14.1.1. ERP/EIRP RESULTS AND TABLE

GSM

Band	Mode	Channel	f(MHz)	ERP/EIRP	
				dBm	mW
GSM850	GPRS	128	824.2	27.24	529.66
GSM850	GPRS	190	836.6	27.35	543.25
GSM850	GPRS	251	848.8	25.86	385.48
GSM850	EGPRS	128	824.2	23.17	207.49
GSM850	EGPRS	190	836.6	23.00	199.53
GSM850	EGPRS	251	848.8	21.87	153.82
GSM1900	GPRS	512	1850.2	27.39	548.28
GSM1900	GPRS	661	1880	27.38	547.02
GSM1900	GPRS	810	1909.8	26.50	446.68
GSM1900	EGPRS	512	1850.2	22.35	171.79
GSM1900	EGPRS	661	1880	23.51	224.39
GSM1900	EGPRS	810	1909.8	22.69	185.78

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

Company: SOMC
Project #: 11139405
Date: 2016-04-04
Test Engineer: Brian Kiewra
Configuration: Standalone (Sample #10249 Z-Axis)
Mode: GPRS850

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 Ch									
824.20	34.06	V	5.3	0.6	-1.56	27.24	38.5	-11.2	
824.20	29.57	H	5.3	0.6	-1.56	22.75	38.5	-15.7	
Mid Ch									
836.60	34.08	V	5.3	0.7	-1.41	27.35	38.5	-11.1	
836.60	22.24	H	5.3	0.7	-1.41	15.51	38.5	-22.9	
High Ch									
848.80	32.47	V	5.3	0.9	-1.26	25.86	38.5	-12.6	
848.80	22.54	H	5.3	0.9	-1.26	15.93	38.5	-22.5	

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

GSM850 GPRS

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

Company: SOMC
Project #: 11139405
Date: 2016-04-04
Test Engineer: Brian Kiewra
Configuration: Standalone (Sample #10249 Z-Axis)
Mode: EGPRS850

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 Ch									
824.20	29.99	V	5.3	0.6	-1.56	23.17	38.5	-15.3	
824.20	11.98	H	5.3	0.6	-1.56	5.16	38.5	-33.3	
Mid Ch									
836.60	29.73	V	5.3	0.7	-1.41	23.00	38.5	-15.5	
836.60	18.35	H	5.3	0.7	-1.41	11.62	38.5	-26.8	
High Ch									
848.80	28.48	V	5.3	0.9	-1.26	21.87	38.5	-16.6	
848.80	17.59	H	5.3	0.9	-1.26	10.98	38.5	-27.5	

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

GSM850 EGPRS

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

Company: SOMC
Project #: 11139405
Date: 2016-04-01
Test Engineer: Brian Kiewra
Configuration: Standalone (Sample #10249 X-Axis)
Mode: GPRS1900

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								
1850.20	27.53	V	8.3	4.4	23.58	33.0	-9.4	
1850.20	31.34	H	8.3	4.4	27.39	33.0	-5.6	
Mid Ch								
1880.00	27.68	V	8.3	4.3	23.63	33.0	-9.4	
1880.00	31.43	H	8.3	4.3	27.38	33.0	-5.6	
High Ch								
1909.80	29.07	V	8.4	4.2	24.87	33.0	-8.1	
1909.80	30.70	H	8.4	4.2	26.50	33.0	-6.5	

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

GSM1900 GPRS

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

Company: SOMC
Project #: 11139405
Date: 2015-04-01
Test Engineer: Brian Kiewra
Configuration: Standalone (Sample #10249 X-Axis)
Mode: EGPRS1900

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								
1850.20	23.68	V	8.3	4.4	19.73	33.0	-13.3	
1850.20	26.30	H	8.3	4.4	22.35	33.0	-10.6	
Mid Ch								
1880.00	24.77	V	8.3	4.3	20.72	33.0	-12.3	
1880.00	27.56	H	8.3	4.3	23.51	33.0	-9.5	
High Ch								
1909.80	24.91	V	8.4	4.2	20.71	33.0	-12.3	
1909.80	26.89	H	8.4	4.2	22.69	33.0	-10.3	

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

GSM1900 EGPRS

WCDMA

Band	Mode	Channel	f(MHz)	ERP/EIRP	
				dBm	mW
Band 2	REL99	9262	1852.4	21.34	136.14
Band 2	REL99	9400	1880	21.24	133.05
Band 2	REL99	9538	1907.6	20.25	105.93
Band 2	HSDPA	9262	1852.4	19.97	99.31
Band 2	HSDPA	9400	1880	20.03	100.69
Band 2	HSDPA	9538	1907.6	18.79	75.68
Band 5	REL99	4132	826.4	18.90	77.62
Band 5	REL99	4183	836.6	19.24	83.95
Band 5	REL99	4233	846.6	16.78	47.64
Band 5	HSDPA	4132	826.4	18.24	66.68
Band 5	HSDPA	4183	836.6	17.93	62.09
Band 5	HSDPA	4233	846.6	17.65	58.21

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

Company: SOMC
Project #: 11139405
Date: 2014-04-02
Test Engineer: Brian Kiewra
Configuration: Standalone (Sample #10249 X-Axis)
Mode: WCDMA2 REL99

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								
1852.40	21.23	V	8.3	4.4	17.26	33.0	-15.7	
1852.40	25.31	H	8.3	4.4	21.34	33.0	-11.7	
Mid Ch								
1880.00	17.15	V	8.3	4.3	13.10	33.0	-19.9	
1880.00	25.29	H	8.3	4.3	21.24	33.0	-11.8	
High Ch								
1907.60	23.17	V	8.4	4.2	18.98	33.0	-14.0	
1907.60	24.44	H	8.4	4.2	20.25	33.0	-12.7	

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

B2 REL99

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

Company: SOMC
Project #: 11139405
Date: 2014-04-02
Test Engineer: Brian Kiewra
Configuration: Standalone (Sample #10249 X-Axis)
Mode: WCDMA2, HSDPA

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								
1852.40	20.61	V	8.3	4.4	16.64	33.0	-16.4	
1852.40	23.94	H	8.3	4.4	19.97	33.0	-13.0	
Mid Ch								
1880.00	20.90	V	8.3	4.3	16.85	33.0	-16.1	
1880.00	24.08	H	8.3	4.3	20.03	33.0	-13.0	
High Ch								
1907.60	21.16	V	8.4	4.2	16.97	33.0	-16.0	
1907.60	22.98	H	8.4	4.2	18.79	33.0	-14.2	

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

B2 HSDPA

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

Company: SOMC
Project #: 11139405
Date: 2016-04-04
Test Engineer: Brian Kiewra
Configuration: Standalone (Sample #10249 Z-Axis)
Mode: WCDMA5 Rel99

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 Ch									
826.40	25.72	V	5.3	0.6	-1.56	18.90	38.5	-19.5	
826.40	13.64	H	5.3	0.6	-1.56	6.82	38.5	-31.6	
Mid Ch									
836.60	25.97	V	5.3	0.7	-1.41	19.24	38.5	-19.2	
836.60	13.89	H	5.3	0.7	-1.41	7.16	38.5	-31.3	
High Ch									
846.60	23.39	V	5.3	0.9	-1.26	16.78	38.5	-21.7	
846.60	14.97	H	5.3	0.9	-1.26	8.36	38.5	-30.1	

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

B5 REL99

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

Company: SOMC
Project #: 11139405
Date: 2016-04-04
Test Engineer: Brian Kiewra
Configuration: Standalone (Sample #10249 Z-Axis)
Mode: WCDMA5 HSDPA

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 Ch									
826.40	25.06	V	5.3	0.6	-1.56	18.24	38.5	-20.2	
826.40	12.81	H	5.3	0.6	-1.56	5.99	38.5	-32.5	
Mid Ch									
836.60	24.66	V	5.3	0.7	-1.41	17.93	38.5	-20.5	
836.60	11.62	H	5.3	0.7	-1.41	4.89	38.5	-33.6	
High Ch									
846.60	24.26	V	5.3	0.9	-1.26	17.65	38.5	-20.8	
846.60	12.58	H	5.3	0.9	-1.26	5.97	38.5	-32.5	

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

B5 HSDPA

LTE Band 5

BW (MHz)	Mode	RB/RB Size	f(MHz)	ERP	
				dBm	mW
1.4	QPSK	1/0	824.7	17.70	58.88
1.4	QPSK	1/0	836.5	17.67	58.48
1.4	QPSK	1/0	848.3	16.70	46.77
1.4	16QAM	1/0	824.7	17.07	50.93
1.4	16QAM	1/0	836.5	17.82	60.53
1.4	16QAM	1/0	848.3	16.44	44.06
3	QPSK	1/0	825.5	16.88	48.75
3	QPSK	1/0	836.5	17.45	55.59
3	QPSK	1/0	847.5	17.10	51.29
3	16QAM	1/0	825.5	16.63	46.03
3	16QAM	1/0	836.5	17.57	57.15
3	16QAM	1/0	847.5	17.28	53.46
5	QPSK	1/0	826.5	16.80	47.86
5	QPSK	1/0	836.5	18.01	63.24
5	QPSK	1/0	846.5	17.37	54.58
5	16QAM	1/0	826.5	17.06	50.82
5	16QAM	1/0	836.5	17.88	61.38
5	16QAM	1/0	846.5	17.64	58.08
10	QPSK	1/0	829	16.91	49.09
10	QPSK	1/0	836.5	18.24	66.68
10	QPSK	1/0	844	17.94	62.23
10	16QAM	1/0	829	17.03	50.47
10	16QAM	1/0	836.5	18.40	69.18
10	16QAM	1/0	844	18.14	65.16

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

Company: SOMC
Project #: 11139405
Date: 2016-04-04
Test Engineer: Brian Kiewra
Configuration: Standalone (Sample #10240 Z-Axis)
Mode: LTE5, 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
Low Ch									
824.70	23.99	V	5.3	0.6	-1.55	17.17	38.5	-21.3	
824.70	9.96	H	5.3	0.6	-1.55	3.14	38.5	-35.3	
Mid Ch									
836.50	24.40	V	5.3	0.7	-1.41	17.67	38.5	-20.8	
836.50	12.33	H	5.3	0.7	-1.41	5.60	38.5	-32.9	
High Ch									
848.30	23.31	V	5.3	0.9	-1.27	16.70	38.5	-21.8	
848.30	10.35	H	5.3	0.9	-1.27	3.74	38.5	-34.7	

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

LTE B5 1.4MHz QPSK

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

Company: SOMC
Project #: 11139405
Date: 2016-04-04
Test Engineer: Brian Kiewra
Configuration: Standalone (Sample #10240 Z-Axis)
Mode: LTE5, 1.4MHz, 16-QAM

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 Ch									
824.70	23.89	V	5.3	0.6	-1.55	17.07	38.5	-21.4	
824.70	9.96	H	5.3	0.6	-1.55	3.14	38.5	-35.3	
Mid Ch									
836.50	24.55	V	5.3	0.7	-1.41	17.82	38.5	-20.6	
836.50	12.38	H	5.3	0.7	-1.41	5.65	38.5	-32.8	
High Ch									
848.30	23.05	V	5.3	0.9	-1.27	16.44	38.5	-22.0	
848.30	10.37	H	5.3	0.9	-1.27	3.76	38.5	-34.7	

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

LTE B5 1.4MHz 16QAM

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

Company: SOMC
Project #: 11139405
Date: 2016-04-04
Test Engineer: Brian Kiewra
Configuration: Standalone (Sample #10240 Z-Axis)
Mode: LTE5, 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
Low Ch									
825.50	23.70	V	5.3	0.6	-1.54	16.88	38.5	-21.6	
825.50	11.94	H	5.3	0.6	-1.54	5.12	38.5	-33.3	
Mid Ch									
836.50	24.18	V	5.3	0.7	-1.41	17.45	38.5	-21.0	
836.50	10.24	H	5.3	0.7	-1.41	3.51	38.5	-34.9	
High Ch									
847.50	23.73	V	5.3	0.9	-1.28	17.10	38.5	-21.3	
847.50	12.15	H	5.3	0.9	-1.28	5.52	38.5	-32.9	

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

LTE B5 3MHz QPSK

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

Company: SOMC
Project #: 11139405
Date: 2016-04-04
Test Engineer: Brian Kiewra
Configuration: Standalone (Sample #10240 Z-Axis)
Mode: LTE5, 3MHz, 16-QAM

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 Ch									
825.50	23.45	V	5.3	0.6	-1.54	16.63	38.5	-21.8	
825.50	11.96	H	5.3	0.6	-1.54	5.14	38.5	-33.3	
Mid Ch									
836.50	24.30	V	5.3	0.7	-1.41	17.57	38.5	-20.9	
836.50	10.18	H	5.3	0.7	-1.41	3.45	38.5	-35.0	
High Ch									
847.50	23.91	V	5.3	0.9	-1.28	17.28	38.5	-21.2	
847.50	12.46	H	5.3	0.9	-1.28	5.83	38.5	-32.6	

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

LTE B5 3MHz 16QAM

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

Company: SOMC
Project #: 11139405
Date: 2016-04-04
Test Engineer: Brian Kiewra
Configuration: Standalone (Sample #10240 Z-Axis)
Mode: LTE5, 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
Low Ch									
826.50	23.61	V	5.3	0.6	-1.53	16.80	38.5	-21.7	
826.50	10.64	H	5.3	0.6	-1.53	3.83	38.5	-34.6	
Mid Ch									
836.50	24.74	V	5.3	0.7	-1.41	18.01	38.5	-20.4	
836.50	12.21	H	5.3	0.7	-1.41	5.48	38.5	-33.0	
High Ch									
846.50	24.01	V	5.3	0.9	-1.29	17.37	38.5	-21.1	
846.50	10.95	H	5.3	0.9	-1.29	4.31	38.5	-34.1	

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

LTE B5 5MHz QPSK

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

Company: SOMC
Project #: 11139405
Date: 2016-04-04
Test Engineer: Brian Kiewra
Configuration: Standalone (Sample #10240 Z-Axis)
Mode: LTE5, 5MHz, 16-QAM

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 Ch									
826.50	23.87	V	5.3	0.6	-1.53	17.06	38.5	-21.4	
826.50	10.75	H	5.3	0.6	-1.53	3.94	38.5	-34.5	
Mid Ch									
836.50	24.61	V	5.3	0.7	-1.41	17.88	38.5	-20.6	
836.50	12.52	H	5.3	0.7	-1.41	5.79	38.5	-32.7	
High Ch									
846.50	24.28	V	5.3	0.9	-1.29	17.64	38.5	-20.8	
846.50	10.94	H	5.3	0.9	-1.29	4.30	38.5	-34.1	

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

LTE B5 5MHz 16QAM

LTE B5 5MHz QPSK

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

Company: SOMC
Project #: 11139405
Date: 2016-04-04
Test Engineer: Brian Kiewra
Configuration: Standalone (Sample #10240 Z-Axis)
Mode: LTE5, 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
Low Ch									
829.00	23.71	V	5.3	0.7	-1.50	16.91	38.5	-21.5	
829.00	11.74	H	5.3	0.7	-1.50	4.94	38.5	-33.5	
Mid Ch									
836.60	24.97	V	5.3	0.7	-1.41	18.24	38.5	-20.2	
836.60	11.51	H	5.3	0.7	-1.41	4.78	38.5	-33.7	
High Ch									
844.00	24.60	V	5.3	0.8	-1.32	17.94	38.5	-20.5	
844.00	12.67	H	5.3	0.8	-1.32	6.01	38.5	-32.4	

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

LTE B5 10MHz QPSK

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

Company: SOMC
Project #: 11139405
Date: 2016-04-04
Test Engineer: Brian Kiewra
Configuration: Standalone (Sample #10240 Z-Axis)
Mode: LTE5, 10MHz, 16-QAM

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 Ch									
829.00	23.83	V	5.3	0.7	-1.50	17.03	38.5	-21.4	
829.00	11.77	H	5.3	0.7	-1.50	4.97	38.5	-33.5	
Mid Ch									
836.60	25.13	V	5.3	0.7	-1.41	18.40	38.5	-20.1	
836.60	11.68	H	5.3	0.7	-1.41	4.95	38.5	-33.5	
High Ch									
844.00	24.80	V	5.3	0.8	-1.32	18.14	38.5	-20.3	
844.00	12.99	H	5.3	0.8	-1.32	6.33	38.5	-32.1	

