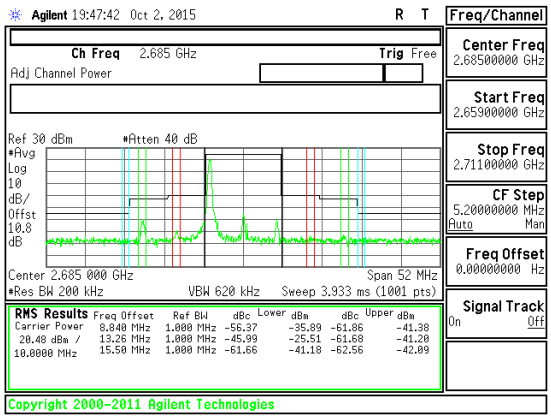
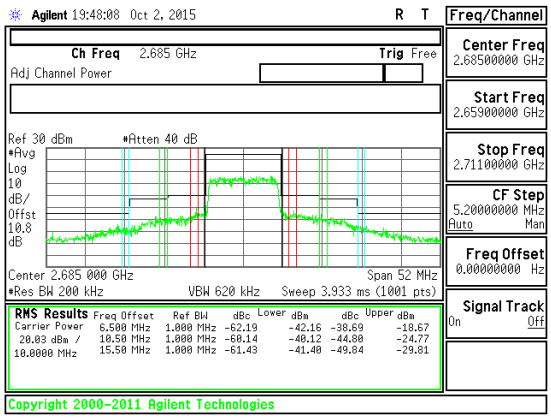
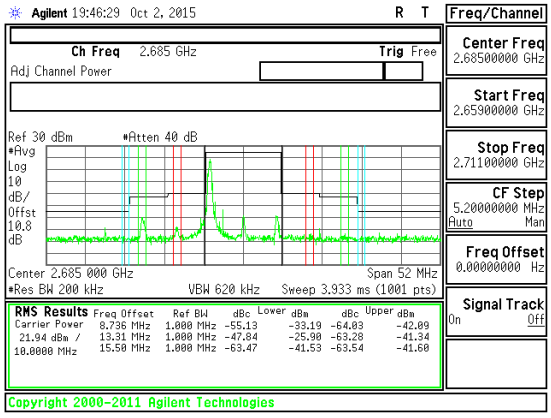
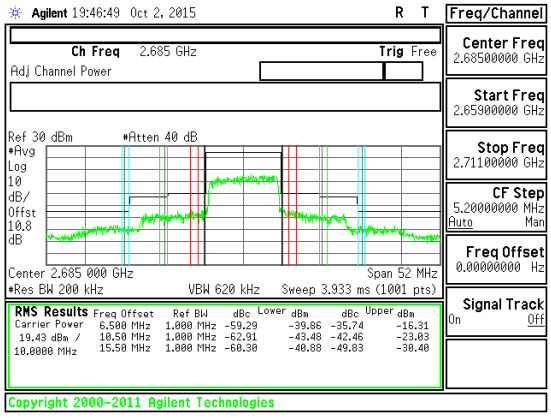
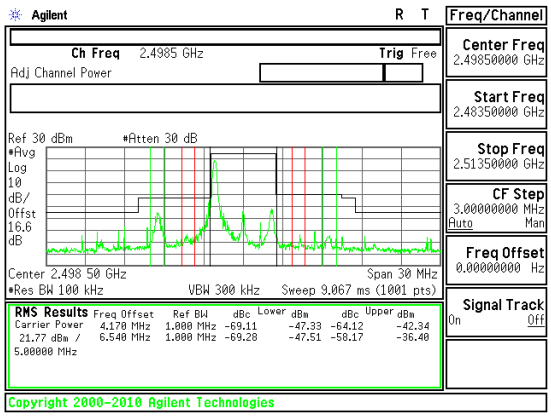
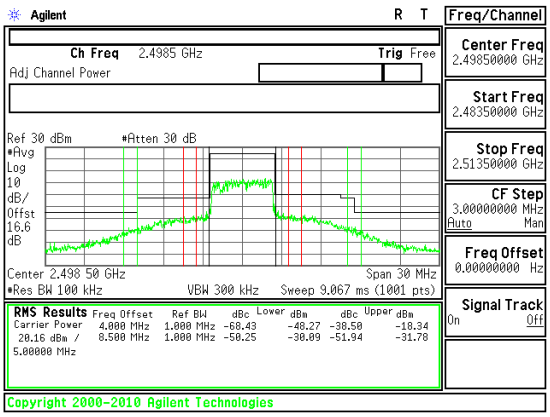
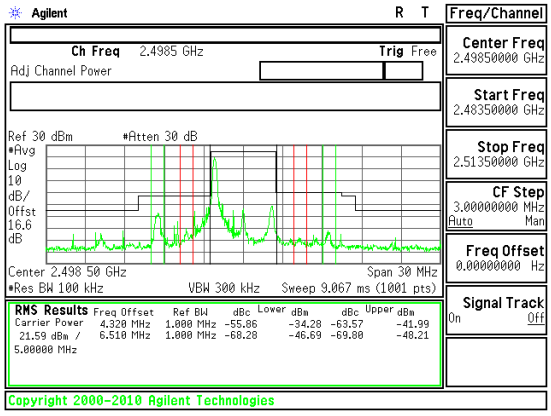
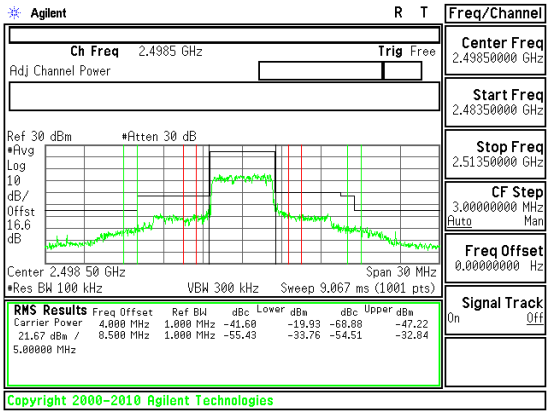
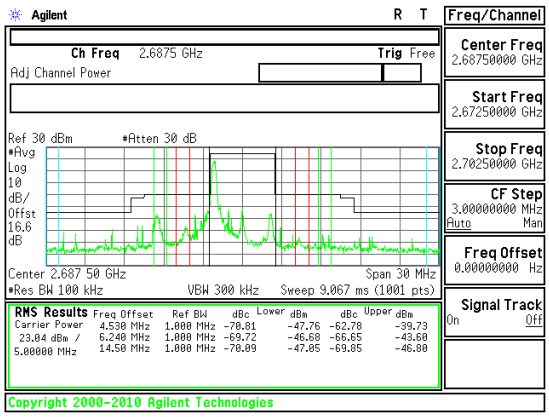
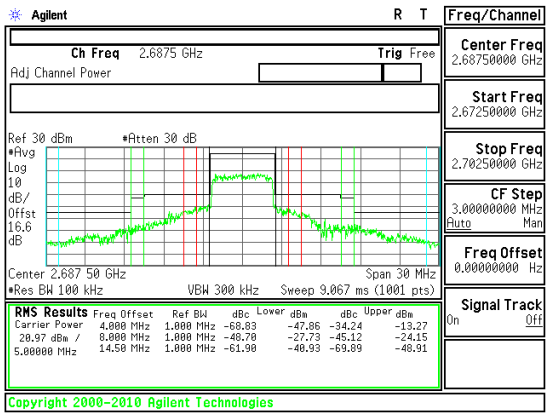
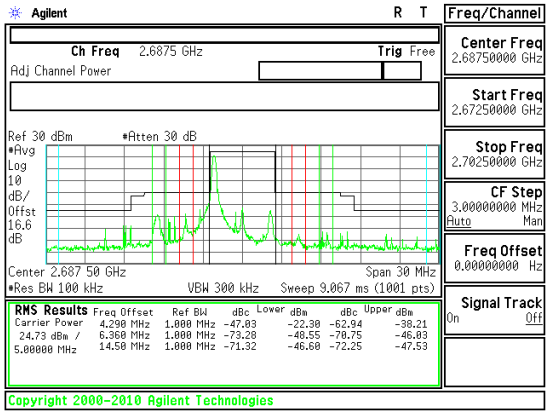
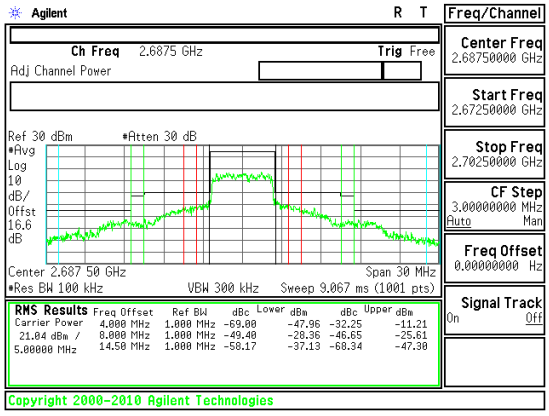
Band LTE41 10MHz 16QAM	 Band LTE41 10MHz EM 16QAM High Channel 1RB.gif	 Band LTE41 10MHz EM 16QAM High Channel FRB.gif
Band LTE41 10MHz QPSK	 Band LTE41 10MHz EM QPSK High Channel 1RB.gif	 Band LTE41 10MHz EM QPSK High Channel FRB.gif

Band LTE41 5MHz 16QAM	 Band LTE41 5MHz EM 16QAM Low Channel 1RB.gif	 Band LTE41 5MHz EM 16QAM Low Channel FRB.gif
Band LTE41 5MHz QPSK	 Band LTE41 5MHz EM QPSK Low Channel 1RB.gif	 Band LTE41 5MHz EM QPSK Low Channel FRB.gif

Band LTE41 5MHz 16QAM	 Band LTE41 5MHz EM 16QAM High Channel 1RB.gif	 Band LTE41 5MHz EM 16QAM High Channel FRB.gif
Band LTE41 5MHz QPSK	 Band LTE41 5MHz EM QPSK High Channel 1RB.gif	 Band LTE41 5MHz EM QPSK High Channel FRB.gif

10.3. OUT OF BAND EMISSIONS

RULE PART(S)

FCC: §2.1051, §22.901, §22.917, §24.238, §27.53 and §90.691

LIMITS

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

Per KDB 971168 D01 Power Meas License Digital Systems v02r02

The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case emissions were caught.

MODES TESTED

GSM, WCDMA, and LTE

RESULTS

10.3.1. OUT OF BAND EMISSIONS RESULT

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE41	20	16QAM	2506	-30.29	-25	-5.29
			2593	-30.327	-25	-5.327
			2680	-29.796	-25	-4.796
		QPSK	2506	-29.319	-25	-4.319
			2593	-30.434	-25	-5.434
			2680	-30.571	-25	-5.571
	15	16QAM	2503.5	-29.23	-25	-4.23
			2593	-28.40	-25	-3.4
			2682.5	-29.07	-25	-4.07
		QPSK	2503.5	-28.28	-25	-3.28
			2593	-28.17	-25	-3.17
			2682.5	-29.06	-25	-4.06
	10	16QAM	2501	-30.793	-25	-5.793
			2593	-30.24	-25	-5.24
			2685	-29.951	-25	-4.951
		QPSK	2501	-29.683	-25	-4.683
			2593	-29.212	-25	-4.212
			2685	-29.073	-25	-4.073
	5	16QAM	2498.5	-28.61	-25	-3.61
			2593	-28.44	-25	-3.44
			2687.5	-29.41	-25	-4.41
		QPSK	2498.5	-28.80	-25	-3.8
			2593	-28.81	-25	-3.81
			2687.5	-28.29	-25	-3.29

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE26	1.4	QPSK	814.7	-30.07	-13	-17.07
			831.5	-29.78	-13	-16.78
			848.3	-30.35	-13	-17.35
		16QAM	814.7	-30.59	-13	-17.59
			831.5	-29.61	-13	-16.61
			848.3	-29.78	-13	-16.78
	3	QPSK	815.5	-29.92	-13	-16.92
			831.5	-29.85	-13	-16.85
			847.5	-29.78	-13	-16.78
		16QAM	815.5	-29.74	-13	-16.74
			831.5	-29.39	-13	-16.39
			847.5	-29.82	-13	-16.82
	5	QPSK	816.5	-29.808	-13	-16.808
			831.5	-29.763	-13	-16.763
			846.5	-30.230	-13	-17.23
		16QAM	816.5	-29.047	-13	-16.047
			831.5	-29.38	-13	-16.38
			846.5	-29.372	-13	-16.372
	10	QPSK	819	-29.16	-13	-16.16
			831.5	-30.01	-13	-17.01
			844	-29.11	-13	-16.11
		16QAM	819	-29.92	-13	-16.92
			831.5	-29.07	-13	-16.07
			844	-28.95	-13	-15.95
	15	QPSK	831.5	-29.38	-13	-16.38
			836.5	-31.77	-13	-18.77
			841.5	-29.39	-13	-16.39
		16QAM	831.5	-28.89	-13	-15.89
			836.5	-31.31	-13	-18.31
			841.5	-29.95	-13	-16.95

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE13	10	16QAM	782	-32.15	-13	-19.15
		QPSK	782	-31.57	-13	-18.57
	5	16QAM	779.5	-31.84	-13	-18.84
			785	-31.94	-13	-18.94
			784.5	-31.61	-13	-18.61
		QPSK	779.5	-31.74	-13	-18.74
			785	-31.45	-13	-18.45
			784.5	-31.98	-13	-18.98

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE17	5	QPSK	706.5	-28.201	-13	-15.201
			710	-29.47	-13	-16.47
			713.5	-28.90	-13	-15.9
		16QAM	706.5	-30.08	-13	-17.08
			710	-29.87	-13	-16.87
			713.5	-29.76	-13	-16.76
	10	QPSK	709	-29.68	-13	-16.68
			710	-29.50	-13	-16.5
			711	-30.14	-13	-17.14
		16QAM	709	-29.60	-13	-16.6
			710	-29.34	-13	-16.34
			711	-28.55	-13	-15.55

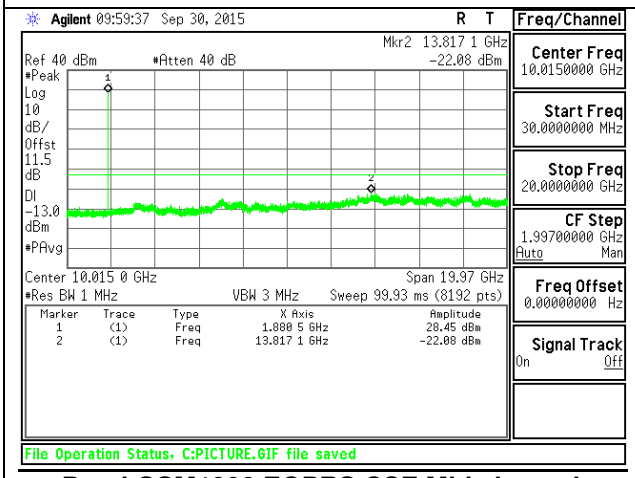
Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE5	1.4	QPSK	824.7	-29.65	-13	-16.65
			836.5	-29.521	-13	-16.521
			848.3	-29.859	-13	-16.859
		16QAM	824.7	-29.526	-13	-16.526
			836.5	-29.387	-13	-16.387
			848.3	-29.757	-13	-16.757
	3	QPSK	825.5	-29.742	-13	-16.742
			836.5	-29.794	-13	-16.794
			847.5	-29.625	-13	-16.625
		16QAM	825.5	-29.806	-13	-16.806
			836.5	-29.69	-13	-16.69
			847.5	-29.779	-13	-16.779
	5	QPSK	826.5	-29.36	-13	-16.36
			836.5	-28.92	-13	-15.92
			846.5	-28.56	-13	-15.56

		16QAM	826.5	-29.82	-13	-16.82
			836.5	-30.35	-13	-17.35
			846.5	-29.53	-13	-16.53
	10	QPSK	829	28.92	-13	-15.92
			836.5	-28.99	-13	-15.99
			844	-29.04	-13	-16.04
		16QAM	829	-29.73	-13	-16.73
			836.5	-29.85	-13	-16.85
			844	-30.05	-13	-17.05

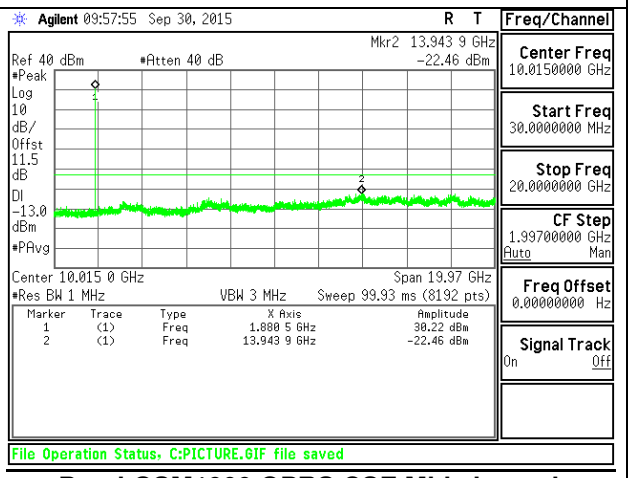
Band	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
GSM850	GPRS	824.2	-21.858	-13	-8.858
		836.6	-21.972	-13	-8.972
		848.8	-22.766	-13	-9.766
	EGPRS	824.2	-22.62	-13	-9.62
		836.6	-22.144	-13	-9.144
		848.8	-22.506	-13	-9.506
GSM1900	GPRS	1850.2	-21.773	-13	-8.773
		1880	-22.461	-13	-9.461
		1909.8	-21.999	-13	-8.999
	EGPRS	1850.2	-22.417	-13	-9.417
		1880	-22.078	-13	-9.078
		1909.8	-22.393	-13	-9.393
Band 5	Rel99	826.4	-22.059	-13	-9.059
		836.6	-21.84	-13	-8.84
		846.6	-22.806	-13	-9.806
Band 5	HSDPA	826.4	-22.227	-13	-9.227
		836.6	-22.453	-13	-9.453
		846.6	-22.354	-13	-9.354

10.3.2. OUT OF BAND EMISSIONS PLOTS

Band GSM1900 GPRS

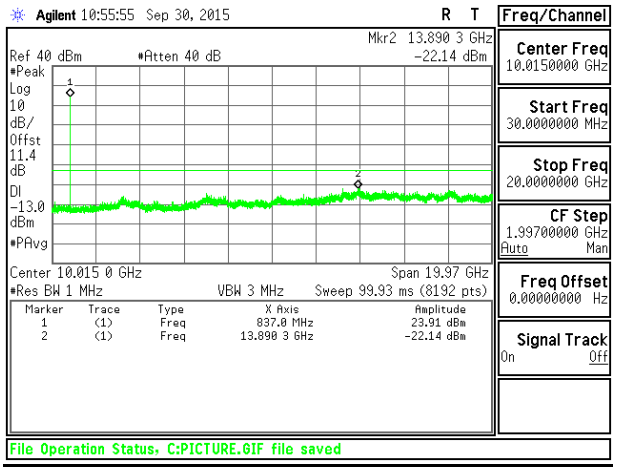


Band GSM1900 EGPRS CSE Mid channel

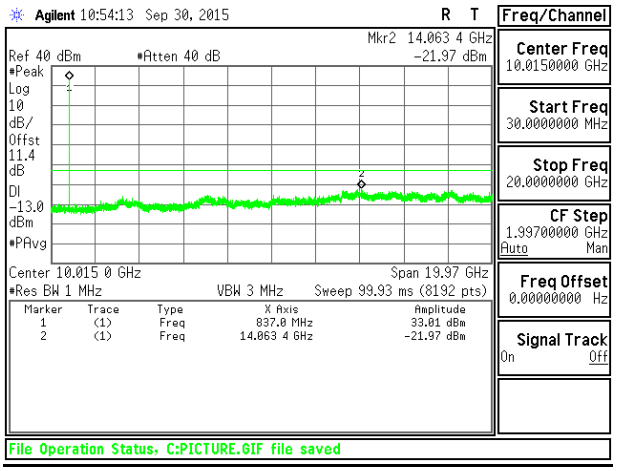


Band GSM1900 GPRS CSE Mid channel

Band GSM850 GPRS

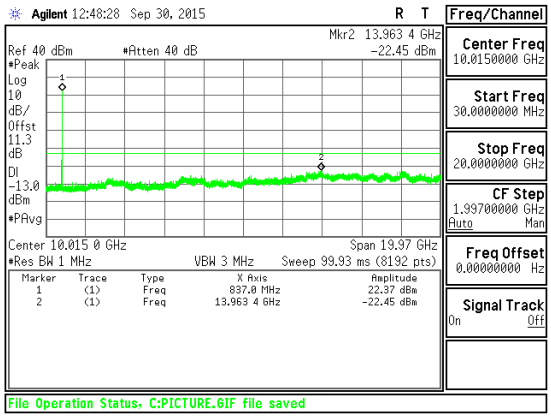
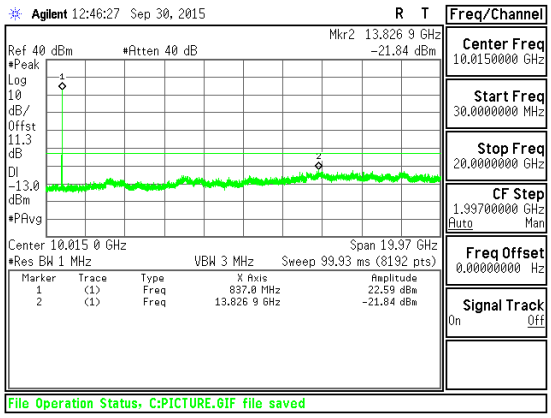


Band GSM850 EGPRS CSE Mid channel

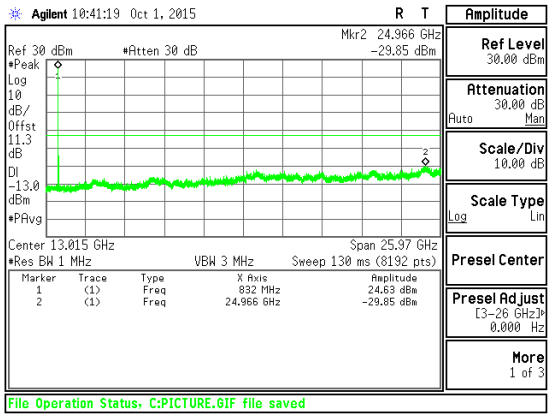
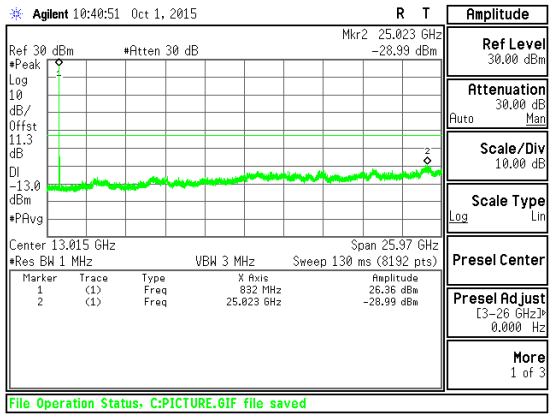


