5 MHz and 2496 MHz and  $55 + 10 \log (P)$  dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on Channel BRS Channel 1 on the same terms and conditions as adjacent Channel BRS or EBS licensees.

### TEST PROCEDURE

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

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



### 14.2.1. SPURIOUS RADIATION PLOTS

#### GSM

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

Company: SOMC  
 Project #: 16J23633  
 Date: 08/04/2016  
 Test Engineer: Brian Kiewra / John Manser  
 Configuration: Unit with ear-buds and charger (GSMUMTS #3)  
 Mode: GPRS 850MHz

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
<b>Low Channel (824.2MHz)</b>										
1.65	62.0	H	3.0	18.6	39.9	1.0	-57.4	-13.0	44.4	
2.47	63.6	H	3.0	17.0	39.3	1.0	-63.3	-13.0	42.3	
3.30	64.7	H	3.0	15.4	39.5	1.0	-53.9	-13.0	48.9	
		H								
		H								
1.65	62.4	V	3.0	17.4	39.9	1.0	-66.3	-13.0	43.3	
2.47	63.6	V	3.0	16.0	39.3	1.0	-63.3	-13.0	41.3	
3.30	64.3	V	3.0	14.1	39.5	1.0	-52.6	-13.0	39.6	
		V								
		V								
<b>Mid Channel (836.5MHz)</b>										
1.67	62.0	H	3.0	18.5	39.9	1.0	-57.4	-13.0	44.4	
2.51	63.8	H	3.0	17.0	39.2	1.0	-65.3	-13.0	42.3	
3.35	64.7	H	3.0	14.7	39.5	1.0	-53.2	-13.0	49.2	
		H								
		H								
1.67	61.3	V	3.0	16.1	39.9	1.0	-59.0	-13.0	42.0	
2.51	61.1	V	3.0	13.9	39.2	1.0	-50.2	-13.0	38.2	
3.35	64.4	V	3.0	14.0	39.5	1.0	-50.4	-13.0	39.6	
		V								
		V								
<b>High Channel (848.5MHz)</b>										
1.70	63.1	H	3.0	19.4	40.0	1.0	-58.3	-13.0	45.3	
2.55	62.2	H	3.0	15.3	39.2	1.0	-50.2	-13.0	40.5	
3.40	64.1	H	3.0	14.7	39.5	1.0	-53.2	-13.0	49.2	
		H								
		H								
1.70	61.8	V	3.0	16.5	40.0	1.0	-55.4	-13.0	42.4	
2.55	66.8	V	3.0	12.8	39.2	1.0	-51.0	-13.0	38.0	
3.40	64.9	V	3.0	13.6	39.5	1.0	-50.1	-13.0	39.1	
		V								
		V								

Rev. 03.19.15

**GSM850 GPRS**

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

Company: SOMC  
 Project #: 16J23633  
 Date: 08/04/2016  
 Test Engineer: Brian Kiewra / John Manser  
 Configuration: Unit with ear-buds and charger (GSMUMTS #3)  
 Mode: EGPRS 850MHz

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
<b>Low Channel (824.2MHz)</b>										
1.65	62.4	H	3.0	19.0	39.9	1.0	-57.9	-13.0	44.9	
2.47	63.4	H	3.0	16.8	39.3	1.0	-61.1	-13.0	42.1	
3.30	62.8	H	3.0	13.5	39.5	1.0	-51.9	-13.0	38.9	
		H								
		H								
1.65	62.1	V	3.0	17.1	39.9	1.0	-60.0	-13.0	43.0	
2.47	63.5	V	3.0	15.8	39.3	1.0	-61.1	-13.0	41.1	
3.30	64.4	V	3.0	14.2	39.5	1.0	-52.7	-13.0	39.7	
		V								
		V								
<b>Mid Channel (836.5MHz)</b>										
1.67	62.2	H	3.0	18.6	39.9	1.0	-57.6	-13.0	44.6	
2.51	62.6	H	3.0	15.8	39.2	1.0	-64.0	-13.0	41.0	
3.35	63.6	H	3.0	14.1	39.5	1.0	-50.6	-13.0	39.6	
		H								
		H								
1.67	62.0	V	3.0	16.8	39.9	1.0	-55.7	-13.0	42.7	
2.51	60.7	V	3.0	12.8	39.2	1.0	-51.1	-13.0	38.1	
3.35	63.4	V	3.0	13.1	39.5	1.0	-51.6	-13.0	38.6	
		V								
		V								
<b>High Channel (848.5MHz)</b>										
1.70	62.8	H	3.0	19.1	40.0	1.0	-58.0	-13.0	45.0	
2.55	63.8	H	3.0	16.9	39.2	1.0	-55.1	-13.0	42.1	
3.40	64.0	H	3.0	14.5	39.5	1.0	-53.0	-13.0	40.0	
		H								
		H								
1.70	62.9	V	3.0	17.5	40.0	1.0	-56.5	-13.0	43.5	
2.55	63.8	V	3.0	15.8	39.2	1.0	-54.1	-13.0	41.1	
3.40	64.4	V	3.0	14.0	39.5	1.0	-50.5	-13.0	39.5	
		V								
		V								

Rev. 03.19.15

**GSM850 EGPRS**

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

Company: SOMC  
 Project #: 16J23633  
 Date: 07/21/2016  
 Test Engineer: Mark Nolting  
 Configuration: Unit with ear-buds and charger (GSMUMTS #3)  
 Mode: GPRS 1900MHz

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
<b>Low Channel (1930.2MHz)</b>										
3.70	62.8	H	3.0	-11.7	39.7	1.0	-50.4	-13.0	-37.4	
5.55	64.3	H	3.0	-10.8	40.1	1.0	-49.9	-13.0	-36.9	
7.40	65.4	H	3.0	-9.1	39.0	1.0	-47.0	-13.0	-34.0	
		H								
3.70	61.4	V	3.0	-8.7	39.7	1.0	-49.4	-13.0	-36.4	
5.55	64.4	V	3.0	-11.0	40.1	1.0	-50.1	-13.0	-37.1	
7.40	65.8	V	3.0	-9.7	39.0	1.0	-47.7	-13.0	-34.7	
		V								
		V								
<b>Mid Channel (1880.0)</b>										
5.76	60.3	H	3.0	-9.8	39.8	1.0	-48.6	-13.0	-35.6	
5.64	63.5	H	3.0	-9.8	40.0	1.0	-48.8	-13.0	-35.8	
7.52	65.9	H	3.0	-9.4	38.9	1.0	-47.3	-13.0	-34.3	
		H								
5.76	60.5	V	3.0	-9.7	39.8	1.0	-48.5	-13.0	-35.5	
5.64	63.3	V	3.0	-9.8	40.0	1.0	-48.9	-13.0	-35.9	
7.52	65.9	V	3.0	-9.7	38.9	1.0	-47.6	-13.0	-34.6	
		V								
		V								
<b>High Channel (1909.8MHz)</b>										
3.82	60.6	H	3.0	-9.0	39.8	1.0	-47.8	-13.0	-34.8	
5.73	63.4	H	3.0	-9.6	40.0	1.0	-48.5	-13.0	-35.5	
7.64	65.3	H	3.0	-8.6	38.9	1.0	-46.5	-13.0	-33.5	
		H								
3.82	59.2	V	3.0	-8.3	39.8	1.0	-47.1	-13.0	-34.1	
5.73	64.5	V	3.0	-10.9	40.0	1.0	-49.8	-13.0	-36.8	
7.64	65.7	V	3.0	-9.3	38.9	1.0	-47.3	-13.0	-34.3	
		V								
		V								

Rev. 03.19.15

**GSM1900 GPRS**

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

Company: SOMC  
 Project #: 16J23633  
 Date: 07/21/2016  
 Test Engineer: Mark Nolting  
 Configuration: Unit with ear-buds and charger (GSMUMTS #3)  
 Mode: EGPRS 1900MHz