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

LTE B5 10MHz 16QAM

LTE Band 7

BW (MHz)	Mode	RB/RB Size	f(MHz)	EIRP (Peak)	
				dBm	mW
5	QPSK	1/0	2502.5	20.74	118.58
5	QPSK	1/0	2535	20.77	119.40
5	QPSK	1/0	2567.5	21.50	141.25
5	16QAM	1/0	2502.5	20.00	100.00
5	16QAM	1/0	2535	21.31	135.21
5	16QAM	1/0	2567.5	21.35	136.46
10	QPSK	1/0	2505	20.92	123.59
10	QPSK	1/0	2535	21.25	133.35
10	QPSK	1/0	2565	20.96	124.74
10	16QAM	1/0	2505	20.97	125.03
10	16QAM	1/0	2535	21.24	133.05
10	16QAM	1/0	2565	21.01	126.18
15	QPSK	1/0	2507.5	22.14	163.68
15	QPSK	1/0	2535	21.71	148.25
15	QPSK	1/0	2562.5	23.52	224.91
15	16QAM	1/0	2507.5	23.38	217.77
15	16QAM	1/0	2535	21.95	156.68
15	16QAM	1/0	2562.5	24.48	280.54
20	QPSK	1/0	2510	23.44	220.80
20	QPSK	1/0	2535	23.09	203.70
20	QPSK	1/0	2560	23.49	223.36
20	16QAM	1/0	2510	23.35	216.27
20	16QAM	1/0	2535	24.22	264.24
20	16QAM	1/0	2560	24.71	295.80

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

Company: SOMC
Project #: 11139405
Date: 2014-04-02
Test Engineer: Brian Kiewra
Configuration: Standalone (Sample #10240, X-Axis)
Mode: LTE7, 5MHz, 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								
2502.50	23.98	V	9.8	5.5	19.73	33.0	-13.3	PK Detector
2502.50	24.99	H	9.8	5.5	20.74	33.0	-12.3	
Mid Ch								
2535.00	23.90	V	9.8	5.6	19.66	33.0	-13.3	PK Detector
2535.00	25.01	H	9.8	5.6	20.77	33.0	-12.2	
High Ch								
2567.50	24.31	V	9.9	5.7	20.09	33.0	-12.9	PK Detector
2567.50	25.72	H	9.9	5.7	21.50	33.0	-11.5	

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

LTE B7 5MHz QPSK

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

Company: SOMC
Project #: 11139405
Date: 2014-04-02
Test Engineer: Brian Kiewra
Configuration: Standalone (Sample #10240, X-Axis)
Mode: LTE7, 5MHz, 16-QAM

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								
2502.50	24.13	V	9.8	5.5	19.88	33.0	-13.1	PK Detector
2502.50	24.25	H	9.8	5.5	20.00	33.0	-13.0	
Mid Ch								
2535.00	23.96	V	9.8	5.6	19.72	33.0	-13.3	PK Detector
2535.00	25.55	H	9.8	5.6	21.31	33.0	-11.7	
High Ch								
2567.50	24.08	V	9.9	5.7	19.86	33.0	-13.1	PK Detector
2567.50	25.57	H	9.9	5.7	21.35	33.0	-11.7	

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

LTE B7 5MHz 16QAM

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

Company: SOMC
Project #: 11139405
Date: 2014-04-02
Test Engineer: Brian Kiewra
Configuration: Standalone (Sample #10240, X-Axis)
Mode: LTE7, 10MHz, 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								
2505.00	24.03	V	9.8	5.5	19.78	33.0	-13.2	PK Detector
2505.00	25.17	H	9.8	5.5	20.92	33.0	-12.1	
Mid Ch								
2535.00	23.79	V	9.8	5.6	19.55	33.0	-13.5	PK Detector
2535.00	25.49	H	9.8	5.6	21.25	33.0	-11.8	
High Ch								
2565.00	23.76	V	9.9	5.7	19.51	33.0	-13.5	PK Detector
2565.00	25.21	H	9.9	5.7	20.96	33.0	-12.0	

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

LTE B7 10MHz QPSK

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

Company: SOMC
Project #: 11139405
Date: 2014-04-02
Test Engineer: Brian Kiewra
Configuration: Standalone (Sample #10240, X-Axis)
Mode: LTE7, 10MHz, 16-QAM

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								
2505.00	24.06	V	9.8	5.5	19.81	33.0	-13.2	PK Detector
2505.00	25.22	H	9.8	5.5	20.97	33.0	-12.0	
Mid Ch								
2535.00	23.97	V	9.8	5.6	19.73	33.0	-13.3	PK Detector
2535.00	25.48	H	9.8	5.6	21.24	33.0	-11.8	
High Ch								
2565.00	23.90	V	9.9	5.7	19.65	33.0	-13.4	PK Detector
2565.00	25.26	H	9.9	5.7	21.01	33.0	-12.0	

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

LTE B7 10MHz 16QAM

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

Company: SOMC
Project #: 11139405
Date: 2014-04-02
Test Engineer: Brian Kiewra
Configuration: Standalone (Sample #10240, X-Axis)
Mode: LTE7, 15MHz, 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								
2507.50	24.33	V	9.8	5.5	20.07	33.0	-12.9	PK Detector
2507.50	26.40	H	9.8	5.5	22.14	33.0	-10.9	
Mid Ch								
2535.00	23.60	V	9.8	5.6	19.36	33.0	-13.6	PK Detector
2535.00	25.95	H	9.8	5.6	21.71	33.0	-11.3	
High Ch								
2562.50	27.25	V	10.0	5.7	22.97	33.0	-10.0	PK Detector
2562.50	27.80	H	10.0	5.7	23.52	33.0	-9.5	

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

LTE B7 15MHz QPSK

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

Company: SOMC
Project #: 11139405
Date: 2014-04-02
Test Engineer: Brian Kiewra
Configuration: Standalone (Sample #10240, X-Axis)
Mode: LTE7, 15MHz, 16-QAM

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								
2507.50	24.71	V	9.8	5.5	20.45	33.0	-12.5	PK Detector
2507.50	27.64	H	9.8	5.5	23.38	33.0	-9.6	
Mid Ch								
2535.00	23.70	V	9.8	5.6	19.46	33.0	-13.5	PK Detector
2535.00	26.19	H	9.8	5.6	21.95	33.0	-11.1	
High Ch								
2562.50	26.17	V	10.0	5.7	21.89	33.0	-11.1	PK Detector
2562.50	28.76	H	10.0	5.7	24.48	33.0	-8.5	

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

LTE B7 15MHz 16QAM

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

Company: SOMC
Project #: 11139405
Date: 2014-04-02
Test Engineer: Brian Kiewra
Configuration: Standalone (Sample #10240, X-Axis)
Mode: LTE7, 20MHz, 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								
2510.00	24.97	V	9.8	5.5	20.71	33.0	-12.3	PK Detector
2510.00	27.70	H	9.8	5.5	23.44	33.0	-9.6	
Mid Ch								
2535.00	25.71	V	9.8	5.6	21.47	33.0	-11.5	PK Detector
2535.00	27.33	H	9.8	5.6	23.09	33.0	-9.9	
High Ch								
2560.00	25.79	V	10.0	5.7	21.49	33.0	-11.5	PK Detector
2560.00	27.79	H	10.0	5.7	23.49	33.0	-9.5	

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

LTE B7 20MHz QPSK

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

Company: SOMC
Project #: 11139405
Date: 2014-04-02
Test Engineer: Brian Kiewra
Configuration: Standalone (Sample #10240, X-Axis)
Mode: LTE7, 20MHz, 16-QAM

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								
2510.00	25.71	V	9.8	5.5	21.45	33.0	-11.6	PK Detector
2510.00	27.61	H	9.8	5.5	23.35	33.0	-9.7	
Mid Ch								
2535.00	26.71	V	9.8	5.6	22.47	33.0	-10.5	PK Detector
2535.00	28.46	H	9.8	5.6	24.22	33.0	-8.8	
High Ch								
2560.00	27.05	V	10.0	5.7	22.75	33.0	-10.2	PK Detector
2560.00	29.01	H	10.0	5.7	24.71	33.0	-8.3	

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

LTE B7 20MHz 16QAM

LTE Band 13

BW (MHz)	Mode	RB/RB Size	f(MHz)	ERP	
				dBm	mW
5	QPSK	1/0	779.5	18.89	77.45
5	QPSK	1/0	782	17.06	50.82
5	QPSK	1/0	784.5	17.89	61.52
5	16QAM	1/0	779.5	17.99	62.95
5	16QAM	1/0	782	16.15	41.21
5	16QAM	1/0	784.5	16.97	49.77
10	QPSK	1/0	782	18.08	64.27
10	16QAM	1/0	782	17.27	53.33

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

Company: SOMC
Project #: 11139405
Date: 2016-04-04
Test Engineer: Brian Kiewra
Configuration: Standalone (Sample # 10217 Z-Axis)
Mode: LTE13, 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
Low Ch									
779.50	25.56	V	5.1	0.6	-1.59	18.89	34.8	-15.9	
779.50	12.13	H	5.1	0.6	-1.59	5.46	34.8	-29.3	
Mid Ch									
782.00	23.78	V	5.1	0.5	-1.61	17.06	34.8	-17.7	
782.00	11.76	H	5.1	0.5	-1.61	5.04	34.8	-29.8	
High Ch									
784.50	24.63	V	5.1	0.5	-1.63	17.89	34.8	-16.9	
784.50	12.33	H	5.1	0.5	-1.63	5.59	34.8	-29.2	

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

LTE B13 5MHz QPSK

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

Company: SOMC
Project #: 11139405
Date: 2016-04-04
Test Engineer: Brian Kiewra
Configuration: Standalone (Sample # 10217 Z-Axis)
Mode: LTE13, 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
Low Ch									
779.50	24.66	V	5.1	0.6	-1.59	17.99	34.8	-16.8	
779.50	11.15	H	5.1	0.6	-1.59	4.48	34.8	-30.3	
Mid Ch									
782.00	22.87	V	5.1	0.5	-1.61	16.15	34.8	-18.6	
782.00	10.64	H	5.1	0.5	-1.61	3.92	34.8	-30.9	
High Ch									
784.50	23.71	V	5.1	0.5	-1.63	16.97	34.8	-17.8	
784.50	11.46	H	5.1	0.5	-1.63	4.72	34.8	-30.1	

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

LTE B13 5MHz 16QAM

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

Company: SOMC
Project #: 11139405
Date: 2016-04-04
Test Engineer: Brian Kiewra
Configuration: Standalone (Sample #10217 Z-Axis)
Mode: LTE13, 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
Low Ch									
	0.00	V			-2.15		38.5		
	0.00	H			-2.15		38.5		
Mid Ch									
782.00	24.77	V	5.1	0.5	-1.61	18.08	34.8	-16.7	
782.00	10.60	H	5.1	0.5	-1.61	3.91	34.8	-30.9	
High Ch									
	0.00	V			-2.15		38.5		
	0.00	H			-2.15		38.5		

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

LTE B13 10MHz QPSK

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

Company: SOMC
Project #: 11139405
Date: 2016-04-04
Test Engineer: Brian Kiewra
Configuration: Standalone (Sample #10217 Z-Axis)
Mode: LTE13, 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
Low Ch									
	0.00	V			-2.15		38.5		
	0.00	H			-2.15		38.5		
Mid Ch									
782.00	23.96	V	5.1	0.5	-1.61	17.27	34.8	-17.5	
782.00	9.61	H	5.1	0.5	-1.61	2.92	34.8	-31.9	
High Ch									
	0.00	V			-2.15		38.5		
	0.00	H			-2.15		38.5		

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

LTE B13 10MHz 16QAM

LTE Band 17

BW (MHz)	Mode	RB/RB Size	f(MHz)	ERP	
				dBm	mW
5	QPSK	1/0	706.5	19.23	83.75
5	QPSK	1/0	710	19.28	84.72
5	QPSK	1/0	713.5	19.06	80.54
5	16QAM	1/0	706.5	18.43	69.66
5	16QAM	1/0	710	18.31	67.76
5	16QAM	1/0	713.5	18.28	67.30
10	QPSK	1/0	709	19.60	91.20
10	QPSK	1/0	710	19.56	90.36
10	QPSK	1/0	711	19.33	85.70
10	16QAM	1/0	709	18.56	71.78
10	16QAM	1/0	710	18.78	75.51
10	16QAM	1/0	711	18.32	67.92

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

Company: SOMC
Project #: 11139405
Date: 04/04/2016
Test Engineer: Mark Nolting
Configuration: Standalone (Sample #10217, Z-Axis)
Mode: LTE17, 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
Low Ch									
706.50	25.12	V	4.8	1.0	-1.10	19.23	34.8	-15.6	
706.50	11.52	H	4.8	1.0	-1.10	5.63	34.8	-29.2	
Mid Ch									
710.00	25.21	V	4.8	1.0	-1.13	19.28	34.8	-15.5	
710.00	11.79	H	4.8	1.0	-1.13	5.86	34.8	-28.9	
High Ch									
713.50	25.05	V	4.8	1.0	-1.16	19.06	34.8	-15.7	
713.50	11.43	H	4.8	1.0	-1.16	5.44	34.8	-29.4	

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

LTE B17 5MHz QPSK

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

Company: SOMC
Project #: 11139405
Date: 04/04/2016
Test Engineer: Mark Nolting
Configuration: Standalone (Sample #10217, Z-Axis)
Mode: LTE17, 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
Low Ch									
706.50	24.32	V	4.8	1.0	-1.10	18.43	34.8	-16.4	
706.50	10.66	H	4.8	1.0	-1.10	4.77	34.8	-30.0	
Mid Ch									
710.00	24.24	V	4.8	1.0	-1.13	18.31	34.8	-16.5	
710.00	10.83	H	4.8	1.0	-1.13	4.90	34.8	-29.9	
High Ch									
713.50	24.27	V	4.8	1.0	-1.16	18.28	34.8	-16.5	
713.50	10.66	H	4.8	1.0	-1.16	4.67	34.8	-30.1	

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

LTE B17 5MHz 16QAM

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

Company: SOMC
Project #: 11139405
Date: 04/04/2016
Test Engineer: Mark Nolting
Configuration: Standalone (Sample #10217, Z-Axis)
Mode: LTE17, 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
Low Ch									
709.00	25.52	V	4.8	1.0	-1.12	19.60	34.8	-15.2	
709.00	12.20	H	4.8	1.0	-1.12	6.28	34.8	-28.5	
Mid Ch									
710.00	25.49	V	4.8	1.0	-1.13	19.56	34.8	-15.2	
710.00	12.09	H	4.8	1.0	-1.13	6.16	34.8	-28.6	
High Ch									
711.00	25.28	V	4.8	1.0	-1.14	19.33	34.8	-15.5	
711.00	11.80	H	4.8	1.0	-1.14	5.85	34.8	-28.9	

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

LTE B17 10MHz QPSK

Company: SOMC
Project #: 11139405
Date: 04/04/2016
Test Engineer: Mark Nolting
Configuration: Standalone (Sample #10217, Z-Axis)
Mode: LTE17, 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
Low Ch									
709.00	24.48	V	4.8	1.0	-1.12	18.56	34.8	-16.2	
709.00	11.22	H	4.8	1.0	-1.12	5.30	34.8	-29.5	
Mid Ch									
710.00	24.71	V	4.8	1.0	-1.13	18.78	34.8	-16.0	
710.00	11.30	H	4.8	1.0	-1.13	5.37	34.8	-29.4	
High Ch									
711.00	24.27	V	4.8	1.0	-1.14	18.32	34.8	-16.5	
711.00	10.91	H	4.8	1.0	-1.14	4.96	34.8	-29.8	

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

LTE B17 10MHz 16QAM

LTE Band 41

BW (MHz)	Mode	RB/RB Size	f(MHz)	EIRP (Peak)	
				dBm	mW
5	QPSK	1/0	2498.5	21.15	130.32
5	QPSK	1/0	2593	23.54	225.94
5	QPSK	1/0	2687.5	23.97	249.46
5	16QAM	1/0	2498.5	22.56	180.30
5	16QAM	1/0	2593	24.84	304.79
5	16QAM	1/0	2687.5	25.06	320.63
10	QPSK	1/0	2501	21.34	136.14
10	QPSK	1/0	2593	25.22	332.66
10	QPSK	1/0	2685	25.64	366.44
10	16QAM	1/0	2501	22.21	166.34
10	16QAM	1/0	2593	26.31	427.56
10	16QAM	1/0	2685	26.66	463.45
15	QPSK	1/0	2503.5	22.34	171.40
15	QPSK	1/0	2593	25.01	316.96
15	QPSK	1/0	2682.5	25.75	375.84
15	16QAM	1/0	2503.5	23.41	219.28
15	16QAM	1/0	2593	25.96	394.46
15	16QAM	1/0	2682.5	26.48	444.63
20	QPSK	1/0	2506	22.26	168.27
20	QPSK	1/0	2593	25.17	328.85
20	QPSK	1/0	2680	26.08	405.51
20	16QAM	1/0	2506	23.31	214.29
20	16QAM	1/0	2593	26.34	430.53
20	16QAM	1/0	2680	26.70	467.74

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

Company: SOMC
Project #: 11139405
Date: 2016-04-03
Test Engineer: Brian Kiewra
Configuration: Standalone (Sample #10240 Y-Axis)
Mode: LTE41, 5MHz, 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	19.60	V	9.7	5.5	15.35	33.0	-17.7	PK Detector
2498.50	25.40	H	9.7	5.5	21.15	33.0	-11.9	
IC Low Ch								
2502.50	27.93	V	9.8	5.5	23.68	33.0	-9.3	PK Detector
2502.50	26.99	H	9.8	5.5	22.74	33.0	-10.3	
Mid Ch								
2593.00	24.93	V	10.0	5.8	20.70	33.0	-12.3	PK Detector
2593.00	27.77	H	10.0	5.8	23.54	33.0	-9.5	
High Ch								
2687.50	23.30	V	10.2	6.0	19.17	33.0	-13.8	PK Detector
2687.50	28.10	H	10.2	6.0	23.97	33.0	-9.0	