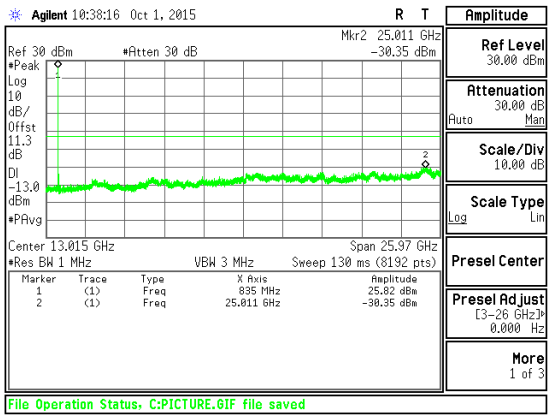
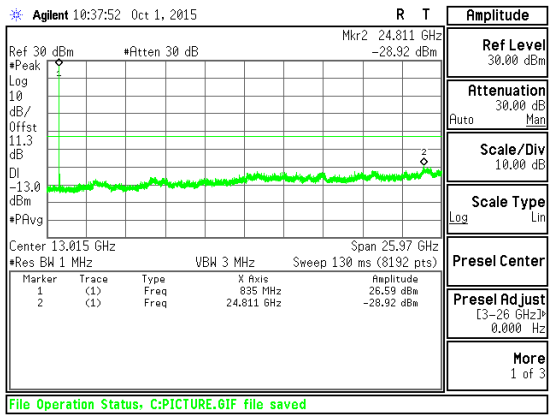
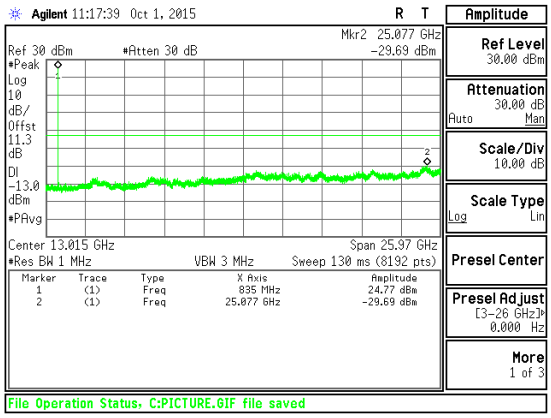
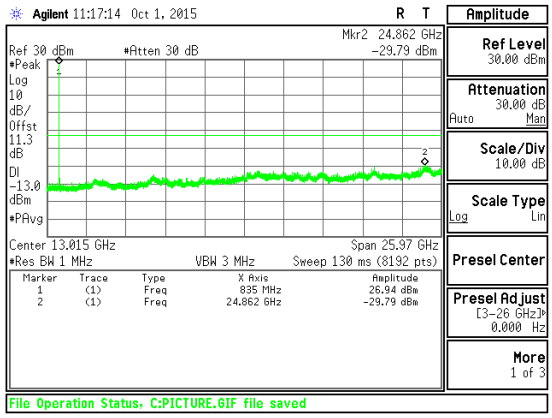
Band GSM850 GPRS CSE Mid channel

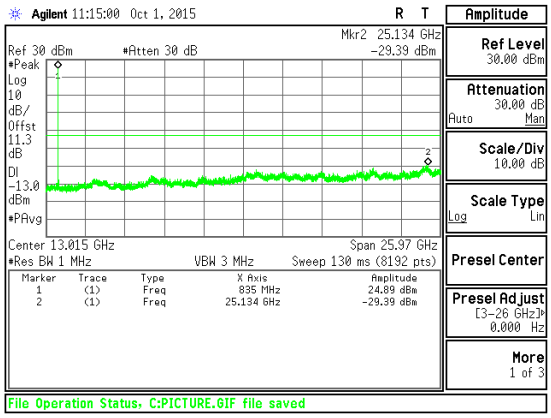
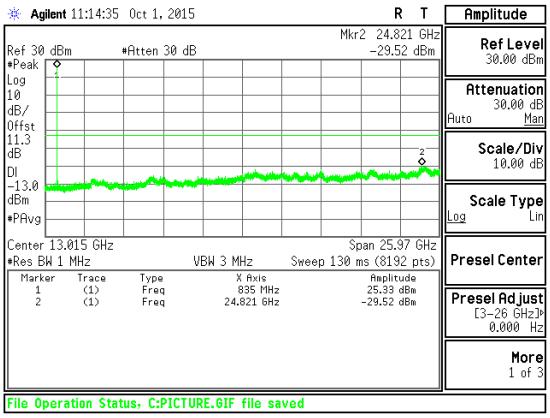
WCDMA 5

Band Band 5	 Band WCDMA B5 HSDPA CSE	 Band WCDMA B5 REL99 CSE

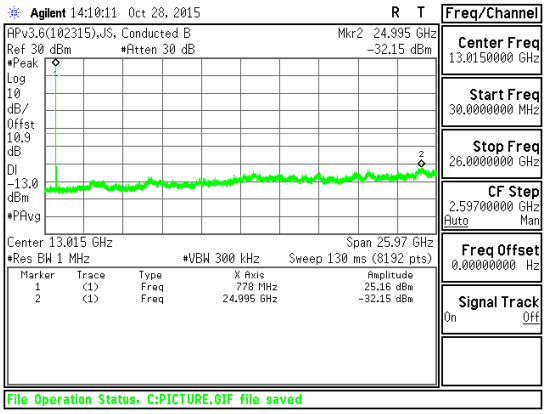
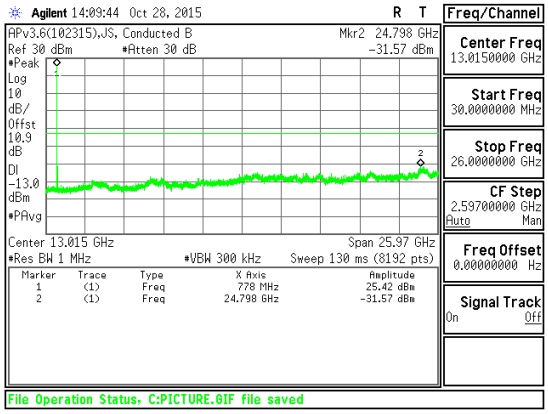
LTE Band 5

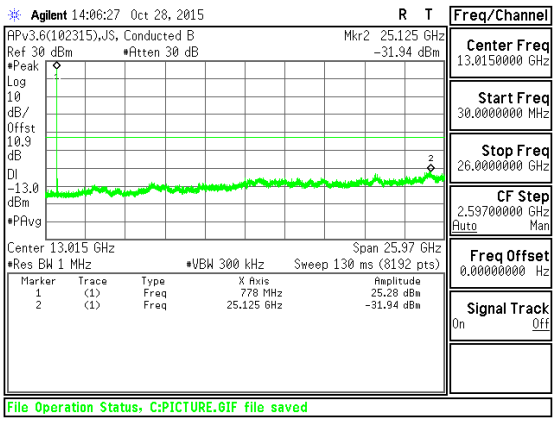
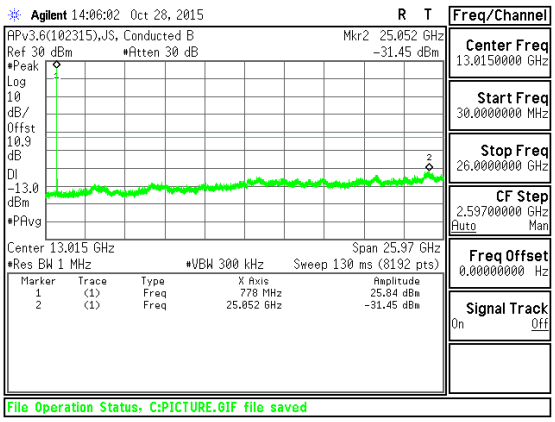
Band LTE5 10MHz	 Band LTE5 10MHz CSE 16QAM Mid channel	 Band LTE5 10MHz CSE QPSK Mid channel

Band LTE5 5MHz	 Band LTE5 5MHz CSE 16QAM Mid channel	 Band LTE5 5MHz CSE QPSK Mid channel
Band LTE5 3MHz	 Band LTE5 3MHz CSE 16QAM Mid channel	 Band LTE5 3MHz CSE QPSK Mid channel

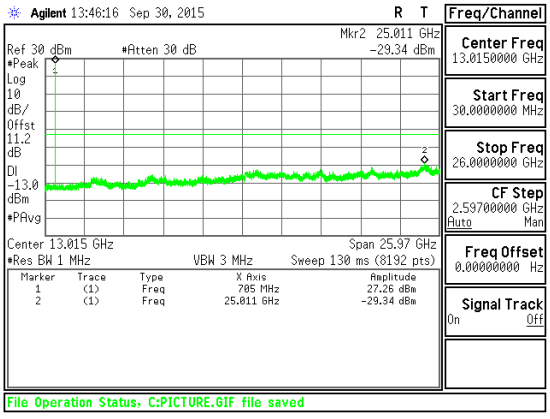
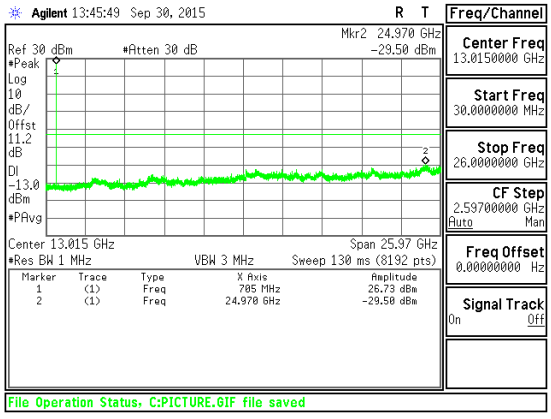
Band LTE5 1.4MHz	 Band LTE5 1.4MHz CSE 16QAM Mid channel	 Band LTE5 1.4MHz CSE QPSK Mid channel

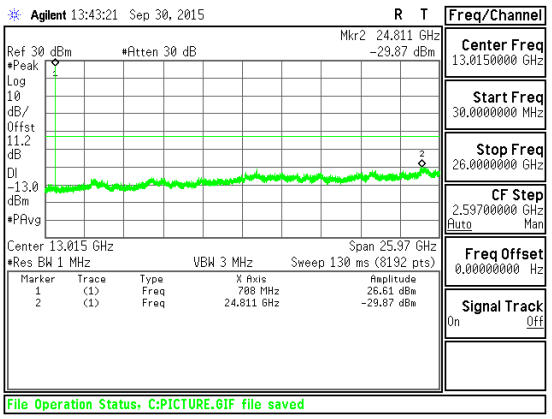
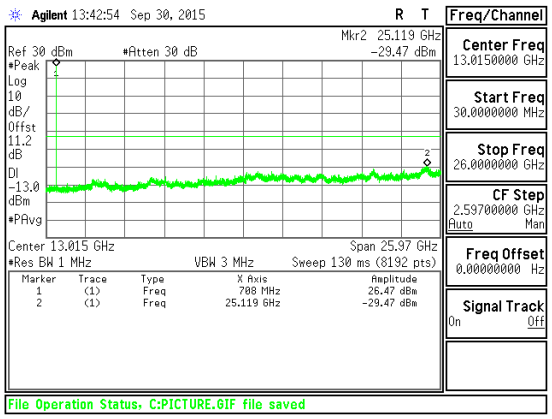
LTE Band 13

Band LTE13 10MHz	 Band LTE13 10MHz CSE 16QAM Mid channel	 Band LTE13 10MHz CSE QPSK Mid channel

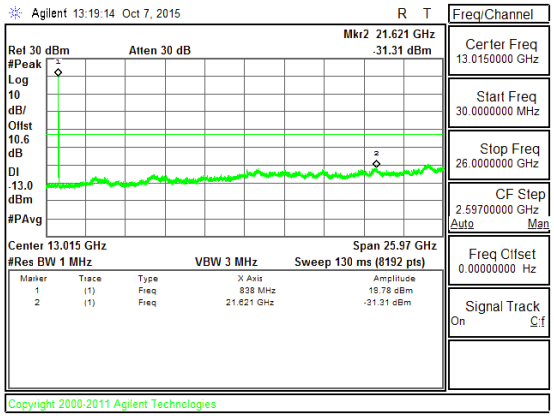
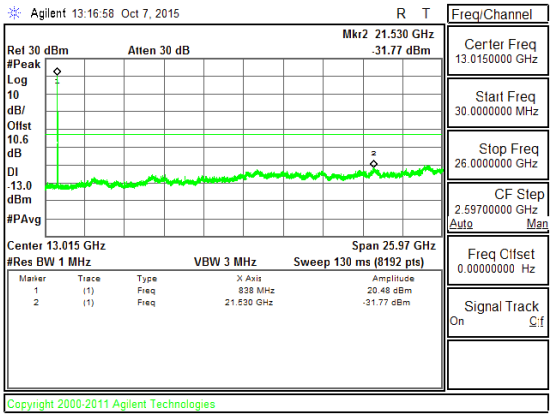
Band LTE13 5MHz	 Band LTE13 5MHz CSE 16QAM Mid channel	 Band LTE13 5MHz CSE QPSK Mid channel

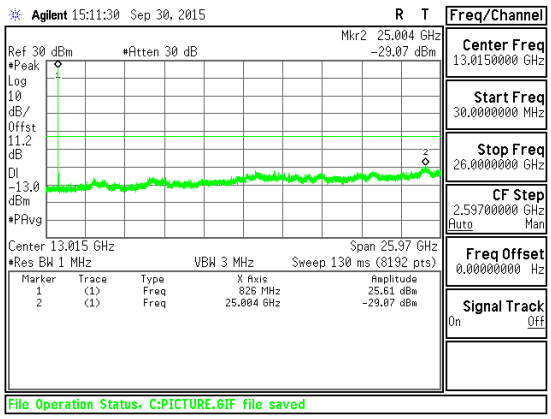
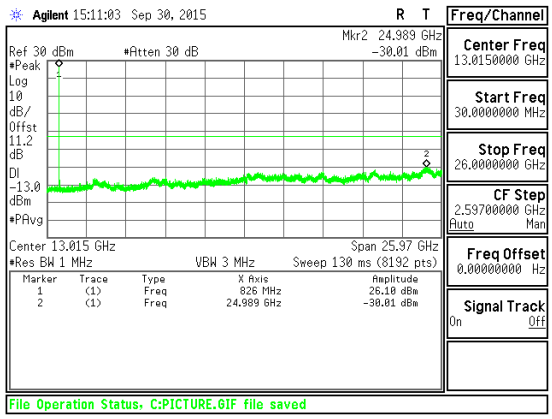
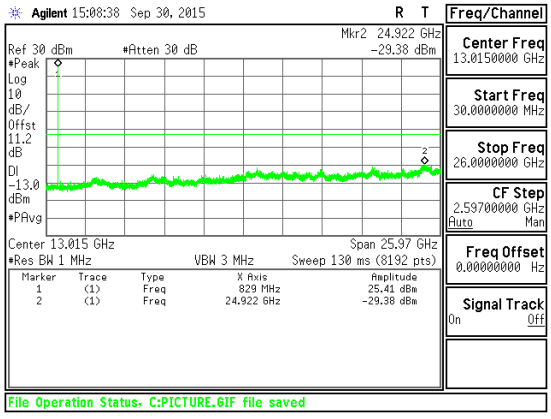
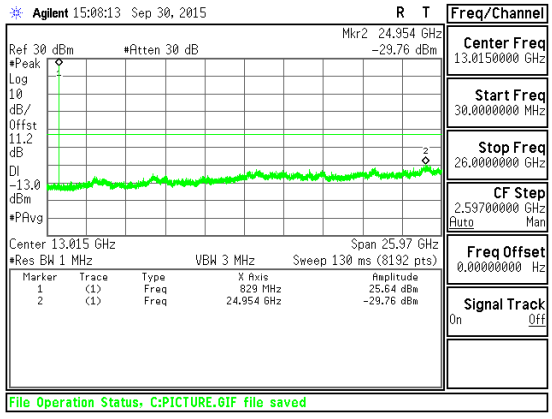
LTE Band 17

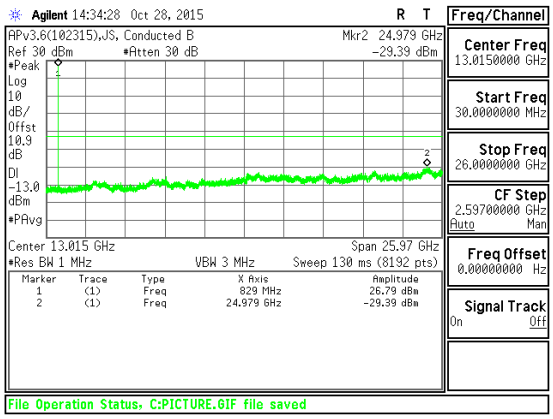
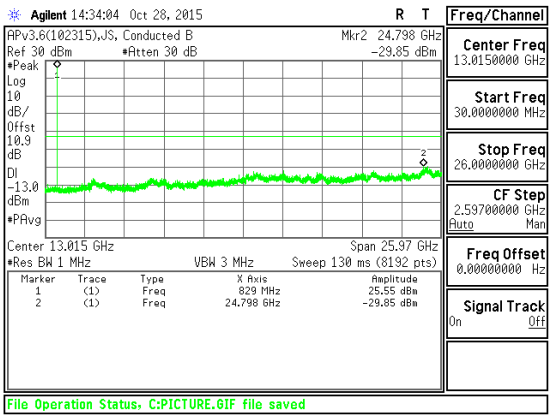
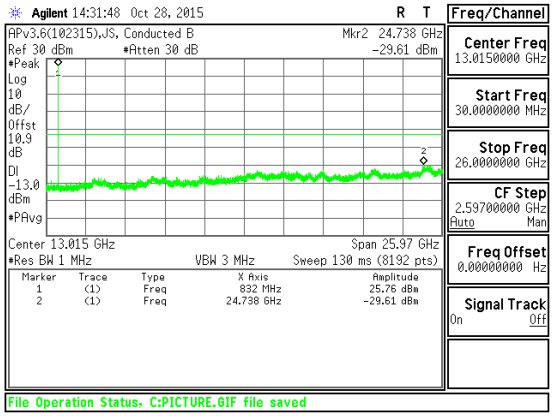
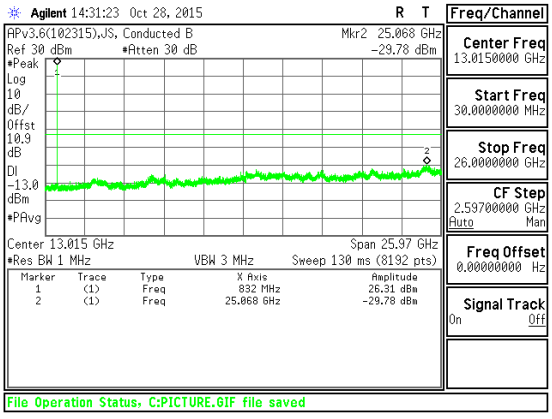
Band LTE17 10MHz	 Band LTE17 10MHz CSE 16QAM Mid channel	 Band LTE17 10MHz CSE QPSK Mid channel

Band LTE17 5MHz	 Band LTE17 5MHz CSE 16QAM Mid channel	 Band LTE17 5MHz CSE QPSK Mid channel

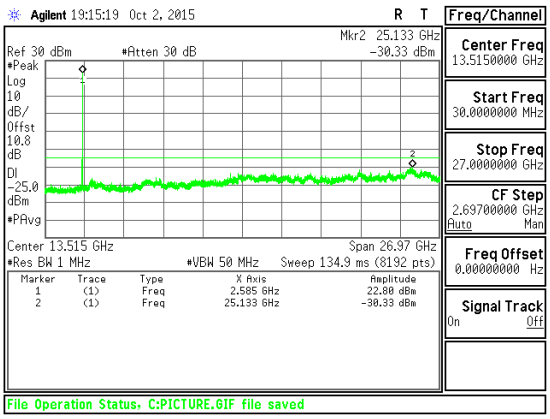
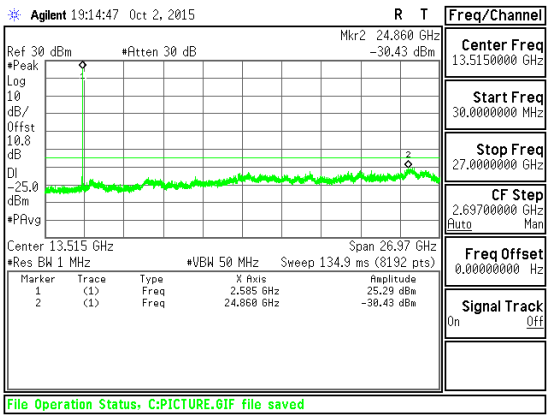
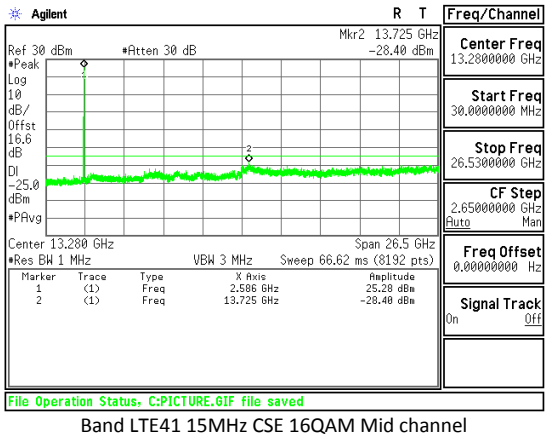
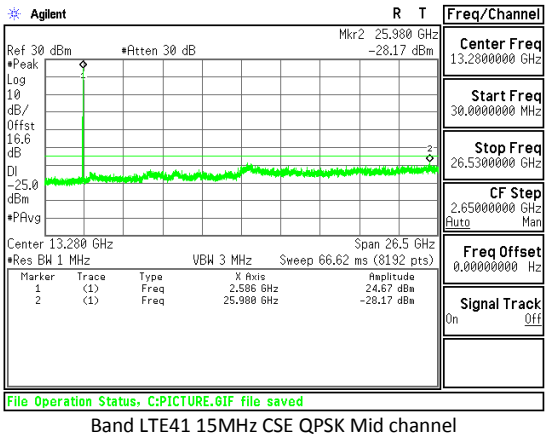
LTE Band 26