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
<b>Low Channel (1930.2MHz)</b>										
3.70	62.3	H	3.0	-12.0	39.7	1.0	-50.7	-13.0	-37.7	
5.55	64.3	H	3.0	-10.7	40.1	1.0	-49.8	-13.0	-36.8	
7.40	65.8	H	3.0	-9.4	39.0	1.0	-47.4	-13.0	-34.4	
		H								
3.70	62.1	V	3.0	-11.4	39.7	1.0	-50.1	-13.0	-37.1	
5.55	64.5	V	3.0	-11.1	40.1	1.0	-50.2	-13.0	-37.2	
7.40	66.3	V	3.0	-10.2	39.0	1.0	-48.2	-13.0	-35.2	
		V								
		V								
<b>Mid Channel (1880.0)</b>										
5.76	60.4	H	3.0	-9.9	39.8	1.0	-48.7	-13.0	-35.7	
5.64	64.5	H	3.0	-10.9	40.0	1.0	-49.9	-13.0	-36.9	
7.52	65.7	H	3.0	-9.2	38.9	1.0	-47.1	-13.0	-34.1	
		H								
5.76	60.7	V	3.0	-9.9	39.8	1.0	-48.7	-13.0	-35.7	
5.64	63.6	V	3.0	-10.1	40.0	1.0	-49.1	-13.0	-36.1	
7.52	66.4	V	3.0	-10.2	38.9	1.0	-48.1	-13.0	-35.1	
		V								
		V								
<b>High Channel (1909.8MHz)</b>										
3.82	60.6	H	3.0	-9.4	39.8	1.0	-48.2	-13.0	-35.2	
5.73	63.4	H	3.0	-9.6	40.0	1.0	-48.5	-13.0	-35.5	
7.64	65.7	H	3.0	-9.0	38.9	1.0	-46.9	-13.0	-33.9	
		H								
3.82	59.4	V	3.0	-8.5	39.8	1.0	-47.3	-13.0	-34.3	
5.73	63.9	V	3.0	-10.3	40.0	1.0	-49.2	-13.0	-36.2	
7.64	65.9	V	3.0	-9.5	38.9	1.0	-47.4	-13.0	-34.4	
		V								
		V								

Rev. 03.19.15

**GSM1900 EGPRS**

**WCDMA**

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

Company: SOMC  
 Project #: 16J23633  
 Date: 07/21/2016  
 Test Engineer: Mark Nolting  
 Configuration: Unit with ear-buds and charger (GSM/UMTS #3)  
 Mode: REL 99, 1900MHz

**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
<b>Low Channel (1852.48MHz)</b>										
3.70	-63.3	H	3.0	-13.0	39.7	1.0	-51.7	-13.0	-38.7	
5.56	-64.7	H	3.0	-11.2	40.1	1.0	-50.2	-13.0	-37.2	
7.41	-66.8	H	3.0	-10.4	39.9	1.0	-48.4	-13.0	-35.4	
3.70	-63.4	V	3.0	-12.6	39.7	1.0	-51.4	-13.0	-38.4	
5.56	-63.6	V	3.0	-10.2	40.1	1.0	-49.3	-13.0	-36.3	
7.41	-65.5	V	3.0	-9.4	39.9	1.0	-47.4	-13.0	-34.4	
<b>Mid Channel (1880MHz)</b>										
3.76	-63.3	H	3.0	-12.8	39.8	1.0	-51.6	-13.0	-38.6	
5.64	-64.1	H	3.0	-10.4	40.0	1.0	-49.5	-13.0	-36.5	
7.52	-66.7	H	3.0	-10.2	38.9	1.0	-48.1	-13.0	-35.1	
3.76	-63.9	V	3.0	-13.1	39.8	1.0	-51.9	-13.0	-38.9	
5.64	-63.6	V	3.0	-10.1	40.0	1.0	-48.1	-13.0	-36.1	
7.52	-66.5	V	3.0	-10.3	38.9	1.0	-48.2	-13.0	-35.2	
<b>High Channel (1907.68MHz)</b>										
3.82	-62.4	H	3.0	-11.8	39.8	1.0	-50.6	-13.0	-37.6	
5.72	-63.5	H	3.0	-9.7	40.0	1.0	-48.7	-13.0	-35.7	
7.63	-64.3	H	3.0	-7.7	38.9	1.0	-45.6	-13.0	-32.6	
3.82	-63.7	V	3.0	-12.8	39.8	1.0	-51.6	-13.0	-38.6	
5.72	-64.1	V	3.0	-10.5	40.0	1.0	-49.4	-13.0	-36.4	
7.63	-66.6	V	3.0	-10.2	38.9	1.0	-48.1	-13.0	-35.1	

Rev: 03.19.15

B2 REL99

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

Company: SOMC  
 Project #: 16J23633  
 Date: 07/21/2016  
 Test Engineer: Mark Nolting  
 Configuration: Unit with ear-buds and charger (GSM/UMTS #3)  
 Mode: HSDPA 1900MHz

**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
<b>Low Channel (1852.48MHz)</b>										
3.70	-63.6	H	3.0	-13.3	39.7	1.0	-52.0	-13.0	-39.0	
5.56	-64.7	H	3.0	-11.2	40.1	1.0	-50.3	-13.0	-37.3	
7.41	-66.2	H	3.0	-9.9	39.0	1.0	-47.8	-13.0	-34.8	
3.70	-63.5	V	3.0	-12.8	39.7	1.0	-51.5	-13.0	-38.5	
5.56	-64.2	V	3.0	-10.9	40.1	1.0	-49.9	-13.0	-36.9	
7.41	-66.4	V	3.0	-10.3	39.0	1.0	-48.3	-13.0	-35.3	
<b>Mid Channel (1880MHz)</b>										
3.76	-63.7	H	3.0	-13.2	39.8	1.0	-52.0	-13.0	-39.0	
5.64	-64.3	H	3.0	-10.6	40.0	1.0	-49.6	-13.0	-36.6	
7.52	-65.8	H	3.0	-9.4	38.9	1.0	-47.3	-13.0	-34.3	
3.76	-63.4	V	3.0	-12.6	39.8	1.0	-51.4	-13.0	-38.4	
5.64	-63.3	V	3.0	-9.8	40.0	1.0	-48.8	-13.0	-35.8	
7.52	-66.7	V	3.0	-10.5	38.9	1.0	-48.4	-13.0	-35.4	
<b>High Channel (1907.68MHz)</b>										
3.82	-62.8	H	3.0	-12.2	39.8	1.0	-51.0	-13.0	-38.0	
5.72	-63.9	H	3.0	-10.1	40.0	1.0	-49.0	-13.0	-36.0	
7.63	-66.3	H	3.0	-9.7	38.9	1.0	-47.6	-13.0	-34.6	
3.82	-63.2	V	3.0	-12.3	39.8	1.0	-51.1	-13.0	-38.1	
5.72	-63.9	V	3.0	-10.3	40.0	1.0	-49.2	-13.0	-36.2	
7.63	-66.2	V	3.0	-9.8	38.9	1.0	-47.7	-13.0	-34.7	

Rev: 03.19.15

B2 HSDPA

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

Company: SOMC  
 Project #: 16J23633  
 Date: 07/21/2016  
 Test Engineer: Mark Nolting  
 Configuration: Unit with ear-buds and charger (GSM/UMTS #3)  
 Mode: REL 99, 1900MHz