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 #: 11139405
Date: 2016-04-03
Test Engineer: Brian Kiewra
Configuration: Standalone (Sample #10240 Y-Axis)
Mode: LTE41, 5MHz, 16-QAM

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	20.93	V	9.7	5.5	16.68	33.0	-16.3	PK Detector
2498.50	26.81	H	9.7	5.5	22.56	33.0	-10.4	
IC Low Ch								
2502.50	28.41	V	9.8	5.5	24.16	33.0	-8.8	PK Detector
2502.50	27.26	H	9.8	5.5	23.01	33.0	-10.0	
Mid Ch								
2593.00	26.26	V	10.0	5.8	22.03	33.0	-11.0	PK Detector
2593.00	29.07	H	10.0	5.8	24.84	33.0	-8.2	
High Ch								
2687.50	24.27	V	10.2	6.0	20.14	33.0	-12.9	PK Detector
2687.50	29.19	H	10.2	6.0	25.06	33.0	-7.9	

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 #: 11139405
Date: 2016-04-03
Test Engineer: Brian Kiewra
Configuration: Standalone (Sample #10240 Y-Axis)
Mode: LTE41, 10MHz, 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	24.39	V	9.8	5.5	20.14	33.0	-12.9	PK Detector
2501.00	25.59	H	9.8	5.5	21.34	33.0	-11.7	
IC Low Ch								
2505.00	20.49	V	9.8	5.5	16.24	33.0	-16.8	PK Detector
2505.00	25.85	H	9.8	5.5	21.60	33.0	-11.4	
Mid Ch								
2593.00	29.45	V	10.0	5.8	25.22	33.0	-7.8	PK Detector
2593.00	27.82	H	10.0	5.8	23.59	33.0	-9.4	
High Ch								
2685.00	29.79	V	10.2	6.0	25.64	33.0	-7.4	PK Detector
2685.00	29.07	H	10.2	6.0	24.92	33.0	-8.1	

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 #: 11139405
Date: 2016-04-03
Test Engineer: Brian Kiewra
Configuration: Standalone (Sample #10240 Y-Axis)
Mode: LTE41, 10MHz, 16-QAM

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	25.35	V	9.8	5.5	21.10	33.0	-11.9	PK Detector
2501.00	26.46	H	9.8	5.5	22.21	33.0	-10.8	
IC Low Ch								
2505.00	20.60	V	9.8	5.5	16.35	33.0	-16.7	PK Detector
2505.00	26.87	H	9.8	5.5	22.62	33.0	-10.4	
Mid Ch								
2593.00	30.54	V	10.0	5.8	26.31	33.0	-6.7	PK Detector
2593.00	28.93	H	10.0	5.8	24.70	33.0	-8.3	
High Ch								
2685.00	30.81	V	10.2	6.0	26.66	33.0	-6.3	PK Detector
2685.00	30.09	H	10.2	6.0	25.94	33.0	-7.1	

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 #: 11139405
Date: 2016-04-03
Test Engineer: Brian Kiewra
Configuration: Standalone (Sample #10240 Y-Axis)
Mode: LTE41 , 15MHz, 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	26.59	V	9.8	5.5	22.34	33.0	-10.7	PK Detector
2503.50	25.39	H	9.8	5.5	21.14	33.0	-11.9	
IC Low Ch								
2507.50	20.10	V	9.8	5.5	15.84	33.0	-17.2	PK Detector
2507.50	26.26	H	9.8	5.5	22.00	33.0	-11.0	
Mid Ch								
2593.00	29.24	V	10.0	5.8	25.01	33.0	-8.0	PK Detector
2593.00	27.74	H	10.0	5.8	23.51	33.0	-9.5	
High Ch								
2682.50	29.91	V	10.2	6.0	25.75	33.0	-7.3	PK Detector
2682.50	29.12	H	10.2	6.0	24.96	33.0	-8.0	

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 #: 11139405
Date: 2016-04-03
Test Engineer: Brian Kiewra
Configuration: Standalone (Sample #10240 Y-Axis)
Mode: LTE41, 15MHz, 16-QAM

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	27.66	V	9.8	5.5	23.41	33.0	-9.6	PK Detector
2503.50	26.53	H	9.8	5.5	22.28	33.0	-10.7	
IC Low Ch								
2507.50	21.12	V			21.12	33.0	-11.9	PK Detector
2507.50	26.95	H			26.95	33.0	-6.1	
Mid Ch								
2593.00	30.19	V	10.0	5.8	25.96	33.0	-7.0	PK Detector
2593.00	28.61	H	10.0	5.8	24.38	33.0	-8.6	
High Ch								
2682.50	30.64	V	10.2	6.0	26.48	33.0	-6.5	PK Detector
2682.50	29.89	H	10.2	6.0	25.73	33.0	-7.3	

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 #: 11139405
Date: 2016-04-03
Test Engineer: Brian Kiewra
Configuration: Standalone (Sample #10240 Y-Axis)
Mode: LTE41, 20MHz, 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	26.52	V	9.8	5.5	22.26	33.0	-10.7	PK Detector
2506.00	25.87	H	9.8	5.5	21.61	33.0	-11.4	
IC Low Ch								
2510.00	26.62	V	9.8	5.5	22.36	33.0	-10.6	PK Detector
2510.00	25.86	H	9.8	5.5	21.60	33.0	-11.4	
Mid Ch								
2593.00	29.40	V	10.0	5.8	25.17	33.0	-7.8	PK Detector
2593.00	27.67	H	10.0	5.8	23.44	33.0	-9.6	
High Ch								
2680.00	30.26	V	10.2	6.0	26.08	33.0	-6.9	PK Detector
2680.00	29.62	H	10.2	6.0	25.44	33.0	-7.6	

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 #: 11139405
Date: 2016-04-03
Test Engineer: Brian Kiewra
Configuration: Standalone (Sample #10240 Y-Axis)
Mode: LTE41 , 20MHz, 16-QAM

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	27.57	V	9.8	5.5	23.31	33.0	-9.7	PK Detector
2506.00	26.71	H	9.8	5.5	22.45	33.0	-10.5	
IC Low Ch								
2510.00	27.79	V	9.8	5.5	23.53	33.0	-9.5	PK Detector
2510.00	26.75	H	9.8	5.5	22.49	33.0	-10.5	
Mid Ch								
2593.00	30.57	V	10.0	5.8	26.34	33.0	-6.7	PK Detector
2593.00	28.87	H	10.0	5.8	24.64	33.0	-8.4	
High Ch								
2680.00	30.88	V	10.2	6.0	26.70	33.0	-6.3	PK Detector
2680.00	30.28	H	10.2	6.0	26.10	33.0	-6.9	

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 that 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 #: 11139405
Date: 04/04/2016
Test Engineer: Mark Nolting
Configuration: Standalone (Sample #10249 Z-Axis)
Mode: GPRS 850MHz

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

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Low Channel (824.2MHz)									
1.648	-57.0	H	3.0	-13.6	39.9	1.0	-52.5	-13.0	-39.5
2.473	-63.8	H	3.0	-17.1	39.3	1.0	-55.4	-13.0	-42.4
3.297	-64.9	H	3.0	-15.5	39.5	1.0	-54.0	-13.0	-41.0
1.648	-58.5	V	3.0	-13.5	39.9	1.0	-52.4	-13.0	-39.4
2.473	-64.2	V	3.0	-16.5	39.3	1.0	-54.8	-13.0	-41.8
3.297	-64.5	V	3.0	-14.3	39.5	1.0	-52.8	-13.0	-39.8
Mid Channel (836.6MHz)									
1.673	-53.4	H	3.0	-9.8	39.9	1.0	-48.7	-13.0	-35.7
2.510	-63.7	H	3.0	-16.9	39.2	1.0	-55.1	-13.0	-42.1
3.346	-63.1	H	3.0	-13.6	39.5	1.0	-52.1	-13.0	-39.1
7.244	-66.6	H	3.0	-10.4	39.0	1.0	-48.4	-13.0	-35.4
1.673	-59.2	V	3.0	-14.0	39.9	1.0	-53.0	-13.0	-40.0
2.510	-64.3	V	3.0	-16.5	39.2	1.0	-54.7	-13.0	-41.7
3.346	-64.6	V	3.0	-14.3	39.5	1.0	-52.8	-13.0	-39.8
7.245	-66.2	V	3.0	-10.3	39.0	1.0	-48.3	-13.0	-35.3
High Channel (848.8MHz)									
1.698	-56.0	H	3.0	-12.2	40.0	1.0	-51.2	-13.0	-38.2
2.546	-63.3	H	3.0	-16.4	39.2	1.0	-54.6	-13.0	-41.6
3.395	-64.5	H	3.0	-14.9	39.5	1.0	-53.5	-13.0	-40.5
1.698	-59.2	V	3.0	-13.8	40.0	1.0	-52.8	-13.0	-39.8
2.546	-63.4	V	3.0	-15.4	39.2	1.0	-53.6	-13.0	-40.6
3.395	-64.5	V	3.0	-14.1	39.5	1.0	-52.6	-13.0	-39.6

Rev. 03.19.15

GSM850 GPRS

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 04/04/2016
Test Engineer: Mark Nolting
Configuration: Standalone (Sample #10249 Z-Axis)
Mode: EGPRS 850MHz

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

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Low Channel (824.2MHz)									
1.648	-57.8	H	3.0	-14.4	39.9	1.0	-53.3	-13.0	-40.3
2.473	-64.1	H	3.0	-17.4	39.3	1.0	-55.7	-13.0	-42.7
3.297	-64.9	H	3.0	-15.8	39.5	1.0	-54.1	-13.0	-41.1
1.648	-59.1	V	3.0	-14.1	39.9	1.0	-52.9	-13.0	-39.9
2.473	-64.4	V	3.0	-16.7	39.3	1.0	-55.0	-13.0	-42.0
3.297	-64.9	V	3.0	-14.7	39.5	1.0	-53.2	-13.0	-40.2
Mid Channel (836.6MHz)									
1.673	-57.5	H	3.0	-13.9	39.9	1.0	-52.9	-13.0	-39.9
2.510	-64.1	H	3.0	-17.3	39.2	1.0	-55.5	-13.0	-42.5
3.346	-64.3	H	3.0	-14.8	39.5	1.0	-53.4	-13.0	-40.4
1.673	-59.8	V	3.0	-14.6	39.9	1.0	-53.5	-13.0	-40.5
2.510	-63.6	V	3.0	-15.7	39.2	1.0	-54.0	-13.0	-41.0
3.346	-65.0	V	3.0	-14.7	39.5	1.0	-53.2	-13.0	-40.2
High Channel (848.8MHz)									
1.698	-57.6	H	3.0	-13.9	40.0	1.0	-52.8	-13.0	-39.8
2.546	-64.0	H	3.0	-17.0	39.2	1.0	-55.2	-13.0	-42.2
3.395	-64.6	H	3.0	-15.0	39.5	1.0	-53.6	-13.0	-40.6
1.698	-59.8	V	3.0	-14.4	40.0	1.0	-53.4	-13.0	-40.4
2.546	-63.9	V	3.0	-15.9	39.2	1.0	-54.1	-13.0	-41.1
3.395	-64.7	V	3.0	-14.3	39.5	1.0	-52.8	-13.0	-39.8

Rev. 03.19.15

GSM850 EGPRS

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 04/05/2016
Test Engineer: Mark Nolting
Configuration: EUT w/ AC Adaptor and Headphones (Sample # 10249 X-Axis)
Mode: GPRS 1900MHz

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

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Low Channel (1850.2MHz)									
3.70	-57.9	H	3.0	-7.6	39.7	1.0	-46.3	-13.0	-33.3
5.55	-60.6	H	3.0	-7.1	40.1	1.0	-46.1	-13.0	-33.1
7.40	-66.0	H	3.0	-9.7	39.0	1.0	-47.6	-13.0	-34.6
3.70	-61.0	V	3.0	-10.3	39.7	1.0	-49.0	-13.0	-36.0
5.55	-60.3	V	3.0	-6.9	40.1	1.0	-46.0	-13.0	-33.0
7.40	-66.8	V	3.0	-10.7	39.0	1.0	-48.6	-13.0	-35.6
Mid Channel (1880.0)									
3.76	-57.1	H	3.0	-6.6	39.8	1.0	-45.4	-13.0	-32.4
5.64	-58.0	H	3.0	-4.3	40.0	1.0	-43.4	-13.0	-30.4
7.52	-67.0	H	3.0	-10.6	38.9	1.0	-48.5	-13.0	-35.5
3.76	-59.8	V	3.0	-9.0	39.8	1.0	-47.8	-13.0	-34.8
5.64	-59.7	V	3.0	-2.2	40.0	1.0	-41.2	-13.0	-28.2
7.52	-66.5	V	3.0	-10.3	38.9	1.0	-48.2	-13.0	-35.2
High Channel (1909.8MHz)									
3.82	-56.2	H	3.0	-5.6	39.8	1.0	-44.4	-13.0	-31.4
5.73	-60.7	H	3.0	-4.9	40.0	1.0	-45.8	-13.0	-32.8
7.64	-66.2	H	3.0	-9.6	38.9	1.0	-47.5	-13.0	-34.5
3.82	-59.1	V	3.0	-8.2	39.8	1.0	-47.0	-13.0	-34.0
5.73	-58.4	V	3.0	-4.7	40.0	1.0	-43.7	-13.0	-30.7
7.64	-66.7	V	3.0	-10.3	38.9	1.0	-48.2	-13.0	-35.2

Rev. 03.19.15

GSM1900 GPRS

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 2016-04-05
Test Engineer: Brian Klewra
Configuration: EUT w/ AC Adaptor and Headphones (Sample # 10249 X-Axis)
Mode: EGPRS 1900MHz

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

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Low Channel (1850.2MHz)									
3.70	-59.0	H	3.0	-8.7	39.7	1.0	-47.4	-13.0	-34.4
5.55	-60.7	H	3.0	-7.2	40.1	1.0	-46.3	-13.0	-33.3
7.40	-65.4	H	3.0	-9.0	39.0	1.0	-47.0	-13.0	-34.0
3.70	-61.4	V	3.0	-10.7	39.7	1.0	-49.4	-13.0	-36.4
5.55	-57.1	V	3.0	-3.7	40.1	1.0	-42.8	-13.0	-29.8
7.40	-64.5	V	3.0	-8.4	39.0	1.0	-46.4	-13.0	-33.4
Mid Channel (1880.0)									
3.76	-59.7	H	3.0	-9.2	39.8	1.0	-48.0	-13.0	-35.0
5.64	-57.4	H	3.0	-3.7	40.0	1.0	-42.8	-13.0	-29.8
7.52	-63.7	H	3.0	-7.2	38.9	1.0	-45.1	-13.0	-32.1
3.76	-61.2	V	3.0	-10.4	39.8	1.0	-49.2	-13.0	-36.2
5.64	-54.8	V	3.0	1.3	40.0	1.0	-40.3	-13.0	-27.3
7.52	-63.7	V	3.0	-7.4	38.9	1.0	-45.4	-13.0	-32.4
High Channel (1909.8MHz)									
3.82	-58.1	H	3.0	-7.5	39.8	1.0	-46.3	-13.0	-33.3
5.73	-58.9	H	3.0	-5.1	40.0	1.0	-44.1	-13.0	-31.1
7.64	-62.8	H	3.0	-6.2	38.9	1.0	-44.1	-13.0	-31.1
3.82	-60.8	V	3.0	-9.9	39.8	1.0	-48.7	-13.0	-35.7
5.73	-54.8	V	3.0	-1.1	40.0	1.0	-40.1	-13.0	-27.1
7.64	-63.9	V	3.0	-7.6	38.9	1.0	-45.5	-13.0	-32.5

Rev. 03.19.15

GSM1900 EGPRS

WCDMA

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 04/07/2016
Test Engineer: Mark Nolting
Configuration: Standalone (Sample #10249 X-Axis)
Mode: REL 99, 1900MHz