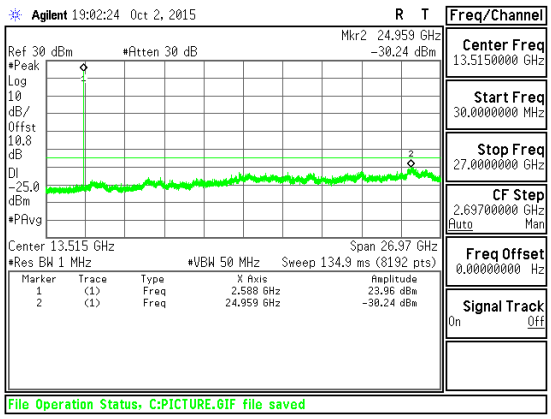
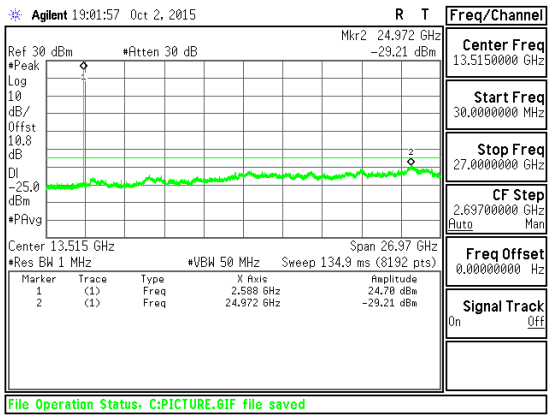
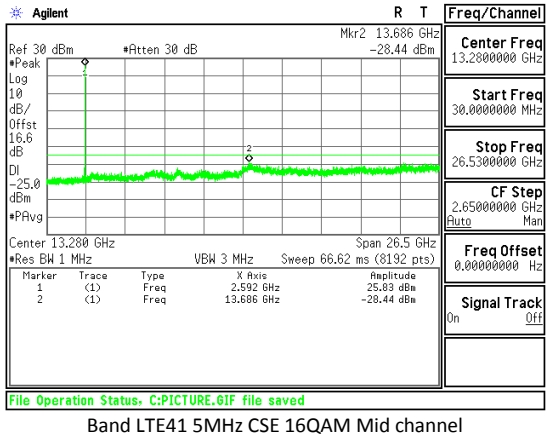
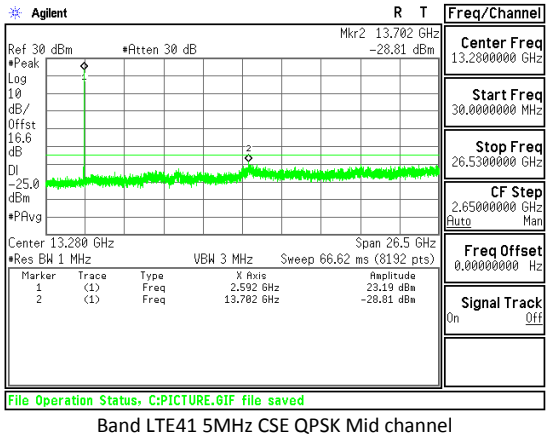
Band LTE26 15MHz	 Band LTE26 15MHz CSE 16QAM Mid channel	 Band LTE26 15MHz CSE QPSK Mid channel

Band LTE26 10MHz	 Band LTE26 10MHz CSE 16QAM Mid channel	 Band LTE26 10MHz CSE QPSK Mid channel
Band LTE26 5MHz	 Band LTE26 5MHz CSE 16QAM Mid channel	 Band LTE26 5MHz CSE QPSK Mid channel

Band LTE26 3MHz	 Band LTE26 3MHz CSE 16QAM Mid channel	 Band LTE26 3MHz CSE QPSK Mid channel
Band LTE26 1.4MHz	 Band LTE26 1.4MHz CSE 16QAM Mid channel	 Band LTE26 1.4MHz CSE QPSK Mid channel

LTE Band 41

Band LTE41 20MHz	 Band LTE41 20MHz CSE 16QAM Mid channel	 Band LTE41 20MHz CSE QPSK Mid channel
Band LTE41 15MHz	 Band LTE41 15MHz CSE 16QAM Mid channel	 Band LTE41 15MHz CSE QPSK Mid channel

Band LTE41 10MHz	 Band LTE41 10MHz CSE 16QAM Mid channel	 Band LTE41 10MHz CSE QPSK Mid channel
Band LTE41 5MHz	 Band LTE41 5MHz CSE 16QAM Mid channel	 Band LTE41 5MHz CSE QPSK Mid channel

10.4. FREQUENCY STABILITY

RULE PART(S)

FCC: §2.1055, §22.355, §24.235, §27.54 and §90.213

LIMITS

§22.355 - The carrier frequency shall not depart from the reference frequency in excess of ±2.5 ppm for mobile stations.

§24.235 - The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

§27.54 - The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

§90.213 - The carrier frequency shall not depart from the reference frequency in excess of ±2.5 ppm for mobile stations.

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v02r02

MODES TESTED

GSM and LTE

RESULTS

See the following pages.

10.4.1. FREQUENCY STABILITY RESULTS

LTE Band 17

Reference Frequency: Cell Mid Channel		710	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		1775.000	Hz	
Power Supply	Environment	Frequency Deviation Measureed with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
5.00	50	709.999999	0.000	2.5
5.00	40	709.999999	0.000	2.5
5.00	30	710.000000	0.000	2.5
5.00	***20***	**709.999999**	**0**	***2.5***
5.00	10	709.999999	0.000	2.5
5.00	0	710.000000	-0.001	2.5
5.00	-10	710.000000	0.000	2.5
5.00	-20	710.000000	0.000	2.5
5.00	-30	710.000000	0.000	2.5

Reference Frequency: PCS Mid Channel		710	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		1775.000	Hz	
Power Supply	Environment	Frequency Deviation Measureed with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
5.00	***20***	***709.999999***	***0***	***2.5***
5.35	20	709.9999992	*0.000*	2.5
4.85(End of volt)	20	709.9999995	*0.000*	2.5

LTE Band 13

Reference Frequency: PCS Mid Channel		782	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		1955.000	Hz	
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measureed with Time Elapse (MHz)	Delta (ppm)	Limit (ppm)
5.00	50	781.999999	0.001	2.5
5.00	40	781.999999	0.000	2.5
5.00	30	781.999999	0.000	2.5
5.00	***20***	**781.999999**	**0**	***2.5***
5.00	10	781.999999	0.000	2.5
5.00	0	781.999999	0.000	2.5
5.00	-10	781.999999	0.001	2.5
5.00	-20	781.999999	0.001	2.5
5.00	-30	781.999999	0.000	2.5
		782.0000000	-0.001	

Reference Frequency: PCS Mid Channel		782	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		1955.000	Hz	
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measureed with Time Elapse (MHz)	Delta (ppm)	Limit (ppm)
5.00	***20***	***781.999999***	***0***	***2.5***
5.35	20	782.0000013	*-0.003*	2.5
4.85(End of volt)	20	781.999999	*0.000*	2.5

LTE Band 26

Reference Frequency: PCS Mid Channel		831.5	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		2078.750	Hz	
Power Supply	Environment	Frequency Deviation Measureed with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
5.00	50	831.499989	0.005	2.5
5.00	40	831.499980	0.015	2.5
5.00	30	831.499990	0.002	2.5
5.00	***20***	**831.499992**	**0**	***2.5***
5.00	10	831.500000	-0.009	2.5
5.00	0	831.499989	0.004	2.5
5.00	-10	831.499975	0.021	2.5
5.00	-20	831.499981	0.014	2.5
5.00	-30	831.499982	0.012	2.5

Reference Frequency: PCS Mid Channel		831.5	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		2078.750	Hz	
Power Supply	Environment	Frequency Deviation Measureed with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
5.00	***20***	***831.499992***	***0***	***2.5***
5.35	20	831.4999852	*0.009*	2.5
4.85(End of volt)	20	831.4999898	*0.003*	2.5

LTE Band 41

Reference Frequency: PCS Mid Channel		2593	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		6482.500	Hz	
Power Supply	Environment	Frequency Deviation Measureed with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
5.00	50	2592.999989	0.001	2.5
5.00	40	2592.999980	0.005	2.5
5.00	30	2592.999990	0.001	2.5
5.00	***20***	**2592.999992**	**0**	***2.5***
5.00	10	2593.000000	-0.003	2.5
5.00	0	2592.999989	0.001	2.5
5.00	-10	2592.999975	0.007	2.5
5.00	-20	2592.999981	0.004	2.5
5.00	-30	2592.999982	0.004	2.5

Reference Frequency: PCS Mid Channel		2593	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		6482.500	Hz	
Power Supply	Environment	Frequency Deviation Measureed with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
5.00	***20***	***2592.999992***	***0***	***2.5***
5.35	20	2592.999985	*0.003*	2.5
4.85(End of volt)	20	2592.99999	*0.001*	2.5

GSM 1900

Reference Frequency: PCS Mid Channel		1880	MHz @ 20°C
Limit: to stay +- 2.5 ppm =		4700.000	Hz
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measureed with Time Elapse (MHz)	Delta (ppm)	Limit (ppm)
5.00	50	1879.999965	0.014	2.5
5.00	40	1879.999958	0.018	2.5
5.00	30	1879.999982	0.005	2.5
5.00	***20***	**1879.999991**	**0**	***2.5***
5.00	10	1879.999977	0.008	2.5
5.00	0	1879.999988	0.002	2.5
5.00	-10	1879.999962	0.016	2.5
5.00	-20	1879.999953	0.021	2.5
5.00	-30	1879.999944	0.025	2.5

Reference Frequency: PCS Mid Channel		1880	MHz @ 20°C
Limit: to stay +- 2.5 ppm =		4700.000	Hz
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measureed with Time Elapse (MHz)	Delta (ppm)	Limit (ppm)
5.00	***20***	***1879.999991***	***0***	***2.5***
5.35	20	1879.999985	*0.004*	2.5
4.85(End of volt)	20	1879.999988	*0.002*	2.5

GSM 850

Reference Frequency: Cell Mid Channel		836.6	MHz @ 20°C
Limit: to stay +- 2.5 ppm =		2091.500	Hz
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measureed with Time Elapse (MHz)	Delta (ppm)	Limit (ppm)
5.00	50	836.599993	-0.005	2.5
5.00	40	836.599996	-0.008	2.5
5.00	30	836.599992	-0.003	2.5
5.00	***20***	**836.599989**	**0**	***2.5***
5.00	10	836.599993	-0.004	2.5
5.00	0	836.599983	0.007	2.5
5.00	-10	836.599989	0.000	2.5
5.00	-20	836.599984	0.006	2.5
5.00	-30	836.599983	0.008	2.5

Reference Frequency: PCS Mid Channel		836.6	MHz @ 20°C
Limit: to stay +- 2.5 ppm =		2091.500	Hz
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measureed with Time Elapse (MHz)	Delta (ppm)	Limit (ppm)
5.00	***20***	***836.599989***	***0***	***2.5***
5.35	20	836.6	*-0.013*	2.5
4.85(End of volt)	20	836.6	*-0.013*	2.5

11. RADIATED TEST RESULTS

11.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

FCC: §2.1046, §22.913, §24.232, §27 and § 90.635.

LIMITS

22.913(a) - The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

24.232(c) - Mobile/portable stations are limited to 2 watts e.i.r.p. peak power and the equipment must employ means to limit the power to the minimum necessary for successful communications.

27.50(c) - (10) Portable stations (hand-held devices) are limited to 3 watts ERP; (LTE B17)

27.50(h) - (2) Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.(LTE B41 & 7)

90.635(b) - The maximum output power of the transmitter for mobile stations is 100 watts (20 dBw). (LTE B26)

In addition, when the transmitter power is measured in terms of average value, the peak-to-average ratio of the power shall not exceed 13dB.

TEST PROCEDURE

ANSI / TIA / EIA 603D Clause 2.2.17; PSA setting reference to 971168 D01 v02r02

For peak power measurement with a PSA:

a) Set the RBW ≥ OBW; b) Set VBW ≥ 3 × RBW; c) Set span ≥ 2 x RBW; d) Sweep time = auto couple; e) Detector = peak; f) Ensure that the number of measurement points ≥ span/RBW; g) Trace mode = max hold;

For average power measurement with a PSA:

a) Set span to at least 1.5 times the OBW; b) Set RBW = 1-5% of the OBW, not to exceed 1 MHz; c) Set VBW ≥ 3 x RBW; d) Set number of points in sweep ≥ 2 × span / RBW; e) Sweep time = auto-couple; f) Detector = RMS (power averaging); g) Use free run trigger If burst duty cycle ≥ 98; h) Use trigger to capture bursts If burst duty cycle < 98; i) Trace average at least 100 traces in power averaging (*i.e.*, RMS) mode. j) Compute the power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function.

MODES TESTED

GSM, WCDMA, and LTE

TEST RESULTS

11.1.1. ERP/EIRP

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
Band 5	REL99	4132	826.4	17.60	57.54
		4183	836.6	18.50	70.79
		4233	846.6	19.21	83.37
	HSDPA	4132	826.4	17.97	62.66
		4183	836.6	12.39	17.34
		4233	846.6	19.26	84.33

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
GSM1900	GPRS	512	1850.2	29.37	864.97
		661	1880	29.97	993.12
		810	1909.8	29.15	822.24
	EGPRS	512	1850.2	25.09	322.85
		661	1880	25.82	381.94
		810	1909.8	25.10	323.59

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
GSM850	GPRS	128	824.2	28.58	721.11
		190	836.6	29.59	909.91
		251	848.8	29.74	941.89
	EGPRS	128	824.2	22.70	186.21
		190	836.6	23.30	213.80
		251	848.8	23.70	234.42

11.1.2. LTE ERP/EIRP

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE41	20	QPSK	1/0	2506	22.86	193.19
			1/0	2593	22.55	179.72
			1/0	2680	21.41	138.22
		16QAM	1/0	2506	22.26	168.26
			1/0	2593	22.08	161.28
			1/0	2680	20.81	120.38
	15	QPSK	1/0	2503.5	22.58	181.13
			1/0	2593	22.36	172.19
			1/0	2682.5	22.46	176.20
		16QAM	1/0	2503.5	21.80	151.36
			1/0	2593	21.85	153.11
			1/0	2682.5	21.66	146.55
Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE41	10	QPSK	1/0	2501	22.66	184.43
			1/0	2593	22.38	172.82
			1/0	2685	22.52	178.62
		16QAM	1/0	2501	22.36	172.12
			1/0	2593	22.18	165.04
			1/0	2685	22.32	170.58
	5	QPSK	1/0	2498.5	22.63	183.23
			1/0	2593	22.44	175.39
			1/0	2687.5	22.18	165.20
		16QAM	1/0	2498.5	21.75	149.62
			1/0	2593	21.84	152.76
			1/0	2687.5	21.58	143.88

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE26	1.4	QPSK	1/0	816.5	19.79	95.28
			1/0	831.5	19.88	97.27
			1/0	846.5	19.61	91.41
		16QAM	1/0	816.5	18.74	74.82
			1/0	831.5	18.90	77.62
			1/0	846.5	18.76	75.16
	3	QPSK	1/0	816.5	19.57	90.57
			1/0	831.5	19.81	95.72
			1/0	846.5	19.52	89.54
		16QAM	1/0	816.5	18.53	71.29
			1/0	831.5	18.84	76.56
			1/0	846.5	18.43	69.66
	5	QPSK	1/0	816.5	19.20	83.18
			1/0	831.5	19.80	95.50
			1/0	846.5	19.50	89.13
		16QAM	1/0	816.5	18.60	72.44
			1/0	831.5	19.20	83.18
			1/0	846.5	18.80	75.86
	10	QPSK	1/0	819	19.20	83.18
			1/0	831.5	19.40	87.10
			1/0	844	19.50	89.13
		16QAM	1/0	819	18.40	69.18
			1/0	831.5	18.50	70.79
			1/0	844	18.60	72.44
	15	QPSK	1/0	831.5	19.20	83.18
			1/0	836.5	20.20	104.71
			1/0	841.5	19.40	87.10
		16QAM	1/0	831.5	18.40	69.18
			1/0	836.5	19.30	85.11
			1/0	841.5	18.50	70.79

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE17	5	QPSK	1/0	706.5	15.91	38.99
			1/0	710	16.18	41.50
			1/0	713.5	16.55	45.19
		16QAM	1/0	706.5	15.0	31.62
			1/0	710	15.15	32.73
			1/0	713.5	15.40	34.67
	10	QPSK	1/0	709	15.92	39.08
			1/0	710	16.14	41.11
			1/0	711	16.50	44.67
		16QAM	1/0	709	14.98	31.48
			1/0	710	15.12	32.51
			1/0	711	15.42	34.83

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE13	5	QPSK	1/0	779.5	16.42	43.85
			1/0	782	16.58	45.50
			1/0	784.5	16.48	44.46
		16QAM	1/0	779.5	15.47	35.24
			1/0	782	15.59	36.22
			1/0	784.5	15.49	35.40
	10	QPSK	1/0	782	16.62	45.92
			1/0	782	16.62	45.92
			1/0	782	16.62	45.92
		16QAM	1/0	782	15.59	36.22
			1/0	782	15.59	36.22
			1/0	782	15.59	36.22

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE5	1.4	QPSK	1/0	824.7	20.00	100.00
			1/0	836.5	21.20	131.83
			1/0	848.3	21.30	134.90
		16QAM	1/0	824.7	18.00	63.10
			1/0	836.5	20.40	109.65
			1/0	848.3	20.35	108.39
	3	QPSK	1/0	825.5	19.80	95.50
			1/0	836.5	21.20	131.83
			1/0	847.5	21.40	138.04
		16QAM	1/0	825.5	19.10	81.28
			1/0	836.5	20.30	107.15
			1/0	847.5	20.60	114.82
	5	QPSK	1/0	826.5	20.10	102.33
			1/0	836.5	21.20	131.83
			1/0	846.5	21.60	144.54
		16QAM	1/0	826.5	19.30	85.11
			1/0	836.5	20.30	107.15
			1/0	846.5	20.80	120.23
	10	QPSK	1/0	829	20.00	100.00
			1/0	836.5	21.10	128.82
			1/0	844	21.40	138.04
		16QAM	1/0	829	19.20	83.18
			1/0	836.5	20.10	102.33
			1/0	844	20.70	117.49

11.1.3. ERP/EIRP PLOTS

GSM

Band

GSM 1900

EGPRS

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: Samsung
Project #: 15I21858
Date: 10/1/2015
Test Engineer: Jude Semana / Justin Ko
Configuration: X-Position
Mode: EGPRS 1900

Test Equipment:
Receiving: Horn T345 and Chamber B SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse

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	13.40	V	0.9	7.9	20.40	33.0	-12.6	
1850.20	18.09	H	0.9	7.9	25.09	33.0	-7.9	
Mid Ch								
1880.00	14.11	V	0.9	7.9	21.11	33.0	-11.9	
1880.00	18.82	H	0.9	7.9	25.82	33.0	-7.2	
High Ch								
1909.80	14.30	V	0.9	7.9	21.30	33.0	-11.7	
1909.80	18.10	H	0.9	7.9	25.10	33.0	-7.9	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

Band

GSM 1900

GPRS

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: Samsung
Project #: 15I21858
Date: 10/1/2015
Test Engineer: Jude Semana / Justin Ko
Configuration: X-Position
Mode: GPRS 1900

Test Equipment:
Receiving: Horn T345 and Chamber B SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse

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	17.30	V	0.9	7.9	24.25	33.0	-8.8	
1850.20	22.42	H	0.9	7.9	29.37	33.0	-3.6	
Mid Ch								
1880.00	18.31	V	0.9	7.9	25.26	33.0	-7.7	
1880.00	23.02	H	0.9	7.9	29.97	33.0	-3.0	
High Ch								
1909.80	17.70	V	0.9	7.9	24.65	33.0	-8.4	
1909.80	22.20	H	0.9	7.9	29.15	33.0	-3.9	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

Band

GSM 850

EGPRS

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LIONS
Project #: 15I21858
Date: 10/2/2015
Test Engineer: Jude Semana / Justin Ko
Configuration: EUT (Z-Position)
Location: Chamber C
Mode: EGPRS 850 MHz Fundamentals

Test Equpment:
Receiving: Hybrid T130, and Chamber B SMA Cables
Substitution: Dipole T416, 6ft N Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
824.20	23.60	V	0.9	0.0	22.70	38.5	-15.8	
824.20	14.40	H	0.9	0.0	13.50	38.5	-25.0	
Mid Ch								
836.60	24.20	V	0.9	0.0	23.30	38.5	-15.2	
836.60	15.50	H	0.9	0.0	14.60	38.5	-23.9	
High Ch								
848.80	24.60	V	0.9	0.0	23.70	38.5	-14.8	
848.80	15.50	H	0.9	0.0	14.60	38.5	-23.9	

Band

GSM 850

GPRS

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: Samsung
Project #: 15I21858
Date: 9/29/2015
Test Engineer: O. Stoelting
Configuration: EUT
Location: Chamber B
Mode: GPRS 850 MHz Fundamentals

Test Equpment:
Receiving: Hybrid T130, and Chamber B SMA Cables
Substitution: Dipole T416, 6ft N Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
824.20	29.48	V	0.9	0.0	28.58	38.5	-9.9	
824.20	22.56	H	0.9	0.0	21.66	38.5	-16.8	
Mid Ch								
836.60	30.49	V	0.9	0.0	29.59	38.5	-8.9	
836.60	24.89	H	0.9	0.0	23.99	38.5	-14.5	
High Ch								
848.80	30.64	V	0.9	0.0	29.74	38.5	-8.8	
848.80	25.34	H	0.9	0.0	24.44	38.5	-14.1	

WCDMA 5

Band

Band 5

HSDPA

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company:	Samsung
Project #:	15I21858
Date:	9/30/2015
Test Engineer:	O. Stoelting
Configuration:	EUT
Location:	Chamber B
Mode:	HSDPA Band 5 Fundamentals