**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
<b>Low Channel (1712.48MHz)</b>										
3.42	-67.7	H	3.0	-18.1	39.6	1.0	-56.6	-13.0	-43.6	
5.14	-64.1	H	3.0	-11.2	40.3	1.0	-50.5	-13.0	-37.5	
6.85	-65.9	H	3.0	-10.2	39.2	1.0	-48.4	-13.0	-35.4	
3.42	-64.5	V	3.0	-14.1	39.6	1.0	-52.7	-13.0	-39.7	
5.14	-63.8	V	3.0	-11.1	40.3	1.0	-50.4	-13.0	-37.4	
6.85	-65.5	V	3.0	-10.1	39.2	1.0	-48.3	-13.0	-35.3	
<b>Mid Channel (1732.68MHz)</b>										
3.47	-64.4	H	3.0	-14.6	39.6	1.0	-53.2	-13.0	-40.2	
5.20	-64.2	H	3.0	-11.2	40.3	1.0	-50.5	-13.0	-37.5	
6.93	-66.1	H	3.0	-10.2	39.1	1.0	-48.3	-13.0	-35.3	
3.47	-63.9	V	3.0	-13.5	39.6	1.0	-52.1	-13.0	-39.1	
5.20	-64.8	V	3.0	-11.2	40.3	1.0	-50.5	-13.0	-37.5	
6.93	-66.4	V	3.0	-10.9	39.1	1.0	-48.0	-13.0	-36.0	
<b>High Channel (1752.68MHz)</b>										
3.51	-64.2	H	3.0	-14.4	39.6	1.0	-53.0	-13.0	-40.0	
5.26	-64.5	H	3.0	-11.5	40.3	1.0	-50.8	-13.0	-37.8	
7.01	-65.8	H	3.0	-9.8	39.1	1.0	-47.9	-13.0	-34.9	
3.51	-64.7	V	3.0	-14.2	39.6	1.0	-52.8	-13.0	-39.8	
5.26	-64.5	V	3.0	-11.6	40.3	1.0	-50.9	-13.0	-37.9	
7.01	-66.0	V	3.0	-10.4	39.1	1.0	-48.5	-13.0	-35.5	

Rev: 03.19.15

B4 REL99

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

Company: SOMC  
 Project #: 16J23633  
 Date: 07/21/2016  
 Test Engineer: Mark Nolting  
 Configuration: Unit with ear-buds and charger (GSM/UMTS #3)  
 Mode: HSDPA 1700MHz

**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
<b>Low Channel (1712.48MHz)</b>										
3.42	-64.4	H	3.0	-14.7	39.6	1.0	-53.3	-13.0	-40.3	
5.14	-64.2	H	3.0	-11.4	40.3	1.0	-50.7	-13.0	-37.7	
6.85	-65.8	H	3.0	-10.1	39.2	1.0	-48.3	-13.0	-35.3	
3.42	-64.3	V	3.0	-13.8	39.6	1.0	-52.3	-13.0	-39.3	
5.14	-64.2	V	3.0	-11.5	40.3	1.0	-50.8	-13.0	-37.8	
6.85	-64.3	V	3.0	-9.0	39.2	1.0	-47.1	-13.0	-34.1	
<b>Mid Channel (1732.68MHz)</b>										
3.47	-64.4	H	3.0	-14.6	39.6	1.0	-53.2	-13.0	-40.2	
5.20	-64.0	H	3.0	-11.0	40.3	1.0	-50.4	-13.0	-37.4	
6.93	-65.8	H	3.0	-10.0	39.1	1.0	-48.1	-13.0	-35.1	
3.47	-64.3	V	3.0	-13.8	39.6	1.0	-52.4	-13.0	-39.4	
5.20	-64.1	V	3.0	-11.2	40.3	1.0	-50.6	-13.0	-37.6	
6.93	-65.2	V	3.0	-9.7	39.1	1.0	-47.8	-13.0	-34.8	
<b>High Channel (1752.68MHz)</b>										
3.51	-64.2	H	3.0	-14.4	39.6	1.0	-53.0	-13.0	-40.0	
5.26	-64.1	H	3.0	-11.1	40.3	1.0	-50.4	-13.0	-37.4	
7.01	-65.6	H	3.0	-9.7	39.1	1.0	-47.7	-13.0	-34.7	
3.51	-64.9	V	3.0	-14.4	39.6	1.0	-53.0	-13.0	-40.0	
5.26	-65.8	V	3.0	-12.9	40.3	1.0	-52.2	-13.0	-39.2	
7.01	-66.9	V	3.0	-11.2	39.1	1.0	-49.3	-13.0	-36.3	

Rev: 03.19.15

B4 HSDPA

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

Company: SOMC  
 Project #: 16J23633  
 Date: 08/04/2016  
 Test Engineer: Brian Kiewra / John Manser  
 Configuration: Unit with ear-buds and charger (GSM/UMTS #3)  
 Mode: REL 99, 850MHz

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
<b>Low Channel (826.4MHz)</b>										
1.65	-82.8	H	3.0	-19.3	39.9	1.0	-58.2	-13.0	-45.2	
2.48	-63.6	H	3.0	-16.9	39.3	1.0	-55.2	-13.0	-42.2	
3.31	-64.4	H	3.0	-15.1	39.5	1.0	-53.5	-13.0	-40.5	
		H								
		H								
1.65	-63.4	V	3.0	-18.4	39.9	1.0	-57.3	-13.0	-44.3	
2.48	-64.1	V	3.0	-16.4	39.3	1.0	-54.7	-13.0	-41.7	
3.31	-63.9	V	3.0	-13.6	39.5	1.0	-52.1	-13.0	-39.1	
		V								
		V								
<b>Mid Channel (836.6MHz)</b>										
1.67	-62.9	H	3.0	-18.5	39.9	1.0	-57.4	-13.0	-44.4	
2.51	-63.9	H	3.0	-17.0	39.2	1.0	-55.3	-13.0	-42.3	
3.35	-63.9	H	3.0	-14.4	39.5	1.0	-52.9	-13.0	-39.9	
		H								
		H								
1.67	-62.5	V	3.0	-17.3	39.9	1.0	-56.2	-13.0	-43.2	
2.51	-63.1	V	3.0	-15.3	39.2	1.0	-53.5	-13.0	-40.5	
3.35	-64.8	V	3.0	-14.5	39.5	1.0	-53.0	-13.0	-40.0	
		V								
		V								
<b>High Channel (846.8MHz)</b>										
1.69	-62.4	H	3.0	-18.7	39.9	1.0	-57.7	-13.0	-44.7	
2.54	-63.8	H	3.0	-16.9	39.2	1.0	-55.1	-13.0	-42.1	
3.39	-63.9	H	3.0	-14.3	39.5	1.0	-52.9	-13.0	-39.9	
		H								
		H								
1.69	-61.9	V	3.0	-16.6	39.9	1.0	-55.5	-13.0	-42.5	
2.54	-63.8	V	3.0	-15.8	39.2	1.0	-54.1	-13.0	-41.1	
3.39	-63.8	V	3.0	-13.4	39.5	1.0	-51.9	-13.0	-38.9	
		V								
		V								

Rev: 03 19 15

**B5 REL99**

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

Company: SOMC  
 Project #: 16J23633  
 Date: 08/04/2016  
 Test Engineer: Brian Kiewra / John Manser  
 Configuration: Unit with ear-buds and charger (GSM/UMTS #3)  
 Mode: HSDPA 850MHz