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

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Low Channel (1852.4MHz)									
3.70	-63.7	H	3.0	-13.4	39.7	1.0	-52.2	-13.0	-39.2
5.56	-65.7	H	3.0	-12.2	40.1	1.0	-51.3	-13.0	-38.3
7.41	-68.1	H	3.0	-11.7	39.0	1.0	-49.7	-13.0	-36.7
3.70	-64.6	V	3.0	-13.8	39.7	1.0	-52.6	-13.0	-39.6
5.56	-62.0	V	3.0	-8.6	40.1	1.0	-47.7	-13.0	-34.7
7.41	-67.2	V	3.0	-11.1	39.0	1.0	-49.1	-13.0	-36.1
Mid Channel (1880MHz)									
3.76	-64.6	H	3.0	-14.1	39.8	1.0	-52.9	-13.0	-39.9
5.64	-65.0	H	3.0	-11.3	40.0	1.0	-50.3	-13.0	-37.3
7.52	-67.4	H	3.0	-10.9	38.9	1.0	-48.9	-13.0	-35.9
3.76	-65.7	V	3.0	-14.9	39.8	1.0	-53.7	-13.0	-40.7
5.64	-61.6	V	3.0	-8.1	40.0	1.0	-47.1	-13.0	-34.1
7.52	-67.4	V	3.0	-11.2	38.9	1.0	-49.1	-13.0	-36.1
High Channel (1907.6MHz)									
3.82	-63.9	H	3.0	-13.3	39.8	1.0	-52.1	-13.0	-39.1
5.72	-64.9	H	3.0	-11.1	40.0	1.0	-50.1	-13.0	-37.1
7.63	-67.1	H	3.0	-10.5	38.9	1.0	-48.4	-13.0	-35.4
3.82	-64.6	V	3.0	-13.7	39.8	1.0	-52.6	-13.0	-39.6
5.72	-61.4	V	3.0	-7.7	40.0	1.0	-46.7	-13.0	-33.7
7.63	-67.7	V	3.0	-11.4	38.9	1.0	-49.3	-13.0	-36.3

Rev. 03.19.15

B2 REL99

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 04/07/2016
Test Engineer: Mark Nolting
Configuration: Standalone (Sample #10249 X-Axis)
Mode: HSDPA 1900MHz

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

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Low Channel (1852.4MHz)									
3.70	-63.9	H	3.0	-13.6	39.7	1.0	-52.3	-13.0	-39.3
5.56	-65.3	H	3.0	-11.8	40.1	1.0	-50.8	-13.0	-37.8
7.41	-67.3	H	3.0	-11.0	39.0	1.0	-48.9	-13.0	-35.9
3.70	-63.9	V	3.0	-13.2	39.7	1.0	-51.9	-13.0	-38.9
5.56	-62.4	V	3.0	-9.0	40.1	1.0	-48.1	-13.0	-35.1
7.41	-67.5	V	3.0	-11.5	39.0	1.0	-49.4	-13.0	-36.4
Mid Channel (1880MHz)									
3.76	-64.0	H	3.0	-13.6	39.8	1.0	-52.3	-13.0	-39.3
5.64	-64.7	H	3.0	-11.0	40.0	1.0	-50.0	-13.0	-37.0
7.52	-67.4	H	3.0	-10.9	38.9	1.0	-48.9	-13.0	-35.9
3.76	-65.4	V	3.0	-14.6	39.8	1.0	-53.4	-13.0	-40.4
5.64	-62.4	V	3.0	-8.9	40.0	1.0	-47.9	-13.0	-34.9
7.52	-67.7	V	3.0	-11.5	38.9	1.0	-49.4	-13.0	-36.4
High Channel (1907.6MHz)									
3.82	-63.5	H	3.0	-12.9	39.8	1.0	-51.7	-13.0	-38.7
5.72	-65.2	H	3.0	-11.4	40.0	1.0	-50.4	-13.0	-37.4
7.63	-67.7	H	3.0	-11.1	38.9	1.0	-49.0	-13.0	-36.0
3.82	-64.1	V	3.0	-13.2	39.8	1.0	-52.0	-13.0	-39.0
5.72	-63.2	V	3.0	-9.5	40.0	1.0	-48.5	-13.0	-35.5
7.63	-67.6	V	3.0	-11.2	38.9	1.0	-49.1	-13.0	-36.1

Rev. 03.19.15

B2 HSDPA

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 04/04/2016
Test Engineer: Mark Nolting
Configuration: Standalone (Sample #10249 Z-Axis)
Mode: REL 99, 850MHz

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

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Low Channel (826.4MHz)									
1.653	-62.3	H	3.0	-18.9	39.9	1.0	-57.8	-13.0	-44.8
2.479	-64.2	H	3.0	-17.5	39.3	1.0	-55.8	-13.0	-42.8
3.306	-64.1	H	3.0	-14.7	39.5	1.0	-53.2	-13.0	-40.2
1.653	-61.0	V	3.0	-15.9	39.9	1.0	-54.8	-13.0	-41.8
2.479	-63.5	V	3.0	-15.8	39.3	1.0	-54.1	-13.0	-41.1
3.306	-64.3	V	3.0	-14.0	39.5	1.0	-52.5	-13.0	-39.5
Mid Channel (836.6MHz)									
1.673	-61.5	H	3.0	-17.9	39.9	1.0	-56.8	-13.0	-43.8
2.510	-63.7	H	3.0	-16.9	39.2	1.0	-55.1	-13.0	-42.1
3.346	-64.3	H	3.0	-14.8	39.5	1.0	-53.4	-13.0	-40.4
1.673	-61.2	V	3.0	-16.1	39.9	1.0	-55.0	-13.0	-42.0
2.510	-63.4	V	3.0	-15.6	39.2	1.0	-53.9	-13.0	-40.9
3.346	-64.6	V	3.0	-14.3	39.5	1.0	-52.8	-13.0	-39.8
High Channel (846.6MHz)									
1.693	-61.4	H	3.0	-17.6	39.9	1.0	-56.6	-13.0	-43.6
2.540	-63.8	H	3.0	-16.8	39.2	1.0	-55.1	-13.0	-42.1
3.386	-64.5	H	3.0	-14.9	39.5	1.0	-53.5	-13.0	-40.5
1.693	-61.7	V	3.0	-16.4	39.9	1.0	-55.3	-13.0	-42.3
2.540	-63.9	V	3.0	-16.0	39.2	1.0	-54.2	-13.0	-41.2
3.386	-64.6	V	3.0	-14.2	39.5	1.0	-52.8	-13.0	-39.8

Rev. 03.19.15

B5 REL99

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 04/04/2016
Test Engineer: Mark Nolting
Configuration: Standalone (Sample #10249 Z-Axis)
Mode: HSDPA 850MHz

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

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Low Channel (826.4MHz)									
1.65	-62.5	H	3.0	-19.1	39.9	1.0	-58.0	-13.0	-45.0
2.48	-64.4	H	3.0	-17.9	39.3	1.0	-56.0	-13.0	-43.0
3.31	-64.5	H	3.0	-15.2	39.5	1.0	-53.7	-13.0	-40.7
1.65	-60.5	V	3.0	-15.5	39.9	1.0	-54.4	-13.0	-41.4
2.48	-63.2	V	3.0	-15.9	39.3	1.0	-53.8	-13.0	-40.8
3.31	-64.0	V	3.0	-13.7	39.5	1.0	-52.2	-13.0	-39.2
Mid Channel (836.6MHz)									
1.67	-61.7	H	3.0	-18.1	39.9	1.0	-57.0	-13.0	-44.0
2.51	-63.4	H	3.0	-16.5	39.2	1.0	-54.8	-13.0	-41.8
3.35	-64.1	H	3.0	-14.6	39.5	1.0	-53.1	-13.0	-40.1
1.67	-61.4	V	3.0	-16.2	39.9	1.0	-55.2	-13.0	-42.2
2.51	-64.0	V	3.0	-16.2	39.2	1.0	-54.4	-13.0	-41.4
3.35	-64.4	V	3.0	-14.0	39.5	1.0	-52.6	-13.0	-39.6
High Channel (846.6MHz)									
1.69	-62.0	H	3.0	-18.3	39.9	1.0	-57.2	-13.0	-44.2
2.54	-64.5	H	3.0	-17.5	39.2	1.0	-55.8	-13.0	-42.8
3.39	-63.9	H	3.0	-14.3	39.5	1.0	-52.9	-13.0	-39.9
1.69	-62.0	V	3.0	-16.7	39.9	1.0	-55.7	-13.0	-42.7
2.54	-63.8	V	3.0	-15.9	39.2	1.0	-54.1	-13.0	-41.1
3.39	-64.4	V	3.0	-14.1	39.5	1.0	-52.6	-13.0	-39.6

Rev. 03.19.15

B5 HSDPA

LTE Band 5

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 2016-04-05
Test Engineer: Brian Kiewra
Configuration: EUT w/ AC Adaptor and Headphones (Sample #10217 Z-Axis)
Mode: LTE Band 5, 1.4MHz QPSK

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

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Low Channel (824.7MHz)									
1.65	73.6	H	3.0	30.2	39.9	1.0	69.1	13.0	-56.1
2.47	74.3	H	3.0	27.6	39.3	1.0	65.9	13.0	-52.9
3.30	74.5	H	3.0	25.1	39.5	1.0	63.6	13.0	-50.6
1.65	73.4	V	3.0	28.4	39.9	1.0	67.3	13.0	-54.3
2.47	74.3	V	3.0	26.6	39.3	1.0	64.9	13.0	-51.9
3.30	74.5	V	3.0	24.3	39.5	1.0	62.8	13.0	-49.8
Mid Channel (836.5MHz)									
1.67	72.8	H	3.0	29.2	39.9	1.0	68.1	13.0	-55.1
2.51	73.8	H	3.0	27.0	39.2	1.0	65.2	13.0	-52.2
3.35	74.3	H	3.0	24.8	39.5	1.0	63.3	13.0	-50.3
1.67	73.2	V	3.0	28.0	39.9	1.0	67.0	13.0	-54.0
2.51	74.2	V	3.0	26.4	39.2	1.0	64.6	13.0	-51.6
3.35	74.6	V	3.0	24.3	39.5	1.0	62.8	13.0	-49.8
High Channel (848.3MHz)									
1.70	73.3	H	3.0	29.6	40.0	1.0	68.5	13.0	-55.5
2.55	74.0	H	3.0	27.0	39.2	1.0	65.3	13.0	-52.3
3.39	74.3	H	3.0	24.7	39.5	1.0	63.3	13.0	-50.3
1.70	73.4	V	3.0	28.0	40.0	1.0	67.0	13.0	-54.0
2.55	74.0	V	3.0	26.0	39.2	1.0	64.3	13.0	-51.3
3.39	74.4	V	3.0	24.0	39.5	1.0	62.6	13.0	-49.6

Rev. 10.28.15

LTE B5 1.4MHz QPSK

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 2016-04-05
Test Engineer: Brian Kiewra
Configuration: EUT w/ AC Adaptor and Headphones (Sample #10217 Z-Axis)
Mode: LTE Band 5, 1.4MHz 16QAM

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

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Low Channel (824.7MHz)									
1.65	73.4	H	3.0	30.0	39.9	1.0	68.9	13.0	-55.9
2.47	74.2	H	3.0	27.5	39.3	1.0	65.8	13.0	-52.8
3.30	74.5	H	3.0	25.1	39.5	1.0	63.6	13.0	-50.6
1.65	73.6	V	3.0	28.6	39.9	1.0	67.5	13.0	-54.5
2.47	74.3	V	3.0	26.6	39.3	1.0	64.9	13.0	-51.9
3.30	74.5	V	3.0	24.3	39.5	1.0	62.8	13.0	-49.8
Mid Channel (836.5MHz)									
1.67	72.8	H	3.0	29.2	39.9	1.0	68.1	13.0	-55.1
2.51	73.8	H	3.0	27.0	39.2	1.0	65.2	13.0	-52.2
3.35	74.3	H	3.0	24.8	39.5	1.0	63.3	13.0	-50.3
1.67	73.2	V	3.0	28.0	39.9	1.0	66.9	13.0	-53.9
2.51	74.2	V	3.0	26.4	39.2	1.0	64.6	13.0	-51.6
3.35	74.6	V	3.0	24.3	39.5	1.0	62.8	13.0	-49.8
High Channel (848.3MHz)									
1.70	73.3	H	3.0	29.6	40.0	1.0	68.5	13.0	-55.5
2.55	74.0	H	3.0	27.0	39.2	1.0	65.3	13.0	-52.3
3.39	74.4	H	3.0	24.8	39.5	1.0	63.4	13.0	-50.4
1.70	3.4	V	3.0	41.9	40.0	1.0	3.0	13.0	16.0
2.55	74.0	V	3.0	26.0	39.2	1.0	64.3	13.0	-51.3
3.39	74.4	V	3.0	24.0	39.5	1.0	62.6	13.0	-49.6

Rev. 10.28.15

LTE B5 1.4MHz 16QAM

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 2016-04-05
Test Engineer: Brian Kiewra
Configuration: EUT w/ AC Adaptor and Headphones (Sample # 10217 Z-Axis)
Mode: LTE Band 5, 3MHz QPSK

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

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Low Channel (825.5MHz)									
1.65	69.8	H	3.0	26.4	39.9	1.0	65.3	13.0	-52.3
2.48	70.7	H	3.0	24.0	39.3	1.0	62.3	13.0	-49.3
3.30	71.1	H	3.0	21.7	39.5	1.0	60.2	13.0	-47.2
1.65	70.1	V	3.0	25.0	39.9	1.0	63.9	13.0	-50.9
2.48	70.9	V	3.0	23.2	39.3	1.0	61.5	13.0	-48.5
3.30	71.2	V	3.0	20.9	39.5	1.0	59.4	13.0	-46.4
Mid Channel (836.5MHz)									
1.67	69.9	H	3.0	26.3	39.9	1.0	65.2	13.0	-52.2
2.51	70.8	H	3.0	24.0	39.2	1.0	62.2	13.0	-49.2
3.35	71.3	H	3.0	21.9	39.5	1.0	60.4	13.0	-47.4
1.67	69.7	V	3.0	24.5	39.9	1.0	63.4	13.0	-50.4
2.51	70.9	V	3.0	22.7	39.2	1.0	61.2	13.0	-48.2
3.35	71.2	V	3.0	20.9	39.5	1.0	59.4	13.0	-46.4
High Channel (847.5MHz)									
1.70	69.9	H	3.0	26.2	40.0	1.0	65.1	13.0	-52.1
2.54	70.7	H	3.0	23.7	39.2	1.0	62.0	13.0	-49.0
3.39	71.0	H	3.0	21.4	39.5	1.0	59.9	13.0	-46.9
1.70	70.0	V	3.0	24.7	40.0	1.0	63.7	13.0	-50.7
2.54	70.7	V	3.0	22.7	39.2	1.0	61.0	13.0	-48.0
3.39	71.2	V	3.0	20.8	39.5	1.0	59.3	13.0	-46.3

Rev. 10.28.15

LTE B5 3MHz QPSK

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 2016-04-05
Test Engineer: Brian Kiewra
Configuration: EUT w/ AC Adaptor and Headphones (Sample # 10217 Z-Axis)
Mode: LTE Band 5, 3MHz 16QAM

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

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Low Channel (825.5MHz)									
1.65	69.9	H	3.0	26.4	39.9	1.0	65.3	13.0	-52.3
2.48	70.8	H	3.0	24.1	39.3	1.0	62.4	13.0	-49.4
3.30	71.1	H	3.0	21.7	39.5	1.0	60.2	13.0	-47.2
1.65	70.0	V	3.0	25.0	39.9	1.0	63.9	13.0	-50.9
2.48	70.9	V	3.0	23.2	39.3	1.0	61.5	13.0	-48.5
3.30	71.2	V	3.0	20.9	39.5	1.0	59.4	13.0	-46.4
Mid Channel (836.5MHz)									
1.67	69.8	H	3.0	26.2	39.9	1.0	65.2	13.0	-52.2
2.51	70.9	H	3.0	24.1	39.2	1.0	62.3	13.0	-49.3
3.35	71.3	H	3.0	21.8	39.5	1.0	60.4	13.0	-47.4
1.67	69.7	V	3.0	24.5	39.9	1.0	63.4	13.0	-50.4
2.51	70.7	V	3.0	22.5	39.2	1.0	61.2	13.0	-48.2
3.35	71.2	V	3.0	20.9	39.5	1.0	59.4	13.0	-46.4
High Channel (847.5MHz)									
1.70	69.9	H	3.0	26.2	40.0	1.0	65.1	13.0	-52.1
2.54	70.6	H	3.0	23.7	39.2	1.0	61.9	13.0	-48.9
3.39	71.1	H	3.0	21.5	39.5	1.0	60.0	13.0	-47.0
1.70	70.1	V	3.0	24.7	40.0	1.0	63.7	13.0	-50.7
2.54	70.7	V	3.0	22.7	39.2	1.0	61.0	13.0	-48.0
3.39	71.2	V	3.0	20.8	39.5	1.0	59.3	13.0	-46.3

Rev. 10.28.15

LTE B5 3MHz 16QAM

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 2016-04-05
Test Engineer: Brian Kiewra
Configuration: EUT w/ AC Adaptor and Headphones (Sample # 10217 Z-Axis)
Mode: LTE Band 5, 5MHz QPSK