Test Equpment:
Receiving: Hybrid T130, and Chamber B SMA Cables
Substitution: Dipole T416, 6ft N Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
826.40	8.66	V	0.9	0.0	7.76	38.5	-30.7	
826.40	18.87	H	0.9	0.0	17.97	38.5	-20.5	
Mid Ch								
836.60	9.49	V	0.9	0.0	8.59	38.5	-29.9	
836.60	13.29	H	0.9	0.0	12.39	38.5	-26.1	
High Ch								
846.60	10.40	V	0.9	0.0	9.50	38.5	-29.0	
846.60	20.16	H	0.9	0.0	19.26	38.5	-19.2	

Band

Band 5

REL99

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: Samsung
Project #: 15I21858
Date: 9/30/2015
Test Engineer: O. Stoelting
Configuration: EUT
Location: Chamber B
Mode: Rel99 Band 5 Fundamentals

Test Equpment:
Receiving: Hybrid T130, and Chamber B SMA Cables
Substitution: Dipole T416, 6ft N Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
826.40	8.36	V	0.9	0.0	7.46	38.5	-31.0	
826.40	18.50	H	0.9	0.0	17.60	38.5	-20.9	
Mid Ch								
836.60	9.10	V	0.9	0.0	8.20	38.5	-30.3	
836.60	19.40	H	0.9	0.0	18.50	38.5	-20.0	
High Ch								
846.60	10.41	V	0.9	0.0	9.51	38.5	-29.0	
846.60	20.11	H	0.9	0.0	19.21	38.5	-19.3	

LTE Band 5

Band

LTE5

10MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: Samsung
Project #: 15I21858
Date: 10/5/2015
Test Engineer: Jude Semana / Justin Ko
Configuration: EUT Only (Z-position)
Location: Chamber C
Mode: LTE_16QAM Band 5 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: Hybrid T119, and Chamber C SMA Cables
Substitution: Dipole T416, 6ft N Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
829.00	20.10	V	0.9	0.0	19.20	38.5	-19.3	
829.00	11.60	H	0.9	0.0	10.70	38.5	-27.8	
Mid Ch								
836.50	21.00	V	0.9	0.0	20.10	38.5	-18.4	
836.50	12.20	H	0.9	0.0	11.30	38.5	-27.2	
High Ch								
844.00	21.60	V	0.9	0.0	20.70	38.5	-17.8	
844.00	12.90	H	0.9	0.0	12.00	38.5	-26.5	

Band

LTE5

10MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: Samsung
Project #: 15I21858
Date: 10/5/2015
Test Engineer: Jude Semana / Justin Ko
Configuration: EUT Only (Z-position)
Location: Chamber C
Mode: LTE_QPSK Band 5 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: Hybrid T119, and Chamber C SMA Cables
Substitution: Dipole T416, 6ft N Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
829.00	20.90	V	0.9	0.0	20.00	38.5	-18.5	
829.00	12.80	H	0.9	0.0	11.90	38.5	-26.6	
Mid Ch								
836.50	22.00	V	0.9	0.0	21.10	38.5	-17.4	
836.50	13.70	H	0.9	0.0	12.80	38.5	-25.7	
High Ch								
844.00	22.30	V	0.9	0.0	21.40	38.5	-17.1	
844.00	14.30	H	0.9	0.0	13.40	38.5	-25.1	

Band

LTE5

5MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company:	Samsung
Project #:	15I21858
Date:	10/5/2015
Test Engineer:	Jude Semana / Justin Ko
Configuration:	EUT Only (Z-position)
Location:	Chamber C
Mode:	LTE_16QAM Band 5 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Hybrid T119, and Chamber C SMA Cables
Substitution: Dipole T416, 6ft N Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
826.50	20.20	V	0.9	0.0	19.30	38.5	-19.2	
826.50	11.00	H	0.9	0.0	10.10	38.5	-28.4	
Mid Ch								
836.50	21.20	V	0.9	0.0	20.30	38.5	-18.2	
836.50	12.30	H	0.9	0.0	11.40	38.5	-27.1	
High Ch								
846.50	21.70	V	0.9	0.0	20.80	38.5	-17.7	
846.50	13.30	H	0.9	0.0	12.40	38.5	-26.1	

Band

LTE5

5MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company:	Samsung
Project #:	15I21858
Date:	10/5/2015
Test Engineer:	Jude Semana / Justin Ko
Configuration:	EUT Only (Z-position)
Location:	Chamber C
Mode:	LTE_QPSK Band 5 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Hybrid T119, and Chamber C SMA Cables
Substitution: Dipole T416, 6ft N Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
826.50	21.00	V	0.9	0.0	20.10	38.5	-18.4	
826.50	12.30	H	0.9	0.0	11.40	38.5	-27.1	
Mid Ch								
836.50	22.10	V	0.9	0.0	21.20	38.5	-17.3	
836.50	13.90	H	0.9	0.0	13.00	38.5	-25.5	
High Ch								
846.50	22.50	V	0.9	0.0	21.60	38.5	-16.9	
846.50	14.40	H	0.9	0.0	13.50	38.5	-25.0	

Band

LTE5

3MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company:	Samsung
Project #:	15I21858
Date:	10/5/2015
Test Engineer:	Jude Semana / Justin Ko
Configuration:	EUT Only (Z-position)
Location:	Chamber C
Mode:	LTE_16QAM Band 5 Fundamentals, 3MHz Bandwidth

Test Equpment:
Receiving: Hybrid T119, and Chamber C SMA Cables
Substitution: Dipole T416, 6ft N Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
825.50	20.00	V	0.9	0.0	19.10	38.5	-19.4	
825.50	12.10	H	0.9	0.0	11.20	38.5	-27.3	
Mid Ch								
836.50	21.20	V	0.9	0.0	20.30	38.5	-18.2	
836.50	13.60	H	0.9	0.0	12.70	38.5	-25.8	
High Ch								
847.50	21.50	V	0.9	0.0	20.60	38.5	-17.9	
847.50	13.40	H	0.9	0.0	12.50	38.5	-26.0	

Band

LTE5

3MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company:	Samsung
Project #:	15I21858
Date:	10/5/2015
Test Engineer:	Jude Semana / Justin Ko
Configuration:	EUT Only (Z-position)
Location:	Chamber C
Mode:	LTE_QPSK Band 5 Fundamentals, 3MHz Bandwidth

Test Equpment:
Receiving: Hybrid T119, and Chamber C SMA Cables
Substitution: Dipole T416, 6ft N Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
825.50	20.70	V	0.9	0.0	19.80	38.5	-18.7	
825.50	12.70	H	0.9	0.0	11.80	38.5	-26.7	
Mid Ch								
836.50	22.10	V	0.9	0.0	21.20	38.5	-17.3	
836.50	13.90	H	0.9	0.0	13.00	38.5	-25.5	
High Ch								
847.50	22.30	V	0.9	0.0	21.40	38.5	-17.1	
847.50	14.00	H	0.9	0.0	13.10	38.5	-25.4	

Band

LTE5

1.4MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: Samsung
Project #: 15I21858
Date: 10/5/2015
Test Engineer: Jude Semana / Justin Ko
Configuration: EUT Only
Location: Chamber C
Mode: LTE_16QAM Band 5 Fundamentals, 1.4MHz Bandwidth

Test Equpment:
Receiving: Hybrid T119, and Chamber C SMA Cables
Substitution: Dipole T416, 6ft N Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
824.70	18.90	V	0.9	0.0	18.00	38.5	-20.5	
824.70	12.30	H	0.9	0.0	11.40	38.5	-27.1	
Mid Ch								
836.50	21.30	V	0.9	0.0	20.40	38.5	-18.1	
836.50	13.26	H	0.9	0.0	12.36	38.5	-26.1	
High Ch								
848.30	21.25	V	0.9	0.0	20.35	38.5	-18.2	
848.30	13.90	H	0.9	0.0	13.00	38.5	-25.5	

Band

LTE5

1.4MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: Samsung
Project #: 15I21858
Date: 10/5/2015
Test Engineer: Jude Semana / Justin Ko
Configuration: EUT Only
Location: Chamber C
Mode: LTE_QPSK Band 5 Fundamentals, 1.4MHz Bandwidth

Test Equpment:
Receiving: Hybrid T119, and Chamber C SMA Cables
Substitution: Dipole T416, 6ft N Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
824.70	20.90	V	0.9	0.0	20.00	38.5	-18.5	
824.70	13.20	H	0.9	0.0	12.30	38.5	-26.2	
Mid Ch								
836.50	22.10	V	0.9	0.0	21.20	38.5	-17.3	
836.50	14.20	H	0.9	0.0	13.30	38.5	-25.2	
High Ch								
848.30	22.20	V	0.9	0.0	21.30	38.5	-17.2	
848.30	14.40	H	0.9	0.0	13.50	38.5	-25.0	

LTE Band 13

Band

LTE13

10MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: Samsung
Project #: 15I21858
Date: 10/29/2015
Test Engineer: R.Alegre
Configuration: EUT only
Location: Chamber C
Mode: LTE_16QAM Band 13 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: Hybrid T185, and Chamber C SMA Cables
Substitution: Dipole T416, Xft SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
Mid Ch								
782.00	16.49	V	0.9	0.0	15.59	34.8	-19.2	
782.00	5.69	H	0.9	0.0	4.79	34.8	-30.0	
High Ch								

Band

LTE13

10MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company:	Samsung
Project #:	15I21858
Date:	10/29/2015
Test Engineer:	R.Alegre
Configuration:	EUT only
Location:	Chamber C
Mode:	LTE_QPSK Band 13 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: Hybrid T185, and Chamber C SMA Cables
Substitution: Dipole T416, Xft SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
Mid Ch								
782.00	17.52	V	0.9	0.0	16.62	34.8	-18.2	
782.00	6.63	H	0.9	0.0	5.73	34.8	-29.0	
High Ch								

Band

LTE13

5MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company:	Samsung
Project #:	15I21858
Date:	10/29/2015
Test Engineer:	R.Alegre
Configuration:	EUT only(2215408)
Location:	Chamber C
Mode:	LTE_16QAM Band 13 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Hybrid T185, and Chamber C SMA Cables
Substitution: Dipole T416, Xft SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
779.50	16.37	V	0.9	0.0	15.47	34.8	-19.3	
779.50	6.23	H	0.9	0.0	5.33	34.8	-29.4	
Mid Ch								
782.00	16.49	V	0.9	0.0	15.59	34.8	-19.2	
782.00	5.69	H	0.9	0.0	4.79	34.8	-30.0	
High Ch								
784.50	16.39	V	0.9	0.0	15.49	34.8	-19.3	
784.50	5.74	H	0.9	0.0	4.84	34.8	-29.9	

Band

LTE13

5MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company:	Samsung
Project #:	15I21858
Date:	10/29/2015
Test Engineer:	R.Alegre
Configuration:	EUT only(2215408)
Location:	Chamber C
Mode:	LTE_QPSK Band 13 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Hybrid T185, and Chamber C SMA Cables
Substitution: Dipole T416, Xft SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
779.50	17.32	V	0.9	0.0	16.42	34.8	-18.4	
779.50	7.26	H	0.9	0.0	6.36	34.8	-28.4	
Mid Ch								
782.00	17.48	V	0.9	0.0	16.58	34.8	-18.2	
782.00	6.64	H	0.9	0.0	5.74	34.8	-29.0	
High Ch								
784.50	17.38	V	0.9	0.0	16.48	34.8	-18.3	
784.50	6.57	H	0.9	0.0	5.67	34.8	-29.1	

LTE Band 17

Band

LTE17

10MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company:	Samsung
Project #:	15I21858
Date:	10/1/2015
Test Engineer:	Jude Semana / Justin Ko
Configuration:	EUT Only (Z-Position)
Location:	Chamber C
Mode:	LTE_16QAM Band 17 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: Hybrid T185, and Chamber C SMA Cables
Substitution: Dipole T416, Xft SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
709.00	15.88	V	0.9	0.0	14.98	34.8	-19.8	
709.00	6.20	H	0.9	0.0	5.30	34.8	-29.5	
Mid Ch								
710.00	16.02	V	0.9	0.0	15.12	34.8	-19.7	
710.00	5.80	H	0.9	0.0	4.90	34.8	-29.9	
High Ch								
711.00	16.32	V	0.9	0.0	15.42	34.8	-19.4	
711.00	6.80	H	0.9	0.0	5.90	34.8	-28.9	

Band

LTE17

10MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: Samsung
Project #: 15I21858
Date: 10/1/2015
Test Engineer: Jude Semana / Justin Ko
Configuration: EUT Only (Z-Position)
Location: Chamber C
Mode: LTE_QPSK Band 17 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: Hybrid T185, and Chamber C SMA Cables
Substitution: Dipole T416, Xft SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
709.00	16.82	V	0.9	0.0	15.92	34.8	-18.9	
709.00	5.60	H	0.9	0.0	4.70	34.8	-30.1	
Mid Ch								
710.00	17.04	V	0.9	0.0	16.14	34.8	-18.6	
710.00	6.40	H	0.9	0.0	5.50	34.8	-29.3	
High Ch								
711.00	17.40	V	0.9	0.0	16.50	34.8	-18.3	
711.00	6.20	H	0.9	0.0	5.30	34.8	-29.5	

Band

LTE17

5MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: Samsung
Project #: 15I21858
Date: 10/1/2015
Test Engineer: Jude Semana / Justin Ko
Configuration: EUT only (Z-Position)
Location: Chamber C
Mode: LTE_16QAM Band 17 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Hybrid T185, and Chamber C SMA Cables
Substitution: Dipole T416, Xft SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
706.50	15.90	V	0.9	0.0	15.00	34.8	-19.8	
706.50	6.30	H	0.9	0.0	5.40	34.8	-29.4	
Mid Ch								
710.00	16.05	V	0.9	0.0	15.15	34.8	-19.6	
710.00	6.30	H	0.9	0.0	5.40	34.8	-29.4	
High Ch								
713.50	16.30	V	0.9	0.0	15.40	34.8	-19.4	
713.50	6.40	H	0.9	0.0	5.50	34.8	-29.3	

Band

LTE17

5MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company:	Samsung
Project #:	15I21858
Date:	10/1/2015
Test Engineer:	Jude Semana / Justin Ko
Configuration:	EUT only (Z-Position)
Location:	Chamber C
Mode:	LTE_QPSK Band 17 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Hybrid T185, and Chamber C SMA Cables
Substitution: Dipole T416, Xft SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
706.50	16.81	V	0.9	0.0	15.91	34.8	-18.9	
706.50	7.00	H	0.9	0.0	6.10	34.8	-28.7	
Mid Ch								
710.00	17.08	V	0.9	0.0	16.18	34.8	-18.6	
710.00	7.30	H	0.9	0.0	6.40	34.8	-28.4	
High Ch								
713.50	17.45	V	0.9	0.0	16.55	34.8	-18.2	
713.50	7.10	H	0.9	0.0	6.20	34.8	-28.6	

LTE Band 26

Band

LTE26

15MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company:	Samsung
Project #:	15I21858
Date:	10/6/2015
Test Engineer:	Jude Semana
Configuration:	EUT Only
Location:	Chamber C
Mode:	LTE_16QAM Band 26 Fundamentals, 15MHz Bandwidth

Test Equpment:
Receiving: Hybrid T185, and Chamber C SMA Cables
Substitution: Dipole T416, 6ft N Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
831.50	19.30	V	0.9	0.0	18.40	38.5	-20.1	
831.50	12.80	H	0.9	0.0	11.90	38.5	-26.6	
Mid Ch								
836.50	20.20	V	0.9	0.0	19.30	38.5	-19.2	
836.50	14.70	H	0.9	0.0	13.80	38.5	-24.7	
High Ch								
841.50	19.40	V	0.9	0.0	18.50	38.5	-20.0	
841.50	12.90	H	0.9	0.0	12.00	38.5	-26.5	

Band

LTE26

15MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: Samsung
Project #: 15I21858
Date: 10/6/2015
Test Engineer: Jude Semana
Configuration: EUT Only
Location: Chamber C
Mode: LTE_QPSK Band 26 Fundamentals, 15MHz Bandwidth

Test Equpment:
Receiving: Hybrid T185, and Chamber C SMA Cables
Substitution: Dipole T416, 6ft N Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
831.50	20.10	V	0.9	0.0	19.20	38.5	-19.3	
831.50	13.70	H	0.9	0.0	12.80	38.5	-25.7	
Mid Ch								
836.50	21.10	V	0.9	0.0	20.20	38.5	-18.3	
836.50	15.70	H	0.9	0.0	14.80	38.5	-23.7	
High Ch								
841.50	20.30	V	0.9	0.0	19.40	38.5	-19.1	
841.50	13.70	H	0.9	0.0	12.80	38.5	-25.7	

Band

LTE26

10MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company:	Samsung
Project #:	15I21858
Date:	10/6/2015
Test Engineer:	Jude Semana / Justin Ko
Configuration:	EUT Only
Location:	Chamber C
Mode:	LTE_16QAM Band 26 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: Hybrid T185, and Chamber C SMA Cables
Substitution: Dipole T416, 6ft N Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
819.00	19.30	V	0.9	0.0	18.40	50.0	-31.6	
819.00	11.30	H	0.9	0.0	10.40	50.0	-39.6	
Mid Ch								
831.50	19.40	V	0.9	0.0	18.50	38.5	-20.0	
831.50	12.80	H	0.9	0.0	11.90	38.5	-26.6	
High Ch								
844.00	19.50	V	0.9	0.0	18.60	38.5	-19.9	
844.00	12.90	H	0.9	0.0	12.00	38.5	-26.5	

Band

LTE26

10MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company:	Samsung
Project #:	15I21858
Date:	10/6/2015
Test Engineer:	Jude Semana / Justin Ko
Configuration:	EUT Only
Location:	Chamber C
Mode:	LTE_QPSK Band 26 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: Hybrid T185, and Chamber C SMA Cables
Substitution: Dipole T416, 6ft N Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
819.00	20.10	V	0.9	0.0	19.20	50.0	-30.8	
819.00	12.00	H	0.9	0.0	11.10	50.0	-38.9	
Mid Ch								
831.50	20.30	V	0.9	0.0	19.40	38.5	-19.1	
831.50	13.80	H	0.9	0.0	12.90	38.5	-25.6	
High Ch								
844.00	20.40	V	0.9	0.0	19.50	38.5	-19.0	
844.00	13.60	H	0.9	0.0	12.70	38.5	-25.8	

Band

LTE26

5MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company:	Samsung
Project #:	15I21858
Date:	10/6/2015
Test Engineer:	Jude Semana / Justin Ko
Configuration:	EUT Only (Z-Position)
Location:	Chamber C
Mode:	LTE_16QAM Band 26 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Hybrid T185, and Chamber C SMA Cables
Substitution: Dipole T416, 6ft N Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
816.50	19.50	V	0.9	0.0	18.60	50.0	-31.4	
816.50	11.40	H	0.9	0.0	10.50	50.0	-39.5	
Mid Ch								
831.50	20.10	V	0.9	0.0	19.20	38.5	-19.3	
831.50	13.50	H	0.9	0.0	12.60	38.5	-25.9	
High Ch								
846.50	19.70	V	0.9	0.0	18.80	38.5	-19.7	
846.50	13.20	H	0.9	0.0	12.30	38.5	-26.2	

Band

LTE26

5MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company:	Samsung
Project #:	15I21858
Date:	10/6/2015
Test Engineer:	Jude Semana / Justin Ko
Configuration:	EUT Only (Z-Position)
Location:	Chamber C
Mode:	LTE_QPSK Band 26 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Hybrid T185, and Chamber C SMA Cables
Substitution: Dipole T416, 6ft N Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
816.50	20.10	V	0.9	0.0	19.20	50.0	-30.8	
816.50	12.20	H	0.9	0.0	11.30	50.0	-38.7	
Mid Ch								
831.50	20.70	V	0.9	0.0	19.80	38.5	-18.7	
831.50	14.49	H	0.9	0.0	13.59	38.5	-24.9	
High Ch								
846.50	20.40	V	0.9	0.0	19.50	38.5	-19.0	
846.50	14.40	H	0.9	0.0	13.50	38.5	-25.0	

Band

LTE26

3MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company:	Samsung
Project #:	15I21858
Date:	10/29/2015
Test Engineer:	R.Alegre
Configuration:	EUT Only
Location:	Chamber C
Mode:	LTE_16QAM Band 26 Fundamentals, 3MHz Bandwidth

Test Equpment:
Receiving: Hybrid T185, and Chamber C SMA Cables
Substitution: Dipole T416, 4ft SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
815.50	19.43	V	0.9	0.0	18.53	50.0	-31.5	
815.50	13.53	H	0.9	0.0	12.63	50.0	-37.4	
Mid Ch								
831.50	19.74	V	0.9	0.0	18.84	38.5	-19.7	
831.50	13.23	H	0.9	0.0	12.33	38.5	-26.2	
High Ch								
847.50	19.33	V	0.9	0.0	18.43	38.5	-20.1	
847.50	12.60	H	0.9	0.0	11.70	38.5	-26.8	

Band

LTE26

3MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company:	Samsung
Project #:	15I21858
Date:	10/29/2015
Test Engineer:	R.Alegre
Configuration:	EUT Only
Location:	Chamber C
Mode:	LTE_QPSK Band 26 Fundamentals, 3MHz Bandwidth

Test Equpment:
Receiving: Hybrid T185, and Chamber C SMA Cables
Substitution: Dipole T416, 4ft SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
815.50	20.47	V	0.9	0.0	19.57	50.0	-30.4	
815.50	14.47	H	0.9	0.0	13.57	50.0	-36.4	
Mid Ch								
831.50	20.71	V	0.9	0.0	19.81	38.5	-18.7	
831.50	14.17	H	0.9	0.0	13.27	38.5	-25.2	
High Ch								
847.50	20.42	V	0.9	0.0	19.52	38.5	-19.0	
847.50	13.70	H	0.9	0.0	12.80	38.5	-25.7	

Band

LTE26

1.4MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: Samsung
Project #: 15I21858
Date: 10/29/2015
Test Engineer: R.Alegre
Configuration: EUT Only
Location: Chamber C
Mode: LTE_16QAM Band 26 Fundamentals, 1.4MHz Bandwidth

Test Equpment:
Receiving: Hybrid T185, and Chamber C SMA Cables
Substitution: Dipole T416, 4ft SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
814.70	19.64	V	0.9	0.0	18.74	50.0	-31.3	
814.70	13.66	H	0.9	0.0	12.76	50.0	-37.2	
Mid Ch								
831.50	19.80	V	0.9	0.0	18.90	38.5	-19.6	
831.50	13.24	H	0.9	0.0	12.34	38.5	-26.2	
High Ch								
848.30	19.66	V	0.9	0.0	18.76	38.5	-19.7	
848.30	13.30	H	0.9	0.0	12.40	38.5	-26.1	

Band

LTE26

1.4MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company:	Samsung
Project #:	15I21858
Date:	10/29/2015
Test Engineer:	R.Alegre
Configuration:	EUT Only
Location:	Chamber C
Mode:	LTE_QPSK Band 26 Fundamentals, 1.4MHz Bandwidth

Test Equpment:
Receiving: Hybrid T185, and Chamber C SMA Cables
Substitution: Dipole T416, 4ft SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
814.70	20.69	V	0.9	0.0	19.79	50.0	-30.2	
814.70	14.51	H	0.9	0.0	13.61	50.0	-36.4	
Mid Ch								
831.50	20.78	V	0.9	0.0	19.88	38.5	-18.6	
831.50	14.21	H	0.9	0.0	13.31	38.5	-25.2	
High Ch								
848.30	20.51	V	0.9	0.0	19.61	38.5	-18.9	
848.30	14.54	H	0.9	0.0	13.64	38.5	-24.9	

LTE Band 41

Band

LTE41

20MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company:	Samsung
Project #:	15I21858
Date:	10/2/2015
Test Engineer:	Jude Semana / Justin Ko
Configuration:	X-Pos, EUT Only
Location:	Chamber C
Mode:	LTE_16QAM Band 41 Fundamentals, 20MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T963, Xft SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2506.00	10.73	V	0.9	9.5	19.31	33.0	-13.7	
2506.00	13.68	H	0.9	9.5	22.26	33.0	-10.7	
Mid Ch								
2593.00	9.40	V	0.9	9.5	18.01	33.0	-15.0	
2593.00	13.47	H	0.9	9.5	22.08	33.0	-10.9	
High Ch								
2680.00	8.23	V	0.9	9.7	17.06	33.0	-15.9	
2680.00	11.98	H	0.9	9.7	20.81	33.0	-12.2	

Band

LTE41

20MHz

QPSK

UL Verification Services, Inc.