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
<b>Low Channel (826.4MHz)</b>										
1.65	-82.7	H	3.0	-19.3	39.9	1.0	-58.2	-13.0	-45.2	
2.48	-63.9	H	3.0	-16.3	39.3	1.0	-54.6	-13.0	-41.6	
3.31	-64.3	H	3.0	-15.0	39.5	1.0	-53.4	-13.0	-40.4	
		H								
		H								
1.65	-62.5	V	3.0	-17.5	39.9	1.0	-56.4	-13.0	-43.4	
2.48	-63.6	V	3.0	-15.9	39.3	1.0	-54.2	-13.0	-41.2	
3.31	-63.8	V	3.0	-13.6	39.5	1.0	-52.1	-13.0	-39.1	
		V								
		V								
<b>Mid Channel (836.6MHz)</b>										
1.67	-61.9	H	3.0	-18.4	39.9	1.0	-57.3	-13.0	-44.3	
2.51	-63.9	H	3.0	-17.0	39.2	1.0	-55.3	-13.0	-42.3	
3.35	-63.7	H	3.0	-14.3	39.5	1.0	-52.8	-13.0	-39.8	
		H								
		H								
1.67	-62.2	V	3.0	-17.8	39.9	1.0	-56.0	-13.0	-43.0	
2.51	-63.8	V	3.0	-15.9	39.2	1.0	-54.2	-13.0	-41.2	
3.35	-64.3	V	3.0	-14.0	39.5	1.0	-52.5	-13.0	-39.5	
		V								
		V								
<b>High Channel (846.8MHz)</b>										
1.69	-62.2	H	3.0	-18.4	39.9	1.0	-57.4	-13.0	-44.4	
2.54	-63.6	H	3.0	-16.7	39.2	1.0	-54.9	-13.0	-41.9	
3.39	-63.3	H	3.0	-13.8	39.5	1.0	-52.3	-13.0	-39.3	
		H								
		H								
1.69	-62.5	V	3.0	-17.1	39.9	1.0	-56.1	-13.0	-43.1	
2.54	-63.8	V	3.0	-15.8	39.2	1.0	-54.1	-13.0	-41.1	
3.39	-64.0	V	3.0	-13.6	39.5	1.0	-52.2	-13.0	-39.2	
		V								
		V								

Rev: 03 19 15

**B5 HSDPA**

**LTE Band 2**

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

Company: SOMC  
 Project #: 16J23633  
 Date: 07/26/2016  
 Test Engineer: Brian Kievra / John Manser  
 Configuration: Unit with ear-buds and charger (LTE #1)  
 Mode: LTE Band 2, 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
<b>Low Channel (1500.78MHz)</b>										
3.70	-72.6	H	3.0	-22.3	39.7	1.0	-61.1	-13.0	-48.1	
5.55	-74.1	H	3.0	-20.6	40.1	1.0	-59.7	-13.0	-46.7	
7.40	-75.4	H	3.0	-19.0	39.0	1.0	-57.8	-13.0	-44.8	
		H								
		H								
3.70	-72.7	V	3.0	-21.9	39.7	1.0	-60.6	-13.0	-47.6	
5.55	-74.1	V	3.0	-20.8	40.1	1.0	-59.8	-13.0	-46.8	
7.40	-75.4	V	3.0	-19.3	39.0	1.0	-57.2	-13.0	-44.2	
		V								
		V								
		V								
<b>Mid Channel (1880MHz)</b>										
3.76	-72.9	H	3.0	-22.5	39.8	1.0	-61.7	-13.0	-48.2	
5.64	-73.4	H	3.0	-19.7	40.0	1.0	-58.7	-13.0	-45.7	
7.52	-75.5	H	3.0	-19.1	38.9	1.0	-57.8	-13.0	-44.0	
		H								
		H								
3.76	-72.9	V	3.0	-22.0	39.8	1.0	-60.8	-13.0	-47.8	
5.64	-73.4	V	3.0	-19.9	40.0	1.0	-58.9	-13.0	-45.9	
7.52	-75.6	V	3.0	-19.4	38.9	1.0	-57.3	-13.0	-44.3	
		V								
		V								
		V								
<b>High Channel (1900.38MHz)</b>										
3.82	-72.2	H	3.0	-21.6	39.8	1.0	-60.4	-13.0	-47.4	
5.73	-73.4	H	3.0	-19.6	40.0	1.0	-58.5	-13.0	-45.5	
7.64	-75.1	H	3.0	-18.5	38.9	1.0	-56.4	-13.0	-43.4	
		H								
		H								
3.82	-72.4	V	3.0	-21.5	39.8	1.0	-60.3	-13.0	-47.3	
5.73	-73.4	V	3.0	-19.8	40.0	1.0	-58.8	-13.0	-45.8	
7.64	-75.1	V	3.0	-18.8	38.9	1.0	-56.7	-13.0	-43.7	
		V								
		V								
		V								

Rev: 10.28.15

LTE B2 1.4MHz QPSK

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

Company: SOMC  
 Project #: 16J23633  
 Date: 07/26/2016  
 Test Engineer: Brian Kievra / John Manser  
 Configuration: Unit with ear-buds and charger (LTE #1)  
 Mode: LTE Band 2, 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
<b>Low Channel (1500.78MHz)</b>										
3.70	-72.7	H	3.0	-22.4	39.7	1.0	-61.1	-13.0	-48.1	
5.55	-74.2	H	3.0	-20.6	40.1	1.0	-59.7	-13.0	-46.7	
7.40	-75.5	H	3.0	-19.1	39.0	1.0	-57.8	-13.0	-44.8	
		H								
		H								
3.70	-72.7	V	3.0	-21.9	39.7	1.0	-60.7	-13.0	-47.7	
5.55	-74.2	V	3.0	-20.8	40.1	1.0	-59.9	-13.0	-46.9	
7.40	-75.4	V	3.0	-19.3	39.0	1.0	-57.3	-13.0	-44.3	
		V								
		V								
		V								
<b>Mid Channel (1880MHz)</b>										
3.76	-72.9	H	3.0	-22.5	39.8	1.0	-61.3	-13.0	-48.3	
5.64	-73.4	H	3.0	-19.7	40.0	1.0	-58.8	-13.0	-45.8	
7.52	-75.5	H	3.0	-19.0	38.9	1.0	-57.8	-13.0	-44.0	
		H								
		H								
3.76	-72.9	V	3.0	-22.1	39.8	1.0	-60.8	-13.0	-47.8	
5.64	-73.4	V	3.0	-19.9	40.0	1.0	-58.9	-13.0	-45.9	
7.52	-75.6	V	3.0	-19.4	38.9	1.0	-57.3	-13.0	-44.3	
		V								
		V								
		V								
<b>High Channel (1900.38MHz)</b>										
3.82	-72.2	H	3.0	-21.6	39.8	1.0	-60.4	-13.0	-47.4	
5.73	-73.4	H	3.0	-19.6	40.0	1.0	-58.6	-13.0	-45.6	
7.64	-75.2	H	3.0	-18.6	38.9	1.0	-56.5	-13.0	-43.5	
		H								
		H								
3.82	-72.4	V	3.0	-21.5	39.8	1.0	-60.4	-13.0	-47.4	
5.73	-73.5	V	3.0	-19.8	40.0	1.0	-58.8	-13.0	-45.8	
7.64	-75.2	V	3.0	-18.8	38.9	1.0	-56.7	-13.0	-43.7	
		V								
		V								
		V								