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

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Low Channel (826.5MHz)									
1.65	67.9	H	3.0	24.5	39.9	1.0	63.4	13.0	-50.4
2.48	68.8	H	3.0	22.1	39.3	1.0	60.4	13.0	-47.4
3.31	69.0	H	3.0	19.7	39.5	1.0	58.2	13.0	-45.2
1.65	67.9	V	3.0	22.8	39.9	1.0	61.7	13.0	-48.7
2.48	68.7	V	3.0	21.0	39.3	1.0	59.3	13.0	-46.3
3.31	68.9	V	3.0	18.7	39.5	1.0	57.2	13.0	-44.2
Mid Channel (836.5MHz)									
1.67	67.3	H	3.0	23.7	39.9	1.0	62.6	13.0	-49.6
2.51	68.4	H	3.0	21.5	39.2	1.0	59.8	13.0	-46.8
3.35	68.8	H	3.0	19.3	39.5	1.0	57.8	13.0	-44.8
1.67	67.6	V	3.0	22.4	39.9	1.0	61.3	13.0	-48.3
2.51	68.6	V	3.0	20.8	39.2	1.0	59.0	13.0	-46.0
3.35	69.1	V	3.0	18.8	39.5	1.0	57.3	13.0	-44.3
High Channel (846.5MHz)									
1.69	67.6	H	3.0	23.9	39.9	1.0	62.9	13.0	-49.9
2.54	68.5	H	3.0	21.5	39.2	1.0	59.8	13.0	-46.8
3.39	68.8	H	3.0	19.2	39.5	1.0	57.8	13.0	-44.8
1.69	67.7	V	3.0	22.4	39.9	1.0	61.4	13.0	-48.4
2.54	68.5	V	3.0	20.5	39.2	1.0	58.8	13.0	-45.8
3.39	68.5	V	3.0	18.2	39.5	1.0	56.7	13.0	-43.7

Rev. 10.28.15

LTE B5 5MHz QPSK

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 2016-04-05
Test Engineer: Brian Kiewra
Configuration: EUT w/ AC Adaptor and Headphones (Sample # 10217 Z-Axis)
Mode: LTE Band 5, 5MHz 16QAM

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

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Low Channel (826.5MHz)									
1.65	68.0	H	3.0	24.5	39.9	1.0	63.4	13.0	-50.4
2.48	68.8	H	3.0	22.2	39.3	1.0	60.5	13.0	-47.5
3.31	69.1	H	3.0	19.7	39.5	1.0	58.2	13.0	-45.2
1.65	67.8	V	3.0	22.8	39.9	1.0	61.7	13.0	-48.7
2.48	68.7	V	3.0	21.0	39.3	1.0	59.3	13.0	-46.3
3.31	69.0	V	3.0	18.7	39.5	1.0	57.2	13.0	-44.2
Mid Channel (836.5MHz)									
1.67	67.2	H	3.0	23.6	39.9	1.0	62.5	13.0	-49.5
2.51	68.3	H	3.0	21.5	39.2	1.0	59.7	13.0	-46.7
3.35	68.8	H	3.0	19.3	39.5	1.0	57.8	13.0	-44.8
1.67	67.5	V	3.0	22.4	39.9	1.0	61.3	13.0	-48.3
2.51	68.7	V	3.0	20.8	39.2	1.0	59.1	13.0	-46.1
3.35	69.0	V	3.0	18.7	39.5	1.0	57.2	13.0	-44.2
High Channel (846.5MHz)									
1.69	67.8	H	3.0	24.1	39.9	1.0	63.0	13.0	-50.0
2.54	68.6	H	3.0	21.5	39.2	1.0	59.9	13.0	-46.9
3.39	68.8	H	3.0	19.3	39.5	1.0	57.8	13.0	-44.8
1.69	67.7	V	3.0	22.3	39.9	1.0	61.3	13.0	-48.3
2.54	68.6	V	3.0	20.6	39.2	1.0	58.8	13.0	-45.8
3.39	68.8	V	3.0	18.4	39.5	1.0	56.9	13.0	-43.9

Rev. 10.28.15

LTE B5 5MHz 16QAM

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 2016-04-05
Test Engineer: Brian Kiewra
Configuration: EUT w/ AC Adaptor and Headphones (Sample # 10217 Z-Axis)
Mode: LTE Band 5, 10MHz QPSK

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

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Low Channel (829MHz)									
1.66	-64.8	H	3.0	-21.3	39.9	1.0	-60.2	-13.0	-47.2
2.49	-65.8	H	3.0	-19.0	39.3	1.0	-57.3	-13.0	-44.3
3.32	-66.0	H	3.0	-16.6	39.5	1.0	-55.1	-13.0	-42.1
1.66	-64.8	V	3.0	-19.7	39.9	1.0	-58.6	-13.0	-45.6
2.49	-65.8	V	3.0	-18.0	39.3	1.0	-56.3	-13.0	-43.3
3.32	-66.0	V	3.0	-15.7	39.5	1.0	-54.2	-13.0	-41.2
Mid Channel (836.5MHz)									
1.67	-64.5	H	3.0	-20.9	39.9	1.0	-59.8	-13.0	-46.8
2.51	-65.6	H	3.0	-18.8	39.2	1.0	-57.0	-13.0	-44.0
3.35	-66.0	H	3.0	-16.6	39.5	1.0	-55.1	-13.0	-42.1
1.67	-64.5	V	3.0	-19.3	39.9	1.0	-58.2	-13.0	-45.2
2.51	-65.6	V	3.0	-17.7	39.2	1.0	-56.0	-13.0	-43.0
3.35	-66.0	V	3.0	-15.7	39.5	1.0	-54.2	-13.0	-41.2
High Channel (844MHz)									
1.69	-64.5	H	3.0	-20.8	39.9	1.0	-59.8	-13.0	-46.8
2.53	-65.6	H	3.0	-18.7	39.2	1.0	-57.0	-13.0	-44.0
3.38	-65.9	H	3.0	-16.4	39.5	1.0	-54.9	-13.0	-41.9
1.69	-64.6	V	3.0	-19.3	39.9	1.0	-58.2	-13.0	-45.2
2.53	-65.6	V	3.0	-17.7	39.2	1.0	-56.0	-13.0	-43.0
3.38	-66.0	V	3.0	-15.6	39.5	1.0	-54.2	-13.0	-41.2

Rev. 10.28.15

LTE B5 10MHz QPSK

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 2016-04-05
Test Engineer: Brian Kiewra
Configuration: EUT w/ AC Adaptor and Headphones (Sample # 10217 Z-Axis)
Mode: LTE Band 5, 10MHz 16QAM

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

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Low Channel (829MHz)									
1.66	-64.7	H	3.0	-21.2	39.9	1.0	-60.1	-13.0	-47.1
2.49	-65.6	H	3.0	-18.9	39.3	1.0	-57.2	-13.0	-44.2
3.32	-65.8	H	3.0	-16.4	39.5	1.0	-54.9	-13.0	-41.9
1.66	-64.8	V	3.0	-19.7	39.9	1.0	-58.6	-13.0	-45.6
2.49	-65.8	V	3.0	-18.1	39.3	1.0	-56.3	-13.0	-43.3
3.32	-66.0	V	3.0	-15.7	39.5	1.0	-54.2	-13.0	-41.2
Mid Channel (836.5MHz)									
1.67	-64.5	H	3.0	-20.9	39.9	1.0	-59.9	-13.0	-46.9
2.51	-65.6	H	3.0	-18.8	39.2	1.0	-57.0	-13.0	-44.0
3.35	-66.1	H	3.0	-16.6	39.5	1.0	-55.1	-13.0	-42.1
1.67	-64.3	V	3.0	-19.2	39.9	1.0	-58.1	-13.0	-45.1
2.51	-65.5	V	3.0	-17.7	39.2	1.0	-55.9	-13.0	-42.9
3.35	-66.0	V	3.0	-15.7	39.5	1.0	-54.2	-13.0	-41.2
High Channel (844MHz)									
1.69	-64.4	H	3.0	-20.7	39.9	1.0	-59.7	-13.0	-46.7
2.53	-65.6	H	3.0	-18.7	39.2	1.0	-56.9	-13.0	-43.9
3.38	-65.9	H	3.0	-16.4	39.5	1.0	-54.9	-13.0	-41.9
1.69	-64.6	V	3.0	-19.3	39.9	1.0	-58.2	-13.0	-45.2
2.53	-65.7	V	3.0	-17.8	39.2	1.0	-56.0	-13.0	-43.0
3.38	-65.9	V	3.0	-15.6	39.5	1.0	-54.1	-13.0	-41.1

Rev. 10.28.15

LTE B5 10MHz 16QAM

LTE Band 7

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 04/05/2016
Test Engineer: Mark Nolting
Configuration: EUT w/ AC Adaptor and Headphones (Sample # 10217 X-Axis)
Mode: LTE Band 7, 5MHz QPSK

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

LTE B7

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Low Channel (2502.5MHz)									
5.01	-64.8	H	3.0	-12.1	40.3	1.0	-51.4	-25.0	-26.4
7.51	-62.0	H	3.0	-5.5	38.9	1.0	-43.5	-25.0	-18.5
10.01	-68.1	H	3.0	-8.9	38.3	1.0	-46.2	-25.0	-21.2
5.01	-63.4	V	3.0	-10.8	40.3	1.0	-50.1	-25.0	-25.1
7.51	-62.3	V	3.0	-6.1	38.9	1.0	-44.0	-25.0	-19.0
10.01	-68.3	V	3.0	-9.1	38.3	1.0	-46.4	-25.0	-21.4
Mid Channel (2535MHz)									
5.07	-61.0	H	3.0	-8.2	40.3	1.0	-47.5	-25.0	-22.5
7.61	-61.2	H	3.0	-4.6	38.9	1.0	-42.5	-25.0	-17.5
10.14	-68.1	H	3.0	-8.8	38.3	1.0	-46.1	-25.0	-21.1
5.07	-62.3	V	3.0	-9.6	40.3	1.0	-48.9	-25.0	-23.9
7.61	-62.5	V	3.0	-6.2	38.9	1.0	-44.1	-25.0	-19.1
10.14	-68.4	V	3.0	-9.0	38.3	1.0	-46.4	-25.0	-21.4
High Channel (2567.5MHz)									
5.14	-64.0	H	3.0	-11.2	40.3	1.0	-50.5	-25.0	-25.5
7.70	-66.6	H	3.0	-3.9	38.9	1.0	-41.8	-25.0	-16.8
10.27	-69.0	H	3.0	-9.5	38.3	1.0	-46.8	-25.0	-21.8
5.14	-64.2	V	3.0	-11.5	40.3	1.0	-50.8	-25.0	-25.8
7.70	-63.2	V	3.0	-6.7	38.9	1.0	-44.6	-25.0	-19.6
10.27	-68.6	V	3.0	-9.1	38.3	1.0	-46.4	-25.0	-21.4

Rev. 10.28.15

LTE B7 5MHz QPSK

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 04/05/2016
Test Engineer: Mark Nolting
Configuration: EUT w/ AC Adaptor and Headphones (Sample # 10217 X-Axis)
Mode: LTE Band 7, 5MHz 16QAM

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

LTE B7

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Low Channel (2502.5MHz)									
5.01	-64.7	H	3.0	-12.0	40.3	1.0	-51.3	-25.0	-26.3
7.51	-62.4	H	3.0	-5.9	38.9	1.0	-43.8	-25.0	-18.8
10.01	-68.0	H	3.0	-8.9	38.3	1.0	-46.2	-25.0	-21.2
5.01	-63.3	V	3.0	-10.8	40.3	1.0	-50.0	-25.0	-25.0
7.51	-62.4	V	3.0	-6.2	38.9	1.0	-44.1	-25.0	-19.1
10.01	-68.4	V	3.0	-9.2	38.3	1.0	-46.5	-25.0	-21.5
Mid Channel (2535MHz)									
5.07	-60.1	H	3.0	-7.3	40.3	1.0	-46.6	-25.0	-21.6
7.61	-61.0	H	3.0	-4.4	38.9	1.0	-42.3	-25.0	-17.3
10.14	-68.5	H	3.0	-9.2	38.3	1.0	-46.5	-25.0	-21.5
5.07	-62.5	V	3.0	-9.8	40.3	1.0	-49.1	-25.0	-24.1
7.61	-61.1	V	3.0	-4.8	38.9	1.0	-42.7	-25.0	-17.7
10.14	-68.9	V	3.0	-9.5	38.3	1.0	-46.8	-25.0	-21.8
High Channel (2567.5MHz)									
5.14	-64.2	H	3.0	-11.4	40.3	1.0	-50.7	-25.0	-25.7
7.70	-59.9	H	3.0	-3.3	38.9	1.0	-41.1	-25.0	-16.1
10.27	-69.6	H	3.0	-10.1	38.3	1.0	-47.5	-25.0	-22.5
5.14	-64.4	V	3.0	-11.7	40.3	1.0	-51.0	-25.0	-26.0
7.70	-62.4	V	3.0	-5.9	38.9	1.0	-43.8	-25.0	-18.8
10.27	-68.1	V	3.0	-8.7	38.3	1.0	-46.0	-25.0	-21.0

Rev. 10.28.15

LTE B7 5MHz 16QAM

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 04/05/2016
Test Engineer: Mark Nolting
Configuration: EUT w/ AC Adaptor and Headphones (Sample # 10217 X-Axis)
Mode: LTE Band 7, 10MHz QPSK

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

LTE B7

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Low Channel (2505MHz)									
5.01	-61.2	H	3.0	-8.6	40.3	1.0	-47.8	-25.0	-22.8
7.52	-64.0	H	3.0	-7.5	38.9	1.0	-45.4	-25.0	-20.4
10.02	-68.8	H	3.0	-9.7	38.3	1.0	-47.0	-25.0	-22.0
5.01	-62.9	V	3.0	-10.3	40.3	1.0	-49.6	-25.0	-24.6
7.52	-62.5	V	3.0	-6.3	38.9	1.0	-44.2	-25.0	-19.2
10.02	-68.6	V	3.0	-9.4	38.3	1.0	-46.7	-25.0	-21.7
Mid Channel (2535MHz)									
5.07	-61.5	H	3.0	-8.8	40.3	1.0	-48.1	-25.0	-23.1
7.61	-64.4	H	3.0	-7.8	38.9	1.0	-45.7	-25.0	-20.7
10.14	-68.9	H	3.0	-9.6	38.3	1.0	-46.9	-25.0	-21.9
5.07	-62.4	V	3.0	-9.7	40.3	1.0	-49.0	-25.0	-24.0
7.61	-63.9	V	3.0	-7.6	38.9	1.0	-45.5	-25.0	-20.5
10.14	-68.0	V	3.0	-8.7	38.3	1.0	-46.0	-25.0	-21.0
High Channel (2565MHz)									
5.13	-62.9	H	3.0	-10.1	40.3	1.0	-49.4	-25.0	-24.4
7.70	-63.5	H	3.0	-6.8	38.9	1.0	-44.7	-25.0	-19.7
10.26	-68.8	H	3.0	-9.3	38.3	1.0	-46.6	-25.0	-21.6
5.13	-63.3	V	3.0	-10.6	40.3	1.0	-49.9	-25.0	-24.9
7.70	-62.2	V	3.0	-5.8	38.9	1.0	-43.7	-25.0	-18.7
10.26	-67.8	V	3.0	-8.4	38.3	1.0	-45.7	-25.0	-20.7

Rev. 10.28.15

LTE B7 10MHz QPSK

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 04/05/2016
Test Engineer: Mark Nolting
Configuration: EUT w/ AC Adaptor and Headphones (Sample # 10217 X-Axis)
Mode: LTE Band 7, 10MHz 16QAM

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

LTE B7

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Low Channel (2505MHz)									
5.01	-61.1	H	3.0	-8.5	40.3	1.0	-47.7	-25.0	-22.7
7.52	-62.9	H	3.0	-6.4	38.9	1.0	-44.4	-25.0	-19.4
10.02	-68.8	H	3.0	-9.6	38.3	1.0	-47.0	-25.0	-22.0
5.01	-62.8	V	3.0	-10.2	40.3	1.0	-49.5	-25.0	-24.5
7.52	-62.3	V	3.0	-6.1	38.9	1.0	-44.0	-25.0	-19.0
10.02	-68.4	V	3.0	-9.2	38.3	1.0	-46.5	-25.0	-21.5
Mid Channel (2535MHz)									
5.07	-60.6	H	3.0	-7.8	40.3	1.0	-47.1	-25.0	-22.1
7.61	-63.3	H	3.0	-6.7	38.9	1.0	-44.7	-25.0	-19.7
10.14	-69.1	H	3.0	-9.7	38.3	1.0	-47.0	-25.0	-22.0
5.07	-62.5	V	3.0	-9.9	40.3	1.0	-49.2	-25.0	-24.2
7.61	-62.6	V	3.0	-6.3	38.9	1.0	-44.2	-25.0	-19.2
10.14	-68.0	V	3.0	-8.7	38.3	1.0	-46.0	-25.0	-21.0
High Channel (2565MHz)									
5.13	-63.2	H	3.0	-10.4	40.3	1.0	-49.7	-25.0	-24.7
7.70	-62.5	H	3.0	-5.8	38.9	1.0	-43.7	-25.0	-18.7
10.26	-68.6	H	3.0	-9.1	38.3	1.0	-46.4	-25.0	-21.4
5.13	-63.0	V	3.0	-10.3	40.3	1.0	-49.6	-25.0	-24.6
7.70	-61.9	V	3.0	-5.4	38.9	1.0	-43.3	-25.0	-18.3
10.26	-68.3	V	3.0	-8.8	38.3	1.0	-46.2	-25.0	-21.2