Company: Samsung
Project #: 15I21858
Date: 10/2/2015
Test Engineer: Jude Semana / Justin Ko
Configuration: X-Pos, EUT Only
Location: Chamber C
Mode: LTE_QPSK Band 41 Fundamentals, 20MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T963, Xft SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2506.00	11.33	V	0.9	9.5	19.91	33.0	-13.1	
2506.00	14.28	H	0.9	9.5	22.86	33.0	-10.1	
Mid Ch								
2593.00	9.80	V	0.9	9.5	18.41	33.0	-14.6	
2593.00	13.94	H	0.9	9.5	22.55	33.0	-10.5	
High Ch								
2680.00	8.03	V	0.9	9.7	16.86	33.0	-16.1	
2680.00	12.58	H	0.9	9.7	21.41	33.0	-11.6	

Band

LTE41

15MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company:	Samsung
Project #:	15I21858
Date:	10/8/2015
Test Engineer:	R.ALEGRE
Configuration:	X-Pos, EUT Only
Location:	Chamber C
Mode:	LTE_16QAM Band 41 Fundamentals, 15MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T963, Xft SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2503.50	11.13	V	0.9	9.5	19.71	33.0	-13.3	
2503.50	13.22	H	0.9	9.5	21.80	33.0	-11.2	
Mid Ch								
2593.00	10.37	V	0.9	9.5	18.98	33.0	-14.0	
2593.00	13.24	H	0.9	9.5	21.85	33.0	-11.2	
High Ch								
2682.50	10.10	V	0.9	9.7	18.93	33.0	-14.1	
2682.50	12.83	H	0.9	9.7	21.66	33.0	-11.3	

Band

LTE41

15MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: Samsung
Project #: 15I21858
Date: 10/8/2015
Test Engineer: R.ALEGRE
Configuration: X-Pos, EUT Only
Location: Chamber C
Mode: LTE_QPSK Band 41 Fundamentals, 15MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T963, Xft SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2503.50	11.93	V	0.9	9.5	20.51	33.0	-12.5	
2503.50	14.00	H	0.9	9.5	22.58	33.0	-10.4	
Mid Ch								
2593.00	11.03	V	0.9	9.5	19.64	33.0	-13.4	
2593.00	13.75	H	0.9	9.5	22.36	33.0	-10.6	
High Ch								
2682.50	10.97	V	0.9	9.7	19.80	33.0	-13.2	
2682.50	13.63	H	0.9	9.7	22.46	33.0	-10.5	

Band

LTE41

10MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company:	Samsung
Project #:	15I21858
Date:	10/2/2015
Test Engineer:	Jude Semana / Justin Ko
Configuration:	X-Pos, EUT Only
Location:	Chamber C
Mode:	LTE_16QAM Band 41 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, Xft SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2501.00	12.43	V	0.9	9.5	21.01	33.0	-12.0	
2501.00	13.78	H	0.9	9.5	22.36	33.0	-10.6	
Mid Ch								
2593.00	11.00	V	0.9	9.5	19.61	33.0	-13.4	
2593.00	13.57	H	0.9	9.5	22.18	33.0	-10.8	
High Ch								
2685.00	10.63	V	0.9	9.7	19.47	33.0	-13.5	
2685.00	13.48	H	0.9	9.7	22.32	33.0	-10.7	

Band

LTE41

10MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: Samsung
Project #: 15I21858
Date: 10/2/2015
Test Engineer: Jude Semana / Justin Ko
Configuration: X-Pos, EUT Only
Location: Chamber C
Mode: LTE_QPSK Band 41 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T963, Xft SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2501.00	12.53	V	0.9	9.5	21.11	33.0	-11.9	
2501.00	14.08	H	0.9	9.5	22.66	33.0	-10.3	
Mid Ch								
2593.00	11.10	V	0.9	9.5	19.71	33.0	-13.3	
2593.00	13.77	H	0.9	9.5	22.38	33.0	-10.6	
High Ch								
2685.00	10.73	V	0.9	9.7	19.57	33.0	-13.4	
2685.00	13.68	H	0.9	9.7	22.52	33.0	-10.5	

Band

LTE41

5MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company:	Samsung
Project #:	15I21858
Date:	10/8/2015
Test Engineer:	R.ALEGRE
Configuration:	X-Pos, EUT Only
Location:	Chamber C
Mode:	LTE_16QAM Band 41 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T963, Xft SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2498.50	11.13	V	0.9	9.5	19.70	33.0	-13.3	
2498.50	13.18	H	0.9	9.5	21.75	33.0	-11.2	
Mid Ch								
2593.00	10.32	V	0.9	9.5	18.93	33.0	-14.1	
2593.00	13.23	H	0.9	9.5	21.84	33.0	-11.2	
High Ch								
2687.50	10.01	V	0.9	9.7	18.86	33.0	-14.1	
2687.50	12.73	H	0.9	9.7	21.58	33.0	-11.4	

Band

LTE41

5MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: Samsung
Project #: 15I21858
Date: 10/8/2015
Test Engineer: R.ALEGRE
Configuration: X-Pos, EUT Only
Location: Chamber C
Mode: LTE_QPSK Band 41 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T963, Xft SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2498.50	11.96	V	0.9	9.5	20.53	33.0	-12.5	
2498.50	14.06	H	0.9	9.5	22.63	33.0	-10.4	
Mid Ch								
2593.00	11.05	V	0.9	9.5	19.66	33.0	-13.3	
2593.00	13.83	H	0.9	9.5	22.44	33.0	-10.6	
High Ch								
2687.50	10.69	V	0.9	9.7	19.54	33.0	-13.5	
2687.50	13.33	H	0.9	9.7	22.18	33.0	-10.8	

11.2. 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.

MODES TESTED

GSM, WCDMA, and LTE

RESULTS

11.2.1. SPURIOUS RADIATION PLOTS

GSM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 15I21858
Date: 9/29/2015
Test Engineer: O. Stoelting
Configuration: EUT + Headphones + AC Adapter
Location: Chamber B
Mode: EGPRS 1900 MHz Harmonics

Band

GSM 1900

EGPRS

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1850.2									
3700.40	-18.7	V	3.0	35.9	1.0	-53.6	-13.0	-40.6	
5550.60	-19.5	V	3.0	35.5	1.0	-54.0	-13.0	-41.0	
7400.80	-19.0	V	3.0	35.7	1.0	-53.8	-13.0	-40.8	
3700.40	-21.2	H	3.0	35.9	1.0	-56.1	-13.0	-43.1	
5550.60	-18.2	H	3.0	35.5	1.0	-52.7	-13.0	-39.7	
7400.80	-17.4	H	3.0	35.7	1.0	-52.2	-13.0	-39.2	
Mid Ch, 1880									
3760.00	-19.0	V	3.0	35.8	1.0	-53.8	-13.0	-40.8	
5640.00	-18.7	V	3.0	35.5	1.0	-53.2	-13.0	-40.2	
7520.00	-18.7	V	3.0	35.7	1.0	-53.5	-13.0	-40.5	
3760.00	-19.2	H	3.0	35.8	1.0	-54.0	-13.0	-41.0	
5640.00	-18.5	H	3.0	35.5	1.0	-53.0	-13.0	-40.0	
7520.00	-17.2	H	3.0	35.7	1.0	-51.9	-13.0	-38.9	
High Ch, 1909.8									
3819.60	-20.6	V	3.0	35.8	1.0	-55.3	-13.0	-42.3	
5729.40	-19.6	V	3.0	35.5	1.0	-54.1	-13.0	-41.1	
7639.20	-18.2	V	3.0	35.8	1.0	-53.0	-13.0	-40.0	
3819.60	-20.5	H	3.0	35.8	1.0	-55.2	-13.0	-42.2	
5729.40	-18.6	H	3.0	35.5	1.0	-53.1	-13.0	-40.1	
7639.20	-16.9	H	3.0	35.8	1.0	-51.6	-13.0	-38.6	

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 15I21858
Date: 9/29/2015
Test Engineer: O. Stoelting
Configuration: EUT + Headphones + AC Adapter
Location: Chamber B
Mode: GPRS 1900 MHz Harmonics

Band

GSM 1900

GPRS

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1850.2									
3700.40	-14.5	V	3.0	35.9	1.0	-49.4	-13.0	-36.4	
5550.60	-19.7	V	3.0	35.5	1.0	-54.1	-13.0	-41.1	
7400.80	-19.0	V	3.0	35.7	1.0	-53.8	-13.0	-40.8	
3700.40	-17.5	H	3.0	35.9	1.0	-52.3	-13.0	-39.3	
5550.60	-14.5	H	3.0	35.5	1.0	-49.0	-13.0	-36.0	
7400.80	-17.2	H	3.0	35.7	1.0	-51.9	-13.0	-38.9	
Mid Ch, 1880									
3760.00	-18.6	V	3.0	35.8	1.0	-53.4	-13.0	-40.4	
5640.00	-17.7	V	3.0	35.5	1.0	-52.2	-13.0	-39.2	
7520.00	-18.8	V	3.0	35.7	1.0	-53.5	-13.0	-40.5	
3760.00	-16.3	H	3.0	35.8	1.0	-51.2	-13.0	-38.2	
5640.00	-17.3	H	3.0	35.5	1.0	-51.8	-13.0	-38.8	
7520.00	-17.1	H	3.0	35.7	1.0	-51.8	-13.0	-38.8	
High Ch, 1909.8									
3819.60	-19.0	V	3.0	35.8	1.0	-53.8	-13.0	-40.8	
5729.40	-19.4	V	3.0	35.5	1.0	-53.9	-13.0	-40.9	
7639.20	-17.6	V	3.0	35.8	1.0	-52.4	-13.0	-39.4	
3819.60	-18.2	H	3.0	35.8	1.0	-52.9	-13.0	-39.9	
5729.40	-18.6	H	3.0	35.5	1.0	-53.1	-13.0	-40.1	
7639.20	-16.8	H	3.0	35.8	1.0	-51.6	-13.0	-38.6	

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: LIONS
Project #: 15I21858
Date: 9/29/2015
Test Engineer: O. Stoelting
Configuration: EUT + Headphones + AC Adapter
Location: Chamber B
Mode: EGPRS 850 MHz Harmonics

Band

GSM 850

EGPRS

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 824.2									
1648.40	-16.2	V	3.0	37.0	1.0	-52.3	-13.0	-39.3	
2472.60	-25.9	V	3.0	36.4	1.0	-61.3	-13.0	-48.3	
3296.80	-25.1	V	3.0	36.2	1.0	-60.2	-13.0	-47.2	
1648.40	-18.3	H	3.0	37.0	1.0	-54.3	-13.0	-41.3	
2472.60	-25.7	H	3.0	36.4	1.0	-61.2	-13.0	-48.2	
3296.80	-25.3	H	3.0	36.2	1.0	-60.4	-13.0	-47.4	
Mid Ch, 836.6									
1673.20	-18.5	V	3.0	37.0	1.0	-54.5	-13.0	-41.5	
2509.80	-27.1	V	3.0	36.4	1.0	-62.5	-13.0	-49.5	
3346.40	-25.0	V	3.0	36.1	1.0	-60.1	-13.0	-47.1	
1673.20	-23.8	H	3.0	37.0	1.0	-59.8	-13.0	-46.8	
2509.80	-24.3	H	3.0	36.4	1.0	-59.7	-13.0	-46.7	
3346.40	-25.2	H	3.0	36.1	1.0	-60.4	-13.0	-47.4	
High Ch, 848.8									
1697.60	-18.6	V	3.0	37.0	1.0	-54.6	-13.0	-41.6	
2546.40	-24.8	V	3.0	36.4	1.0	-60.2	-13.0	-47.2	
3395.20	-25.1	V	3.0	36.1	1.0	-60.1	-13.0	-47.1	
1697.60	-19.5	H	3.0	37.0	1.0	-55.5	-13.0	-42.5	
2546.40	-23.1	H	3.0	36.4	1.0	-58.5	-13.0	-45.5	
3395.20	-25.0	H	3.0	36.1	1.0	-60.1	-13.0	-47.1	

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 15I21858
Date: 9/29/2015
Test Engineer: O. Stoelting
Configuration: EUT + Headphones + AC Adapter
Location: Chamber B
Mode: GPRS 850 MHz Harmonics

Band

GSM 850

GPRS

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 824.2									
1648.40	-9.9	V	3.0	37.0	1.0	-45.9	-13.0	-32.9	
2472.60	-21.2	V	3.0	36.4	1.0	-56.7	-13.0	-43.7	
3296.80	-25.1	V	3.0	36.2	1.0	-60.2	-13.0	-47.2	
1648.40	-11.3	H	3.0	37.0	1.0	-47.3	-13.0	-34.3	
2472.60	-21.6	H	3.0	36.4	1.0	-57.0	-13.0	-44.0	
3296.80	-25.4	H	3.0	36.2	1.0	-60.5	-13.0	-47.5	
Mid Ch, 836.6									
1673.20	-10.7	V	3.0	37.0	1.0	-46.7	-13.0	-33.7	
2509.80	-23.9	V	3.0	36.4	1.0	-59.3	-13.0	-46.3	
3346.40	-25.1	V	3.0	36.1	1.0	-60.2	-13.0	-47.2	
1673.20	-15.1	H	3.0	37.0	1.0	-51.1	-13.0	-38.1	
2509.80	-19.2	H	3.0	36.4	1.0	-54.6	-13.0	-41.6	
3346.40	-25.4	H	3.0	36.1	1.0	-60.5	-13.0	-47.5	
High Ch, 848.8									
1697.60	-10.2	V	3.0	37.0	1.0	-46.2	-13.0	-33.2	
2546.40	-21.4	V	3.0	36.4	1.0	-56.8	-13.0	-43.8	
3395.20	-24.3	V	3.0	36.1	1.0	-59.4	-13.0	-46.4	
1697.60	-11.3	H	3.0	37.0	1.0	-47.3	-13.0	-34.3	
2546.40	-16.9	H	3.0	36.4	1.0	-52.4	-13.0	-39.4	
3395.20	-25.0	H	3.0	36.1	1.0	-60.1	-13.0	-47.1	

WCDMA 5

Band

Band 5

HSDPA

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 15I21858
Date: 9/29/2015
Test Engineer: O. Stoelting
Configuration: EUT + Headphones + AC Adapter
Location: Chamber B
Mode: HSDPA Band 5 Harmonics

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 826.4									
1652.80	-26.8	V	3.0	37.0	1.0	-62.8	-13.0	-49.8	
2479.20	-22.3	V	3.0	36.4	1.0	-57.7	-13.0	-44.7	
3305.60	-19.4	V	3.0	36.1	1.0	-54.6	-13.0	-41.6	
1652.80	-25.7	H	3.0	37.0	1.0	-61.7	-13.0	-48.7	
2479.20	-23.9	H	3.0	36.4	1.0	-59.3	-13.0	-46.3	
3305.60	-19.7	H	3.0	36.1	1.0	-54.9	-13.0	-41.9	
Mid Ch, 836.6									
1673.20	-25.5	V	3.0	37.0	1.0	-61.5	-13.0	-48.5	
2509.80	-21.1	V	3.0	36.4	1.0	-56.5	-13.0	-43.5	
3346.40	-19.1	V	3.0	36.1	1.0	-54.2	-13.0	-41.2	
1673.20	-25.4	H	3.0	37.0	1.0	-61.4	-13.0	-48.4	
2509.80	-23.6	H	3.0	36.4	1.0	-59.0	-13.0	-46.0	
3346.40	-20.0	H	3.0	36.1	1.0	-55.1	-13.0	-42.1	
High Ch, 846.6									
1693.20	-23.8	V	3.0	37.0	1.0	-59.7	-13.0	-46.7	
2539.80	-21.5	V	3.0	36.4	1.0	-57.0	-13.0	-44.0	
3386.40	-19.1	V	3.0	36.1	1.0	-54.2	-13.0	-41.2	
1693.20	-24.2	H	3.0	37.0	1.0	-60.2	-13.0	-47.2	
2539.80	-23.8	H	3.0	36.4	1.0	-59.3	-13.0	-46.3	
3386.40	-19.9	H	3.0	36.1	1.0	-55.0	-13.0	-42.0	

Band

Band 5

REL99

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 15I21858
Date: 9/29/2015
Test Engineer: O. Stoelting
Configuration: EUT + Headphones + AC Adapter
Location: Chamber B
Mode: Rel99 Band 5 Harmonics

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 826.4									
1652.80	-25.6	V	3.0	37.0	1.0	-61.6	-13.0	-48.6	
2479.20	-22.4	V	3.0	36.4	1.0	-57.8	-13.0	-44.8	
3305.60	-20.3	V	3.0	36.1	1.0	-55.5	-13.0	-42.5	
1652.80	-25.4	H	3.0	37.0	1.0	-61.4	-13.0	-48.4	
2479.20	-24.0	H	3.0	36.4	1.0	-59.4	-13.0	-46.4	
3305.60	-20.2	H	3.0	36.1	1.0	-55.3	-13.0	-42.3	
Mid Ch, 836.6									
1673.20	-25.7	V	3.0	37.0	1.0	-61.7	-13.0	-48.7	
2509.80	-21.9	V	3.0	36.4	1.0	-57.4	-13.0	-44.4	
3346.40	-19.5	V	3.0	36.1	1.0	-54.7	-13.0	-41.7	
1673.20	-25.2	H	3.0	37.0	1.0	-61.2	-13.0	-48.2	
2509.80	-23.3	H	3.0	36.4	1.0	-58.7	-13.0	-45.7	
3346.40	-19.8	H	3.0	36.1	1.0	-54.9	-13.0	-41.9	
High Ch, 846.6									
1693.20	-24.5	V	3.0	37.0	1.0	-60.5	-13.0	-47.5	
2539.80	-21.3	V	3.0	36.4	1.0	-56.7	-13.0	-43.7	
3386.40	-20.0	V	3.0	36.1	1.0	-55.0	-13.0	-42.0	
1693.20	-25.5	H	3.0	37.0	1.0	-61.4	-13.0	-48.4	
2539.80	-22.8	H	3.0	36.4	1.0	-58.2	-13.0	-45.2	
3386.40	-19.9	H	3.0	36.1	1.0	-55.0	-13.0	-42.0	

LTE Band 5

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: LIONS
Project #: 15I21858
Date: 10/1/2015
Test Engineer: O. Stoelting
Configuration: EUT + AC Charger + HS
Location: Chamber B
Mode: LTE_16QAM Band 5 Harmonics, 10MHz Bandwidth

Band
LTE5
10MHz
16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 829									
1658.00	-16.4	V	3.0	37.0	1.0	-52.4	-13.0	-39.4	
2487.00	-15.5	V	3.0	36.4	1.0	-50.9	-13.0	-37.9	
3316.00	-20.0	V	3.0	36.1	1.0	-55.1	-13.0	-42.1	
1658.00	-9.6	H	3.0	37.0	1.0	-45.6	-13.0	-32.6	
2487.00	-21.8	H	3.0	36.4	1.0	-57.3	-13.0	-44.3	
3316.00	-19.7	H	3.0	36.1	1.0	-54.9	-13.0	-41.9	
Mid Ch, 836.5									
1673.00	-17.2	V	3.0	37.0	1.0	-53.2	-13.0	-40.2	
2509.50	-19.4	V	3.0	36.4	1.0	-54.8	-13.0	-41.8	
3346.00	-20.1	V	3.0	36.1	1.0	-55.2	-13.0	-42.2	
1673.00	-11.7	H	3.0	37.0	1.0	-47.7	-13.0	-34.7	
2509.50	-17.6	H	3.0	36.4	1.0	-53.0	-13.0	-40.0	
3346.00	-20.1	H	3.0	36.1	1.0	-55.2	-13.0	-42.2	
High Ch, 844									
1688.00	-13.5	V	3.0	37.0	1.0	-49.5	-13.0	-36.5	
2532.00	-18.8	V	3.0	36.4	1.0	-54.2	-13.0	-41.2	
3376.00	-19.2	V	3.0	36.1	1.0	-54.3	-13.0	-41.3	
1688.00	-17.7	H	3.0	37.0	1.0	-53.7	-13.0	-40.7	
2532.00	-22.6	H	3.0	36.4	1.0	-58.0	-13.0	-45.0	
3376.00	-19.7	H	3.0	36.1	1.0	-54.8	-13.0	-41.8	

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 15I21858
Date: 10/1/2015
Test Engineer: O. Stoelting
Configuration: EUT + AC Charger + HS
Location: Chamber B
Mode: LTE_QPSK Band 5 Harmonics, 10MHz Bandwidth