Rev: 10.28.15

LTE B2 1.4MHz 16QAM

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

Company: SOMC  
 Project #: 16J23633  
 Date: 07/26/2016  
 Test Engineer: Brian Kievra / John Manser  
 Configuration: Unit with ear-buds and charger (LTE #1)  
 Mode: LTE Band 2, 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
<b>Low Channel (1935.58MHz)</b>										
3.70	-69.4	H	3.0	-19.1	39.7	1.0	-57.8	-13.0	-44.8	
5.55	-70.7	H	3.0	-17.2	40.1	1.0	-56.3	-13.0	-43.3	
7.41	-72.1	H	3.0	-15.7	39.0	1.0	-53.7	-13.0	-40.7	
		H								
		H								
3.70	-69.4	V	3.0	-18.6	39.7	1.0	-57.4	-13.0	-44.4	
5.55	-70.7	V	3.0	-17.3	40.1	1.0	-56.4	-13.0	-43.4	
7.41	-72.1	V	3.0	-16.0	39.0	1.0	-53.9	-13.0	-40.9	
		V								
		V								
		V								
<b>Mid Channel (1880MHz)</b>										
3.76	-69.7	H	3.0	-19.2	39.8	1.0	-58.0	-13.0	-45.0	
5.64	-70.1	H	3.0	-16.4	40.0	1.0	-55.4	-13.0	-42.4	
7.52	-72.3	H	3.0	-15.8	38.9	1.0	-53.7	-13.0	-40.7	
		H								
		H								
3.76	-69.6	V	3.0	-18.8	39.8	1.0	-57.6	-13.0	-44.6	
5.64	-70.1	V	3.0	-16.6	40.0	1.0	-55.6	-13.0	-42.6	
7.52	-72.3	V	3.0	-16.1	38.9	1.0	-54.0	-13.0	-41.0	
		V								
		V								
		V								
<b>High Channel (1900.58MHz)</b>										
3.82	-69.9	H	3.0	-18.3	39.8	1.0	-57.1	-13.0	-44.1	
5.73	-70.2	H	3.0	-16.4	40.0	1.0	-55.4	-13.0	-42.4	
7.63	-71.9	H	3.0	-15.3	38.9	1.0	-53.2	-13.0	-40.2	
		H								
		H								
3.82	-69.3	V	3.0	-18.4	39.8	1.0	-57.2	-13.0	-44.2	
5.73	-70.2	V	3.0	-16.6	40.0	1.0	-55.5	-13.0	-42.5	
7.63	-71.9	V	3.0	-15.5	38.9	1.0	-53.4	-13.0	-40.4	
		V								
		V								
		V								

Rev: 10.28.15

LTE B2 3MHz QPSK

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

Company: SOMC  
 Project #: 16J23633  
 Date: 07/26/2016  
 Test Engineer: Brian Kievra / John Manser  
 Configuration: Unit with ear-buds and charger (LTE #1)  
 Mode: LTE Band 2, 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
<b>Low Channel (1935.58MHz)</b>										
3.70	-69.4	H	3.0	-19.1	39.7	1.0	-57.8	-13.0	-44.8	
5.55	-70.7	H	3.0	-17.2	40.1	1.0	-56.3	-13.0	-43.3	
7.41	-72.1	H	3.0	-15.7	39.0	1.0	-53.7	-13.0	-40.7	
		H								
		H								
3.70	-69.4	V	3.0	-18.7	39.7	1.0	-57.4	-13.0	-44.4	
5.55	-70.7	V	3.0	-17.3	40.1	1.0	-56.4	-13.0	-43.4	
7.41	-72.1	V	3.0	-16.0	39.0	1.0	-54.0	-13.0	-41.0	
		V								
		V								
		V								
<b>Mid Channel (1880MHz)</b>										
3.76	-69.7	H	3.0	-19.2	39.8	1.0	-58.0	-13.0	-45.0	
5.64	-70.1	H	3.0	-16.5	40.0	1.0	-55.5	-13.0	-42.5	
7.52	-72.3	H	3.0	-15.8	38.9	1.0	-53.8	-13.0	-40.8	
		H								
		H					</			

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

Company: SOMC  
 Project #: 16J23633  
 Date: 07/26/2016  
 Test Engineer: Brian Kievra / John Manser  
 Configuration: Unit with ear-buds and charger (LTE #1)  
 Mode: LTE Band 2, 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
<b>Low Channel (1852.5MHz)</b>										
3.71	67.2	H	3.0	-16.8	39.7	1.0	-55.6	-13.0	-42.6	
5.96	68.5	H	3.0	-14.9	40.1	1.0	-54.0	-13.0	-41.0	
7.41	-70.0	H	3.0	-13.6	39.0	1.0	-51.5	-13.0	-38.5	
3.71	67.3	V	3.0	-16.5	39.7	1.0	-55.3	-13.0	-42.3	
5.96	68.5	V	3.0	-15.1	40.1	1.0	-54.2	-13.0	-41.2	
7.41	-70.0	V	3.0	-13.9	39.0	1.0	-51.8	-13.0	-38.8	
<b>Mid Channel (1880MHz)</b>										
3.76	67.5	H	3.0	-17.0	39.8	1.0	-55.8	-13.0	-42.8	
5.64	67.9	H	3.0	-14.3	40.0	1.0	-53.3	-13.0	-40.3	
7.52	-70.1	H	3.0	-13.6	38.9	1.0	-51.5	-13.0	-38.5	
3.76	67.3	V	3.0	-16.3	39.8	1.0	-55.3	-13.0	-42.3	
5.64	67.9	V	3.0	-14.3	40.0	1.0	-53.3	-13.0	-40.3	
7.52	-70.0	V	3.0	-13.8	38.9	1.0	-51.7	-13.0	-38.7	
<b>High Channel (1907.5MHz)</b>										
3.82	67.8	H	3.0	-16.5	39.8	1.0	-55.3	-13.0	-42.3	
5.72	68.1	H	3.0	-14.3	40.0	1.0	-53.2	-13.0	-40.2	
7.63	69.7	H	3.0	-13.1	38.9	1.0	-51.0	-13.0	-38.0	
3.82	67.1	V	3.0	-16.2	39.8	1.0	-55.0	-13.0	-42.0	
5.72	68.1	V	3.0	-14.5	40.0	1.0	-53.5	-13.0	-40.5	
7.63	69.7	V	3.0	-13.4	38.9	1.0	-51.3	-13.0	-38.3	

Rev: 10/28/15

**LTE B2 5MHz QPSK**

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

Company: SOMC  
 Project #: 16J23633  
 Date: 07/26/2016  
 Test Engineer: Brian Kievra / John Manser  
 Configuration: Unit with ear-buds and charger (LTE #1)  
 Mode: LTE Band 2, 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
<b>Low Channel (1852.5MHz)</b>										
3.71	67.2	H	3.0	-16.9	39.7	1.0	-55.6	-13.0	-42.6	
5.96	68.4	H	3.0	-14.9	40.1	1.0	-54.0	-13.0	-41.0	
7.41	-70.0	H	3.0	-13.5	39.0	1.0	-51.5	-13.0	-38.5	
3.71	67.3	V	3.0	-16.5	39.7	1.0	-55.3	-13.0	-42.3	
5.96	68.5	V	3.0	-15.1	40.1	1.0	-54.2	-13.0	-41.2	
7.41	69.9	V	3.0	-13.8	39.0	1.0	-51.8	-13.0	-38.8	
<b>Mid Channel (1880MHz)</b>										
3.76	67.4	H	3.0	-17.0	39.8	1.0	-55.7	-13.0	-42.7	
5.64	67.9	H	3.0	-14.2	40.0	1.0	-53.3	-13.0	-40.3	
7.52	-70.0	H	3.0	-13.5	38.9	1.0	-51.5	-13.0	-38.5	
3.76	67.2	V	3.0	-16.4	39.8	1.0	-55.2	-13.0	-42.2	
5.64	67.9	V	3.0	-14.4	40.0	1.0	-53.4	-13.0	-40.4	
7.52	-70.0	V	3.0	-13.8	38.9	1.0	-51.7	-13.0	-38.7	
<b>High Channel (1907.5MHz)</b>										
3.82	66.9	H	3.0	-16.3	39.8	1.0	-55.1	-13.0	-42.1	
5.72	68.2	H	3.0	-14.4	40.0	1.0	-53.3	-13.0	-40.3	
7.63	69.6	H	3.0	-13.0	38.9	1.0	-50.9	-13.0	-37.9	
3.82	67.1	V	3.0	-16.2	39.8	1.0	-55.1	-13.0	-42.1	
5.72	68.1	V	3.0	-14.5	40.0	1.0	-53.5	-13.0	-40.5	
7.63	69.8	V	3.0	-13.4	38.9	1.0	-51.3	-13.0	-38.3	