Rev. 10.28.15

LTE B7 10MHz 16QAM

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 04/05/2016
Test Engineer: Mark Nolting
Configuration: EUT w/ AC Adaptor and Headphones (Sample # 10217 X-Axis)
Mode: LTE Band 7, 15MHz QPSK

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

LTE B7

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Low Channel (2507.5MHz)									
5.02	-61.3	H	3.0	-8.7	40.3	1.0	-47.9	-25.0	-22.9
7.52	-65.2	H	3.0	-8.7	38.9	1.0	-46.6	-25.0	-21.6
10.03	-68.5	H	3.0	-9.3	38.3	1.0	-46.6	-25.0	-21.6
5.02	-63.8	V	3.0	-11.2	40.3	1.0	-50.5	-25.0	-25.5
7.52	-63.4	V	3.0	-7.1	38.9	1.0	-45.1	-25.0	-20.1
10.03	-68.1	V	3.0	-8.8	38.3	1.0	-46.2	-25.0	-21.2
Mid Channel (2535MHz)									
5.07	-62.4	H	3.0	-9.7	40.3	1.0	-49.0	-25.0	-24.0
7.61	-62.8	H	3.0	-6.2	38.9	1.0	-44.1	-25.0	-19.1
10.14	-67.9	H	3.0	-8.6	38.3	1.0	-45.9	-25.0	-20.9
5.07	-64.7	V	3.0	-12.1	40.3	1.0	-51.4	-25.0	-26.4
7.61	-62.4	V	3.0	-6.1	38.9	1.0	-44.0	-25.0	-19.0
10.14	-67.9	V	3.0	-8.6	38.3	1.0	-45.9	-25.0	-20.9
High Channel (2562.5MHz)									
5.13	-63.7	H	3.0	-10.9	40.3	1.0	-50.2	-25.0	-25.2
7.69	-62.4	H	3.0	-5.7	38.9	1.0	-43.6	-25.0	-18.6
10.25	-68.4	H	3.0	-8.9	38.3	1.0	-46.3	-25.0	-21.3
5.13	-64.3	V	3.0	-11.6	40.3	1.0	-50.9	-25.0	-25.9
7.69	-62.3	V	3.0	-5.8	38.9	1.0	-43.7	-25.0	-18.7
10.25	-67.8	V	3.0	-8.3	38.3	1.0	-45.6	-25.0	-20.6

Rev. 10.28.15

LTE B7 15MHz QPSK

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 04/05/2016
Test Engineer: Mark Nolting
Configuration: EUT w/ AC Adaptor and Headphones (Sample # 10217 X-Axis)
Mode: LTE Band 7, 15MHz 16QAM

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

LTE B7

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Low Channel (2507.5MHz)									
5.02	-60.1	H	3.0	-7.5	40.3	1.0	-46.7	-25.0	-21.7
7.52	-64.2	H	3.0	-7.7	38.9	1.0	-45.7	-25.0	-20.7
10.03	-68.2	H	3.0	-9.0	38.3	1.0	-46.3	-25.0	-21.3
5.02	-63.6	V	3.0	-11.0	40.3	1.0	-50.3	-25.0	-25.3
7.52	-62.8	V	3.0	-6.6	38.9	1.0	-44.5	-25.0	-19.5
10.03	-68.5	V	3.0	-9.2	38.3	1.0	-46.6	-25.0	-21.6
Mid Channel (2535MHz)									
5.07	-61.6	H	3.0	-8.9	40.3	1.0	-48.2	-25.0	-23.2
7.61	-62.2	H	3.0	-5.8	38.9	1.0	-43.5	-25.0	-18.5
10.14	-67.8	H	3.0	-8.4	38.3	1.0	-45.7	-25.0	-20.7
5.07	-64.2	V	3.0	-11.6	40.3	1.0	-50.9	-25.0	-25.9
7.61	-61.8	V	3.0	-5.5	38.9	1.0	-43.4	-25.0	-18.4
10.14	-67.8	V	3.0	-8.4	38.3	1.0	-45.8	-25.0	-20.8
High Channel (2562.5MHz)									
5.13	-63.7	H	3.0	-10.8	40.3	1.0	-50.1	-25.0	-25.1
7.69	-61.6	H	3.0	-4.8	38.9	1.0	-42.8	-25.0	-17.8
10.25	-68.7	H	3.0	-9.2	38.3	1.0	-46.6	-25.0	-21.6
5.13	-64.5	V	3.0	-11.8	40.3	1.0	-51.1	-25.0	-26.1
7.69	-60.9	V	3.0	-4.5	38.9	1.0	-42.4	-25.0	-17.4
10.25	-68.5	V	3.0	-9.0	38.3	1.0	-46.3	-25.0	-21.3

Rev. 10.28.15

LTE B7 15MHz 16QAM

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 04/05/2016
Test Engineer: Mark Nolting
Configuration: EUT w/ AC Adaptor and Headphones (Sample # 10217 X-Axis)
Mode: LTE Band 7, 20MHz QPSK

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

LTE B7

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Low Channel (2510MHz)									
5.02	63.2	H	3.0	-10.5	40.3	1.0	-49.8	-25.0	-24.8
7.53	64.9	H	3.0	-8.4	38.9	1.0	-46.4	-25.0	-21.4
10.04	68.3	H	3.0	-5.1	38.3	1.0	-46.4	-25.0	-21.4
5.02	63.4	V	3.0	-10.8	40.3	1.0	-50.1	-25.0	-25.1
7.53	64.0	V	3.0	-7.7	38.9	1.0	-45.6	-25.0	-20.6
10.04	68.6	V	3.0	-5.4	38.3	1.0	-46.7	-25.0	-21.7
Mid Channel (2535MHz)									
5.07	62.7	H	3.0	-9.9	40.3	1.0	-49.2	-25.0	-24.2
7.61	63.0	H	3.0	-6.4	38.9	1.0	-44.3	-25.0	-19.3
10.14	67.7	H	3.0	-8.3	38.3	1.0	-45.6	-25.0	-20.6
5.07	63.5	V	3.0	-10.8	40.3	1.0	-50.1	-25.0	-25.1
7.61	62.9	V	3.0	-6.6	38.9	1.0	-44.5	-25.0	-19.5
10.14	68.2	V	3.0	-8.8	38.3	1.0	-46.2	-25.0	-21.2
High Channel (2560MHz)									
5.12	62.2	H	3.0	-9.3	40.3	1.0	-48.6	-25.0	-23.6
7.68	62.0	H	3.0	-5.4	38.9	1.0	-43.3	-25.0	-18.3
10.24	68.0	H	3.0	-8.6	38.3	1.0	-45.9	-25.0	-20.9
5.12	63.4	V	3.0	-10.7	40.3	1.0	-50.0	-25.0	-25.0
7.68	61.7	V	3.0	-5.3	38.9	1.0	-43.2	-25.0	-18.2
10.24	67.9	V	3.0	-8.5	38.3	1.0	-45.8	-25.0	-20.8

Rev. 10.28.15

LTE B7 20MHz QPSK

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 04/05/2016
Test Engineer: Mark Nolting
Configuration: EUT w/ AC Adaptor and Headphones (Sample # 10217 X-Axis)
Mode: LTE Band 7, 20MHz 16QAM

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

LTE B7

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Low Channel (2510MHz)									
5.02	63.8	H	3.0	-11.2	40.3	1.0	-50.5	-25.0	-25.5
7.53	63.8	H	3.0	-7.3	38.9	1.0	-45.2	-25.0	-20.2
10.04	68.2	H	3.0	-5.0	38.3	1.0	-46.3	-25.0	-21.3
5.02	63.9	V	3.0	-11.3	40.3	1.0	-50.6	-25.0	-25.6
7.53	62.7	V	3.0	-6.5	38.9	1.0	-44.4	-25.0	-19.4
10.04	68.5	V	3.0	-9.2	38.3	1.0	-46.6	-25.0	-21.6
Mid Channel (2535MHz)									
5.07	62.2	H	3.0	-9.5	40.3	1.0	-48.8	-25.0	-23.8
7.61	61.5	H	3.0	-4.9	38.9	1.0	-42.9	-25.0	-17.9
10.14	68.3	H	3.0	-8.9	38.3	1.0	-46.3	-25.0	-21.3
5.07	63.4	V	3.0	-10.8	40.3	1.0	-50.1	-25.0	-25.1
7.61	61.4	V	3.0	-5.1	38.9	1.0	-43.0	-25.0	-18.0
10.14	68.6	V	3.0	-9.3	38.3	1.0	-46.6	-25.0	-21.6
High Channel (2560MHz)									
5.12	62.0	H	3.0	-9.2	40.3	1.0	-48.5	-25.0	-23.5
7.68	61.5	H	3.0	-4.9	38.9	1.0	-42.8	-25.0	-17.8
10.24	68.6	H	3.0	-9.2	38.3	1.0	-46.5	-25.0	-21.5
5.12	63.2	V	3.0	-10.5	40.3	1.0	-49.8	-25.0	-24.8
7.68	60.9	V	3.0	-4.5	38.9	1.0	-42.4	-25.0	-17.4
10.24	68.0	V	3.0	-8.5	38.3	1.0	-45.8	-25.0	-20.8

Rev. 10.28.15

LTE B7 20MHz 16QAM

LTE Band 13

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 2016-04-05
Test Engineer: Brian Kiewra
Configuration: EUT w/ AC Adaptor and Headphones (Sample # 10217 Z-Axis)
Mode: LTE Band 13, 5MHz QPSK

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

LTE B13

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Low Channel (779.5MHz)									
1.56	67.1	H	3.0	-24.3	39.7	1.0	-63.1	-40.0	-23.1
2.34	68.4	H	3.0	-22.2	39.6	1.0	-60.8	-13.0	-47.8
3.12	68.3	H	3.0	-19.4	39.4	1.0	-57.7	-13.0	-44.7
1.56	67.2	V	3.0	-22.8	39.7	1.0	-61.6	-40.0	-21.6
2.34	68.5	V	3.0	-21.1	39.6	1.0	-59.6	-13.0	-46.6
3.12	68.4	V	3.0	-18.3	39.4	1.0	-56.7	-13.0	-43.7
Mid Channel (782MHz)									
1.56	67.4	H	3.0	-24.6	39.8	1.0	-63.4	-40.0	-23.4
2.35	68.6	H	3.0	-22.4	39.6	1.0	-61.0	-13.0	-48.0
3.13	68.5	H	3.0	-19.6	39.4	1.0	-57.9	-13.0	-44.9
1.56	67.5	V	3.0	-23.1	39.8	1.0	-61.9	-40.0	-21.9
2.35	68.8	V	3.0	-21.4	39.6	1.0	-59.9	-13.0	-46.9
3.13	68.6	V	3.0	-18.5	39.4	1.0	-56.9	-13.0	-43.9
High Channel (784.5MHz)									
1.57	67.6	H	3.0	-24.2	39.8	1.0	-63.0	-40.0	-23.0
2.35	68.4	H	3.0	-22.2	39.6	1.0	-60.8	-13.0	-47.8
3.14	68.4	H	3.0	-19.4	39.4	1.0	-57.8	-13.0	-44.8
1.57	67.6	V	3.0	-23.1	39.8	1.0	-61.9	-40.0	-21.9
2.35	68.9	V	3.0	-21.5	39.6	1.0	-60.0	-13.0	-47.0
3.14	68.8	V	3.0	-18.8	39.4	1.0	-57.2	-13.0	-44.2

Rev. 10.28.15

LTE B13 5MHz QPSK

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 2016-04-05
Test Engineer: Brian Kiewra
Configuration: EUT w/ AC Adaptor and Headphones (Sample # 10217 Z-Axis)
Mode: LTE Band 13, 5MHz 16QAM

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

LTE B13

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Low Channel (779.5MHz)									
1.56	67.1	H	3.0	-24.3	39.7	1.0	-63.1	-40.0	-23.1
2.34	68.3	H	3.0	-22.2	39.6	1.0	-60.8	-13.0	-47.8
3.12	68.3	H	3.0	-19.4	39.4	1.0	-57.7	-13.0	-44.7
1.56	67.2	V	3.0	-22.8	39.7	1.0	-61.6	-40.0	-21.6
2.34	68.5	V	3.0	-21.1	39.6	1.0	-59.7	-13.0	-46.7
3.12	68.3	V	3.0	-18.3	39.4	1.0	-56.7	-13.0	-43.7
Mid Channel (782MHz)									
1.56	67.5	H	3.0	-24.7	39.8	1.0	-63.4	-40.0	-23.4
2.35	68.7	H	3.0	-22.5	39.6	1.0	-61.1	-13.0	-48.1
3.13	68.5	H	3.0	-19.8	39.4	1.0	-58.0	-13.0	-45.0
1.56	67.3	V	3.0	-22.9	39.8	1.0	-61.7	-40.0	-21.7
2.35	68.7	V	3.0	-21.3	39.6	1.0	-59.8	-13.0	-46.8
3.13	68.5	V	3.0	-18.5	39.4	1.0	-56.9	-13.0	-43.9
High Channel (784.5MHz)									
1.57	67.0	H	3.0	-24.2	39.8	1.0	-62.9	-40.0	-22.9
2.35	68.4	H	3.0	-22.2	39.6	1.0	-60.8	-13.0	-47.8
3.14	68.4	H	3.0	-19.5	39.4	1.0	-57.8	-13.0	-44.8
1.57	67.7	V	3.0	-23.2	39.8	1.0	-62.0	-40.0	-22.0
2.35	68.9	V	3.0	-21.5	39.6	1.0	-60.0	-13.0	-47.0
3.14	68.8	V	3.0	-18.7	39.4	1.0	-57.1	-13.0	-44.1

Rev. 10.28.15

LTE B13 5MHz 16QAM

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 2016-04-05
Test Engineer: Brian Kiewra
Configuration: EUT w/ AC Adaptor and Headphones (Sample # 10217 Z-Axis)
Mode: LTE Band 13, 10MHz QPSK

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

LTE B13

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Mid Channel (782MHz)									
1.56	64.2	H	3.0	-21.5	39.8	1.0	-60.2	-40.0	-20.2
2.35	65.5	H	3.0	-19.3	39.6	1.0	-57.9	-13.0	-44.9
3.13	65.4	H	3.0	-16.5	39.4	1.0	-54.8	-13.0	-41.8
1.56	64.3	V	3.0	-19.9	39.8	1.0	-58.7	-40.0	-18.7
2.35	65.5	V	3.0	-18.1	39.6	1.0	-56.7	-13.0	-43.7
3.13	65.5	V	3.0	-15.5	39.4	1.0	-53.9	-13.0	-40.9

Rev. 10.28.15

LTE B13 10MHz QPSK

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 2016-04-05
Test Engineer: Brian Kiewra
Configuration: EUT w/ AC Adaptor and Headphones (Sample # 10217 Z-Axis)
Mode: LTE Band 13, 10MHz 16QAM

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

LTE B13

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Mid Channel (782MHz)									
1.56	64.1	H	3.0	-21.3	39.8	1.0	-60.1	-40.0	-20.1
2.35	65.4	H	3.0	-19.3	39.6	1.0	-57.8	-13.0	-44.8
3.13	65.4	H	3.0	-16.4	39.4	1.0	-54.8	-13.0	-41.8
1.56	64.4	V	3.0	-20.0	39.8	1.0	-58.8	-40.0	-18.8
2.35	65.7	V	3.0	-18.3	39.6	1.0	-56.9	-13.0	-43.9
3.13	65.5	V	3.0	-15.5	39.4	1.0	-53.9	-13.0	-40.9

Rev. 10.28.15

LTE B13 10MHz 16QAM

LTE Band 17

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 2016-04-05
Test Engineer: Brian Kiewra
Configuration: EUT w/ AC Adaptor and Headphones (Sample # 10217 Z-Axis)
Mode: LTE Band 17, 5MHz QPSK