Band LTE5 10MHz QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 829									
1658.00	-14.9	V	3.0	37.0	1.0	-50.9	-13.0	-37.9	
2487.00	-13.6	V	3.0	36.4	1.0	-49.1	-13.0	-36.1	
3316.00	-19.9	V	3.0	36.1	1.0	-55.1	-13.0	-42.1	
1658.00	-10.2	H	3.0	37.0	1.0	-46.2	-13.0	-33.2	
2487.00	-21.9	H	3.0	36.4	1.0	-57.3	-13.0	-44.3	
3316.00	-20.4	H	3.0	36.1	1.0	-55.5	-13.0	-42.5	
Mid Ch, 836.5									
1673.00	-21.0	V	3.0	37.0	1.0	-57.0	-13.0	-44.0	
2509.50	-20.3	V	3.0	36.4	1.0	-55.7	-13.0	-42.7	
3346.00	-19.3	V	3.0	36.1	1.0	-54.5	-13.0	-41.5	
1673.00	-11.6	H	3.0	37.0	1.0	-47.6	-13.0	-34.6	
2509.50	-18.1	H	3.0	36.4	1.0	-53.5	-13.0	-40.5	
3346.00	-19.8	H	3.0	36.1	1.0	-54.9	-13.0	-41.9	
High Ch, 844									
1688.00	-14.5	V	3.0	37.0	1.0	-50.5	-13.0	-37.5	
2532.00	-19.0	V	3.0	36.4	1.0	-54.4	-13.0	-41.4	
3376.00	-19.4	V	3.0	36.1	1.0	-54.5	-13.0	-41.5	
1688.00	-17.7	H	3.0	37.0	1.0	-53.7	-13.0	-40.7	
2532.00	-22.2	H	3.0	36.4	1.0	-57.6	-13.0	-44.6	
3376.00	-19.2	H	3.0	36.1	1.0	-54.3	-13.0	-41.3	

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 15I21858
Date: 10/1/2015
Test Engineer: O. Stoelting
Configuration: EUT + AC Charger + HS
Location: Chamber B
Mode: LTE_16QAM Band 5 Harmonics, 5MHz Bandwidth

Band LTE5 5MHz 16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 826.5									
1653.00	-15.0	V	3.0	37.0	1.0	-51.0	-13.0	-38.0	
2479.50	-20.7	V	3.0	36.4	1.0	-56.1	-13.0	-43.1	
3306.00	-19.7	V	3.0	36.1	1.0	-54.8	-13.0	-41.8	
1653.00	-10.0	H	3.0	37.0	1.0	-46.0	-13.0	-33.0	
2479.50	-20.1	H	3.0	36.4	1.0	-55.6	-13.0	-42.6	
3306.00	-19.9	H	3.0	36.1	1.0	-55.0	-13.0	-42.0	
Mid Ch, 836.5									
1673.00	-19.3	V	3.0	37.0	1.0	-55.3	-13.0	-42.3	
2509.50	-20.6	V	3.0	36.4	1.0	-56.0	-13.0	-43.0	
3346.00	-19.6	V	3.0	36.1	1.0	-54.7	-13.0	-41.7	
1673.00	-13.1	H	3.0	37.0	1.0	-49.1	-13.0	-36.1	
2509.50	-11.7	H	3.0	36.4	1.0	-47.1	-13.0	-34.1	
3346.00	-20.2	H	3.0	36.1	1.0	-55.3	-13.0	-42.3	
High Ch, 846.5									
1693.00	-13.7	V	3.0	37.0	1.0	-49.7	-13.0	-36.7	
2539.50	-21.2	V	3.0	36.4	1.0	-56.6	-13.0	-43.6	
3386.00	-19.7	V	3.0	36.1	1.0	-54.8	-13.0	-41.8	
1693.00	-9.4	H	3.0	37.0	1.0	-45.4	-13.0	-32.4	
2539.50	-17.4	H	3.0	36.4	1.0	-52.8	-13.0	-39.8	
3386.00	-19.7	H	3.0	36.1	1.0	-54.8	-13.0	-41.8	

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 15I21858
Date: 10/1/2015
Test Engineer: O. Stoelting
Configuration: EUT + AC Charger + HS
Location: Chamber B
Mode: LTE_QPSK Band 5 Harmonics, 5MHz Bandwidth

Band LTE5 5MHz QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 826.5									
1653.00	-17.4	V	3.0	37.0	1.0	-53.4	-13.0	-40.4	
2479.50	-22.1	V	3.0	36.4	1.0	-57.5	-13.0	-44.5	
3306.00	-19.6	V	3.0	36.1	1.0	-54.8	-13.0	-41.8	
1653.00	-10.3	H	3.0	37.0	1.0	-46.3	-13.0	-33.3	
2479.50	-20.7	H	3.0	36.4	1.0	-56.1	-13.0	-43.1	
3306.00	-20.3	H	3.0	36.1	1.0	-55.5	-13.0	-42.5	
Mid Ch, 836.5									
1673.00	-17.7	V	3.0	37.0	1.0	-53.7	-13.0	-40.7	
2509.50	-21.2	V	3.0	36.4	1.0	-56.6	-13.0	-43.6	
3346.00	-19.9	V	3.0	36.1	1.0	-55.0	-13.0	-42.0	
1673.00	-14.2	H	3.0	37.0	1.0	-50.2	-13.0	-37.2	
2509.50	-23.4	H	3.0	36.4	1.0	-58.8	-13.0	-45.8	
3346.00	-19.7	H	3.0	36.1	1.0	-54.8	-13.0	-41.8	
High Ch, 846.5									
1693.00	-13.3	V	3.0	37.0	1.0	-49.2	-13.0	-36.2	
2539.50	-21.5	V	3.0	36.4	1.0	-56.9	-13.0	-43.9	
3386.00	-19.5	V	3.0	36.1	1.0	-54.5	-13.0	-41.5	
1693.00	-9.9	H	3.0	37.0	1.0	-45.8	-13.0	-32.8	
2539.50	-17.1	H	3.0	36.4	1.0	-52.5	-13.0	-39.5	
3386.00	-19.8	H	3.0	36.1	1.0	-54.9	-13.0	-41.9	

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 15I21858
Date: 10/1/2015
Test Engineer: O. Stoelting
Configuration: EUT + AC Charger + HS
Location: Chamber B
Mode: LTE_16QAM Band 5 Harmonics, 3MHz Bandwidth

Band
LTE5
3MHz
16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 825.5									
1651.00	-13.9	V	3.0	37.0	1.0	-49.9	-13.0	-36.9	
2476.50	-21.3	V	3.0	36.4	1.0	-56.8	-13.0	-43.8	
3302.00	-19.9	V	3.0	36.2	1.0	-55.1	-13.0	-42.1	
1651.00	-10.2	H	3.0	37.0	1.0	-46.2	-13.0	-33.2	
2476.50	-22.2	H	3.0	36.4	1.0	-57.6	-13.0	-44.6	
3302.00	-20.1	H	3.0	36.2	1.0	-55.3	-13.0	-42.3	
Mid Ch, 836.5									
1673.00	-17.3	V	3.0	37.0	1.0	-53.3	-13.0	-40.3	
2509.50	-17.6	V	3.0	36.4	1.0	-53.1	-13.0	-40.1	
3346.00	-20.2	V	3.0	36.1	1.0	-55.3	-13.0	-42.3	
1673.00	-12.9	H	3.0	37.0	1.0	-48.9	-13.0	-35.9	
2509.50	-21.7	H	3.0	36.4	1.0	-57.1	-13.0	-44.1	
3346.00	-19.9	H	3.0	36.1	1.0	-55.0	-13.0	-42.0	
High Ch, 847.5									
1695.00	-15.2	V	3.0	37.0	1.0	-51.2	-13.0	-38.2	
2542.50	-21.4	V	3.0	36.4	1.0	-56.8	-13.0	-43.8	
3390.00	-19.9	V	3.0	36.1	1.0	-55.0	-13.0	-42.0	
1695.00	-10.9	H	3.0	37.0	1.0	-46.9	-13.0	-33.9	
2542.50	-21.6	H	3.0	36.4	1.0	-57.1	-13.0	-44.1	
3390.00	-20.2	H	3.0	36.1	1.0	-55.3	-13.0	-42.3	

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 15I21858
Date: 10/1/2015
Test Engineer: O. Stoelting
Configuration: EUT + AC Charger + HS
Location: Chamber B
Mode: LTE_QPSK Band 5 Harmonics, 3MHz Bandwidth

Band LTE5 3MHz QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 825.5									
1651.00	-15.0	V	3.0	37.0	1.0	-51.0	-13.0	-38.0	
2476.50	-20.8	V	3.0	36.4	1.0	-56.2	-13.0	-43.2	
3302.00	-20.4	V	3.0	36.2	1.0	-55.6	-13.0	-42.6	
1651.00	-10.4	H	3.0	37.0	1.0	-46.4	-13.0	-33.4	
2476.50	-20.2	H	3.0	36.4	1.0	-55.7	-13.0	-42.7	
3302.00	-19.8	H	3.0	36.2	1.0	-55.0	-13.0	-42.0	
Mid Ch, 836.5									
1673.00	-17.2	V	3.0	37.0	1.0	-53.2	-13.0	-40.2	
2509.50	-21.6	V	3.0	36.4	1.0	-57.0	-13.0	-44.0	
3346.00	-20.0	V	3.0	36.1	1.0	-55.1	-13.0	-42.1	
1673.00	-12.9	H	3.0	37.0	1.0	-48.9	-13.0	-35.9	
2509.50	-16.6	H	3.0	36.4	1.0	-52.0	-13.0	-39.0	
3346.00	-20.0	H	3.0	36.1	1.0	-55.1	-13.0	-42.1	
High Ch, 847.5									
1695.00	-16.4	V	3.0	37.0	1.0	-52.3	-13.0	-39.3	
2542.50	-21.7	V	3.0	36.4	1.0	-57.1	-13.0	-44.1	
3390.00	-19.9	V	3.0	36.1	1.0	-55.0	-13.0	-42.0	
1695.00	-13.1	H	3.0	37.0	1.0	-49.1	-13.0	-36.1	
2542.50	-22.8	H	3.0	36.4	1.0	-58.2	-13.0	-45.2	
3390.00	-20.1	H	3.0	36.1	1.0	-55.2	-13.0	-42.2	

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: LIONS
Project #: 15I21858
Date: 10/1/2015
Test Engineer: O. Stoelting
Configuration: EUT + AC Adapter + HS
Location: Chamber B
Mode: LTE_16QAM Band 5 Harmonics, 1.4MHz Bandwidth

Band
LTE5
1.4MHz
16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 824.7									
1649.40	-24.3	V	3.0	37.0	1.0	-60.3	-13.0	-47.3	
2474.10	-22.0	V	3.0	36.4	1.0	-57.4	-13.0	-44.4	
3298.80	-19.8	V	3.0	36.2	1.0	-54.9	-13.0	-41.9	
1649.40	-10.3	H	3.0	37.0	1.0	-46.3	-13.0	-33.3	
2474.10	-24.2	H	3.0	36.4	1.0	-59.6	-13.0	-46.6	
3298.80	-18.9	H	3.0	36.2	1.0	-54.1	-13.0	-41.1	
Mid Ch, 836.5									
1673.00	-17.4	V	3.0	37.0	1.0	-53.4	-13.0	-40.4	
2509.50	-21.7	V	3.0	36.4	1.0	-57.1	-13.0	-44.1	
3346.00	-20.1	V	3.0	36.1	1.0	-55.2	-13.0	-42.2	
1673.00	-11.9	H	3.0	37.0	1.0	-47.9	-13.0	-34.9	
2509.50	-20.0	H	3.0	36.4	1.0	-55.5	-13.0	-42.5	
3346.00	-19.4	H	3.0	36.1	1.0	-54.6	-13.0	-41.6	
High Ch, 848.3									
1696.60	-16.1	V	3.0	37.0	1.0	-52.1	-13.0	-39.1	
2544.90	-21.9	V	3.0	36.4	1.0	-57.4	-13.0	-44.4	
3393.20	-19.3	V	3.0	36.1	1.0	-54.4	-13.0	-41.4	
1696.60	-13.6	H	3.0	37.0	1.0	-49.6	-13.0	-36.6	
2544.90	-19.3	H	3.0	36.4	1.0	-54.7	-13.0	-41.7	
3393.20	-19.9	H	3.0	36.1	1.0	-55.0	-13.0	-42.0	

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 15I21858
Date: 10/1/2015
Test Engineer: O. Stoelting
Configuration: EUT + AC Adapter + HS
Location: Chamber B
Mode: LTE_QPSK Band 5 Harmonics, 1.4MHz Bandwidth

Band
LTE5
1.4MHz
QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 824.7									
1649.40	-9.6	V	3.0	37.0	1.0	-45.6	-13.0	-32.6	
2474.10	-18.9	V	3.0	36.4	1.0	-54.3	-13.0	-41.3	
3298.80	-19.8	V	3.0	36.2	1.0	-55.0	-13.0	-42.0	
1649.40	-10.6	H	3.0	37.0	1.0	-46.7	-13.0	-33.7	
2474.10	-23.7	H	3.0	36.4	1.0	-59.1	-13.0	-46.1	
3298.80	-20.4	H	3.0	36.2	1.0	-55.5	-13.0	-42.5	
Mid Ch, 836.5									
1673.00	-18.9	V	3.0	37.0	1.0	-54.9	-13.0	-41.9	
2509.50	-21.2	V	3.0	36.4	1.0	-56.6	-13.0	-43.6	
3346.00	-19.7	V	3.0	36.1	1.0	-54.8	-13.0	-41.8	
1673.00	-12.2	H	3.0	37.0	1.0	-48.2	-13.0	-35.2	
2509.50	-19.8	H	3.0	36.4	1.0	-55.2	-13.0	-42.2	
3346.00	-19.3	H	3.0	36.1	1.0	-54.4	-13.0	-41.4	
High Ch, 848.3									
1696.60	-15.6	V	3.0	37.0	1.0	-51.6	-13.0	-38.6	
2544.90	-21.6	V	3.0	36.4	1.0	-57.0	-13.0	-44.0	
3393.20	-19.9	V	3.0	36.1	1.0	-55.0	-13.0	-42.0	
1696.60	-14.3	H	3.0	37.0	1.0	-50.3	-13.0	-37.3	
2544.90	-20.9	H	3.0	36.4	1.0	-56.3	-13.0	-43.3	
3393.20	-20.7	H	3.0	36.1	1.0	-55.8	-13.0	-42.8	

LTE Band 13

Band

LTE13

10MHz

16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company:	Samsung
Project #:	15I21858
Date:	10/29/2015
Test Engineer:	R.Alegre
Configuration:	EUT , AC Adapter, Headset
Location:	Chamber C
Mode:	LTE_16QAM Band 13 Harmonics, 10MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Mid Ch, 782									
1564.00	-28.6	V	3.0	37.1	1.0	-64.7	-13.0	-51.7	
2346.00	-24.6	V	3.0	36.5	1.0	-60.1	-13.0	-47.1	
3128.00	-22.2	V	3.0	36.3	1.0	-57.5	-13.0	-44.5	
1564.00	-28.6	H	3.0	37.1	1.0	-64.7	-13.0	-51.7	
2346.00	-25.5	H	3.0	36.5	1.0	-61.0	-13.0	-48.0	
3128.00	-22.6	H	3.0	36.3	1.0	-57.9	-13.0	-44.9	

Band

LTE13

10MHz

QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 15I21858
Date: 10/29/2015
Test Engineer: R.Alegre
Configuration: EUT , AC Adapter, Headset
Location: Chamber C
Mode: LTE_QPSK Band 13 Harmonics, 10MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Mid Ch, 782									
1564.00	-28.9	V	3.0	37.1	1.0	-65.0	-13.0	-52.0	
2346.00	-24.0	V	3.0	36.5	1.0	-59.5	-13.0	-46.5	
3128.00	-21.5	V	3.0	36.3	1.0	-56.8	-13.0	-43.8	
1564.00	-28.8	H	3.0	37.1	1.0	-65.0	-13.0	-52.0	
2346.00	-25.3	H	3.0	36.5	1.0	-60.8	-13.0	-47.8	
3128.00	-22.2	H	3.0	36.3	1.0	-57.5	-13.0	-44.5	

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 15I21858
Date: 10/29/2015
Test Engineer: R.Alegre
Configuration: EUT , AC Adapter, Headset
Location: Chamber C
Mode: LTE_16QAM Band 13 Harmonics, 5MHz Bandwidth

Band	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
LTE13	Low Ch, 779.5									
5MHz	1559.00	-28.5	V	3.0	37.1	1.0	-64.7	-13.0	-51.7	
16QAM	2338.50	-24.4	V	3.0	36.5	1.0	-59.9	-13.0	-46.9	
	3118.00	-21.8	V	3.0	36.3	1.0	-57.1	-13.0	-44.1	
	1559.00	-29.2	H	3.0	37.1	1.0	-65.4	-13.0	-52.4	
	2338.50	-24.6	H	3.0	36.5	1.0	-60.1	-13.0	-47.1	
	3118.00	-22.6	H	3.0	36.3	1.0	-57.9	-13.0	-44.9	
	Mid Ch, 782									
	1564.00	-27.7	V	3.0	37.1	1.0	-63.8	-13.0	-50.8	
	2346.00	-23.8	V	3.0	36.5	1.0	-59.3	-13.0	-46.3	
	3128.00	-22.2	V	3.0	36.3	1.0	-57.5	-13.0	-44.5	
	1564.00	-28.0	H	3.0	37.1	1.0	-64.1	-13.0	-51.1	
	2346.00	-25.8	H	3.0	36.5	1.0	-61.3	-13.0	-48.3	
	3128.00	-21.9	H	3.0	36.3	1.0	-57.2	-13.0	-44.2	
	High Ch, 784.5									
	1569.00	-28.8	V	3.0	37.1	1.0	-64.9	-13.0	-51.9	
	2353.50	-24.3	V	3.0	36.5	1.0	-59.8	-13.0	-46.8	
	3138.00	-21.9	V	3.0	36.3	1.0	-57.2	-13.0	-44.2	
	1569.00	-28.6	H	3.0	37.1	1.0	-64.7	-13.0	-51.7	
	2353.50	-24.6	H	3.0	36.5	1.0	-60.1	-13.0	-47.1	
	3138.00	-22.3	H	3.0	36.3	1.0	-57.5	-13.0	-44.5	

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 15I21858
Date: 10/29/2015
Test Engineer: R.Alegre
Configuration: EUT , AC Adapter, Headset
Location: Chamber C
Mode: LTE_QPSK Band 13 Harmonics, 5MHz Bandwidth

Band LTE13 5MHz QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 779.5									
1559.00	-27.4	V	3.0	37.1	1.0	-63.5	-13.0	-50.5	
2338.50	-23.5	V	3.0	36.5	1.0	-59.0	-13.0	-46.0	
3118.00	-21.6	V	3.0	36.3	1.0	-56.8	-13.0	-43.8	
1559.00	-29.1	H	3.0	37.1	1.0	-65.2	-13.0	-52.2	
2338.50	-25.0	H	3.0	36.5	1.0	-60.5	-13.0	-47.5	
3118.00	-21.8	H	3.0	36.3	1.0	-57.0	-13.0	-44.0	
Mid Ch, 782									
1564.00	-27.6	V	3.0	37.1	1.0	-63.7	-13.0	-50.7	
2346.00	-23.9	V	3.0	36.5	1.0	-59.4	-13.0	-46.4	
3128.00	-21.9	V	3.0	36.3	1.0	-57.2	-13.0	-44.2	
1564.00	-27.7	H	3.0	37.1	1.0	-63.9	-13.0	-50.9	
2346.00	-25.3	H	3.0	36.5	1.0	-60.8	-13.0	-47.8	
3128.00	-21.7	H	3.0	36.3	1.0	-57.0	-13.0	-44.0	
High Ch, 784.5									
1569.00	-28.3	V	3.0	37.1	1.0	-64.4	-13.0	-51.4	
2353.50	-24.4	V	3.0	36.5	1.0	-59.9	-13.0	-46.9	
3138.00	-21.4	V	3.0	36.3	1.0	-56.7	-13.0	-43.7	
1569.00	-28.8	H	3.0	37.1	1.0	-64.9	-13.0	-51.9	
2353.50	-24.5	H	3.0	36.5	1.0	-60.0	-13.0	-47.0	
3138.00	-22.1	H	3.0	36.3	1.0	-57.4	-13.0	-44.4	

LTE Band 17

Above 1GHz High Frequency Substitution Measurement
UL Verification Services, Inc.