Rev: 10/28/15

**LTE B2 5MHz 16QAM**

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

Company: SOMC  
 Project #: 16J23633  
 Date: 07/26/2016  
 Test Engineer: Brian Kievra / John Manser  
 Configuration: Unit with ear-buds and charger (LTE #1)  
 Mode: LTE Band 2, 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
<b>Low Channel (1855MHz)</b>										
3.71	64.3	H	3.0	-14.0	39.7	1.0	-52.7	-13.0	-39.7	
5.57	65.3	H	3.0	-11.7	40.1	1.0	-50.8	-13.0	-37.8	
7.42	67.8	H	3.0	-10.6	39.0	1.0	-48.6	-13.0	-35.6	
3.71	64.1	V	3.0	-13.4	39.7	1.0	-52.1	-13.0	-39.1	
5.57	65.2	V	3.0	-11.8	40.1	1.0	-50.8	-13.0	-37.8	
7.42	67.8	V	3.0	-10.9	39.0	1.0	-48.9	-13.0	-35.9	
<b>Mid Channel (1880MHz)</b>										
3.76	64.5	H	3.0	-14.1	39.8	1.0	-52.9	-13.0	-39.9	
5.64	64.9	H	3.0	-11.2	40.0	1.0	-50.3	-13.0	-37.3	
7.52	67.8	H	3.0	-10.5	38.9	1.0	-48.5	-13.0	-35.5	
3.76	64.3	V	3.0	-13.5	39.8	1.0	-52.3	-13.0	-39.3	
5.64	64.7	V	3.0	-11.2	40.0	1.0	-50.2	-13.0	-37.2	
7.52	67.1	V	3.0	-10.8	38.9	1.0	-48.8	-13.0	-35.8	
<b>High Channel (1905MHz)</b>										
3.81	64.2	H	3.0	-13.6	39.8	1.0	-52.4	-13.0	-39.4	
5.72	65.3	H	3.0	-11.5	40.0	1.0	-50.4	-13.0	-37.4	
7.62	66.8	H	3.0	-10.2	38.9	1.0	-48.1	-13.0	-35.1	
3.81	64.1	V	3.0	-13.2	39.8	1.0	-52.0	-13.0	-39.0	
5.72	65.3	V	3.0	-11.7	40.0	1.0	-50.7	-13.0	-37.7	
7.62	66.7	V	3.0	-10.4	38.9	1.0	-48.3	-13.0	-35.3	

Rev: 10/28/15

**LTE B2 10MHz QPSK**

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

Company: SOMC  
 Project #: 16J23633  
 Date: 07/26/2016  
 Test Engineer: Brian Kievra / John Manser  
 Configuration: Unit with ear-buds and charger (LTE #1)  
 Mode: LTE Band 2, 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
<b>Low Channel (1855MHz)</b>										
3.71	64.4	H	3.0	-14.0	39.7	1.0	-52.8	-13.0	-39.8	
5.57	65.3	H	3.0	-11.8	40.1	1.0	-50.9	-13.0	-37.9	
7.42	67.1	H	3.0	-10.7	39.0	1.0	-48.6	-13.0	-35.6	
3.71	64.2	V	3.0	-13.4	39.7	1.0	-52.1	-13.0	-39.1	
5.57	65.2	V	3.0	-11.8	40.1	1.0	-50.9	-13.0	-37.9	
7.42	67.0	V	3.0	-10.9	39.0	1.0	-48.9	-13.0	-35.9	
<b>Mid Channel (1880MHz)</b>										
3.76	64.4	H	3.0	-14.0	39.8	1.0	-52.8	-13.0	-39.8	
5.64	65.0	H	3.0	-11.3	40.0	1.0	-50.3	-13.0	-37.3	
7.52	67.8	H	3.0	-10.6	38.9	1.0	-48.5	-13.0	-35.5	
3.76	64.3	V	3.0	-13.5	39.8	1.0	-52.2	-13.0	-39.2	
5.64	64.7	V	3.0	-11.2	40.0	1.0	-50.2	-13.0	-37.2	
7.52	67.0	V	3.0	-10.7	38.9	1.0	-48.7	-13.0	-35.7	
<b>High Channel (1905MHz)</b>										
3.81	64.2	H	3.0	-13.6	39.8	1.0	-52.4	-13.0	-39.4	
5.72	65.2	H	3.0	-11.4	40.0	1.0	-50.4	-13.0	-37.4	
7.62	66.8	H	3.0	-10.2	38.9	1.0	-48.1	-13.0	-35.1	
3.81	64.2	V	3.0	-13.3	39.8	1.0	-52.1	-13.0	-39.1	
5.72	65.3	V	3.0	-11.7	40.0	1.0	-50.6	-13.0	-37.6	
7.62	66.8	V	3.0	-10.4	38.9	1.0	-48.3	-13.0	-35.3	

Rev: 10/28/15

**LTE B2 10MHz 16QAM**

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

Company: SOMC  
 Project #: 16J23633  
 Date: 07/27/2016  
 Test Engineer: Brian Kiewra / John Manser  
 Configuration: Unit with ear-buds and charger (LTE #1)  
 Mode: LTE Band 2, 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. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
<b>Low Channel (157.5MHz)</b>										
3.72	62.5	H	3.0	-12.1	39.8	1.0	50.9	-13.0	-37.9	
5.57	63.4	H	3.0	-3.8	40.1	1.0	48.9	-13.0	-35.9	
7.43	65.5	H	3.0	-9.1	39.0	1.0	47.1	-13.0	-34.1	
		H								
		H								
3.72	62.4	V	3.0	-11.7	39.8	1.0	50.4	-13.0	-37.4	
5.57	63.3	V	3.0	-3.9	40.1	1.0	49.0	-13.0	-36.0	
7.43	65.5	V	3.0	-3.4	39.0	1.0	47.3	-13.0	-34.3	
		V								
		V								
		V								
<b>Mid Channel (1580MHz)</b>										
3.76	62.6	H	3.0	-12.2	39.8	1.0	50.9	-13.0	-37.9	
5.64	63.1	H	3.0	-9.4	40.0	1.0	48.5	-13.0	-35.5	
7.52	65.3	H	3.0	-8.8	38.9	1.0	46.8	-13.0	-33.8	
		H								
		H								
3.76	62.6	V	3.0	-11.8	39.8	1.0	50.5	-13.0	-37.5	
5.64	63.0	V	3.0	-9.5	40.0	1.0	48.6	-13.0	-35.6	
7.52	65.4	V	3.0	-9.1	38.9	1.0	47.1	-13.0	-34.1	
		V								
		V								
		V								
<b>High Channel (1902.5MHz)</b>										
3.81	62.6	H	3.0	-12.0	39.8	1.0	50.8	-13.0	-37.8	
5.71	63.6	H	3.0	-9.8	40.0	1.0	48.8	-13.0	-35.8	
7.61	65.1	H	3.0	-8.6	38.9	1.0	46.5	-13.0	-33.5	
		H								
		H								
3.81	62.6	V	3.0	-11.7	39.8	1.0	50.5	-13.0	-37.5	
5.71	63.7	V	3.0	-10.1	40.0	1.0	49.1	-13.0	-36.1	
7.61	65.1	V	3.0	-8.8	38.9	1.0	46.7	-13.0	-33.7	
		V								
		V								
		V								

Rev: 10.28.15

**LTE B2 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 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
<b>Low Channel (2498.5MHz)</b>										
5.00	63.9	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	-20.2	
		H								
		H								
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	-8.4	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	-20.2	
		V								
		V								
		V								
<b>Mid Channel (2593MHz)</b>										
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	-7.5	38.9	1.0	45.3	-25.0	-20.3	
10.37	67.5	H	3.0	-7.9	38.3	1.0	45.2	-25.0	-20.2	
		H								
		H								
5.19	60.9	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	-20.0	
10.37	67.4	V	3.0	-7.9	38.3	1.0	45.2	-25.0	-20.2	
		V								
		V								
		V								
<b>High Channel (2687.5MHz)</b>										
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	
		H								
		H								
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	-8.8	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	
		V								
		V								
		V								