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

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Low Channel (706.5MHz)									
1.41	-67.0	H	3.0	-25.1	39.9	1.0	-64.0	-13.0	-51.0
2.12	-68.1	H	3.0	-22.1	40.1	1.0	-61.2	-13.0	-48.2
2.83	-68.3	H	3.0	-20.3	39.3	1.0	-58.6	-13.0	-45.6
1.41	-67.1	V	3.0	-23.6	39.9	1.0	-62.5	-13.0	-49.5
2.12	-68.3	V	3.0	-20.8	40.1	1.0	-59.9	-13.0	-46.9
2.83	-68.4	V	3.0	-19.2	39.3	1.0	-57.5	-13.0	-44.5
Mid Channel (710MHz)									
1.42	-66.6	H	3.0	-24.6	39.9	1.0	-63.5	-13.0	-50.5
2.13	-68.2	H	3.0	-22.1	40.1	1.0	-61.2	-13.0	-48.2
2.84	-68.1	H	3.0	-20.1	39.3	1.0	-58.3	-13.0	-45.3
1.42	-66.7	V	3.0	-23.2	39.9	1.0	-62.1	-13.0	-49.1
2.13	-68.3	V	3.0	-20.8	40.1	1.0	-59.9	-13.0	-46.9
2.84	-68.1	V	3.0	-18.9	39.3	1.0	-57.2	-13.0	-44.2
High Channel (713.5)									
1.43	-67.4	H	3.0	-25.4	39.9	1.0	-64.2	-13.0	-51.2
2.14	-68.8	H	3.0	-22.7	40.1	1.0	-61.8	-13.0	-48.8
2.85	-68.8	H	3.0	-20.7	39.3	1.0	-59.0	-13.0	-46.0
1.43	-67.1	V	3.0	-23.6	39.9	1.0	-62.4	-13.0	-49.4
2.14	-68.6	V	3.0	-21.2	40.1	1.0	-60.3	-13.0	-47.3
2.85	-68.7	V	3.0	-19.5	39.3	1.0	-57.7	-13.0	-44.7

Rev. 10.28.15

LTE B17 5MHz QPSK

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 2016-04-05
Test Engineer: Brian Kiewra
Configuration: EUT w/ AC Adaptor and Headphones (Sample # 10217 Z-Axis)
Mode: LTE Band 17, 5MHz 16QAM

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

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Low Channel (706.5MHz)									
1.41	-66.9	H	3.0	-25.0	39.9	1.0	-63.9	-13.0	-50.9
2.12	-68.0	H	3.0	-22.0	40.1	1.0	-61.1	-13.0	-48.1
2.83	-68.3	H	3.0	-20.3	39.3	1.0	-58.5	-13.0	-45.5
1.41	-67.1	V	3.0	-23.6	39.9	1.0	-62.5	-13.0	-49.5
2.12	-68.2	V	3.0	-20.7	40.1	1.0	-59.9	-13.0	-46.9
2.83	-68.5	V	3.0	-19.3	39.3	1.0	-57.6	-13.0	-44.6
Mid Channel (710MHz)									
1.42	-66.7	H	3.0	-24.7	39.9	1.0	-63.6	-13.0	-50.6
2.13	-68.2	H	3.0	-22.2	40.1	1.0	-61.3	-13.0	-48.3
2.84	-68.1	H	3.0	-20.1	39.3	1.0	-58.3	-13.0	-45.3
1.42	-66.6	V	3.0	-23.1	39.9	1.0	-62.0	-13.0	-49.0
2.13	-68.3	V	3.0	-20.9	40.1	1.0	-60.0	-13.0	-47.0
2.84	-68.2	V	3.0	-19.0	39.3	1.0	-57.2	-13.0	-44.2
High Channel (713.5)									
1.43	-67.2	H	3.0	-25.2	39.9	1.0	-64.1	-13.0	-51.1
2.14	-68.7	H	3.0	-22.7	40.1	1.0	-61.8	-13.0	-48.8
2.85	-68.8	H	3.0	-20.7	39.3	1.0	-59.0	-13.0	-46.0
1.43	-67.2	V	3.0	-23.6	39.9	1.0	-62.5	-13.0	-49.5
2.14	-68.7	V	3.0	-21.2	40.1	1.0	-60.3	-13.0	-47.3
2.85	-68.7	V	3.0	-19.4	39.3	1.0	-57.7	-13.0	-44.7

Rev. 10.28.15

LTE B17 5MHz 16QAM

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 2016-04-08
Test Engineer: Brian Kiewra
Configuration: EUT w/ AC Adaptor and Headphones (Sample # 10217 Z-Axis)
Mode: LTE Band 17, 10MHz QPSK

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

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)										
1.42	-59.9	H	3.0	-17.9	39.9	1.0	-56.8	-13.0	-43.8	
2.13	-62.5	H	3.0	-16.5	40.1	1.0	-55.6	-13.0	-42.6	
2.84	-61.3	H	3.0	-13.3	39.3	1.0	-51.6	-13.0	-38.6	
1.42	-60.9	V	3.0	-17.4	39.9	1.0	-56.3	-13.0	-43.3	
2.13	-62.1	V	3.0	-14.7	40.1	1.0	-53.8	-13.0	-40.8	
2.84	-62.7	V	3.0	-13.5	39.3	1.0	-51.8	-13.0	-38.8	
Mid Channel (710MHz)										
1.42	-60.5	H	3.0	-18.6	39.9	1.0	-57.4	-13.0	-44.4	
2.13	-62.3	H	3.0	-16.3	40.1	1.0	-55.4	-13.0	-42.4	
2.84	-62.7	H	3.0	-14.7	39.3	1.0	-53.0	-13.0	-40.0	
1.42	-61.0	V	3.0	-17.5	39.9	1.0	-56.4	-13.0	-43.4	
2.13	-62.6	V	3.0	-15.2	40.1	1.0	-54.3	-13.0	-41.3	
2.84	-62.6	V	3.0	-13.4	39.3	1.0	-51.6	-13.0	-38.6	
High Channel (711MHz)										
1.42	-60.9	H	3.0	-18.9	39.9	1.0	-57.8	-13.0	-44.8	
2.13	-61.8	H	3.0	-15.7	40.1	1.0	-54.8	-13.0	-41.8	
2.84	-62.5	H	3.0	-14.4	39.3	1.0	-52.7	-13.0	-39.7	
1.42	-60.5	V	3.0	-17.0	39.9	1.0	-55.9	-13.0	-42.9	
2.13	-62.6	V	3.0	-15.1	40.1	1.0	-54.2	-13.0	-41.2	
2.84	-63.1	V	3.0	-13.8	39.3	1.0	-52.1	-13.0	-39.1	

Rev. 10.28.15

LTE B17 10MHz QPSK

High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 2016-04-08
Test Engineer: Brian Kiewra
Configuration: EUT w/ AC Adaptor and Headphones (Sample # 10217 Z-Axis)
Mode: LTE Band 17, 10MHz 16QAM

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

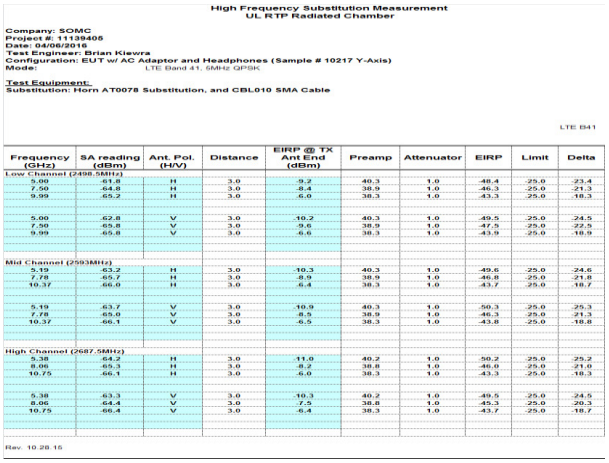
EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (709MHz)										
1.42	-60.5	H	3.0	-18.6	39.9	1.0	-57.5	-13.0	-44.5	
2.13	-62.1	H	3.0	-16.0	40.1	1.0	-55.1	-13.0	-42.1	
2.84	-62.5	H	3.0	-14.5	39.3	1.0	-52.9	-13.0	-39.9	
1.42	-60.6	V	3.0	-17.1	39.9	1.0	-56.0	-13.0	-43.0	
2.13	-62.6	V	3.0	-15.1	40.1	1.0	-54.2	-13.0	-41.2	
2.84	-61.7	V	3.0	-12.5	39.3	1.0	-50.8	-13.0	-37.8	
Mid Channel (710MHz)										
1.42	-60.7	H	3.0	-18.7	39.9	1.0	-57.6	-13.0	-44.6	
2.13	-62.2	H	3.0	-16.1	40.1	1.0	-55.2	-13.0	-42.2	
2.84	-62.4	H	3.0	-14.3	39.3	1.0	-52.6	-13.0	-39.6	
1.42	-60.7	V	3.0	-17.3	39.9	1.0	-56.1	-13.0	-43.1	
2.13	-62.6	V	3.0	-15.2	40.1	1.0	-54.3	-13.0	-41.3	
2.84	-62.4	V	3.0	-13.2	39.3	1.0	-51.5	-13.0	-38.5	
High Channel (711MHz)										
1.42	-60.8	H	3.0	-18.8	39.9	1.0	-57.7	-13.0	-44.7	
2.13	-62.3	H	3.0	-16.2	40.1	1.0	-55.3	-13.0	-42.3	
2.84	-62.7	H	3.0	-14.7	39.3	1.0	-52.9	-13.0	-39.9	
1.42	-60.5	V	3.0	-17.0	39.9	1.0	-55.9	-13.0	-42.9	
2.13	-62.9	V	3.0	-15.5	40.1	1.0	-54.6	-13.0	-41.6	
2.84	-62.7	V	3.0	-13.5	39.3	1.0	-51.8	-13.0	-38.8	

Rev. 10.28.15

LTE B17 10MHz 16QAM

LTE Band 41



High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 04/06/2016
Test Engineer: Brian Kiewra
Configuration: EUT w/ AC Adaptor and Headphones (Sample # 10217 Y-Axis)
Mode: LTE Band 41, 5MHz QPSK

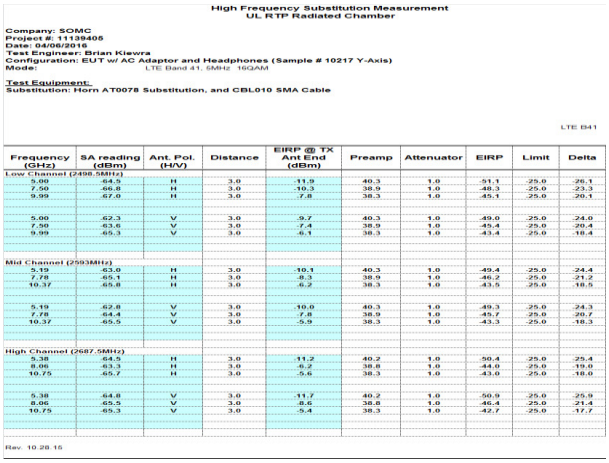
Test Equipment:
Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

LTE B41

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Low Channel (2498.5MHz)									
5.00	61.8	H	3.0	-9.2	40.3	1.0	-48.4	-25.0	-23.4
7.50	64.8	H	3.0	-8.4	38.9	1.0	-46.3	-25.0	-21.3
9.99	65.2	H	3.0	-6.0	38.3	1.0	-43.3	-25.0	-18.3
5.00	62.8	V	3.0	-10.2	40.3	1.0	-49.5	-25.0	-24.5
7.50	65.8	V	3.0	-9.6	38.9	1.0	-47.5	-25.0	-22.5
9.99	65.8	V	3.0	-6.6	38.3	1.0	-43.9	-25.0	-18.9
Mid Channel (2593MHz)									
5.19	63.2	H	3.0	-10.3	40.3	1.0	-49.6	-25.0	-24.6
7.78	65.7	H	3.0	-8.9	38.9	1.0	-46.8	-25.0	-21.8
10.37	66.0	H	3.0	-6.4	38.3	1.0	-43.7	-25.0	-18.7
5.19	63.7	V	3.0	-10.9	40.3	1.0	-50.3	-25.0	-25.3
7.78	65.9	V	3.0	-8.5	38.9	1.0	-46.3	-25.0	-21.3
10.37	66.1	V	3.0	-6.5	38.3	1.0	-43.8	-25.0	-18.8
High Channel (2687.5MHz)									
5.38	64.2	H	3.0	-11.0	40.2	1.0	-50.2	-25.0	-25.2
8.06	65.3	H	3.0	-8.2	38.8	1.0	-46.0	-25.0	-21.0
10.75	66.1	H	3.0	-6.0	38.3	1.0	-43.3	-25.0	-18.3
5.38	63.3	V	3.0	-10.3	40.2	1.0	-49.5	-25.0	-24.5
8.06	64.4	V	3.0	-7.5	38.8	1.0	-45.3	-25.0	-20.3
10.75	66.4	V	3.0	-6.4	38.3	1.0	-43.7	-25.0	-18.7

Rev. 10.28.15

LTE B41 5MHz QPSK



High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 04/06/2016
Test Engineer: Brian Kiewra
Configuration: EUT w/ AC Adaptor and Headphones (Sample # 10217 Y-Axis)
Mode: LTE Band 41, 5MHz 16QAM

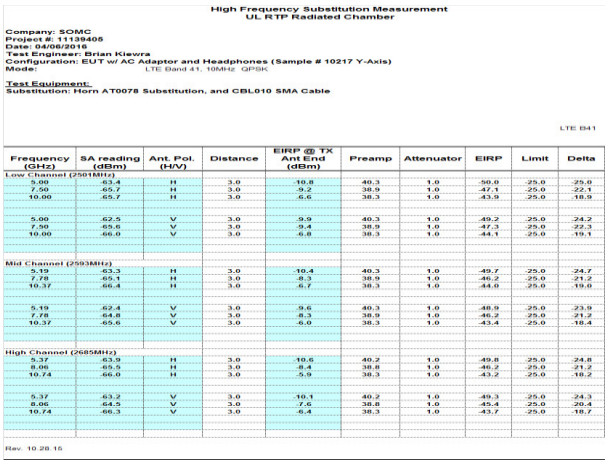
Test Equipment:
Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

LTE B41

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Low Channel (2498.5MHz)									
5.00	64.5	H	3.0	-11.9	40.3	1.0	-51.1	-25.0	-26.1
7.50	66.8	H	3.0	-10.3	38.9	1.0	-48.3	-25.0	-23.3
9.99	67.0	H	3.0	-7.8	38.3	1.0	-45.1	-25.0	-20.1
5.00	62.3	V	3.0	-9.7	40.3	1.0	-49.0	-25.0	-24.0
7.50	63.6	V	3.0	-7.4	38.9	1.0	-45.4	-25.0	-20.4
9.99	65.3	V	3.0	-6.1	38.3	1.0	-43.4	-25.0	-18.4
Mid Channel (2593MHz)									
5.19	63.0	H	3.0	-10.1	40.3	1.0	-49.4	-25.0	-24.4
7.78	65.1	H	3.0	-8.3	38.9	1.0	-46.2	-25.0	-21.2
10.37	65.8	H	3.0	-6.2	38.3	1.0	-43.5	-25.0	-18.5
5.19	62.8	V	3.0	-10.0	40.3	1.0	-49.3	-25.0	-24.3
7.78	64.4	V	3.0	-7.8	38.9	1.0	-45.7	-25.0	-20.7
10.37	65.5	V	3.0	-5.9	38.3	1.0	-43.3	-25.0	-18.3
High Channel (2687.5MHz)									
5.38	64.5	H	3.0	-11.2	40.2	1.0	-50.4	-25.0	-25.4
8.06	63.3	H	3.0	-6.2	38.8	1.0	-44.0	-25.0	-19.0
10.75	65.7	H	3.0	-5.6	38.3	1.0	-43.0	-25.0	-18.0
5.38	64.8	V	3.0	-11.7	40.2	1.0	-50.9	-25.0	-25.9
8.06	65.5	V	3.0	-8.6	38.8	1.0	-46.4	-25.0	-21.4
10.75	65.3	V	3.0	-5.4	38.3	1.0	-42.7	-25.0	-17.7

Rev. 10.28.15

LTE B41 5MHz 16QAM



High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 04/06/2016
Test Engineer: Brian Kiewra
Configuration: EUT w/ AC Adaptor and Headphones (Sample # 10217 Y-Axis)
Mode: LTE Band 41, 10MHz QPSK

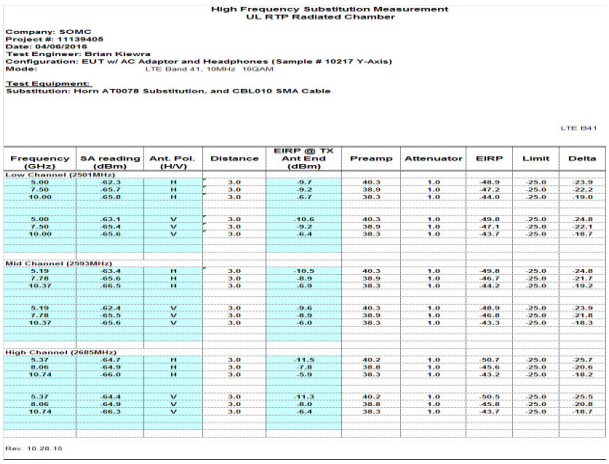
Test Equipment:
Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