Company:	Samsung
Project #:	15I21858
Date:	9/29/2015
Test Engineer:	Jude Semana
Configuration:	EUT + Charger + Headset
Location:	Chamber C
Mode:	LTE_16QAM Band 17 Harmonics, 10MHz Bandwidth

Band
LTE17
10MHz
16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 709									
1418.00	-24.4	V	3.0	37.4	1.0	-60.7	-13.0	-47.7	
2127.00	-19.3	V	3.0	36.6	1.0	-54.9	-13.0	-41.9	
2836.00	-17.0	V	3.0	36.4	1.0	-52.4	-13.0	-39.4	
1418.00	-22.9	H	3.0	37.4	1.0	-59.2	-13.0	-46.2	
2127.00	-20.4	H	3.0	36.6	1.0	-56.0	-13.0	-43.0	
2836.00	-18.0	H	3.0	36.4	1.0	-53.4	-13.0	-40.4	
Mid Ch, 710									
1420.00	-23.7	V	3.0	37.3	1.0	-60.0	-13.0	-47.0	
2130.00	-19.2	V	3.0	36.6	1.0	-54.8	-13.0	-41.8	
2840.00	-17.4	V	3.0	36.4	1.0	-52.7	-13.0	-39.7	
1420.00	-23.8	H	3.0	37.3	1.0	-60.1	-13.0	-47.1	
2130.00	-19.2	H	3.0	36.6	1.0	-54.7	-13.0	-41.7	
2840.00	-17.1	H	3.0	36.4	1.0	-52.5	-13.0	-39.5	
High Ch, 711									
1422.00	-24.1	V	3.0	37.3	1.0	-60.5	-13.0	-47.5	
2133.00	-18.9	V	3.0	36.6	1.0	-54.5	-13.0	-41.5	
2844.00	-18.0	V	3.0	36.4	1.0	-53.4	-13.0	-40.4	
1422.00	-19.4	H	3.0	37.3	1.0	-55.8	-13.0	-42.8	
2133.00	-20.2	H	3.0	36.6	1.0	-55.8	-13.0	-42.8	
2844.00	-17.8	H	3.0	36.4	1.0	-53.2	-13.0	-40.2	

Above 1GHz High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: Samsung
Project #: 15I21858
Date: 9/29/2015
Test Engineer: Jude Semana
Configuration: EUT + Charger + Headset
Location: Chamber C
Mode: LTE_QPSK Band 17 Harmonics, 10MHz Bandwidth

Band	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
LTE17	Low Ch, 709									
10MHz	1418.00	-24.1	V	3.0	37.4	1.0	-60.5	-13.0	-47.5	
QPSK	2127.00	-19.3	V	3.0	36.6	1.0	-54.9	-13.0	-41.9	
	2836.00	-17.4	V	3.0	36.4	1.0	-52.8	-13.0	-39.8	
	1418.00	-22.5	H	3.0	37.4	1.0	-58.8	-13.0	-45.8	
	2127.00	-19.4	H	3.0	36.6	1.0	-54.9	-13.0	-41.9	
	2836.00	-18.4	H	3.0	36.4	1.0	-53.8	-13.0	-40.8	
	Mid Ch, 710									
	1420.00	-23.6	V	3.0	37.3	1.0	-60.0	-13.0	-47.0	
	2130.00	-18.8	V	3.0	36.6	1.0	-54.4	-13.0	-41.4	
	2840.00	-17.5	V	3.0	36.4	1.0	-52.9	-13.0	-39.9	
	1420.00	-23.5	H	3.0	37.3	1.0	-59.8	-13.0	-46.8	
	2130.00	-20.1	H	3.0	36.6	1.0	-55.6	-13.0	-42.6	
	2840.00	-18.1	H	3.0	36.4	1.0	-53.5	-13.0	-40.5	
	High Ch, 711									
	1422.00	-23.9	V	3.0	37.3	1.0	-60.2	-13.0	-47.2	
	2133.00	-19.1	V	3.0	36.6	1.0	-54.7	-13.0	-41.7	
	2844.00	-17.9	V	3.0	36.4	1.0	-53.3	-13.0	-40.3	
	1422.00	-20.4	H	3.0	37.3	1.0	-56.8	-13.0	-43.8	
	2133.00	-15.1	H	3.0	36.6	1.0	-50.6	-13.0	-37.6	
	2844.00	-17.8	H	3.0	36.4	1.0	-53.2	-13.0	-40.2	

Above 1GHz High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: Samsung
Project #: 15I21858
Date: 9/29/2015
Test Engineer: Jude Semana
Configuration: EUT + Charger + Headset
Location: Chamber C
Mode: LTE_16QAM Band 17 Harmonics, 5MHz Bandwidth

Band
LTE17
5MHz
16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 706.5									
1413.00	-24.4	V	3.0	37.4	1.0	-60.8	-13.0	-47.8	
2119.50	-19.2	V	3.0	36.6	1.0	-54.8	-13.0	-41.8	
2826.00	-17.6	V	3.0	36.4	1.0	-53.0	-13.0	-40.0	
1413.00	-21.7	H	3.0	37.4	1.0	-58.1	-13.0	-45.1	
2119.50	-20.1	H	3.0	36.6	1.0	-55.7	-13.0	-42.7	
2826.00	-18.4	H	3.0	36.4	1.0	-53.8	-13.0	-40.8	
Mid Ch, 710									
1420.00	-24.0	V	3.0	37.3	1.0	-60.3	-13.0	-47.3	
2130.00	-18.9	V	3.0	36.6	1.0	-54.4	-13.0	-41.4	
2840.00	-17.3	V	3.0	36.4	1.0	-52.7	-13.0	-39.7	
1420.00	-22.1	H	3.0	37.3	1.0	-58.5	-13.0	-45.5	
2130.00	-19.7	H	3.0	36.6	1.0	-55.3	-13.0	-42.3	
2840.00	-18.5	H	3.0	36.4	1.0	-53.9	-13.0	-40.9	
High Ch, 713.5									
1427.00	-21.6	V	3.0	37.3	1.0	-57.9	-13.0	-44.9	
2140.50	-18.5	V	3.0	36.6	1.0	-54.0	-13.0	-41.0	
2854.00	-17.8	V	3.0	36.4	1.0	-53.2	-13.0	-40.2	
1427.00	-25.0	H	3.0	37.3	1.0	-61.3	-13.0	-48.3	
2140.50	-20.0	H	3.0	36.6	1.0	-55.5	-13.0	-42.5	
2854.00	-17.7	H	3.0	36.4	1.0	-53.1	-13.0	-40.1	

Above 1GHz High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: Samsung
Project #: 15I21858
Date: 9/29/2015
Test Engineer: Jude Semana
Configuration: EUT + Charger + Headset
Location: Chamber C
Mode: LTE_QPSK Band 17 Harmonics, 5MHz Bandwidth

Band	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, 706.5									
LTE17	1413.00	-24.3	V	3.0	37.4	1.0	-60.7	-13.0	-47.7	
	2119.50	-18.6	V	3.0	36.6	1.0	-54.2	-13.0	-41.2	
5MHz	2826.00	-17.4	V	3.0	36.4	1.0	-52.8	-13.0	-39.8	
	1413.00	-22.4	H	3.0	37.4	1.0	-58.8	-13.0	-45.8	
	2119.50	-19.8	H	3.0	36.6	1.0	-55.4	-13.0	-42.4	
QPSK	2826.00	-17.9	H	3.0	36.4	1.0	-53.3	-13.0	-40.3	
	Mid Ch, 710									
	1420.00	-23.9	V	3.0	37.3	1.0	-60.2	-13.0	-47.2	
	2130.00	-18.4	V	3.0	36.6	1.0	-54.0	-13.0	-41.0	
	2840.00	-17.5	V	3.0	36.4	1.0	-52.9	-13.0	-39.9	
	1420.00	-22.3	H	3.0	37.3	1.0	-58.6	-13.0	-45.6	
	2130.00	-19.6	H	3.0	36.6	1.0	-55.2	-13.0	-42.2	
	2840.00	-18.1	H	3.0	36.4	1.0	-53.5	-13.0	-40.5	
	High Ch, 713.5									
	1427.00	-21.5	V	3.0	37.3	1.0	-57.8	-13.0	-44.8	
	2140.50	-19.6	V	3.0	36.6	1.0	-55.1	-13.0	-42.1	
	2854.00	-17.7	V	3.0	36.4	1.0	-53.1	-13.0	-40.1	
	1427.00	-21.2	H	3.0	37.3	1.0	-57.5	-13.0	-44.5	
	2140.50	-20.0	H	3.0	36.6	1.0	-55.5	-13.0	-42.5	
	2854.00	-18.2	H	3.0	36.4	1.0	-53.6	-13.0	-40.6	

LTE Band 26

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 15I21858
Date: 9/29/2015
Test Engineer: Jude Semana
Configuration: EUT/ AC Charger/ Headset
Location: Chamber C
Mode: LTE_16QAM Band 26 Harmonics, 15MHz Bandwidth

Band
LTE26
15MHz
16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 831.5									
1663.00	-20.7	V	3.0	37.0	1.0	-56.7	-13.0	-43.7	
2494.50	-19.0	V	3.0	36.4	1.0	-54.4	-13.0	-41.4	
3326.00	-16.5	V	3.0	36.2	1.0	-51.7	-13.0	-38.7	
1663.00	-18.8	H	3.0	37.0	1.0	-54.8	-13.0	-41.8	
2494.50	-20.0	H	3.0	36.4	1.0	-55.5	-13.0	-42.5	
3326.00	-17.9	H	3.0	36.2	1.0	-53.1	-13.0	-40.1	
Mid Ch, 836.5									
1673.00	-23.7	V	3.0	37.0	1.0	-59.8	-13.0	-46.8	
2509.50	-20.0	V	3.0	36.4	1.0	-55.4	-13.0	-42.4	
3346.00	-17.7	V	3.0	36.1	1.0	-52.9	-13.0	-39.9	
1673.00	-23.9	H	3.0	37.0	1.0	-59.9	-13.0	-46.9	
2509.50	-22.8	H	3.0	36.4	1.0	-58.2	-13.0	-45.2	
3346.00	-18.2	H	3.0	36.1	1.0	-53.3	-13.0	-40.3	
High Ch, 841.5									
1683.00	-21.7	V	3.0	37.0	1.0	-57.7	-13.0	-44.7	
2524.50	-19.1	V	3.0	36.4	1.0	-54.5	-13.0	-41.5	
3366.00	-16.8	V	3.0	36.1	1.0	-51.9	-13.0	-38.9	
1683.00	-18.2	H	3.0	37.0	1.0	-54.2	-13.0	-41.2	
2524.50	-20.8	H	3.0	36.4	1.0	-56.2	-13.0	-43.2	
3366.00	-16.5	H	3.0	36.1	1.0	-51.6	-13.0	-38.6	

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 15I21858
Date: 9/29/2015
Test Engineer: Jude Semana
Configuration: EUT/ AC Charger/ Headset
Location: Chamber C
Mode: LTE_QPSK Band 26 Harmonics, 15MHz Bandwidth

Band	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
LTE26	Low Ch, 831.5									
15MHz	1663.00	-20.9	V	3.0	37.0	1.0	-56.9	-13.0	-43.9	
QPSK	2494.50	-18.0	V	3.0	36.4	1.0	-53.5	-13.0	-40.5	
	3326.00	-17.6	V	3.0	36.2	1.0	-52.8	-13.0	-39.8	
	1663.00	-18.5	H	3.0	37.0	1.0	-54.5	-13.0	-41.5	
	2494.50	-20.1	H	3.0	36.4	1.0	-55.5	-13.0	-42.5	
	3326.00	-17.7	H	3.0	36.2	1.0	-52.8	-13.0	-39.8	
	Mid Ch, 836.5									
	1673.00	-23.3	V	3.0	37.0	1.0	-59.3	-13.0	-46.3	
	2509.50	-20.2	V	3.0	36.4	1.0	-55.7	-13.0	-42.7	
	3346.00	-17.4	V	3.0	36.1	1.0	-52.6	-13.0	-39.6	
	1673.00	-24.0	H	3.0	37.0	1.0	-60.0	-13.0	-47.0	
	2509.50	-22.3	H	3.0	36.4	1.0	-57.7	-13.0	-44.7	
	3346.00	-17.8	H	3.0	36.1	1.0	-53.0	-13.0	-40.0	
	High Ch, 841.5									
	1683.00	-22.1	V	3.0	37.0	1.0	-58.1	-13.0	-45.1	
	2524.50	-19.1	V	3.0	36.4	1.0	-54.6	-13.0	-41.6	
	3366.00	-16.4	V	3.0	36.1	1.0	-51.5	-13.0	-38.5	
	1683.00	-18.5	H	3.0	37.0	1.0	-54.5	-13.0	-41.5	
	2524.50	-20.1	H	3.0	36.4	1.0	-55.6	-13.0	-42.6	
	3366.00	-16.3	H	3.0	36.1	1.0	-51.4	-13.0	-38.4	

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 15I21858
Date: 9/29/2015
Test Engineer: Jude Semana
Configuration: EUT/ AC Charger/ Headset
Location: Chamber C
Mode: LTE_16QAM Band 26 Harmonics, 10MHz Bandwidth

Band	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
LTE26	Low Ch, 819									
10MHz	1638.00	-22.1	V	3.0	37.0	1.0	-58.1	-13.0	-45.1	
16QAM	2457.00	-18.3	V	3.0	36.4	1.0	-53.8	-13.0	-40.8	
	3276.00	-16.1	V	3.0	36.2	1.0	-51.3	-13.0	-38.3	
	1638.00	-18.6	H	3.0	37.0	1.0	-54.6	-13.0	-41.6	
	2457.00	-19.6	H	3.0	36.4	1.0	-55.1	-13.0	-42.1	
	3276.00	-16.1	H	3.0	36.2	1.0	-51.3	-13.0	-38.3	
	Mid Ch, 831.5									
	1663.00	-21.4	V	3.0	37.0	1.0	-57.4	-13.0	-44.4	
	2494.50	-18.0	V	3.0	36.4	1.0	-53.4	-13.0	-40.4	
	3326.00	-17.2	V	3.0	36.1	1.0	-52.3	-13.0	-39.3	
	1663.00	-18.5	H	3.0	37.0	1.0	-54.6	-13.0	-41.6	
	2494.50	-20.7	H	3.0	36.4	1.0	-56.1	-13.0	-43.1	
	3326.00	-16.3	H	3.0	36.1	1.0	-51.4	-13.0	-38.4	
	High Ch, 844									
	1688.00	-21.2	V	3.0	37.0	1.0	-57.2	-13.0	-44.2	
	2532.00	-19.0	V	3.0	36.4	1.0	-54.5	-13.0	-41.5	
	3376.00	-16.3	V	3.0	36.1	1.0	-51.4	-13.0	-38.4	
	1688.00	-22.2	H	3.0	37.0	1.0	-58.2	-13.0	-45.2	
	2532.00	-19.3	H	3.0	36.4	1.0	-54.7	-13.0	-41.7	
	3376.00	-16.6	H	3.0	36.1	1.0	-51.7	-13.0	-38.7	

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 15I21858
Date: 9/29/2015
Test Engineer: Jude Semana
Configuration: EUT/ AC Charger/ Headset
Location: Chamber C
Mode: LTE_QPSK Band 26 Harmonics, 10MHz Bandwidth

Band	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
LTE26	Low Ch, 819									
10MHz	1638.00	-18.8	V	3.0	37.0	1.0	-54.8	-13.0	-41.8	
QPSK	2457.00	-18.6	V	3.0	36.4	1.0	-54.0	-13.0	-41.0	
	3276.00	-16.7	V	3.0	36.2	1.0	-51.9	-13.0	-38.9	
	1638.00	-22.0	H	3.0	37.0	1.0	-58.1	-13.0	-45.1	
	2457.00	-20.4	H	3.0	36.4	1.0	-55.8	-13.0	-42.8	
	3276.00	-16.1	H	3.0	36.2	1.0	-51.3	-13.0	-38.3	
	Mid Ch, 831.5									
	1663.00	-21.7	V	3.0	37.0	1.0	-57.7	-13.0	-44.7	
	2494.50	-18.4	V	3.0	36.4	1.0	-53.8	-13.0	-40.8	
	3326.00	-17.6	V	3.0	36.1	1.0	-52.7	-13.0	-39.7	
	1663.00	-19.2	H	3.0	37.0	1.0	-55.2	-13.0	-42.2	
	2494.50	-20.3	H	3.0	36.4	1.0	-55.8	-13.0	-42.8	
	3326.00	-17.9	H	3.0	36.1	1.0	-53.0	-13.0	-40.0	
	High Ch, 844									
	1688.00	-21.6	V	3.0	37.0	1.0	-57.6	-13.0	-44.6	
	2532.00	-16.0	V	3.0	36.4	1.0	-51.4	-13.0	-38.4	
	3376.00	-16.5	V	3.0	36.1	1.0	-51.6	-13.0	-38.6	
	1688.00	-18.7	H	3.0	37.0	1.0	-54.7	-13.0	-41.7	
	2532.00	-19.2	H	3.0	36.4	1.0	-54.6	-13.0	-41.6	
	3376.00	-16.8	H	3.0	36.1	1.0	-51.9	-13.0	-38.9	

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 15I21858
Date: 9/29/2015
Test Engineer: Jude Semana
Configuration: EUT/ AC Charger/ Headset
Location: Chamber C
Mode: LTE_16QAM Band 26 Harmonics, 5MHz Bandwidth

Band
LTE26
5MHz
16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 816.5									
1633.00	-19.4	V	3.0	37.0	1.0	-55.4	-13.0	-42.4	
2449.50	-18.2	V	3.0	36.4	1.0	-53.6	-13.0	-40.6	
3266.00	-16.5	V	3.0	36.2	1.0	-51.7	-13.0	-38.7	
1633.00	-17.3	H	3.0	37.0	1.0	-53.4	-13.0	-40.4	
2449.50	-20.4	H	3.0	36.4	1.0	-55.9	-13.0	-42.9	
3266.00	-17.1	H	3.0	36.2	1.0	-52.3	-13.0	-39.3	
Mid Ch, 831.5									
1663.00	-22.3	V	3.0	37.0	1.0	-58.3	-13.0	-45.3	
2494.50	-18.0	V	3.0	36.4	1.0	-53.4	-13.0	-40.4	
3326.00	-16.5	V	3.0	36.1	1.0	-51.7	-13.0	-38.7	
1663.00	-22.9	H	3.0	37.0	1.0	-58.9	-13.0	-45.9	
2494.50	-19.8	H	3.0	36.4	1.0	-55.2	-13.0	-42.2	
3326.00	-18.0	H	3.0	36.1	1.0	-53.1	-13.0	-40.1	
High Ch, 846.5									
1693.00	-20.1	V	3.0	37.0	1.0	-56.1	-13.0	-43.1	
2539.50	-18.9	V	3.0	36.4	1.0	-54.3	-13.0	-41.3	
3386.00	-17.3	V	3.0	36.1	1.0	-52.4	-13.0	-39.4	
1693.00	-17.2	H	3.0	37.0	1.0	-53.1	-13.0	-40.1	
2539.50	-20.4	H	3.0	36.4	1.0	-55.8	-13.0	-42.8	
3386.00	-16.9	H	3.0	36.1	1.0	-52.0	-13.0	-39.0	

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 15I21858
Date: 9/29/2015
Test Engineer: Jude Semana
Configuration: EUT/ AC Charger/ Headset
Location: Chamber C
Mode: LTE_QPSK Band 26 Harmonics, 5MHz Bandwidth

Band	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
LTE26	Low Ch, 816.5									
5MHz	1633.00	-19.5	V	3.0	37.0	1.0	-55.5	-13.0	-42.5	
QPSK	2449.50	-18.4	V	3.0	36.4	1.0	-53.9	-13.0	-40.9	
	3266.00	-16.8	V	3.0	36.2	1.0	-52.0	-13.0	-39.0	
	1633.00	-17.6	H	3.0	37.0	1.0	-53.7	-13.0	-40.7	
	2449.50	-20.2	H	3.0	36.4	1.0	-55.6	-13.0	-42.6	
	3266.00	-16.8	H	3.0	36.2	1.0	-52.0	-13.0	-39.0	
	Mid Ch, 831.5									
	1663.00	-22.6	V	3.0	37.0	1.0	-58.7	-13.0	-45.7	
	2494.50	-18.8	V	3.0	36.4	1.0	-54.2	-13.0	-41.2	
	3326.00	-17.6	V	3.0	36.1	1.0	-52.7	-13.0	-39.7	
	1663.00	-22.8	H	3.0	37.0	1.0	-58.8	-13.0	-45.8	
	2494.50	-19.7	H	3.0	36.4	1.0	-55.1	-13.0	-42.1	
	3326.00	-18.1	H	3.0	36.1	1.0	-53.2	-13.0	-40.2	
	High Ch, 846.5									
	1693.00	-18.7	V	3.0	37.0	1.0	-54.6	-13.0	-41.6	
	2539.50	-18.2	V	3.0	36.4	1.0	-53.6	-13.0	-40.6	
	3386.00	-17.0	V	3.0	36.1	1.0	-52.1	-13.0	-39.1	
	1693.00	-17.7	H	3.0	37.0	1.0	-53.6	-13.0	-40.6	
	2539.50	-20.0	H	3.0	36.4	1.0	-55.4	-13.0	-42.4	
	3386.00	-17.2	H	3.0	36.1	1.0	-52.3	-13.0	-39.3	

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 15I21858
Date: 10/29/2015
Test Engineer: R.Alegre
Configuration: EUT , AC Adapter, Headset
Location: Chamber C
Mode: LTE_16QAM Band 26 Harmonics, 3MHz Bandwidth

Band
LTE26
3MHz
16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 815.5									
1631.00	-25.9	V	3.0	37.0	1.0	-61.9	-13.0	-48.9	
2446.50	-24.0	V	3.0	36.4	1.0	-59.4	-13.0	-46.4	
3262.00	-21.7	V	3.0	36.2	1.0	-56.9	-13.0	-43.9	
1631.00	-28.2	H	3.0	37.0	1.0	-64.2	-13.0	-51.2	
2446.50	-25.4	H	3.0	36.4	1.0	-60.9	-13.0	-47.9	
3262.00	-21.5	H	3.0	36.2	1.0	-56.6	-13.0	-43.6	
Mid Ch, 831.5									
1663.00	-27.3	V	3.0	37.0	1.0	-63.3	-13.0	-50.3	
2494.50	-23.9	V	3.0	36.4	1.0	-59.3	-13.0	-46.3	
3326.00	-21.1	V	3.0	36.1	1.0	-56.3	-13.0	-43.3	
1663.00	-27.9	H	3.0	37.0	1.0	-63.9	-13.0	-50.9	
2494.50	-24.8	H	3.0	36.4	1.0	-60.2	-13.0	-47.2	
3326.00	-21.7	H	3.0	36.1	1.0	-56.8	-13.0	-43.8	
High Ch, 847.5									
1695.00	-28.2	V	3.0	37.0	1.0	-64.2	-13.0	-51.2	
2542.50	-23.6	V	3.0	36.4	1.0	-59.0	-13.0	-46.0	
3390.00	-21.3	V	3.0	36.1	1.0	-56.4	-13.0	-43.4	
1695.00	-28.6	H	3.0	37.0	1.0	-64.6	-13.0	-51.6	
2542.50	-24.2	H	3.0	36.4	1.0	-59.6	-13.0	-46.6	
3390.00	-20.9	H	3.0	36.1	1.0	-56.0	-13.0	-43.0	

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 15I21858
Date: 10/29/2015
Test Engineer: R.Alegre
Configuration: EUT , AC Adapter, Headset
Location: Chamber C
Mode: LTE_QPSK Band 26 Harmonics, 3MHz Bandwidth