Rev: 10.28.15

**LTE B2 15MHz 16QAM**

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

Company: SOMC  
 Project #: 16J23633  
 Date: 07/27/2016  
 Test Engineer: Brian Kiewra / John Manser  
 Configuration: Unit with ear-buds and charger (LTE #1)  
 Mode: LTE Band 2, 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. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
<b>Low Channel (1860MHz)</b>										
3.72	61.1	H	3.0	-10.7	39.8	1.0	48.5	-13.0	-36.5	
5.58	61.8	H	3.0	-8.2	40.1	1.0	47.3	-13.0	-34.3	
7.44	64.4	H	3.0	-7.9	39.0	1.0	45.9	-13.0	-32.9	
		H								
		H								
3.72	61.2	V	3.0	-10.4	39.8	1.0	48.1	-13.0	-36.1	
5.58	61.0	V	3.0	-8.5	40.1	1.0	47.5	-13.0	-34.5	
7.44	64.4	V	3.0	-8.2	39.0	1.0	46.2	-13.0	-33.2	
		V								
		V								
		V								
<b>Mid Channel (1880MHz)</b>										
3.76	61.3	H	3.0	-10.9	39.8	1.0	49.7	-13.0	-36.7	
5.64	61.8	H	3.0	-8.2	40.0	1.0	47.2	-13.0	-34.2	
7.52	64.1	H	3.0	-7.8	38.9	1.0	45.6	-13.0	-32.6	
		H								
		H								
3.76	61.2	V	3.0	-10.4	39.8	1.0	49.2	-13.0	-36.2	
5.64	61.9	V	3.0	-8.4	40.0	1.0	47.4	-13.0	-34.4	
7.52	64.1	V	3.0	-7.9	38.9	1.0	45.8	-13.0	-32.8	
		V								
		V								
		V								
<b>High Channel (1900MHz)</b>										
3.80	61.3	H	3.0	-10.7	39.8	1.0	48.5	-13.0	-36.5	
5.70	62.2	H	3.0	-8.4	40.0	1.0	47.4	-13.0	-34.4	
7.60	63.8	H	3.0	-7.2	38.9	1.0	45.2	-13.0	-32.2	
		H								
		H								
3.80	61.2	V	3.0	-10.4	39.8	1.0	49.2	-13.0	-36.2	
5.70	62.2	V	3.0	-8.6	40.0	1.0	47.6	-13.0	-34.6	
7.60	63.8	V	3.0	-7.5	38.9	1.0	45.4	-13.0	-32.4	
		V								
		V								
		V								

Rev: 10.28.15

**LTE B2 20MHz QPSK**

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

Company: SOMC  
 Project #: 16J23633  
 Date: 07/27/2016  
 Test Engineer: Brian Kiewra / John Manser  
 Configuration: Unit with ear-buds and charger (LTE #1)  
 Mode: LTE Band 2, 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. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
<b>Low Channel (1860MHz)</b>										
3.72	61.1	H	3.0	-10.7	39.8	1.0	48.4	-13.0	-36.4	
5.58	61.9	H	3.0	-8.3	40.1	1.0	47.4	-13.0	-34.4	
7.44	64.3	H	3.0	-7.9	39.0	1.0	45.9	-13.0	-32.9	
		H								
		H								
3.72	61.2	V	3.0	-10.4	39.8	1.0	48.1	-13.0	-36.1	
5.58	62.0	V	3.0	-8.5	40.1	1.0	47.6	-13.0	-34.6	
7.44	64.3	V	3.0	-8.2	39.0	1.0	46.1	-13.0	-33.1	
		V								
		V								
		V								
<b>Mid Channel (1880MHz)</b>										
3.76	61.3	H	3.0	-10.9	39.8	1.0	49.7	-13.0	-36.7	
5.64	61.8	H	3.0	-8.1	40.0	1.0	47.2	-13.0	-34.2	
7.52	64.1	H	3.0	-7.6	38.9	1.0	45.5	-13.0	-32.5	
		H								
		H								
3.76	61.2	V	3.0	-10.4	39.8	1.0	49.2	-13.0	-36.2	
5.64	61.9	V	3.0	-8.4	40.0	1.0	47.4	-13.0	-34.4	
7.52	64.1	V	3.0	-7.9	38.9	1.0	45.8	-13.0	-32.8	
		V								
		V								
		V								
<b>High Channel (1900MHz)</b>										
3.80	61.3	H	3.0	-10.7	39.8	1.0	48.5	-13.0	-36.5	
5.70	62.2	H	3.0	-8.4	40.0	1.0	47.4	-13.0	-34.4	
7.60	63.8	H	3.0	-7.2	38.9	1.0	45.1	-13.0	-32.1	
		H								
		H								
3.80	61.2	V	3.0	-10.3	39.8	1.0	49.1	-13.0	-36.1	
5.70	62.3	V	3.0	-8.7	40.0	1.0	47.6	-13.0	-34.6	
7.60	63.9	V	3.0	-7.5	38.9	1.0	45.5	-13.0	-32.5	
		V								
		V								
		V								

Rev: 10.28.15

**LTE B2 20MHz 16QAM**

**LTE Band 4**

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

Company: SOMC  
 Project #: 16J23633  
 Date: 07/27/2016  
 Test Engineer: Brian Kiewra / John Manser  
 Configuration: Unit with ear-buds and charger (LTE #1)  
 Mode: LTE Band 4, 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
<b>Low Channel (1710.5MHz)</b>										
3.42	-74.8	H	3.0	-25.2	39.6	1.0	-63.8	-13.0	-50.8	
5.13	-73.3	H	3.0	-20.5	40.3	1.0	-59.8	-13.0	-46.8	
6.84	-75.1	H	3.0	-19.4	39.2	1.0	-57.6	-13.0	-44.6	
		H								
		H								
3.42	-74.4	H	3.0	-24.0	39.6	1.0	-62.6	-13.0	-49.6	
5.13	-73.2	V	3.0	-20.5	40.3	1.0	-59.8	-13.0	-46.8	
6.84	-75.5	V	3.0	-20.1	39.2	1.0	-58.3	-13.0	-45.3	
		V								
		V								
<b>Mid Channel (1732.5MHz)</b>										
3.47	-74.9	H	3.0	-25.1	39.6	1.0	-63.7	-13.0	-50.7	
5.20	-73.5	H	3.0	-20.5	40.3	1.0	-59.9	-13.0	-46.9	
6.93	-75.2	H	3.0	-19.4	39.1	1.0	-57.5	-13.0	-44.5	
		H								
		H								
3.47	-74.8	V	3.0	-24.3	39.6	1.0	-62.9	-13.0	-49.9	
5.20	-73.5	V	3.0	-20.7	40.3	1.0	-60.0	-13.0	-47.0	
6.93	-75.1	V	3.0	-19.6	39.1	1.0	-57.7	-13.0	-44.7	
		V								
		V								
<b>High Channel (1754.3MHz)</b>										
3.51	-75.0	H	3.0	-25.1	39.6	1.0	-63.8	-13.0	-50.8	
5.26	-74.2	H	3.0	-21.1	40.3	1.0	-60.4	-13.0	-47.4	
7.02	-75.1	H	3.0	-19.1	39.1	1.0	-57.2	-13.0	-44.2	
		H								
		H								
3.51	-74.9	V	3.0	-24.3	39.6	1.0	-63.0	-13.0	-50.0	
5.26	-74.1	V	3.0	-21.2	40.3	1.0	-60.5	-13.0	-47.5	
7.02	-75.1	V	3.0	-19.4	39.1	1.0	-57.5	-13.0	-44.5	
		V								
		V								