LTE B41

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Low Channel (2501MHz)									
5.00	63.4	H	3.0	-10.8	40.3	1.0	-50.0	-25.0	-25.0
7.50	65.7	H	3.0	-9.2	38.9	1.0	-47.1	-25.0	-22.1
10.00	65.7	H	3.0	-6.6	38.3	1.0	-43.9	-25.0	-18.9
5.00	62.5	V	3.0	-9.9	40.3	1.0	-49.2	-25.0	-24.2
7.50	65.6	V	3.0	-9.4	38.9	1.0	-47.3	-25.0	-22.3
10.00	66.0	V	3.0	-6.8	38.3	1.0	-44.1	-25.0	-19.1
Mid Channel (2593MHz)									
5.19	63.3	H	3.0	-10.4	40.3	1.0	-49.7	-25.0	-24.7
7.78	65.1	H	3.0	-8.3	38.9	1.0	-46.2	-25.0	-21.2
10.37	66.4	H	3.0	-6.7	38.3	1.0	-44.0	-25.0	-19.0
5.19	62.4	V	3.0	-9.6	40.3	1.0	-48.9	-25.0	-23.9
7.78	64.8	V	3.0	-8.3	38.9	1.0	-46.2	-25.0	-21.2
10.37	65.6	V	3.0	-6.0	38.3	1.0	-43.4	-25.0	-18.4
High Channel (2685MHz)									
5.37	63.9	H	3.0	-10.6	40.2	1.0	-49.8	-25.0	-24.8
8.06	65.5	H	3.0	-8.4	38.8	1.0	-46.2	-25.0	-21.2
10.74	66.0	H	3.0	-5.9	38.3	1.0	-43.2	-25.0	-18.2
5.37	63.2	V	3.0	-10.1	40.2	1.0	-49.3	-25.0	-24.3
8.06	64.5	V	3.0	-7.6	38.8	1.0	-45.4	-25.0	-20.4
10.74	66.3	V	3.0	-6.4	38.3	1.0	-43.7	-25.0	-18.7

Rev. 10.28.15

LTE B41 10MHz QPSK



High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 04/06/2016
Test Engineer: Brian Kiewra
Configuration: EUT w/ AC Adaptor and Headphones (Sample # 10217 Y-Axis)
Mode: LTE Band 41, 10MHz 16QAM

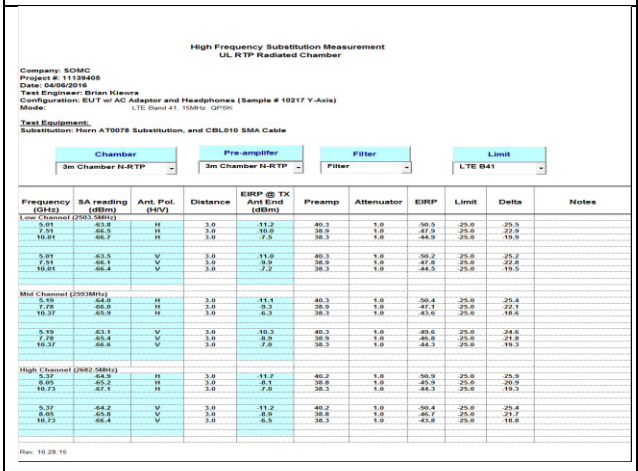
Test Equipment:
Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

LTE B41

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Low Channel (2501MHz)									
5.00	62.3	H	3.0	-9.7	40.3	1.0	-48.9	-25.0	-23.9
7.50	65.7	H	3.0	-9.2	38.9	1.0	-47.2	-25.0	-22.2
10.00	65.8	H	3.0	-6.7	38.3	1.0	-44.0	-25.0	-19.0
5.00	63.1	V	3.0	-10.6	40.3	1.0	-49.8	-25.0	-24.8
7.50	65.4	V	3.0	-9.2	38.9	1.0	-47.1	-25.0	-22.1
10.00	65.6	V	3.0	-6.4	38.3	1.0	-43.7	-25.0	-18.7
Mid Channel (2593MHz)									
5.19	63.4	H	3.0	-10.5	40.3	1.0	-49.8	-25.0	-24.8
7.78	65.6	H	3.0	-8.9	38.9	1.0	-46.7	-25.0	-21.7
10.37	66.5	H	3.0	-6.8	38.3	1.0	-44.2	-25.0	-19.2
5.19	62.4	V	3.0	-9.6	40.3	1.0	-48.9	-25.0	-23.9
7.78	65.5	V	3.0	-8.9	38.9	1.0	-46.8	-25.0	-21.8
10.37	65.6	V	3.0	-6.0	38.3	1.0	-43.3	-25.0	-18.3
High Channel (2685MHz)									
5.37	64.7	H	3.0	-11.5	40.2	1.0	-50.7	-25.0	-25.7
8.06	64.9	H	3.0	-7.8	38.8	1.0	-45.6	-25.0	-20.6
10.74	66.0	H	3.0	-5.9	38.3	1.0	-43.2	-25.0	-18.2
5.37	64.4	V	3.0	-11.3	40.2	1.0	-50.5	-25.0	-25.5
8.06	64.9	V	3.0	-8.0	38.8	1.0	-45.8	-25.0	-20.8
10.74	66.3	V	3.0	-6.4	38.3	1.0	-43.7	-25.0	-18.7

Rev. 10.28.15

LTE B41 10MHz 16QAM



High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 04/06/2016
Test Engineer: Brian Kiewra
Configuration: EUT w/ AC Adaptor and Headphones (Sample # 10217 Y-Axis)
Mode: LTE Band 41, 15MHz QPSK

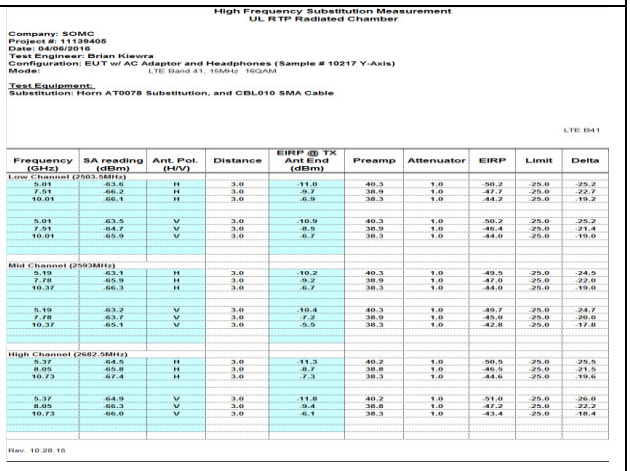
Test Equipment:
Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

Chamber	Pre-amplifer	Filter	Limit
3m Chamber N-RTP	3m Chamber N-RTP	Filter	LTE B41

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2503.5MHz)										
5.01	63.8	H	3.0	-11.2	40.3	1.0	-50.5	-25.0	-25.5	
7.51	66.5	H	3.0	-10.6	38.9	1.0	-47.8	-25.0	-22.9	
10.01	66.7	H	3.0	-7.5	38.3	1.0	-44.9	-25.0	-19.9	
5.01	63.5	V	3.0	-11.0	40.3	1.0	-50.2	-25.0	-25.2	
7.51	66.1	V	3.0	-9.9	38.9	1.0	-47.8	-25.0	-22.8	
10.01	66.4	V	3.0	-7.2	38.3	1.0	-44.5	-25.0	-19.5	
Mid Channel (2593MHz)										
5.19	64.0	H	3.0	-11.1	40.3	1.0	-50.4	-25.0	-25.4	
7.78	66.0	H	3.0	-9.3	38.9	1.0	-47.1	-25.0	-22.1	
10.37	65.9	H	3.0	-6.3	38.3	1.0	-43.6	-25.0	-18.6	
5.19	63.1	V	3.0	-10.3	40.3	1.0	-49.6	-25.0	-24.6	
7.78	65.4	V	3.0	-8.9	38.9	1.0	-46.8	-25.0	-21.8	
10.37	66.6	V	3.0	-7.0	38.3	1.0	-44.3	-25.0	-19.3	
High Channel (2682.5MHz)										
5.37	64.9	H	3.0	-11.7	40.2	1.0	-50.9	-25.0	-25.9	
8.05	65.2	H	3.0	-8.1	38.8	1.0	-45.9	-25.0	-20.9	
10.73	67.1	H	3.0	-7.0	38.3	1.0	-44.3	-25.0	-19.3	
5.37	64.2	V	3.0	-11.2	40.2	1.0	-50.4	-25.0	-25.4	
8.05	65.8	V	3.0	-8.9	38.8	1.0	-46.7	-25.0	-21.7	
10.73	66.4	V	3.0	-6.5	38.3	1.0	-43.8	-25.0	-18.8	

Rev. 10.28.15

LTE B41 15MHz QPSK



High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 04/06/2016
Test Engineer: Brian Kiewra
Configuration: EUT w/ AC Adaptor and Headphones (Sample # 10217 Y-Axis)
Mode: LTE Band 41, 15MHz 16QAM

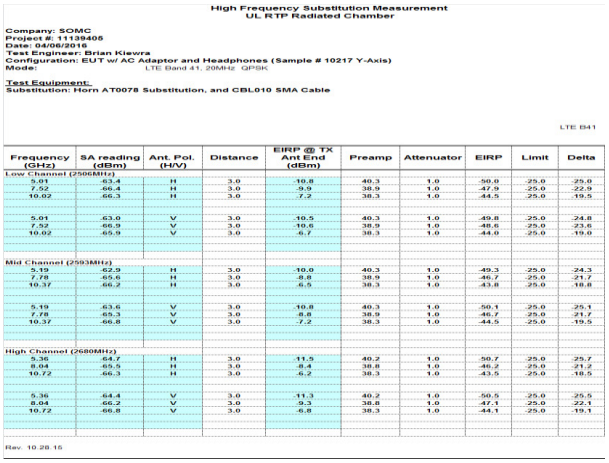
Test Equipment:
Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

LTE B41

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Low Channel (2503.5MHz)									
5.01	63.6	H	3.0	-11.0	40.3	1.0	-50.2	-25.0	-25.2
7.51	66.2	H	3.0	-9.7	38.9	1.0	-47.7	-25.0	-22.7
10.01	66.1	H	3.0	-6.9	38.3	1.0	-44.2	-25.0	-19.2
5.01	63.5	V	3.0	-10.9	40.3	1.0	-50.2	-25.0	-25.2
7.51	64.7	V	3.0	-8.5	38.9	1.0	-46.4	-25.0	-21.4
10.01	65.9	V	3.0	-6.7	38.3	1.0	-44.0	-25.0	-19.0
Mid Channel (2593MHz)									
5.19	63.1	H	3.0	-10.2	40.3	1.0	-49.5	-25.0	-24.5
7.78	65.9	H	3.0	-9.2	38.9	1.0	-47.0	-25.0	-22.0
10.37	66.3	H	3.0	-6.7	38.3	1.0	-44.0	-25.0	-19.0
5.19	63.2	V	3.0	-10.4	40.3	1.0	-49.7	-25.0	-24.7
7.78	63.7	V	3.0	-7.2	38.9	1.0	-45.0	-25.0	-20.0
10.37	65.1	V	3.0	-5.5	38.3	1.0	-42.8	-25.0	-17.8
High Channel (2682.5MHz)									
5.37	64.5	H	3.0	-11.3	40.2	1.0	-50.5	-25.0	-25.5
8.05	65.8	H	3.0	-8.7	38.8	1.0	-46.5	-25.0	-21.5
10.73	67.4	H	3.0	-7.3	38.3	1.0	-44.6	-25.0	-19.6
5.37	64.9	V	3.0	-11.8	40.2	1.0	-51.0	-25.0	-26.0
8.05	66.3	V	3.0	-9.4	38.8	1.0	-47.2	-25.0	-22.2
10.73	66.0	V	3.0	-6.1	38.3	1.0	-43.4	-25.0	-18.4

Rev. 10.28.15

LTE B41 15MHz 16QAM



High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 04/06/2016
Test Engineer: Brian Kiewra
Configuration: EUT w/ AC Adaptor and Headphones (Sample # 10217 Y-Axis)
Mode: LTE Band 41, 20MHz QPSK

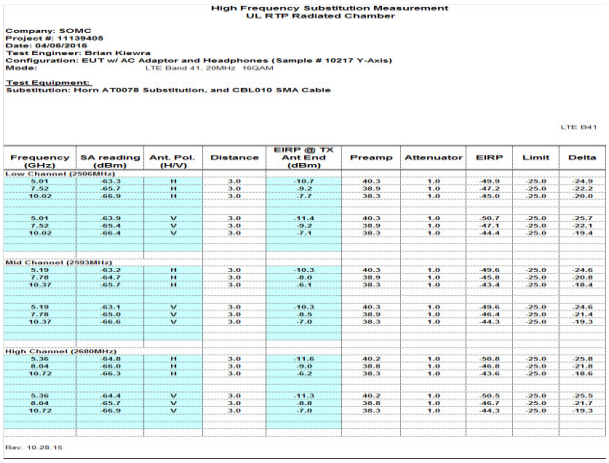
Test Equipment:
Substitution: Horn AT0078 Substitution, and CBL010 SMA Cable

LTE B41

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Low Channel (2506MHz)									
5.01	63.4	H	3.0	-10.8	40.3	1.0	-50.0	-25.0	-25.0
7.52	66.4	H	3.0	-9.9	38.9	1.0	-47.9	-25.0	-22.9
10.02	66.3	H	3.0	-7.2	38.3	1.0	-44.5	-25.0	-19.5
5.01	63.0	V	3.0	-10.5	40.3	1.0	-49.8	-25.0	-24.8
7.52	66.9	V	3.0	-10.6	38.9	1.0	-48.6	-25.0	-23.6
10.02	65.9	V	3.0	-9.7	38.3	1.0	-44.0	-25.0	-19.0
Mid Channel (2593MHz)									
5.19	62.9	H	3.0	-10.0	40.3	1.0	-49.3	-25.0	-24.3
7.78	65.6	H	3.0	-8.8	38.9	1.0	-46.7	-25.0	-21.7
10.37	66.2	H	3.0	-6.5	38.3	1.0	-43.8	-25.0	-18.8
5.19	63.6	V	3.0	-10.8	40.3	1.0	-50.1	-25.0	-25.1
7.78	65.3	V	3.0	-8.8	38.9	1.0	-46.7	-25.0	-21.7
10.37	66.8	V	3.0	-7.2	38.3	1.0	-44.5	-25.0	-19.5
High Channel (2680MHz)									
5.36	64.7	H	3.0	-11.9	40.2	1.0	-50.7	-25.0	-25.7
8.04	65.5	H	3.0	-8.4	38.8	1.0	-46.2	-25.0	-21.2
10.72	66.3	H	3.0	-6.2	38.3	1.0	-43.5	-25.0	-18.5
5.36	64.4	V	3.0	-11.3	40.2	1.0	-50.5	-25.0	-25.5
8.04	66.2	V	3.0	-9.3	38.8	1.0	-47.1	-25.0	-22.1
10.72	66.8	V	3.0	-6.8	38.3	1.0	-44.1	-25.0	-19.1

Rev. 10.28.15

LTE B41 20MHz QPSK



High Frequency Substitution Measurement
UL RTP Radiated Chamber

Company: SOMC
Project #: 11139405
Date: 04/06/2016
Test Engineer: Brian Kiewra
Configuration: EUT w/ AC Adaptor and Headphones (Sample # 10217 Y-Axis)
Mode: LTE Band 41, 20MHz 16QAM

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

LTE B41

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta
Low Channel (2506MHz)									
5.01	63.3	H	3.0	-10.7	40.3	1.0	-49.9	-25.0	-24.9
7.52	65.7	H	3.0	-9.2	38.9	1.0	-47.2	-25.0	-22.2
10.02	66.9	H	3.0	-7.7	38.3	1.0	-45.0	-25.0	-20.0
5.01	63.9	V	3.0	-11.4	40.3	1.0	-50.7	-25.0	-25.7
7.52	65.4	V	3.0	-9.2	38.9	1.0	-47.1	-25.0	-22.1
10.02	66.4	V	3.0	-7.1	38.3	1.0	-44.4	-25.0	-19.4
Mid Channel (2593MHz)									
5.19	63.2	H	3.0	-10.3	40.3	1.0	-49.6	-25.0	-24.6
7.78	64.7	H	3.0	-8.0	38.9	1.0	-45.8	-25.0	-20.8
10.37	65.7	H	3.0	-6.1	38.3	1.0	-43.4	-25.0	-18.4
5.19	63.1	V	3.0	-10.3	40.3	1.0	-49.6	-25.0	-24.6
7.78	65.0	V	3.0	-8.5	38.9	1.0	-46.4	-25.0	-21.4
10.37	66.6	V	3.0	-7.0	38.3	1.0	-44.3	-25.0	-19.3
High Channel (2680MHz)									
5.36	64.8	H	3.0	-11.6	40.2	1.0	-50.8	-25.0	-25.8
8.04	66.0	H	3.0	-9.0	38.8	1.0	-46.8	-25.0	-21.8
10.72	66.3	H	3.0	-6.2	38.3	1.0	-43.6	-25.0	-18.6
5.36	64.4	V	3.0	-11.3	40.2	1.0	-50.5	-25.0	-25.5
8.04	65.7	V	3.0	-8.8	38.8	1.0	-46.7	-25.0	-21.7
10.72	66.9	V	3.0	-7.0	38.3	1.0	-44.3	-25.0	-19.3

Rev. 10.28.15

LTE B41 20MHz 16QAM