Band
LTE26
3MHz
QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 815.5									
1631.00	-25.6	V	3.0	37.0	1.0	-61.7	-13.0	-48.7	
2446.50	-23.7	V	3.0	36.4	1.0	-59.2	-13.0	-46.2	
3262.00	-21.7	V	3.0	36.2	1.0	-56.9	-13.0	-43.9	
1631.00	-28.4	H	3.0	37.0	1.0	-64.5	-13.0	-51.5	
2446.50	-25.0	H	3.0	36.4	1.0	-60.5	-13.0	-47.5	
3262.00	-21.1	H	3.0	36.2	1.0	-56.3	-13.0	-43.3	
Mid Ch, 831.5									
1663.00	-27.2	V	3.0	37.0	1.0	-63.2	-13.0	-50.2	
2494.50	-23.5	V	3.0	36.4	1.0	-58.9	-13.0	-45.9	
3326.00	-21.3	V	3.0	36.1	1.0	-56.4	-13.0	-43.4	
1663.00	-27.9	H	3.0	37.0	1.0	-63.9	-13.0	-50.9	
2494.50	-24.5	H	3.0	36.4	1.0	-59.9	-13.0	-46.9	
3326.00	-21.7	H	3.0	36.1	1.0	-56.9	-13.0	-43.9	
High Ch, 847.5									
1695.00	-27.9	V	3.0	37.0	1.0	-63.9	-13.0	-50.9	
2542.50	-23.3	V	3.0	36.4	1.0	-58.7	-13.0	-45.7	
3390.00	-21.8	V	3.0	36.1	1.0	-56.9	-13.0	-43.9	
1695.00	-28.1	H	3.0	37.0	1.0	-64.0	-13.0	-51.0	
2542.50	-24.6	H	3.0	36.4	1.0	-60.0	-13.0	-47.0	
3390.00	-21.1	H	3.0	36.1	1.0	-56.2	-13.0	-43.2	

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 15I21858
Date: 10/29/2015
Test Engineer: R.Alegre
Configuration: EUT , AC Adapter, Headset
Location: Chamber C
Mode: LTE_16QAM Band 26 Harmonics, 1.4MHz Bandwidth

Band
LTE26
1.4MHz
16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 814.7									
1629.40	-25.3	V	3.0	37.1	1.0	-61.4	-13.0	-48.4	
2444.10	-15.9	V	3.0	36.4	1.0	-51.4	-13.0	-38.4	
3258.80	-21.4	V	3.0	36.2	1.0	-56.6	-13.0	-43.6	
1629.40	-28.5	H	3.0	37.1	1.0	-64.6	-13.0	-51.6	
2444.10	-23.4	H	3.0	36.4	1.0	-58.8	-13.0	-45.8	
3258.80	-22.0	H	3.0	36.2	1.0	-57.2	-13.0	-44.2	
Mid Ch, 831.5									
1663.00	-27.6	V	3.0	37.0	1.0	-63.6	-13.0	-50.6	
2494.50	-16.6	V	3.0	36.4	1.0	-52.0	-13.0	-39.0	
3326.00	-20.6	V	3.0	36.1	1.0	-55.7	-13.0	-42.7	
1663.00	-27.4	H	3.0	37.0	1.0	-63.4	-13.0	-50.4	
2494.50	-24.3	H	3.0	36.4	1.0	-59.7	-13.0	-46.7	
3326.00	-20.9	H	3.0	36.1	1.0	-56.0	-13.0	-43.0	
High Ch, 848.3									
1696.60	-27.9	V	3.0	37.0	1.0	-63.9	-13.0	-50.9	
2544.90	-22.0	V	3.0	36.4	1.0	-57.4	-13.0	-44.4	
3393.20	-21.6	V	3.0	36.1	1.0	-56.7	-13.0	-43.7	
1696.60	-28.8	H	3.0	37.0	1.0	-64.7	-13.0	-51.7	
2544.90	-18.6	H	3.0	36.4	1.0	-54.0	-13.0	-41.0	
3393.20	-20.8	H	3.0	36.1	1.0	-55.8	-13.0	-42.8	

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 15I21858
Date: 10/29/2015
Test Engineer: R.Alegre
Configuration: EUT , AC Adapter, Headset
Location: Chamber C
Mode: LTE_QPSK Band 26 Harmonics, 1.4MHz Bandwidth

Band	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
LTE26	Low Ch, 814.7									
1.4MHz	1629.40	-25.1	V	3.0	37.1	1.0	-61.1	-13.0	-48.1	
QPSK	2444.10	-15.4	V	3.0	36.4	1.0	-50.9	-13.0	-37.9	
	3258.80	-21.4	V	3.0	36.2	1.0	-56.6	-13.0	-43.6	
	1629.40	-28.8	H	3.0	37.1	1.0	-64.8	-13.0	-51.8	
	2444.10	-23.2	H	3.0	36.4	1.0	-58.7	-13.0	-45.7	
	3258.80	-21.8	H	3.0	36.2	1.0	-57.0	-13.0	-44.0	
	Mid Ch, 831.5									
	1663.00	-27.5	V	3.0	37.0	1.0	-63.5	-13.0	-50.5	
	2494.50	-15.4	V	3.0	36.4	1.0	-50.8	-13.0	-37.8	
	3326.00	-20.9	V	3.0	36.1	1.0	-56.0	-13.0	-43.0	
	1663.00	-27.8	H	3.0	37.0	1.0	-63.8	-13.0	-50.8	
	2494.50	-23.9	H	3.0	36.4	1.0	-59.4	-13.0	-46.4	
	3326.00	-21.1	H	3.0	36.1	1.0	-56.2	-13.0	-43.2	
	High Ch, 848.3									
	1696.60	-27.4	V	3.0	37.0	1.0	-63.4	-13.0	-50.4	
	2544.90	-21.7	V	3.0	36.4	1.0	-57.1	-13.0	-44.1	
	3393.20	-21.5	V	3.0	36.1	1.0	-56.6	-13.0	-43.6	
	1696.60	-28.2	H	3.0	37.0	1.0	-64.2	-13.0	-51.2	
	2544.90	-17.9	H	3.0	36.4	1.0	-53.3	-13.0	-40.3	
	3393.20	-20.8	H	3.0	36.1	1.0	-55.9	-13.0	-42.9	

LTE Band 41

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 15I21858
Date: 10/2/2015
Test Engineer: Jude Semana / Justin Ko
Configuration: EUT , AC Adapter, Headset
Location: Chamber C
Mode: LTE_16QAM Band 41 Harmonics, 20MHz Bandwidth

Band
LTE41
20MHz
16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2506									
5012.00	-11.8	V	3.0	35.5	1.0	-46.3	-25.0	-21.3	
7518.00	-9.3	V	3.0	35.7	1.0	-44.0	-25.0	-19.0	
10024.00	-7.8	V	3.0	36.0	1.0	-42.8	-25.0	-17.8	
5012.00	-12.3	H	3.0	35.5	1.0	-46.7	-25.0	-21.7	
7518.00	-5.8	H	3.0	35.7	1.0	-40.5	-25.0	-15.5	
10024.00	-7.4	H	3.0	36.0	1.0	-42.4	-25.0	-17.4	
Mid Ch, 2593									
5186.00	-13.4	V	3.0	35.4	1.0	-47.8	-25.0	-22.8	
7779.00	-7.1	V	3.0	35.8	1.0	-41.9	-25.0	-16.9	
10372.00	-7.8	V	3.0	35.8	1.0	-42.7	-25.0	-17.7	
5186.00	-13.0	H	3.0	35.4	1.0	-47.4	-25.0	-22.4	
7779.00	-8.0	H	3.0	35.8	1.0	-42.8	-25.0	-17.8	
10372.00	-5.5	H	3.0	35.8	1.0	-40.4	-25.0	-15.4	
High Ch, 2680									
5360.00	-14.0	V	3.0	35.4	1.0	-48.4	-25.0	-23.4	
8040.00	-10.9	V	3.0	35.8	1.0	-45.7	-25.0	-20.7	
10720.00	-9.3	V	3.0	35.7	1.0	-44.0	-25.0	-19.0	
5360.00	-13.9	H	3.0	35.4	1.0	-48.3	-25.0	-23.3	
8040.00	-8.8	H	3.0	35.8	1.0	-43.6	-25.0	-18.6	
10720.00	-9.2	H	3.0	35.7	1.0	-43.9	-25.0	-18.9	

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 15I21858
Date: 10/2/2015
Test Engineer: Jude Semana / Justin Ko
Configuration: EUT , AC Adapter, Headset
Location: Chamber C
Mode: LTE_QPSK Band 41 Harmonics, 20MHz Bandwidth

Band
LTE41
20MHz
QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2506									
5012.00	-12.3	V	3.0	35.5	1.0	-46.8	-25.0	-21.8	
7518.00	-8.2	V	3.0	35.7	1.0	-42.9	-25.0	-17.9	
10024.00	-7.2	V	3.0	36.0	1.0	-42.2	-25.0	-17.2	
5012.00	-12.0	H	3.0	35.5	1.0	-46.4	-25.0	-21.4	
7518.00	-7.1	H	3.0	35.7	1.0	-41.9	-25.0	-16.9	
10024.00	-7.5	H	3.0	36.0	1.0	-42.5	-25.0	-17.5	
Mid Ch, 2593									
5186.00	-13.5	V	3.0	35.4	1.0	-47.9	-25.0	-22.9	
7779.00	-6.8	V	3.0	35.8	1.0	-41.5	-25.0	-16.5	
10372.00	-7.7	V	3.0	35.8	1.0	-42.5	-25.0	-17.5	
5186.00	-12.8	H	3.0	35.4	1.0	-47.2	-25.0	-22.2	
7779.00	-7.6	H	3.0	35.8	1.0	-42.4	-25.0	-17.4	
10372.00	-6.4	H	3.0	35.8	1.0	-41.3	-25.0	-16.3	
High Ch, 2680									
5360.00	-13.9	V	3.0	35.4	1.0	-48.4	-25.0	-23.4	
8040.00	-9.2	V	3.0	35.8	1.0	-44.0	-25.0	-19.0	
10720.00	-9.3	V	3.0	35.7	1.0	-44.0	-25.0	-19.0	
5360.00	-13.0	H	3.0	35.4	1.0	-47.5	-25.0	-22.5	
8040.00	-9.4	H	3.0	35.8	1.0	-44.2	-25.0	-19.2	
10720.00	-9.5	H	3.0	35.7	1.0	-44.1	-25.0	-19.1	

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 15I21858
Date: 42285
Test Engineer: R.A
Configuration: EUT , AC Adapter, Headset
Location: Chamber C
Mode: LTE_16QAM Band 41 Harmonics, 15MHz Bandwidth

Band
LTE41
15MHz
16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2503.5									
5007.00	-20.0	V	3.0	35.5	1.0	-54.5	-25.0	-29.5	
7510.50	-13.3	V	3.0	35.7	1.0	-48.0	-25.0	-23.0	
10014.00	-13.0	V	3.0	36.0	1.0	-48.0	-25.0	-23.0	
5007.00	-19.1	H	3.0	35.5	1.0	-53.6	-25.0	-28.6	
7510.50	-10.9	H	3.0	35.7	1.0	-45.7	-25.0	-20.7	
10014.00	-9.6	H	3.0	36.0	1.0	-44.6	-25.0	-19.6	
Mid Ch, 2593									
5186.00	-15.9	V	3.0	35.4	1.0	-50.3	-25.0	-25.3	
7779.00	-9.8	V	3.0	35.8	1.0	-44.6	-25.0	-19.6	
10372.00	-9.7	V	3.0	35.8	1.0	-44.5	-25.0	-19.5	
5186.00	-14.5	H	3.0	35.4	1.0	-48.9	-25.0	-23.9	
7779.00	-8.9	H	3.0	35.8	1.0	-43.7	-25.0	-18.7	
10372.00	-7.2	H	3.0	35.8	1.0	-42.0	-25.0	-17.0	
High Ch, 2682.5									
5365.00	-14.8	V	3.0	35.4	1.0	-49.3	-25.0	-24.3	
8047.50	-11.0	V	3.0	35.8	1.0	-45.8	-25.0	-20.8	
10730.00	-8.7	V	3.0	35.7	1.0	-43.4	-25.0	-18.4	
5365.00	-14.0	H	3.0	35.4	1.0	-48.4	-25.0	-23.4	
8047.50	-10.0	H	3.0	35.8	1.0	-44.8	-25.0	-19.8	
10730.00	-8.5	H	3.0	35.7	1.0	-43.2	-25.0	-18.2	

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 15I21858
Date: 42285
Test Engineer: R.A
Configuration: EUT , AC Adapter, Headset
Location: Chamber C
Mode: LTE_QPSK Band 41 Harmonics, 15MHz Bandwidth

Band
LTE41
15MHz
QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2503.5									
5007.00	-19.0	V	3.0	35.5	1.0	-53.5	-25.0	-28.5	
7510.50	-13.4	V	3.0	35.7	1.0	-48.1	-25.0	-23.1	
10014.00	-13.1	V	3.0	36.0	1.0	-48.2	-25.0	-23.2	
5007.00	-18.7	H	3.0	35.5	1.0	-53.1	-25.0	-28.1	
7510.50	-11.0	H	3.0	35.7	1.0	-45.7	-25.0	-20.7	
10014.00	-9.6	H	3.0	36.0	1.0	-44.6	-25.0	-19.6	
Mid Ch, 2593									
5186.00	-15.8	V	3.0	35.4	1.0	-50.3	-25.0	-25.3	
7779.00	-9.5	V	3.0	35.8	1.0	-44.3	-25.0	-19.3	
10372.00	-9.6	V	3.0	35.8	1.0	-44.4	-25.0	-19.4	
5186.00	-14.3	H	3.0	35.4	1.0	-48.8	-25.0	-23.8	
7779.00	-8.6	H	3.0	35.8	1.0	-43.3	-25.0	-18.3	
10372.00	-7.5	H	3.0	35.8	1.0	-42.4	-25.0	-17.4	
High Ch, 2682.5									
5365.00	-14.8	V	3.0	35.4	1.0	-49.3	-25.0	-24.3	
8047.50	-10.9	V	3.0	35.8	1.0	-45.7	-25.0	-20.7	
10730.00	-8.4	V	3.0	35.7	1.0	-43.1	-25.0	-18.1	
5365.00	-13.1	H	3.0	35.4	1.0	-47.5	-25.0	-22.5	
8047.50	-9.9	H	3.0	35.8	1.0	-44.7	-25.0	-19.7	
10730.00	-8.6	H	3.0	35.7	1.0	-43.3	-25.0	-18.3	

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 15I21858
Date: 10/2/2015
Test Engineer: Jude Semana / Justin Ko
Configuration: EUT , AC Adapter, Headset
Location: Chamber C
Mode: LTE_16QAM Band 41 Harmonics, 10MHz Bandwidth

Band	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, 2501									
LTE41	5002.00	-20.1	V	3.0	35.5	1.0	-54.5	-25.0	-29.5	
	7503.00	-15.2	V	3.0	35.7	1.0	-50.0	-25.0	-25.0	
10MHz	10004.00	-16.4	V	3.0	36.0	1.0	-51.4	-25.0	-26.4	
	5002.00	-19.6	H	3.0	35.5	1.0	-54.1	-25.0	-29.1	
	7503.00	-11.0	H	3.0	35.7	1.0	-45.8	-25.0	-20.8	
16QAM	10004.00	-14.9	H	3.0	36.0	1.0	-49.9	-25.0	-24.9	
	Mid Ch, 2593									
	5186.00	-15.1	V	3.0	35.4	1.0	-49.5	-25.0	-24.5	
	7779.00	-9.3	V	3.0	35.8	1.0	-44.1	-25.0	-19.1	
	10372.00	-9.6	V	3.0	35.8	1.0	-44.5	-25.0	-19.5	
	5186.00	-14.4	H	3.0	35.4	1.0	-48.9	-25.0	-23.9	
	7779.00	-8.7	H	3.0	35.8	1.0	-43.5	-25.0	-18.5	
	10372.00	-7.2	H	3.0	35.8	1.0	-42.0	-25.0	-17.0	
	High Ch, 2685									
	5370.00	-14.1	V	3.0	35.4	1.0	-48.5	-25.0	-23.5	
	8055.00	-10.8	V	3.0	35.8	1.0	-45.6	-25.0	-20.6	
	10740.00	-8.9	V	3.0	35.7	1.0	-43.6	-25.0	-18.6	
	5370.00	-14.1	H	3.0	35.4	1.0	-48.5	-25.0	-23.5	
	8055.00	-9.8	H	3.0	35.8	1.0	-44.6	-25.0	-19.6	
	10740.00	-7.9	H	3.0	35.7	1.0	-42.6	-25.0	-17.6	

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 15I21858
Date: 10/2/2015
Test Engineer: Jude Semana / Justin Ko
Configuration: EUT , AC Adapter, Headset
Location: Chamber C
Mode: LTE_QPSK Band 41 Harmonics, 10MHz Bandwidth

Band	f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, 2501									
LTE41	5002.00	-18.9	V	3.0	35.5	1.0	-53.4	-25.0	-28.4	
	7503.00	-13.4	V	3.0	35.7	1.0	-48.1	-25.0	-23.1	
10MHz	10004.00	-16.6	V	3.0	36.0	1.0	-51.6	-25.0	-26.6	
	5002.00	-18.7	H	3.0	35.5	1.0	-53.1	-25.0	-28.1	
	7503.00	-10.9	H	3.0	35.7	1.0	-45.6	-25.0	-20.6	
QPSK	10004.00	-14.1	H	3.0	36.0	1.0	-49.1	-25.0	-24.1	
	Mid Ch, 2593									
	5186.00	-15.6	V	3.0	35.4	1.0	-50.1	-25.0	-25.1	
	7779.00	-9.2	V	3.0	35.8	1.0	-44.0	-25.0	-19.0	
	10372.00	-9.5	V	3.0	35.8	1.0	-44.4	-25.0	-19.4	
	5186.00	-14.4	H	3.0	35.4	1.0	-48.8	-25.0	-23.8	
	7779.00	-8.5	H	3.0	35.8	1.0	-43.3	-25.0	-18.3	
	10372.00	-7.5	H	3.0	35.8	1.0	-42.3	-25.0	-17.3	
	High Ch, 2685									
	5370.00	-14.8	V	3.0	35.4	1.0	-49.3	-25.0	-24.3	
	8055.00	-11.0	V	3.0	35.8	1.0	-45.8	-25.0	-20.8	
	10740.00	-8.2	V	3.0	35.7	1.0	-42.9	-25.0	-17.9	
	5370.00	-13.6	H	3.0	35.4	1.0	-48.1	-25.0	-23.1	
	8055.00	-9.9	H	3.0	35.8	1.0	-44.7	-25.0	-19.7	
	10740.00	-8.7	H	3.0	35.7	1.0	-43.4	-25.0	-18.4	

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 15I21858
Date: 10/8/2015
Test Engineer: R.A
Configuration: EUT , AC Adapter, Headset
Location: Chamber C
Mode: LTE_16QAM Band 41 Harmonics, 5MHz Bandwidth

Band
LTE41
5MHz
16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2498.5									
4997.00	-20.0	V	3.0	35.5	1.0	-54.5	-25.0	-29.5	
7495.50	-14.0	V	3.0	35.7	1.0	-48.8	-25.0	-23.8	
9994.00	-13.2	V	3.0	36.0	1.0	-48.2	-25.0	-23.2	
4997.00	-19.7	H	3.0	35.5	1.0	-54.2	-25.0	-29.2	
7495.50	-10.9	H	3.0	35.7	1.0	-45.6	-25.0	-20.6	
9994.00	-9.7	H	3.0	36.0	1.0	-44.7	-25.0	-19.7	
Mid Ch, 2593									
5186.00	-15.8	V	3.0	35.4	1.0	-50.2	-25.0	-25.2	
7779.00	-9.4	V	3.0	35.8	1.0	-44.1	-25.0	-19.1	
10372.00	-9.7	V	3.0	35.8	1.0	-44.5	-25.0	-19.5	
5186.00	-14.5	H	3.0	35.4	1.0	-48.9	-25.0	-23.9	
7779.00	-8.7	H	3.0	35.8	1.0	-43.5	-25.0	-18.5	
10372.00	-7.1	H	3.0	35.8	1.0	-41.9	-25.0	-16.9	
High Ch, 2687.5									
5375.00	-14.9	V	3.0	35.4	1.0	-49.4	-25.0	-24.4	
8062.50	-11.0	V	3.0	35.8	1.0	-45.8	-25.0	-20.8	
10750.00	-8.7	V	3.0	35.7	1.0	-43.3	-25.0	-18.3	
5375.00	-13.9	H	3.0	35.4	1.0	-48.3	-25.0	-23.3	
8062.50	-9.9	H	3.0	35.8	1.0	-44.7	-25.0	-19.7	
10750.00	-8.6	H	3.0	35.7	1.0	-43.2	-25.0	-18.2	

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 15I21858
Date: 10/8/2015
Test Engineer: R.A
Configuration: EUT , AC Adapter, Headset
Location: Chamber C
Mode: LTE_QPSK Band 41 Harmonics, 5MHz Bandwidth

Band
LTE41
5MHz
QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2498.5									
4997.00	-19.1	V	3.0	35.5	1.0	-53.5	-25.0	-28.5	
7495.50	-13.4	V	3.0	35.7	1.0	-48.2	-25.0	-23.2	
9994.00	-12.8	V	3.0	36.0	1.0	-47.8	-25.0	-22.8	
4997.00	-18.8	H	3.0	35.5	1.0	-53.2	-25.0	-28.2	
7495.50	-11.0	H	3.0	35.7	1.0	-45.7	-25.0	-20.7	
9994.00	-9.2	H	3.0	36.0	1.0	-44.2	-25.0	-19.2	
Mid Ch, 2593									
5186.00	-15.7	V	3.0	35.4	1.0	-50.1	-25.0	-25.1	
7779.00	-9.3	V	3.0	35.8	1.0	-44.0	-25.0	-19.0	
10372.00	-9.6	V	3.0	35.8	1.0	-44.4	-25.0	-19.4	
5186.00	-14.4	H	3.0	35.4	1.0	-48.8	-25.0	-23.8	
7779.00	-8.6	H	3.0	35.8	1.0	-43.4	-25.0	-18.4	
10372.00	-7.4	H	3.0	35.8	1.0	-42.3	-25.0	-17.3	
High Ch, 2687.5									
5375.00	-14.8	V	3.0	35.4	1.0	-49.2	-25.0	-24.2	
8062.50	-10.9	V	3.0	35.8	1.0	-45.7	-25.0	-20.7	
10750.00	-8.3	V	3.0	35.7	1.0	-43.0	-25.0	-18.0	
5375.00	-13.2	H	3.0	35.4	1.0	-47.7	-25.0	-22.7	
8062.50	-9.8	H	3.0	35.8	1.0	-44.6	-25.0	-19.6	
10750.00	-8.7	H	3.0	35.7	1.0	-43.4	-25.0	-18.4	