Rev: 10.28.15

LTE B4 1.4MHz QPSK

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

Company: SOMC  
 Project #: 16J23633  
 Date: 07/27/2016  
 Test Engineer: Brian Kiewra / John Manser  
 Configuration: Unit with ear-buds and charger (LTE #1)  
 Mode: LTE Band 4, 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
<b>Low Channel (1710.7MHz)</b>										
3.42	-74.8	H	3.0	-25.2	39.6	1.0	-63.7	-13.0	-50.7	
5.13	-73.3	H	3.0	-20.5	40.3	1.0	-59.8	-13.0	-46.8	
6.84	-75.1	H	3.0	-19.4	39.2	1.0	-57.6	-13.0	-44.6	
		H								
		H								
3.42	-74.3	H	3.0	-21.9	39.6	1.0	-62.4	-13.0	-49.4	
5.13	-73.2	V	3.0	-20.5	40.3	1.0	-59.8	-13.0	-46.8	
6.84	-75.5	V	3.0	-20.1	39.2	1.0	-58.3	-13.0	-45.3	
		V								
		V								
<b>Mid Channel (1732.5MHz)</b>										
3.47	-74.9	H	3.0	-25.1	39.6	1.0	-63.7	-13.0	-50.7	
5.20	-73.5	H	3.0	-20.6	40.3	1.0	-59.9	-13.0	-46.9	
6.93	-75.2	H	3.0	-19.3	39.1	1.0	-57.4	-13.0	-44.4	
		H								
		H								
3.47	-74.8	V	3.0	-24.4	39.6	1.0	-63.0	-13.0	-50.0	
5.20	-73.5	V	3.0	-20.7	40.3	1.0	-60.0	-13.0	-47.0	
6.93	-75.1	V	3.0	-19.6	39.1	1.0	-57.7	-13.0	-44.7	
		V								
		V								
<b>High Channel (1754.3MHz)</b>										
3.51	-74.9	H	3.0	-25.1	39.6	1.0	-63.7	-13.0	-50.7	
5.26	-74.1	H	3.0	-21.0	40.3	1.0	-60.3	-13.0	-47.3	
7.02	-75.2	H	3.0	-19.2	39.1	1.0	-57.3	-13.0	-44.3	
		H								
		H								
3.51	-74.9	V	3.0	-24.4	39.6	1.0	-63.0	-13.0	-50.0	
5.26	-74.2	V	3.0	-21.3	40.3	1.0	-60.6	-13.0	-47.6	
7.02	-75.1	V	3.0	-19.4	39.1	1.0	-57.5	-13.0	-44.5	
		V								
		V								

Rev: 10.28.15

LTE B4 1.4MHz 16QAM

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

Company: SOMC  
 Project #: 16J23633  
 Date: 07/27/2016  
 Test Engineer: Brian Kiewra / John Manser  
 Configuration: Unit with ear-buds and charger (LTE #1)  
 Mode: LTE Band 4, 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
<b>Low Channel (1711.5MHz)</b>										
3.42	-71.5	H	3.0	-21.9	39.6	1.0	-60.4	-13.0	-47.4	
5.13	-70.1	H	3.0	-17.3	40.3	1.0	-56.6	-13.0	-43.6	
6.85	-71.8	H	3.0	-16.1	39.2	1.0	-54.3	-13.0	-41.3	
		H								
		H								
3.42	-71.6	V	3.0	-21.2	39.6	1.0	-59.8	-13.0	-46.8	
5.13	-70.1	V	3.0	-17.4	40.3	1.0	-56.7	-13.0	-43.7	
6.85	-71.8	V	3.0	-16.4	39.2	1.0	-54.6	-13.0	-41.6	
		V								
		V								
<b>Mid Channel (1732.5MHz)</b>										
3.47	-71.4	H	3.0	-21.7	39.6	1.0	-60.3	-13.0	-47.3	
5.20	-70.2	H	3.0	-17.2	40.3	1.0	-56.6	-13.0	-43.6	
6.93	-71.8	H	3.0	-16.0	39.1	1.0	-54.1	-13.0	-41.1	
		H								
		H								
3.47	-71.3	V	3.0	-20.9	39.6	1.0	-59.5	-13.0	-46.5	
5.20	-70.2	V	3.0	-17.4	40.3	1.0	-56.7	-13.0	-43.7	
6.93	-71.8	V	3.0	-16.3	39.1	1.0	-54.5	-13.0	-41.5	
		V								
		V								
<b>High Channel (1753.5MHz)</b>										
3.51	-71.7	H	3.0	-21.8	39.6	1.0	-60.4	-13.0	-47.4	
5.26	-70.9	H	3.0	-17.8	40.3	1.0	-57.1	-13.0	-44.1	
7.01	-71.9	H	3.0	-15.9	39.1	1.0	-54.0	-13.0	-41.0	
		H								
		H								
3.51	-71.5	V	3.0	-21.0	39.6	1.0	-59.6	-13.0	-46.6	
5.26	-70.7	V	3.0	-17.8	40.3	1.0	-57.1	-13.0	-44.1	
7.01	-71.8	V	3.0	-16.2	39.1	1.0	-54.2	-13.0	-41.2	
		V								
		V								

Rev: 10.28.15

LTE B4 3MHz QPSK

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

Company: SOMC  
 Project #: 16J23633  
 Date: 07/27/2016  
 Test Engineer: Brian Kiewra / John Manser  
 Configuration: Unit with ear-buds and charger (LTE #1)  
 Mode: LTE Band 4, 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
<b>Low Channel (1711.5MHz)</b>										
3.42	-71.6	H	3.0	-21.9	39.6	1.0	-60.5	-13.0	-47.5	
5.13	-70.0	H	3.0	-17.2	40.3	1.0	-56.6	-13.0	-43.6	
6.85	-71.8	H	3.0	-16.2	39.2	1.0	-54.3	-13.0	-41.3	
		H								
		H								
3.42	-71.7	V	3.0	-21.3	39.6	1.0	-59.9	-13.0	-46.9	
5.13	-70.1	V	3.0	-17.4	40.3	1.0	-56.7	-13.0	-43.7	
6.85	-71.9	V	3.0	-16.6	39.2	1.0	-54.7	-13.0	-41.7	
		V								
		V								
<b>Mid Channel (1732.5MHz)</b>										
3.47	-71.5	H	3.0	-21.7	39.6	1.0	-60.3	-13.0	-47.3	
5.20	-70.2	H	3.0	-17.2	40.3	1.0	-56.6	-13.0	-43.6	
6.93	-71.8	H	3.0	-16.0	39.1	1.0	-54.1	-13.0	-41.1	
		H								
		H								
3.47	-71.4	V	3.0	-21.0	39.6	1.0	-59.6	-13.0	-46.6	
5.20	-70.2	V	3.0	-17.4	40.3	1.0	-56.7	-13.0	-43.7	
6.93	-71.9	V	3.0	-16.4	39.1	1.0	-54.5	-13.0	-41.5	
		V								
		V								
<b>High Channel (1753.5MHz)</b>										
3.51	-71.7	H	3.0	-21.8	39.6	1.0	-60.4	-13.0	-47.4	
5.26	-70.8	H	3.0	-17.8	40.3	1.0	-57.1	-13.0	-44.1	
7.01	-71.8	H	3.0	-15.9	39.1	1.0	-53.9	-13.0	-40.9	
		H								
		H								
3.51	-71.5	V	3.0	-21.0	39.6	1.0	-59.6	-13.0	-46.6	
5.26	-70.8	V	3.0	-17.9	40.3	1.0	-57.2	-13.0	-44.2	
7.01	-71.8	V	3.0	-16.2	39.1	1.0	-54.3	-13.0	-41.3	
		V								
		V								

Rev: 10.28.15

LTE B4 3MHz 16QAM